The foundation, planning and building of new towns in the 13th and 14th centuries in Europe: an architectural-historical research into urban form and its creation

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The Foundation, Planning and Building of New Towns in the 13th and 14th Centuries in Europe

An Architectural-historical Research into Urban Form and its Creation

Wim Boerefijn
THE FOUNDATION, PLANNING AND BUILDING
OF NEW TOWNS IN THE 13TH AND 14TH CENTURIES
IN EUROPE

An Architectural-historical Research
into Urban Form and its Creation

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BEKNOPTE SAMENVATTING
PREFACE

The urban environment is the physical and social habitat for almost half of mankind in the present day world. In ‘developed’ regions such as Europe even almost three quarters of the population live in towns and cities. This urban environment has strongly contributed to the shape of our personal and common identity, our culture, both in the past and in the present.

For instance, many important facets of our modern world are essentially urban in origin. This holds true for, among other things, the core family as social unit (instead of extended families or tribes), for the freedom of person and personal possession, for the freedom of trade and profession (and thereby for professional specialisation and the recognition of the importance of schooling), for market trade, money and democracy.

Conversely, the physical and social urban environment also expresses our common identity. And the forms of historic towns and cities also express the identity and aspirations of our ancestors, which is also important for our own identity, giving us a place in history. Generally speaking, the historic manmade landscape offers us a tangible idea of the long history of our culture and of our own position in history. This holds particularly true for the landscape with many historic buildings, in old villages, towns and cities. This built landscape offers us a strong suggestion of the connection with our ancestors that created (elements of) this landscape in the past, and it makes us more or less conscious of both cultural change and continuity in the course of the centuries. Therefore, the historic urban landscape, as it exists, has to be treated with care and respect. And therefore it also deserves to be studied, and if possible, explained. That is what this study is mainly about.

The greatest part of urban space in Europe has been created since the industrial revolution, which, depending on the region, generally took place in the late 18th to early 20th century. The general development of the strong urbanisation in this period is relatively well known to us. But many, or probably even most, of the towns and cities that presently exist have originally been created in the period of about the 12th to 14th centuries. In this period there was also a high degree of urbanisation, which is quite well-known as a general fact, but relatively little is known of what precisely happened.

Therefore, this study seeks to understand more of this period of strong urbanisation, and more precisely about the spatial or architectural aspects of this urbanisation. In particular, this study focuses on towns that were intentionally created from very humble beginnings within a relatively short period of time. It is a known fact that many towns were newly created in this way throughout Europe particularly in the 13th and 14th centuries, but very little is known of how this actually happened, and it appears that part of the ideas that people presently have concerning this subject, are largely erroneous. Therefore this dissertation is intended to shed more light on the subject of the creation of new towns in Europe in the 13th and 14th centuries, by analysing the towns and the relatively sparse written sources on the subject.

The study of the wilful creation of new towns in the past is particularly interesting because it is not just about shaping pieces of landscape, but also about creating societies that were meant to function in social and economic sense. There are various aspects which are of great interest, such as, among other things, the siting of the settlements, the distribution of the land, the creation of facilities for traffic and defence, aesthetics, and the political, social, economic and religious organisation.

The scholarly study of the subject of historic town planning was initiated in the later 19th and early 20th century, mainly by architects. It is no coincidence that town planning was becoming a professional discipline which was systematically dealt with in that same period. Planners sought inspiration and tried to learn from the past, but they also used their interpretations of the past to justify and give significance to their own ideas and methods. This is the reason that many of those interpretations, as published in articles and books, have some particular bias and that quite some of them are not very reliable as accounts of history.

Since the early 20th century the study of the subject has also been taken up by historians and geographers. But up to the very present many publications on historical urban planning are still written with the (tacit) intention to influence the present practice of town planning.

That certainly is not the aim of the this study; although I hope that spreading knowledge of the subject may help to increase respect for historic urban ensembles and be helpful in their conservation. The approach

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1 Slater 1987, p.191, referring to Tout 1917.
of this study has been architectural-historical from the outset. At first it was purely about historical town planning, but gradually my interest also came to include the historiography of town building history. What particularly aroused my attention was the position that was ascribed to the period of about the 12th to 15th centuries within the discourse of the history of urban creation in Europe. This specific interest was brought about by what I read in many publications on town building history and by the reactions that I received when I told acquaintances in general and fellow historians about my research. It appeared to me that most people (the public in general as well as many learned people in art history, history, architecture and geography) have ideas about ‘medieval towns’, ‘medieval town planning’ and ‘the middle ages’ in general, which do not match with the material I was studying. Hence, my attention shifted to the question of how this was possible. Part III of this dissertation (chapters 10 and 11) is largely the result of that. There I describe how largely erroneous ideas regarding ‘medieval town planning’ and history in general have come about, and I give some suggestions for an alternative approach which will provide a more objective understanding of the past.

It took me more than ten years to finish this dissertation. That is much longer than I initially planned. The reason for that is quite clear, in retrospect: the subject of this study is rather large. The original plan was to limit the geographical extent to central and northern Italy, and to focus particularly on the method of design of the newly founded towns there. The committee which was to decide over whether or not to grant me a scholarship from the Rijks Universiteit Leiden, however, advised me to widen the geographical scope, in order to get a better view on the international developments in town planning. I gratefully agreed, because that was what I thought too, and I still do. But I did not know then, that it would take me so much time to reach a result which I found agreeable. If I had known then what I know now, I would have done it differently, since it has cost me so much of my spare time. Nevertheless, I have generally enjoyed working on the project.

Reading guide

Since this book has become rather voluminous, I do not expect that every reader is going to read all of it. Therefore I would like to give some advice for whom what to read.

I would advise those readers with a general interest in the subject to read at least the introduction and chapter 9, which will give a good impression of the starting point of this study and the most important facets of the creation of new towns in the 13th and 14th centuries. For those who want to know more about some specific examples, grouped by regions and founders, chapters 1 to 3 may be of interest, and the readers interested in the position of town building in the 13th and 14th centuries within a wider temporal spectrum might want to read chapter 10. The rest of the chapters are more focused on specific aspects of the creation of towns in the period under consideration, or the way this subject has been approached in studies of the last two centuries or so. I believe the titles of the chapters clearly indicate the aspects concerned. The final section of the book (section 12) contains a short summary of the introduction and chapters 1 to 11. Reading this summary, may help to get a picture of what is treated where and what the most important conclusions are.

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I want to express my gratitude to all the people that have helped me in some way with my research and with creating a readable book. I am afraid I cannot mention everybody here by name, as some remained anonymous in the service of a library, archive or institute, or I do not remember their names.

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I am very much obliged to the people that helped me find the material I needed in the various libraries,
archives and offices, particularly the people working at the Nederlands Interuniversitair Kunsthistorisch Instituut in Florence. I want to thank Eric Barailhé, the late Maurice Beresford, Maurice Berthe, Jacques Bujard, Claude Calmettes, James Higgins, Cord Meckseper, the late Hans-Joachim Nitz and Terry Slater for providing me with relevant literature and for support. I am most grateful to those who have personally helped me with their ideas and comments, namely Charles van den Heuvel, Katinka Jesse, Keith Lilley and Reinout Rutte. I am indebted to Sanne Pinxteren, Louk Röell, Hildo van Engen, Jan van Nimwegen, Annika Rulkens, Arnold Wintjes, Harry Putiger, Inez Weyermans, and Christopher Crockett for helping me with translating texts from various languages and for editing my cryptic prose. Furthermore, I want to thank Rika Stork for providing me time, and Yves Vaillant and Fons van Loenhout for all the work they have put into designing this book.

And, of course, I also have to thank my friends and family for their support over the years and for enduring my stressed or absent behaviour. Some of you may not always have believed that I was actually going to get the job done. It seems, however, that my scholarly obstinacy has successfully suppressed my social intelligence. From now on, I will try to restore the balance between the two.
INTRODUCTION

This study deals with the creation of new towns in Europe in the 13th and 14th centuries. In the present introductory chapter it is described why this is a relevant historical subject, and why it is worthwhile to study this subject further than has been done so far by other scholars. Also, the objects and the layout of this study will be described, the general sources of information will be indicated, and some important general definitions will be formulated. But first, the general historical situation relevant for urbanisation in the period will be briefly depicted.

0.1 Cultural change in Europe in the 11th to 14th centuries

The structure of settlement in Europe, as it presently exists, was primarily created in the period from about the 11th to the 14th century. It was at that time that the European landscape changed dramatically when the land, which until then had been largely uncultivated, was brought under the plough. Vast areas of primeval woodland were cleared, fens and marshes were reclaimed, and new agricultural field-structures were laid out in their place. In the lands that were thus cultivated, new villages and towns were created and new roads were laid out to connect them. By this process, the structure of the European landscape gradually became more artificial, more ordered and more ‘detailed’. Along with this, a territorial hierarchy of settlements came about, which was to determine a considerable part of the economic, social, administrative and political structures in the centuries to follow.

The number of settlements that were newly created was especially high during the 13th and first half of the 14th century. It would be several centuries - until the industrial revolution - before the structure of settlement, and thereby the landscape, would again undergo such great alterations as were seen in this period. (figs. 0.1, 0.2)

But it was not just the geographical structure that changed so significantly in the 11th to 14th centuries. This development was only part of a greater process of change which thoroughly affected European culture into its most remote corners, and which would have a considerable influence on human life in that part of the world up to the present day. This process involved many elements. To name the most important: trade increased, was regulated, and money became its main medium of exchange; a fiscally organised taxation system was introduced; agricultural production grew and was increasingly intended for the market; settlement became more concentrated in villages, towns and cities; people gained increasing freedom, and political structures gradually became more stable and centralised. These aspects of (re-)structuralisation of an economical, geographical and political nature had their rational counterparts in, among other things, the canonisation of law, natural philosophy, and increasing literacy and quantification. All these elements, along with many others of less general importance, influenced one another and largely came about in a context of mutual stimulation. This complex of developments gradually transformed and (re-)structured society, the physical environment and the intellectual atmosphere throughout western, central, and southern Europe.

At the same time, this culture expanded: arable land cultivation, the international money-based economy of trade, and the concentration of settlement in villages and towns expanded into Scandinavia, the northern and western parts of the British Isles, eastern Europe and the Iberian peninsula. Many of these outlying areas were colonised under the pretext of spreading Christianity. With the intensification of the trade economy and the system of towns that was part of its infrastructure, contacts between different regions were intensified. Instead of nobles and clerics, civilians - especially traders, but also artists, schoolmen and administrators - came to play an ever bigger role in international European culture. Later on, this process moved on to other parts of the world, and certain aspects of it are still active at this very moment.

The clearest visible reflections of this complex of developments are the towns and cities that were created, which have proven to be very durable artefacts. Therefore, they serve as a rich source of information on the cultural history of Europe.

1 See for instance Dijksterhuis 1977, pp. 136-244; Crosby 1997.
The growing number, size and wealth of the towns and cities, and the competition between them, resulted in the creation of the greatest artistic monuments of the era. In the urban settlements great churches and cathedrals, massive town walls, impressive town halls, sumptuous guild halls and luxurious private houses were built. These grand monuments have been dealt with extensively in architectural historiography. Therefore, they are not what this study is about: it is about the town itself. The town is just as much a work of art as are its main architectural monuments, since it was conceived no less purposefully and its creation has not been less complicated, given the fact that there are more different aspects to it that have societal implications in one way or another.

0.1.1 New town foundation

It is a well-known fact that the period of about the 11th to the 14th century saw the flowering of urban culture in Europe. Actually, this was the second period of grand-scale urbanisation in Europe, after the period of classical antiquity. Following an intermediate period of strong regression of urban culture, many new towns ‘sprang up’, as it is often termed. In the Mediterranean region, especially in Italy, there were towns that had never completely ceased to function, and which revived again from the 11th century onward. Elsewhere in the former empire, the places where remnants of Roman towns had survived in some kind of form were more likely focal points for urbanisation than were the places without remnants of earlier urban settlements. But still, many towns were created in places that never had been settled by the Romans.3

The pre-conditions for this revival of urban settlement were population growth and a surplus of agricultural produce, which made it possible for people to specialise their activities in professions other than those concerned with the production of victuals. Although this specialisation in non-agricultural professions favours the nucleation of settlement, it does not automatically result in the creation of towns: the vast number of the many new towns - and this is too often disregarded - did not just appear like wild flowers in the field, but were deliberately planted. And in many cases they were not just planted as small seeds, but

rather as adolescent structures, being supplied with the necessary attributes needed to function healthily.

It is obvious to see from the number of town foundations, that especially from the 12th to the 14th century more and more landlords, great and small, lay as well as clerical, got convinced of the idea that the franchising of nucleated settlements could be an effective instrument for the expansion and consolidation of their power.\(^4\) Paradoxically, landlords could enlarge their power and income by granting special freedoms of economic, fiscal and juridical nature to their subjects. This enfranchisement could be granted to existing rural settlements; but often, and in increasing numbers, it also was granted to settlements that were newly created. Sometimes they were completely new creations, from tabula rasa one might say; but mostly the new towns were attached to some kind of existing settlement-core, like a hamlet, a monastery or a castle.

The procedure for the creation of towns seems to have gradually become more standardised. Obviously, the founding lords often made use of previous experiences that had demonstrated to be successful, until gradually a sort of 'concept' developed. By the second half of the 13th century or so, this resulted in considerable similarities in new town foundations in most parts of Latin-Christian Europe.\(^5\) It seems that by this time, the creation of towns had become a 'fashionable' political activity, which was considered profitable for the landlords as well as for the settlers, who eventually were to becomeburghers.

Many of the towns that had been newly founded in the 12th century became very successful cities in the 13th century. Examples from various countries are Cardiff, Newcastle upon Tyne, (Wyke upon) Hull,

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\(^4\) Towns were only very rarely founded by the inhabitants themselves. (see par.8.3.2) In other cases the people may have played a stimulating role. (see par.3.8.5, ch.5, n.65)

Montauban, Bilbao, ‘s-Hertogenbosch, Lübeck, Munich, Bern, Klagenfurt, and Alessandria. It seems likely that specifically such highly successful foundations inspired other lords to found new towns of their own. Most later foundations, however, did not become as successful as the earlier ones. It appears that the earlier towns were often founded on the best locations, which was a great advantage. The later ones suffered much more from competition, not only from the older ones, which usually were better equipped, but also from the many other towns that were founded in the same period. In general, one might say that it became more difficult for a town to become successful the later it was founded, particularly from about the middle of the 13th century onwards. By this time the urban system had generally become dense enough to function well. Hence, many of the later foundations failed in attracting sufficient economic activity to become successful. And from about 1300 on, it also became more difficult to attract settlers, as the population growth was diminishing. Eventually, many newly founded towns failed completely for lack of settlers or lack of economic development. Only in the parts of Europe where the process of urbanisation had started relatively late, like in The Netherlands, Greater and Lesser Poland, Prussia, Lithuania and Ukraine, was the period of town foundation still not at its end, or even still in its infancy, in the 14th century.

The fact that many towns were wilfully planned in the period of about the 11th to 14th centuries is not very well-known. In English and German speaking countries the subject of new town planning received growing scholarly interest during the 20th century, while in other countries it has only been aroused since about 1970. But, in general, ‘the renaissance’ is still taken as the period in which town planning was ‘re-invented’. Hence, the period of the 11th to 14th centuries is somewhat marginalised in the discourse on town building in history: it is often interpreted as a sort of interlude on the way to modernity, being part of ‘the middle ages’.

0.1.2 Conditions that made possible the revival of urban culture

As mentioned in the previous paragraph, the preconditions for the new ‘boom’ of urban culture were a growing production of foodstuff and an accretion of the population. The first was realised in agriculture by technical innovations in tools and techniques, which has often been called ‘the (second) agrarian revolution’, and by an enormous increase in the amount of arable land, partly thanks to the new techniques. Probably the growth in production was also made possible by a changing, more favourable, climate.

Among the crops, cereals formed an increasing part, as they became more appreciated as part of the general human diet. This process is called ‘cerealisation’. The new agriculture, together with the new diet that was its product, was more economic in a biological as well as a social sense and enabled an increase in the population.

From about the 11th to the 14th century, the growth of the European population was very pronounced, only to be equalled again in the period since the industrial revolution. Encouraged by the cessation of the Viking and Magyar raids and by an improving climate, people ventured widely to reclaim and colonise new lands and to found new villages and towns. This expansion and growth in produce stimulated population growth and vice versa. By 1300, about a quarter of the people lived in towns and cities in the most densely populated areas, Flanders and northern Italy. Venice and Milan were among the largest cities with about 180,000 inhabitants, while Florence had about 120,000. In the 14th century population growth was halted and converted into a general

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6 In Switzerland, for instance, about half of the founded towns failed. Of 197 cases, 20 have completely disappeared, 29 have been moved elsewhere and 46 have become no more than villages. (Gutser & Studer 2003, p.186) See also below n.33.


8 For instance in The Netherlands the amount of planning in town creation in the period is still much contested among scholars and it is almost completely unknown to the general public. (see for example: Steenh 1986, pp.140-141; Blockmans & Hoppenbrouwers 2002, p.270) It seems that this is partly due to the fact that many scholars believe that the initiative for the creation of towns largely lay with the people who lived on the site, instead of with a landlord. And with this, the idea of ‘organic growth’ appears to be preferred above central planning. (see, for instance, with regard to Beverwijk: Alders, Kruissche, Schweizer & Van Venetien 1998, pp.37-43-q6)

9 Pierotti 1983, p.104; Blair 2000, p.258. In the German speaking countries, though, the idea of the ‘newly planned town’ from the period of the 12th to 14th centuries has already been much contested in the second half of the 20th century. Particularly archaeologists, but also historians, have argued that the towns mostly developed from older settlements, and they often tended to give more attention to the previous settlements and the aspects of development rather than to the aspects of sudden change and planning. On this basis they argued that ‘newly planned towns’ or even ‘planned towns’ hardly existed. It is quite clear though, that this does not justice to the great changes that occurred in the system of settlement in the period under consideration. (Untermann 2004, pp.9-16)

10 Lilley 2004, p.309; see also pars.10.3.1, 11.3.

11 It should be noted, however, that the increase of food-production and population did not necessarily have to result in urbanisation. In the present case it was the acquaintance with urban culture, through the Roman heritage, and the presence of nodes in the form of religious, political, administrative and trading centres that stimulated urbanisation. (cf. Wheatley 1971, pp.208-410)

decrease caused by famines, ravages of war, a large scale economic crisis and, most of all, ‘the black death’.13

The ‘agricultural revolution’ had its counterpart in commerce and crafts, where developments took place that have been called a ‘commercial revolution’.14 Specialisation and the organisation of the division of labour, the growth of international trade and the accumulation of capital contributed to an enormous growth of the European economy.15 These developments were particularly centred on urban settlements, the centres of which, in turn, were the markets, where producers, traders and consumers came together. It was not only in an economic and social sense that the society became more and more focused on the market: in a spatial sense there was a similar development, because in a growing number of towns and cities life actually revolved around the market place.16

At the same time, there was a development towards mechanisation in industry, based on water- and wind-driven machinery, which also must have been of considerable importance for the growth of the economy. This mechanisation has even been called the ‘medieval industrial revolution’.17

What must have been one of the most important preconditions for urbanisation, though, was a certain degree of political stability. Without political stability, no significant organisation could take place, no reliable economic system could be formed, no safety for possessions or investment would be guaranteed, money would not be reliable as a medium of exchange, no supply of foodstuff would be guaranteed in urban centres, and privileges granted to communities or individuals could not be counted upon. In short: the ‘commercial revolution’ and, to a lesser degree, the ‘agricultural revolution’, could not have taken place without a certain amount of stability and safety guaranteed by supreme powers.

This stability was, of course, only relative. Compared to the situation in present-day Western society, or the Chinese empire in the past two millennia or so, the stability was rather limited. While in China a very large area had become a sort of natural core of the empire, which was mostly ruled by dynasties of emperors that lasted for many generations, in Europe there were many different and rather unstable authorities with small territories that often had no clearly fixed boundaries. Also, many privileges and possessions were not clearly laid down in regulations or documents, which caused much discord. Nevertheless, it was enough to give people, especially farmers, craftsmen, merchants and landlords, the confidence to engage in trade and production for the market, to invest capital, to found towns or to settle in them.

0.1.3 Inward and outward colonisation

The accretion of the population in southern, central and western Europe, as well as the strong economic growth and the technological progress, resulted in the expansion of the culture of this area. There was an inward expansion, or rather colonisation, through intensification of settlement and land use and through an intensification of the economy by the growth of the sectors of agricultural and non-agricultural produce, services and trade. But at the same time there also was an outward expansion, going in all directions: Wales, Ireland and Scotland (c. 11th-16th centuries), Scandinavia (c. 11th-17th), the Iberian peninsula (c. 10th-15th), the eastern Mediterranean, especially the ‘Holy Land’ (late 11th-late 13th), and central-eastern Europe (c. 10th-17th).

In this process, newly founded towns played a major role. Apart from the western colonisation on the British isles, the outward colonisation was largely inspired by, or masked under the idealist cover of, the mission of the Christian faith. In fact, between about 950 and 1350 the area which was officially under ‘Rome’ was doubled.18 But there is no doubt that the aspects of adventure, relative overpopulation, search for expansion of dominions and, probably most important, the innate need for economic expansion, also played significant roles as motives for this colonisation.

This outward colonisation did not necessarily take place by political and military aggression. Especially in central-eastern Europe and Scandinavia, many native rulers, after being converted to Christianity, actually welcomed the new economy and culture that was brought by new settlers from the west and south. These

13 Chant & Goodman 1999, p.141. Estimates of the European population and its growth vary considerably, as sources are scarce and hard to interpret. The most drastic numbers are 25 million around the year 800 and 100 million by 1200. (Chant & Goodman 1999, p.141) Other estimates are 45 million in the early 9th century and 86 million around 950 (Rounds 1990, p.121), respectively 38.5 million in 1000, 73.5 million around 1340, and 50 million around 1450. (Russell 1983, pp.13-43; Blockmans 1997, p.77)
14 Lopez 1976.
16 Lopez 1976, p.86.
17 Chant & Goodman 1999, p.139. This term was used, in 1962, by Lynn White Jr., who propounded the theory that the urban revival was largely caused by technological innovations such as those mentioned above.
rulers profited considerably from it, as their lands had been largely waste and the economy had been relatively extensive. Some of the lords in question were very active colonisers and town founders. King Přemysl Otakar II of Bohemia and Moravia (1253-1278), his right hand man, Bishop Bruno of Olomouc (1245-1281), and King Casimir III (‘the Great’) of Poland (1333-1370) are even among the greatest town founders and ‘regional developers’ of Europe in this period. For central-eastern Europe the process has long been regarded as a typically German colonisation (‘der Deutsche Ostkolonisation’), because of the spatial and temporal progress of development from the present western part of Germany in an eastward direction, which has often been falsely understood as evidence of the superioriety of German culture and ‘blood’. But in fact more or less the same process took place in other regions throughout Europe, not only those of outward colonisation, but also in more central areas such as Holland, Flanders and southwest France, as has been illustrated by Bartlett and Erlen.

Eventually, the expansion of Europe was halted in the southeast by the counter movement of the Ottoman empire from the 14th century on. But the losses on that front were to be more than compensated by the winning of the extra-European colonies and trading posts overseas from the 15th century on.

0.1.4 New settlements and new economy

As already indicated above, the founding of new towns was mostly linked, in some way, to economic developments. In eastern Europe, the Low Countries and France for instance, towns were often founded in connection to the reclamation and cultivation of land or to the intensification of its use. A town could serve as a place of residence for farmers, but it was also a centre of services and, most important, a place where one could buy and sell products. The fact that products could be sold there ensured the profitability of agricultural production, and thereby guaranteed the value of agricultural land.

An efficient system of markets was needed in order to be able to exploit the agricultural surplus profitably. It was customary that markets – just as well as towns - could only be founded by landlords with that prerogative. It was mostly forbidden to trade outside the established market place and market hours, so that lords could control trade and easily levy the market tolls and rents for stalls. With the growing importance of the money-based trade-economy, more and more weekly markets were founded, by which means a trade network was created that became ever more densely woven. In the 14th century the longest distance from home to market would generally have become about 8-20 km., so that the inhabitants of the countryside would not have to travel too far in order to bring their produce to market and, conversely, markets would not harm each other too much in mutual competition. Sometimes when a new market town was founded, existing markets in the vicinity would be closed down in order to stimulate the new town.

Eventually, the growing agricultural surplus and the increasingly effective system of markets and transportation made it possible for ever more people to live in cities and for cities to become larger and larger.

In the process of colonisation of formerly waste or less intensively used land, villages were also newly created. In some cases there clearly was some sort of territorial planning in which towns and villages played a combined role. When Bishop Wichmann of Magdeburg founded the town of Jüterbog in the Mark Brandenburg in northeastern Germany, it was to become ‘the beginning and head of the province’, and the goal was ‘to open.

20 According to Quirin about 120 new towns were founded under Přemysl Ottokar II in the second half of the 13th century: a considerable part by himself, and the rest by others stimulated by his policies. (Quirin 1954, pp.41; see also Hoenisch 1956, pp.89-109; Kuthan 1996) Of King Casimir it was written that he had ‘[...] fand a country of wood and left a country of stone.’ He founded 42 towns and fortified many others. (Gurkina 1972, p.42; according to Kuhn 1977, p.58, however, he would have founded 65 new towns, by which count he would be the greatest town-founder of the period) On bishop Bruno of Olomouc, see Stoob 1997. Other great town founders in the second half of the 13th century were King Edward I of England, (see ch.x.2 and 3), counts Raymond VII and Alphonse de Poitiers of Toulouse, and the French royal séneschal Eustache de Beaumarchais (see ch.3). Particularly in the 14th century the Teutonic order was the greatest settlement founder, with 93 towns and about 1,400 villages in Prussia. (Erlen 1992, p.4)
21 This was also an important idea in Nazi ideology. But even after World War II this idea remained popular until about the 1970’s. (Schlesinger 1975, pp.11-31; Erlen 1992, p.1) The influential historian Walter Kuhn, for instance, did not miss an opportunity to use the adjective ‘deutsche’ when writing of colonisation, reclamation, order, trade, law and city foundation in eastern Europe. He even continued to use the term ‘deutsche Lebensraum’, which had become badly contaminated by Nazi ideology. (see Kuhn 1955).
22 Bartlett 1993, pp.107-190; Erlen 1993, pp.1-9, 289. For the historiography of the colonisation of eastern and central Europe, see Schlesinger 1975 and Piskorski 2002. See also par.10.3.1.
23 Fox 1973, pp.69-70; Katzinger 1978, p.93; Bond 1990; see par.5.1.4.
24 This was the case, for instance, with the town of Greifenhagen, which was founded in Pomerania in 1245. Three older settlements were deprived of their market rights in order to promote the new market and the town in which it was held. (Kuhn 1985, p.372)
25 See par.10.2.1-1; Roberts 1973; Roberts 1987; Chaputet & Fossier 1985; Barends 1988.
build a province’, according to the foundation document. Especially in the principalities east of the river Elbe, large areas were colonised systematically, with clearing and reclamation of land, foundation of towns and villages, castles and monasteries, and building of roads going hand in hand. In this context it is important to be aware of the fact that from about the 6th until the 15th century there was a tendency towards the concentration of rural settlement all over Europe. Dispersed settlement, partly still based on the Roman villa or on clan structures, was slowly replaced by concentrated settlement in agricultural villages that were mostly based on the territorial organisation of the manor or the parish. This process seems to have been related to the ‘feudalisation’ of Europe from the Carolingian period onwards, by which the land was divided into baronial territories and manors.

The process of settlement concentration can be observed in the foundation of new towns of a mainly agricultural character in southwest France, which will be described in chapter 2. There and elsewhere, it is sometimes hard to make a clear distinction between newly founded towns and newly founded villages.

Thus, the foundation of new towns in the period under consideration was part of a larger development of a new culture based on a monetarised trade economy and concentrated settlement, which expanded inward as well as outward, and which must be seen against the background of a rapidly growing population. This process resulted in great mutations that affected the landscape as much as society. It led to relatively important changes between the 10th and 15th centuries, but must not be seen as an isolated, specifically ‘medieval’, phenomenon. It was part of the development of ‘culture’, meaning the increase of the influence of man over nature that has proceeded from the Stone Age up to this very moment. The most clearly visible aspect of this development of ‘culture’ is the artificial ordering of the surface of the earth, and a small facet of this spatial ordering was the creation of new towns in the 13th and 14th centuries.

### 0.1.5 End of the high-period of town foundation

As already mentioned above, the number of towns that were being founded decreased strongly in the 14th century. In that century the economy stagnated and the population stopped growing as fast as it had previously in western, central and southern Europe. By the middle of the 14th century, the total European population even decreased by about one fifth to one third, due to famines that were the result of bad harvests, and especially due to the ‘black death’. Between 1347 and 1351 a bubonic plague, known as ‘the black death’ or ‘the great plague’, spread from the Crimea over Europe. Even for the earlier period, when the population and the economy were still growing, it is hardly surprising, with so many new foundations of towns and villages in such a short time, that many of these new creations were not very successful, and some even failed completely. It is only natural that, after things had changed for the worse in the first half of the 14th century, a much higher number of the new foundations failed due to lack of settlers and economic potential. Only in the parts of Europe where the process of urbanisation had started relatively late, was it still to go on for one or two more centuries. On the whole though, there was a deep depression around the middle of the 14th century, which marked the end of the period of great urban expansion.

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26 *etam et caput provinciarum*; *ad eisdemandum provinciam* (Aubin 1966, p.473; Schleisinger 1978, pp.304-309)
27 Kuhn 1955, pp.77-79; Erlen 1992, pp.79, 107, 147-151, 250; Aubin 1966, pp.457-470; Kuhn 1975, pp.238-250. In such territorial development projects standard layouts were often used for structures of fields and villages, sometimes even with standard numbers of farms. (see for instance figs.10.10, 10.11) In the plan forms of such towns one can sometimes also recognise elements that seem to have been more or less standard in a certain region. (Kuhn 1973, p.249) See also the interesting case of territorial planning in the re-colonisation of the island of Mallorca in the early 14th century, described by Alomar (1976, pp.95-88).
29 Barcelo & Toubert 1986, pp.X-XIII; Roberts 1996, p.37. See also par.10.2.1.1. A specific early example is the so-called incastellamento in Latium; see Toubert 1973. On the formation of feudal organisation, see Blockmans 1997, pp.105-115.
30 Erlen 1992, p.40; Bradley 1985, p.420. See paras.0.3.1, 2.11.
31 See also Lilley 2002, pp.107-111.
33 Some new foundations were aborted in the planning stage (Giglio Fiorentino, see par.3.8.8) or were deserted not long after their foundation (Bere, see par.1.7.8). There are, of course, also quite a number of newly created towns that were (largely) abandoned after a longer period, say after a century or so, due to changing circumstances (New Winchelsea; see Beresford 1967, pp.14-28). In Switzerland, for instance, about half of the 197 towns that were founded in the previous centuries, are no longer towns: 20 disappeared completely, 46 are now villages, and 29 lived on as a small town or village on another site. This is particularly true for small towns founded in the 13th and 14th centuries which shrunk in the 14th and 15th centuries. (Flückiger 1984, pp.269-270, 279)
34 See par.0.1.3.
Most of the towns that were newly founded during the 12th to 14th centuries seem to have been moderately successful, remaining more or less of the same size as they were once planned until the great demographic and economic changes of the 19th and 20th centuries. The towns that grew into major urban centres within, say, two centuries, were mainly founded in the 12th century, or in the 13th century in central-eastern Europe.

Despite a newly expanding population and economy from about 1500 on, the number of towns that were newly founded remained relatively low in that period. Beresford even claimed, speaking of England and Wales, that ‘from 1320 there were four centuries that could almost be christened the un-urban centuries.’ Although few new towns were added to the urban network until the industrial revolution, urbanisation still went on, since ever more people came to live in urban settlements, especially in the larger cities. In the 19th and 20th centuries more new towns were founded or promoted; but still, the enormous growth of the urban population was primarily absorbed by the older towns and cities that experienced a tremendous expansion. Partly, these were the towns that had been newly founded in the period under consideration in this study.

In the following chapters I will generally refer to the period in which the majority of new town plantations occurred, roughly from the 12th to the middle of the 14th century, as the ‘high-period of town foundation’.

0.2 Objects, layout and sources of this study

0.2.1 Objects

In the past decades considerable research has been done on towns that were newly planned in the period of about the 11th to 14th centuries. But in comparison to town planning from the 15th century on, the subject is still relatively little studied. And even when new towns of the earlier period are examined, the research is mostly limited in scope to a single town, or sometimes a specific group of towns in a specific region, or the work of a specific founder. Only very rarely have larger groups of newly planned towns of a specific period or of specific countries been the subject of study. Therefore, the intention of this dissertation is to study the subject of new town planning in the broader perspective of the Latin-Christian part of Europe in general, in order to create an overview. The emphasis therein will be on the period of the second half of the 13th and first half of the 14th century, as will be explained below.

This research is qualitative and explorative in character. The main goal of this study is to reconstruct and describe the process of town creation from first conception to actual realisation, primarily in respect to the spatial layout of the project. As there are no clear sources that describe or illustrate this process well, it is necessary to reconstruct it from many different sources. Probably, the process was more or less different for every town; but by combining the material of different new town foundations in different regions of Europe, a description will be made of the creation process as it may generally have been. In the final section, this dissertation will also deal with the 19th- and 20th-century historiography of (new) town planning in the period under consideration, in order to explain why important results of my research do not agree with a number of traditional ideas and theories.
In order to be able to get a more vivid impression of the whole process of the creation of new towns in this period, three regions have been selected from which three groups of towns will be studied closely in part I of this dissertation (ch.1 to 4). The first region is northern Wales, where the focus will be on the towns that were founded by King Edward I of England in the late 13th century. Second is the region of Aquitaine in southwest France, where town creations from the 12th to the first half of the 14th century are studied, more specifically the towns which are known as bastides, that were founded from c.1230 to c.1350 by various lords of different ranks. Third, attention will be directed to the region around the city of Florence in Tuscany, where six towns founded by Florence between 1299 and 1350, known as terre nuove, will be examined closely. (fig.0.3)

These three regional groups of towns have not been chosen randomly, but are selected for their variety in geographical location within Europe, their variety in form and the variety of founding lords and their motivations. Further, this selection is also based, for the sake of the feasibility of the study, on the availability of relevant literature and sources.

The three groups of towns will be treated in slightly different ways. In the first chapter, the eleven Edwardian town foundations in northern Wales will be examined in detail. In the chapter on southwest France, the view will be much broader, observing the group of the bastides in general and marking their general similarities and differences. In the chapter on the Florentine terre nuove, the focus is on a much smaller region and a relatively small group of just six towns that were planted by the same founder. These differences in treatment have been inspired by both the available primary and secondary sources and by the wish to show different aspects that are relevant for a general view of the creation of new towns in Europe during the high-period of town foundation.

For instance, within the group of newly founded towns in Wales I chose to focus on the boroughs that were founded by King Edward I, since they illustrate so well the role of town foundations in the conquest and colonisation of the country. The material on the Florentine terre nuove, on the other hand, is so rich, and contains so much data concerning subjects on which one is rarely informed elsewhere, that I chose to focus on this limited group instead of treating more newly founded towns in Tuscany.

The chapter on Wales can be regarded as an introduction to the phenomenon of new town creation in the high-period of town foundation, the chapter on southwest France as a broadening of the subject, and the chapter on the terre nuove as a deepening of it. The three chapters follow a similar basic layout, starting with the geographical situation, the preceding history, the founders, their motives and the settlers, and ending with a discussion of the general spatial aspects such as the locations chosen, the urban layout and the architectural elements in the first period after the creation of the towns. Hence, the results of the study of these separate groups will, in part, be comparable and in part complementary.
This study is specifically concerned with the spatial layout of the newly founded towns and how it was created. Since this aspect cannot be isolated from the historical process and the environmental situation, one also has to consider the motives for the town foundations, the historical circumstances in which the towns were created and contemporary thought on the town as an architectural structure and a social and political unit. Further, one has to consider the planned functions of the towns, the influence of the form of the landscape, the methods of planning and laying out, the possible influence of specific examples, and the form of the buildings in general. All this will help to understand the original ideas, the realised structures, and the relation between them.

In part II of this study (ch.5 to 9) a number of important aspects of the planning of new towns in the high-period of town foundation will be studied from a thematic point of view, after which a synthesis will be given. The thematic aspects that are treated follow more or less specifically from the material studied in part I. The choice of sites for new towns will be investigated in chapter 5; the methods of plan design (specifically the use of geometry), will be closely studied in chapter 6; in chapter 7 the subject of the persons involved in the planning or design of the towns and their profession will be investigated; and chapter 8 will go into the subject of ideologies concerning the phenomenon of the town and its society at that time. Chapter 9 then, is synthetic in character, containing a reconstruction of the process of town creation as it would generally have taken place, and describing the various elements that usually formed part of the physical form of a new town.

For the study of these themes, the material treated in chapters 1 to 3, on the three clusters of towns, plays the main role, but will be used together with material from other newly created towns elsewhere. This is necessary in order to get a more inclusive general picture of the phenomenon of new town creation in the period, because there are valuable sources elsewhere that give information on aspects that are hardly or not at all covered by the sources regarding the three clusters of towns. Apart from that, one can get additional information about certain significant features and aspects, as they are highlighted by the comparison of different cases from different regions.

Finally, part III of this study (ch.10 and 11) deals with the way that town building of the 11th to 14th centuries has been treated in the historiography of urban creation in the past 150 years or so. More specifically, it deals with some particular problems with this historiography that have been encountered during the research. As in part II, material from different parts of Europe is treated in these chapters.

In chapter 10 the European new town foundations of the period are placed within a wider temporal and geographical perspective. And finally, chapter 11 goes into the traditional perception of the form and forma-
tion of the ‘medieval town’, the question why that perception does not correspond with the material treated in this study, and how this conflict might be solved.

0.2.3 Sources

The information on which this study is based stems from different kinds of sources. A very important source is the form of the towns; after all, the urban form is what this study is mainly about. Apart from the actual urban form as it presently is, depictions of town plans from the 16th to the 21st century and the structures found in archaeological excavations are also very important sources.

In principle, archaeological excavation is the best source of information on the initial phase of new settlements. But since only a very small part of the relevant areas have been excavated and closely investigated, the material from this source is unfortunately still rather limited. Archaeological excavations mostly only deal with small-scale urban areas, since large-scale urban excavation is very expensive. From younger gated, the material from this source is unfortunately still rather limited. Archaeological excavations mostly set in urban settlements. But since only a very small part of the relevant areas have been excavated and closely investigated, the material from this source is unfortunately still rather limited. Archaeological excavations mostly only deal with small-scale urban areas, since large-scale urban excavation is very expensive. From younger depictions or from the present form of towns it is harder to determine what the situation at the time of urban creation may have been. Obviously, urban structures are subject to change. Towns are extended, houses are rebuilt and enlarged, plots are divided and amalgamated, streets are widened, alleys are built-over, etcetera. Changes in the population, the size of households, the land market, land-use, building techniques and modes of transport have a considerable influence on urban form, not to mention disasters like wars, floods, fires and earthquakes. However, despite the many changes in the course of the centuries, it appears that ancient property boundaries and street patterns often survive for very long periods of time in the urban landscape. This may not apply to foundations that failed or to towns that were so successful that they became the centres of big cities, but most of the other towns that were moderately successful and that were not destroyed irreversibly - almost every town has had a major fire somewhere in its history - have conserved much of their original structure.

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The structure of streets is mostly well-preserved. More alterations have been made, generally, to the structure of the individual lots. But still, one finds a considerable amount of continuity there. The original buildings, however, are almost without exception replaced by others of a different form. It appears that the degree of urban durability is more or less in proportion to the number of people that are involved. So, a house is easily changed since it generally involves one owner and the few other people living in it; the amalgamation of plots concerns two or more owners and possibly some tenants, making it somewhat more difficult to accomplish and, thus, less common; but when the course of a street is changed, many properties and people are involved, which makes this phenomenon both quite complex and rare. Archaeological research has shown that urban plans tend to conserve much of their ancient structures, even in places where redevelopment demands have been high, such as in central London. This innate conservatism in town plans is so strong that even major fires or other grand-scale destruction often did not structurally change the framework of plots. The increase in the scale of building projects and the changes made to facilitate automobile traffic in the 20th century have generally been the most important destroyers of ancient urban structures.

Hence, urban structures can be very valuable sources in the attempt to understand the origin and development of towns and cities. They need to be interpreted correctly, however, in order not to confuse later changes with original elements. Methods to interpret historic urban structures have been described by various scholars since the second quarter of the 20th century, and are used throughout this study.

The second category of sources used in this study are contemporary written sources, such as administrative

47 Important excavations on a larger scale in newly founded urban settlements have been carried out in, among others, Southampton (Hamwih; Biddle 1976, pp.22-28), Haithabu (Biddle 1976, p.27; Lobbedey 1977, p.141) Lübeck (Lugent-Karau 1993, 1998; Felringer 1995; 1997; Gläser 2001; 2004; 2006, and Warszaw. Various excavations on a smaller scale have led to substantial knowledge of the early phases of newly founded towns like Sigtuna (Sweden, Tesch 2001), Malmo (Sweden, Reisert 2001), Großwallstadt (Germany, Schäfer 2001), Freyenstein (Germany, Schenk 2004), Heidelberg, Žďár nad Sázavou, Künzler (1993), Bern, Burgdorf (Switzerland, Baeriswyl 2003), and a number of other small towns in Switzerland, such as Le Landeron and Hermance (Bürgisser 1997; Bürgisser & Buesing 2001; Gießener & Büsiger 2005).


49 Adams 1978, p.33.


51 Slater 1990, p.70.

52 Therefore, particularly the first cadastral plans, generally of the 17th century, are very important sources for the study of the urban structures of the past. These plans mostly are quite accurate and generally they precede the period of modern reconstructions.

53 This could well happen, for instance, with structures that were regularised in past centuries after being devastated by disasters such as fires, floods or wars. Various such cases are known in former Prussia (Wältner 1966, pp.31-50) and another example, which is known by archaeological excavation, is the Kirchhöf-street in Burgdorf, Switzerland (Gutscher 1993, pp.137-143).

54 Methods for the analysis of town plans and historic urban structures are described by, among others: Kreyer 1958; Conzen 1960, 1968; Lilley 2001 (5), pp.9-15; Slater 1981 (1), (2).
tive documents and chronicles. As will become all too clear in the following chapters, such written sources giving explicit information about the subject of town planning from before the 15th century are very rare. Where they do exist, the earlier written sources often are quite hard to interpret and they do not give as clear a picture of the subject as those from later centuries often do.

The third important source of information for this study is the modern scholarly literature dealing with history, geography, architecture and archaeology. This literature, together with modern editions of historical written sources, is also the main intermediary from which the ancient written sources are consulted.

0.3 Definitions

0.3.1 Definition of the term ‘town’

The word ‘town’ is, vague as it may be, actually a very suitable term for the settlements under consideration in this study. A far as I know, there is no comparable term, denoting a type of settlement in between a village and a city, in any language other than English.55

For the clarity of the subject of this study it is, however, important to ask: what exactly is a town? Or rather, what is considered to have been a town in the period under consideration? The answer to this question depends on the approach. Traditionally, historians tend to base their definition on institutional features, since they mainly work with written sources, while architectural historians rather look at the architecture and the urban form. Archaeologists, in their turn, look at material culture in a wider sense, whereas geographers often take into closer consideration the elements of economic structure, the demography as well as the physical structure.

About the problem of defining ‘the medieval town’, there has been a long-lasting and wide-ranging discussion, which has, however, not lead to a generally accepted definition. In the course of 150 years or so, scholars of different disciplines have placed the emphasis on different elements in their definitions of the ‘medieval town’: the formation of a juridical sworn community, the grant of burghal rights; the grant of a written borough charter; the possession of a town seal or a mint; a certain amount of self-government; the presence of a market and of traders; the presence of specialised manufacture and services; the functioning as a central place for a hinterland; the presence of town walls or ‘urban architecture’; the number of inhabitants; the area of the settlement; and the presence of a social stratification of the community.56

As a clue to what was thought of as a town and what was not, the terminology found in the original sources - a multitude of terms ranging from villa and mercatus to urbs and civitas - is quite unreliable, since the terms do not appear to have been used consistently and varied from time to time and from region to region.57 Therefore, it is sensible to use a modern definition of the term ‘town’. A good definition is offered by Van Uytven regarding historic towns in the Low Countries: ‘The town is a settlement with central functions, to which it owes its diversified social-economic structure, its relatively dense population and concentration of buildings, and its form and mentality, which differ from that in the surrounding area.’58 An important aspect of the central functions and diversified social-economic structure is that there are relatively many people in a town earning (part of) their income with work other than in the sectors of agriculture and food production.59 Especially important for this study, being particularly concerned with urban form, is that the central function implies a central position in a transportation network of roads and often also waterways, and that the relatively dense population results in the concentration of buildings, and thereby in a pattern of plots and of access- and traffic-streets, whose density is significantly greater than that of the settlements in the surrounding area.

Since this study is particularly attentive to the planning of the spatial structure of newly founded settlements in the early phase of their existence, it will also deal with some relevant settlements that may have consisted of no more than about 20 burgage-plots or settlements where the inhabitants relied on agriculture elsewhere in the pre-modern world. (Chant & Goodman 1999, pp.156-158)

55 In Austria however, there was, and still is, a special status for settlements of limited size with market rights: Märkte (‘markets’). These settlements were clearly lower in the hierarchy of settlement than Städte (‘towns’), but it is not possible to draw a clear line of distinction. (Rausch 1978, pp.15-18; 65-75, 89) On the British Isles the term ‘borough’ is also used, clearly implying a specific judicial situation primarily involving burgage tenure with free possession and inheritance of urban plots, but generally applying to the same settlements as the word ‘town’. (Platt 1976 (1), pp.125-142; see also par.1.2)

56 See, for instance, Pierson 1956; Ennen 1973; Mumford 1961; Spöberg 1966, pp.13-18; Haase 1960, pp.3-8; Stoob 1970, pp.20-32; Platt 1976 (1), pp.125-142; Hall 1978, pp.31-34; Johanesen, Post, Steuer & Insinger 2004. It should be noted that it is the separate legal status which distinguished the towns of Europe from urban settlements elsewhere in the pre-modern world. (Chant & Goodman 1999, pp.156-158)


59 Compare the definition given by Roberts (1996, p.19).
for a large part of their income - Ackerbürgerstädte (‘field-burghers towns’) they are aptly called in German. Such settlements do not fit the definition given for the term ‘town’ very well, but from the aspect of their formal planning they are nonetheless relevant. Although the physical structure of the place is generally given most attention in this study - wherefore the most important aspect is that it considers an agglomeration of plots and buildings which is relatively dense in structure - it is also very important in the selection of settlements that their founders meant them to have an urban status, which would generally be most clearly expressed in the planned physical structures as well as in the privileges that were bestowed on the settlements.

The definition of the term ‘town’ given above is, thus, relative to its surroundings. Therefore, one must realise and accept that certain towns treated in the following chapters, such as those in Wales, would have been considered no more than villages in more urbanised regions, such as Lombardy. By present-day standards, the towns in the 13th and 14th centuries were generally very small: the great majority of them counted no more than 2,000 souls. There are many examples of newly founded towns with just two rows of house lots along both sides of one street, with a total number of, say, 50 lots. Others were, however, planned with high ambitions for considerable numbers of households. Manfredonia in southern Italy and Grenade-sur-Garonne in southwest France, for instance, are both reported to have been planned for 3,000 households, which would amount to about 15,000 people.

0.3.2 Definition of the term ‘new town’

In the past 150 years or so, the towns of the 11th to 14th centuries have often been presented as either grown from a small core or newly founded. This contrast, however, is much too rigid. Most towns were indeed newly founded at a certain moment, in a juridical sense, but, as already mentioned above, in many cases there already was a settlement, whether a castle, abbey, hamlet or village, present on the site. In some cases the previous hamlet or village was demolished to make room for the new foundation, while in others the older settlement was maintained and often enlarged with a new extension. In later phases, further new structures may have been added. (see figs.1.6, 1.41, 2.6, 2.44, 2.30, 5.3, 7.3, 9.5, 9.8, 9.15).

Structures that were not planned in one phase have often been called ‘grown’, ‘evolved’ or ‘developed’, and many times the adjective ‘organically’ was added. This idea of a town growing as if it were a biological organism is, however, misleading. A town does not just grow by itself: it is made by people, whether as a single planned project within a short period of time, or in different phases over a longer period of time. And when people create a town, wilfully or not, by building dwellings in a nucleated settlement, they follow rational thought rather than instinct, which implies planning. Such planning can be complicated, including all possible anticipated elements; or, alternatively, it may be no more than just simply adjusting a new building to its purpose and surroundings.

So, the formulations that one finds in the scholarly literature, with ‘organic towns’ that ‘grow’, often at ‘natural route foci’, should be rejected. As Aston and Bond argue, there are innumerable ‘route foci’ without a town, and in some cases even deliberate attempts to found towns on such sites have failed. It should be noted that the town is a type of settlement that only exists in societies that have achieved a certain level of sophistication. This attests that the town is a fairly complex structure, which is unlikely to develop spontaneously without a certain amount of deliberate creation, planning, promotion or support.
When one considers the architectural structures of old towns as they appear in the present, the term ‘newly founded town’ is often irrelevant. Since the original foundation, so many changes and additions may have been made that sometimes there barely is a difference between a town that was newly founded in origin, even when it was built from tabula rasa, and a town that acquired the characteristics of a town over a longer period of time. So, considering its layout in the present, a settlement that is known as a newly planned town from, say, the 13th century, may not actually be much different from a town that had a very different origin, as for instance a fishermen’s village from the 11th century, or a Roman military camp. Almost without exception, towns contain elements of planning, which may have been initiated by lords, institutions or governments. But since the focus in this study is not so much on the town as it has come to us, but on the original creation, primarily in a material but also in a social and institutional sense, the difference is definitely relevant. Some places reached urban status only over a long period of time, acquiring the different elements that belonged to this status one by one; while other towns were planned, starting from a very humble core settlement or only from an idea, to be realised within a limited period of time (although this would mostly have been, say, ten years rather than two months).

An important term that also needs to be explained is the word ‘planning’. Many newly planned towns have regular plan forms. But, as will become clear in the following chapters, not every newly planned town has a very regular plan. And conversely, not every regular structure is necessarily the result of coherent planning: for instance, structures may have been planned in different phases, with the forms of new phases based on the older structures.

In the practice of new town creation there are various aspects or elements that may be planned: among others, elements of judicial, social, economic, military and spatial character may have been planned and coordinated in advance. This study focuses on ‘spatial planning’, which I would like to define as ‘the coordination of spatial elements that are to be newly created’. This ‘spatial planning’ had to include many elements, like access routes, the allotment of private ground, the water drainage, the location and form of buildings, the defensive structures and facilities such as the market space and the provision of fresh water. Not all these elements were necessarily always planned in advance and their layout may not have been very deeply contemplated, since the basic approach often seems to have been rather pragmatic.

Since the spatial structure and its planning is the main subject of this study, towns that were destroyed and newly built up or that were moved to another place will also be given attention in the following chapters. The same goes for a number of coherently planned extensions to older towns, because they contain valuable information about the planning and the realisation of urban ensembles in the 13th and 14th centuries.

0.4 Historiography

0.4.1 Historiography and source material

The towns and cities of the 11th to 15th centuries have attracted much attention as a subject of historical study. In the 19th century, the study of the institution of ‘the medieval town’ was passionately taken up by historians, who often sought archetypal forms of the new 19th-century phenomenon of the bourgeois nation state. For example, communal upheavals and popular uprisings in towns of the 12th to 15th centuries were seen as prefigurations of the revolutions of the 18th and 19th centuries, which brought the burgher to a dominant role in politics in

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69 Aston and Bond 1976, p.78.
70 An interesting case in question is the town of Ludlow in England, since there has been much study and debate about whether, or in what measure, it may be regarded as a newly founded town. (Conzen 1968; Platt 1976 (1), pp.33-34; Slater 1990) Since the work of Conzen was published (1960; 1968; 1888), it seems that especially in Great Britain attention has become focused on discerning different plan units, laid out at different times, in plans of old towns. This is done by methodical plan analysis, especially by looking closely at the size of plots and their relation to one another. (Baker & Slater 1992; Lilley 1995; Lilley 1999)
71 According to the Swiss scholar Hans Strahm, the term ‘town foundation’ refers to planned settlement within a relatively short period of time. (Strahm 1950, p.404) But in a strict sense, the foundation (fundatio) of a town, according to Strahm, is the providing of an institution with land (fundus) and/or rights as a special privilege. (Strahm 1950, p.389)
72 Barends 1988, pp.179-180. It is also worthwhile to note that ‘planning’ does not necessarily imply guidance from a higher authority.
73 In fact, in some cases extensions were actually new towns in themselves, having a separate charter, a separate administration, their own defensive circuit and sometimes even having other lords or other social compositions. (Frolich 1955, pp.90-93; Butler 1976, p.46; Czacharowski 1990) Examples of such new towns with more or less independent status added to older ones (Neustädte in German) are the new towns of Prague in Czechia, Hildesheim in Germany, Thorn and Ellisag (fig.9.8) in Poland, Zutphen in the Netherlands, Newton Abbott/Newton Bushel in England, Denbigh in Wales and Massa Marittima in Tuscany.
The traditional historian’s approach towards ‘the medieval town’ is to see it mainly as an institution. This concentration on the institutional element was mainly due to the historian’s material: written sources. Particularly town charters received considerable attention. Additional material was found in other documents of legal, administrative or ecclesiastical character, which were for the greatest part strongly related to institutions. Besides that, narrative sources like chronicles and descriptive works like *laudates urbium* and geographies were studied. Thus, the attention of the traditional historian has primarily been concerned with the judicial, administrative, social and economic aspects of historic towns. With this fixation on written sources, however, a rather limited and even partly wrong image evolved of ‘the medieval town’.

One of the difficulties, for instance, is that there were settlements that received town charters, which were, in fact, no more than villages in a social, economic and physical sense. And conversely, there were many settlements that were urban in many respects, but that did not receive written town charters, or only did so when they had already achieved a really urban status. One problem with this issue is that the shift from oral custom to written law was slowly processing and written town charters only became habitual by about the 14th century.

Another problem is that written sources can be hard to interpret correctly; they may even contain purposely misleading information. For instance, a charter can state that a town is new, when it actually is not, in material sense. Sometimes it has been disregarded that new charters may have been given anew to older towns, for instance if dominion had passed into the hands of a different lord, or if a charter was granted only to a newly added part of an older town. Conversely, a written source may claim great antiquity, while the settlement was in fact much younger. For instance, many chroniclers who were in search of the origin of their town followed legend or even invented a foundation, preferably by an important saint, emperor, king or lord, often connecting the foundation to an important event known from history.

One must keep in mind that written sources are especially suited to adapt the depicted reality to the aspirations of the writer or his patron. However, material sources such as the urban landscape may be harder to interpret than written sources, because they are less likely to be dated by their creator and because most people are not trained in ‘reading’ material sources.

All in all, the result is that historians have traditionally viewed the towns and cities of about the 11th to 15th centuries as institutions, because the urban privileges - for the historian essentially those written down in a charter - made the settlement into an institution. The privileges also made the settlers into a community of burgesses, with special rights and often some form of self-government. This special juridical situation, being different from customary law, is what separated the town community from ‘the rest’. Therefore, historians often tend to see the town as a social phenomenon and an institution, rather than as a material phenomenon.

The historian’s fixation on town charters has led to various misinterpretations of the nature of ‘the medieval town’. For instance, the traditional historian’s approach has caused a general underestimation of the amount of planning involved in the origins of towns. Many historians tended to see ‘the medieval town’ as an organic body of people living in a concentrated settlement that has slowly come about, grown from a hamlet or a village into a town. For instance, Arthur Bryant wrote in 1953 that ‘[...] every English town, with the possible exception of London, has grown out of a village.’ He could have known better by then already, but more recent research has made it all too clear that this is quite untrue. Most of the towns from the 11th to 14th centuries did not simply ‘grow’ into towns; they were intentionally created, or at least promoted, by a lord who had plans of some kind for the development of the land he administered. It may be true that many such towns were founded in places with some sort of settlement already in situ, but that does not change the fact that the formation involved deliberate planning, in a social, economic, juridical, administrative, and mostly also spatial, sense.

Another major misinterpretation, also resulting from the traditional historian’s fixation on town char-
ters, has led to the image of 'the medieval town' as 'an island in the sea of feudality'. Mainly in the 19th century, historians created an image of 'the medieval town' as a free haven for merchants and for serfs that previously were cruelly suppressed by the feudal lords of the land. 'The medieval town' was often seen as a more or less autonomous and democratic community of traders and labourers that was opposed to the old feudal society. Many historians in the 19th century sought a precedent for the then new democratic bourgeois state in 'the medieval town'. Later on, Marxist historians also thought they could recognise a precedent for their communist ideal there. The reality, however, was generally very different. In fact, most of the towns were dominated by members of the old feudal ruling class, who used them as a new vehicle towards the old goal of exercising power. Most towns were founded by feudal lords, whether of high or low status, and formed an integral part of the world that was dominated by these lords. Also, many members of the nobility lived in towns and cities and owned large amounts of land there. In some towns this was reflected in the urban form, as when members of the nobility built residences and towers that dominated over the houses of the normal burghers, or where larger plots were reserved for the nobility. (see fig. 9.11)

Connected with the traditional view of 'the medieval town' as being principally anti-feudal, is the idea of a basic antithesis between town and country. It is true that with its special privileges, its distinct social structure and political organisation, and its spatial definition (often marked by a circuit of defences), the town clearly distinguished itself from its rural surroundings. The contrast, however, has been overemphasised in the traditional historiography. In fact, the town and the countryside existed in mutual interdependence: the urban settlement needed the country for the production of food and raw materials, and the country needed the town as a market and as a centre for the production of special commodities and services. In the old antithetical view the town was populated by free merchants and craftsmen, whereas the country was populated by farmers and agricultural labourers who were largely unfree. Although this may be true in a very broad sense, it is definitely not a general rule. Town residents could also be unfree, and many urban dwellers were engaged in growing agricultural products, within or without the confines of the town.

What most historians - art historians, historical geographers and archaeologists included - do, is try to find what they are looking for in history. For instance, liberal historians tended to see the community of traders as the origin of the institution of 'the medieval town', whereas Marxists regarded the artisan as the original element of the urban community. The consequence of this was that Marxist historians were more interested in material sources, since the lower classes are generally under-represented in the written sources. This is an example of how the kind of source material that we study may influence our general image of the historic town and vice versa. Therefore, historians, archaeologists, art historians and historical geographers might get very different impressions of the same town. Hence, they should always try to check their conclusions with those of their colleagues from other disciplines, and if there appear to be relevant differences, they must try to explain them.

In the following chapters I will also try to do this, but the main source for this study is the urban form itself. This dissertation primarily deals with the spatial aspect of the town foundations of the 13th and 14th centuries. Its main interest lies in the original landscape of the newly founded towns, and on how it came about and how it got its specific form. In this, thorough analysis of urban form, from the present town or by way of modern or old plans, generally is the best source of knowledge. The amount of planning and related questions are much easier read from the old urban layouts than from ancient documents, since these documents generally do not go into this subject. But apart from the fact that the material world of architecture

82 Graham 1988, p.38.
83 Heers 1990, pp.203-495. Skill adhering to the old image, for instance are: Egli 1962 (vol.2), p.11; Divonne 1993, pp.52-68; Lazzarosci 1994, p.16.
84 Heers 1990, p.203; Vercauteren 1986, p.16.
86 See par. 9.11.
87 With this distinction, however, the town was not cut off from its surroundings, but rather became its focal point, through which the region communicated with the wider world, and especially with other urban centres.
88 See Franchetti-Pardo 1982, pp.9-10.
90 Platt 1976 (1), p.15; Bittner & Meilner 1983, p.21; Kaspier 1999, pp.625-630; Heers 1990, p.203. It should also be noted, since the fact has often been omitted, that not only burgesses lived in towns: there also were other residents, free as well as unfree, wealthy as well as poor, and often from a different ethnicity, as for instance Jews. (Dollinger 1986, p.275; Pitz 1991, pp.295-300)
91 Vercauteren 1986, p.16.
deserves attention in itself - for material culture is as much a part of human life as is man’s mental life - the physical town can also serve as a source that contains information on ideology in the past. For instance, by studying the relative sizes of original house lots, one might be able to get information about contemporary thought on the social hierarchy within the town.93

0.4.2 Typological classification

From the literature on urban layout and urban planning in the period of about the 12th to 14th centuries it appears that many of the scholars who have looked at the subject in a context which is wider than one town, have drawn up classifications of town plans into morphological types.94 Mostly, however, they did not explain what the goal of their classifications was. It remains unclear, therefore, whether they were meant for overview only, or to explain historical relations, or whether they were meant as reconstructions of typologies that actually existed in the minds of the erstwhile town planners.

Typologies of plan forms are also made for towns of other periods, but, specifically with regard to the newly planned towns of about the 12th to 14th centuries, typological classification seems often to have become a goal in itself, not explicitly serving a further goal. For instance, in The Landscape of Towns by Aston and Bond the history of urban settlement is treated from prehistory to the future, but for some unexplained reason it is only for ‘the medieval period’ that they discern between different types based on plan form. For other periods they discriminate between different functions – like spa towns, port towns and mining towns – but for ‘the middle ages’ they find it useful to order towns under the following headings: open triangular or irregular market places; defended castle boroughs; undefended linear plan; grid plan; unique plans; and composite plans.95

Presumably it was the large number of new towns with more or less comparable plans from this period, in combination with the scarcity of historical information on their creation, which has led to the urge to classify ‘medieval’ towns according to their plan forms. With regard to the bastides of southwest France, for instance, various scholars have drawn up plan typologies, seemingly just because there are so many of them.96

It appears, however, that this typological approach barely leads to results that have any meaning for the understanding of historical urban form and its creation.97 In fact, it often distracts from the individual cases and from questions of actual historical relevance. The great attention to typological classification creates the inherent danger that the types become of more importance to the student than the actual towns themselves, and towns that do not fit well into the typology tend to be disregarded.98

Connected to the typological approach of urban form in the high-period of town foundation, is the idea that certain types of plans or plan-elements of existing towns and cities were consciously reproduced in newly founded ones.99 Many scholars have more or less implicitly assumed that the different types of plans that can be discerned were also distinguished by the planners, who would choose from a range of plan types for their projects.100 Accordingly, theories have been proposed about founders or families of founders that willingly chose to create new towns in one specific type only, such as the Zähringer and the Stauffer in

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93 See pars.8.5.1, 8.5.2.
94 Typologies of town plans, especially of ‘medieval towns’, were created by, among others, Meurer (S.D., c.1190-20, towns in Germany c.11th-15th century); Brinckmann (1910, western European towns, mainly 12th to 14th century); Hoenig (1931, newly founded ‘German’ towns in Bohemia, c.12th-15th century); Klaos (1947, Dutch towns c.12th-15th centuries); Nier (1957, towns with grid plans in Tuscany); Dickinson (1951, western European towns); Tricart (1954, towns in general); Egli (1962, ‘medieval’ towns); Hofer (1963, Swiss new towns, 12th-14th century); Morini (1982, mainly Italian towns); Butler (1976, planted towns on the British Isles, 1066-14th century); Aston & Bond (1976, pp.86-96, English and Welsh towns, c.11th-14th centuries); Bradley (1986, Anglo-norman plantations in Ireland); Roberts (1987, villages in England); Hofrichter (1991, towns in general); Lazzareschi (1994, mainly Italian towns of the 11th to 14th centuries); and Harck (1995, newly founded towns of the 11th-14th centuries in Denmark and Schleswig). Typologies of bastide plans are treated in pars.2.10.3.2.
95 Aston & Bond 1976, pp.86-96. From these headings it already appears that this classification is not very consistent, logical or complete. In the different types, elements of very different character and value are used side by side as classificatory determinants. Therefore, this classification is not logical, and it can be questioned whether it is indeed useful for scholarly analysis.
96 See pars.2.10.3.2.
98 Another objection is that the typological classifications based on the forms of the town plans often are not very logical. A useful classification ought to cover a whole spectrum, distinction being made on the basis of the same aspect, different types being clearly discerned from one another. In my opinion, this is not the case with most of the town plan typologies that have been made. (see, for instance, n.95 above and pars.2.10.3.2)
99 The possibility that similar solutions were reached in different places independent from each other, is rarely considered in the scholarly literature on the subject, even though such convergence is often far from unlikely because of the similarity of motives, functions, locations, social contexts and architectural traditions.
100 For instance, Friedman 1988, pp.81-116. The general idea is that there were professional town planners that had a wide knowledge of different models and plan types. In some cases, for example, scholars claim that a specific plan type appears often in a specific region because it would have been the work of one planner or school of planners (Meckseper 1991, pp.65-66), and in other cases the planners’ hypothetical knowledge of foreign models is presented to explain similarities between different towns at a great distance from each other (Keller 1979, pp.134-142; Conze 1988, pp.67-68; Friedman 1988, pp.90-116; Slater 1990, p.77; Guidoni 1992 (II), pp.97-173). As will be discussed in ch.7, however, there are no concrete indications that inform us of the existence of such professional town planners.
modern southwestern Germany and Switzerland. It appears, however, that the supposed clear direct correlation between founders and plan types is largely an illusion, being the product of a selective overview and questionable attributions to founders. As far as I know, the Florentine terre nuove, which will be studied in chapter 3, form the only group of towns with a clear correlation between the founder and the sort of plan.

In the literature up to about the mid-20th century, different types of plans have also been connected to specific ethnic or national origins. It is quite clear, however, that these ideas are largely incorrect and were often instigated by misplaced nationalistic feelings. It appears that typologies of town plans of the period under consideration can only be useful to provide an overview - to the extent that they are consistent and logical at all - and should not be taken for historical realities. Hence, the typological approach will not be followed in this study.

103 See par.3.9.
104 For instance, settlements with more or less circular outlines have been characterised as typically Celtic, Germanic and Slavic, and the regular orthogonal plan has been claimed to be typically French, English, German and Slavic. (Lavedan & Hugueney 1974, pp.6-10) See also Dziebonski 1960; Morelowski 1960; Francastel 1960; Münch 1962; Kuhn 1968; Gutkind 1964, pp.65-70; Higounet 1986, pp.19-94.
The New Towns of King Edward I in Wales

For a long time, Wales has been a relatively empty country. Until the 14th century there were relatively few towns in comparison to its direct neighbour, England, as well as the west of continental Europe, where conditions for settlement were better because of more suitable natural circumstances like topography, soil and climate. In the late 12th century Geraldus Cambrensis wrote: 'The Welsh live as hermits in the woods, not in towns or villages or castles.' However, over a period of about two and a half centuries, starting with the Norman invasion of England in 1066, the settlement structure and society in Wales would change considerably.

The early phases of this process will be broadly described in paragraphs 1.1 and 1.2 below. The main subject of research in this chapter, however, is the eleven towns that were founded by the English king Edward I between 1277 and 1302.

1.1 Introduction: geography and history

The country of Wales largely consists of a harsh landscape, which has been mostly uncultivated up to the present day. The elevation of about half of the land is higher than 180 m., reaching up to 1085 m. in Snowdonia in the northwest. (fig.1.1) The plains of the south and the east are best suited for agriculture, whereas the uplands of the interior, with their wet climate and ill-drained shallow soils, are only suitable as extensive pastureland. The central mountain mass stretches from north to south and forms a barrier for communication in the transverse direction. Therefore, the population has always been concentrated on the margins of the country, and it seems that the absence of a natural centre of the country has long hampered political unity. The low-lying plains of the rivers Severn and Dee in the east have always formed a natural line of division between Wales and England.

After the Roman armies first landed on the British Isles in A.D. 43, it took until A.D. 78 for them to conquer all of Wales. The Romans built a system of roads and garrison forts. Towns, however, were very rare in Roman Wales: there were only three, all in the south. As in many other parts of the former Roman Empire, Roman roads and settlements had a considerable influence on struc-
tures of transport and settlement in later eras, although there does not seem to have been continuity of settlement in the post-Roman period. Roman villas or rural estates were only founded in the eastern and southern margins of the country, and it seems that Roman culture hardly affected the life of its native inhabitants.

After the Roman withdrawal (circa A.D. 410), Irish and Scottish tribes invaded parts of Wales in the 5th and 6th centuries, while in other parts native rulers came to power. In the 7th and 8th centuries the Welsh lost territory to the Angles from Northumbria in the northeast and the Saxons from Mercia in the southeast. The Welsh inhabitants were slowly driven westward to the eastern foothills. The rulers of Mercia built several earthen dykes in this period, in order to strengthen the border between Mercia and Wales. The most well known of these is ‘Offa’s dyke’, in the southeast of Wales, which was probably built under King Offa of Mercia (757-796). Although these dykes marked the boundary between the countries, the Anglo-Saxons occasionally intruded into Wales much further westward. The burh of Clwydmouth, in the northeast, was presumably the only Anglo-Saxon urban settlement in Wales. It was founded in 921 by the earl of Mercia. This settlement was the predecessor of present-day Rhuddlan. Not much is known about its form, since it was replaced by a Norman borough in 1073.

Despite the Anglo-Saxon incursions, there was room for fairly stable Welsh kingdoms to be established. Most important and most steady of these were Gwynedd in the northwest and Powys in the north- and middle-east. In southern Wales there were various smaller and less permanent kingdoms, of which Ceredigion, in the middle-west was most stable in the period under consideration. After invasions by Vikings in the 9th and 10th centuries, there was a first period of political unity in Wales under Grufydd ap Llewelyn (1039-63), who conquered the throne of Gwynedd and subsequently the rest of Wales.

1.1.1 Norman conquest

After his death, however, quarrels and wars between different groups of nobles and their clans brought new disunity. This made it relatively easy for new conquerors to occupy parts of Wales. The Normans successfully invaded England in 1066, after which it did not take long before they moved into Wales. The Norman king William the Conqueror (1066-1087) assigned the borderlands between Wales and England, the so-called Marches, to his barons. From their bases in Hereford, Shrewsbury and Chester, the respective earls moved westward along the coasts and through the valleys in order to occupy the lower parts of Wales. The borderlands and the coastal plains of the south were first colonised. In these regions the Normans founded manors and built castles, often with boroughs at their gates. In itself this was not much different from what they did in England or had done in Normandy before, but there the rupture with the existing structure of settlement was less abrupt than in Wales.

Whereas Norman rule brought relative unity to England, it did just the opposite to Wales. The earls of the Marches operated independently, and founded new lordships in Wales for themselves or their vassals. They exercised regalian rights to establish fairs, markets and boroughs of their own, without needing permission from the king.

Only after rebellions by the earls around the beginning of the 12th century did King Henry I (1100-35) secure a position for himself in Wales by confiscating part of the lands that had been held by the earls in southern and western Wales. Within fifty years the Normans had colonised a considerable part of Wales and had planted it with castles and boroughs. The interior, especially the higher parts, however, remained in the hands of the Welsh, for which reason it was called ‘the Welshry’, as opposed to ‘the Englishry’. This situation lasted, although not continuously and not all over, until the late 13th century. In the regions occupied by the Normans, new features were introduced into the country, notably feudal methods of land tenure, large-scale agriculture in the open-field system, regulated trade, villages and towns instead of dispersed settlements, and an ecclesiastical administration organised in dioceses.
1.1.2 Reconquest by Welsh rulers

The period from about the middle to the end of the 12th century brought success for the native Welsh rulers, who managed to reconquer large parts of their lands from the Normans, particularly in the north and west. With the outbreak of civil war in England in 1135, the Welsh lords saw their chance, and combined in a great revolt, which led to a restoration of independence for the kingdoms Gwynedd (northwest), Powys (northeast) and Deheubarth (middle-west) until the end of the 12th century.

However, the success of the Welsh was far from stable. It was largely inspired by their rebellious leaders Rhys ap Gruffydd of Deheubarth (the Lord Rhys, 1155-1197), who conquered a large part of south Wales, and Llewelyn the Great (Llewelyn ap Iorwerth, c.1195-1240), who managed to create a common Welsh rule and an actual spirit of unity. The English king Henry III (1216-1272) once again subjugated the Welsh, formalised by the Treaty of Woodstock in 1247. He took large parts of the conquered lands into possession as royal domains. The deeds of Llewelyn the Great were, however, to be equalled by his grandson Llewelyn ap Gruffydd (1255-1282). In 1258 a council of Welsh rulers acclaimed him Prince of Wales, and with the Treaty of Montgomery (1267) this title was even accepted by the English king. These great Welsh rulers all had their victories and defeats, not only struggling against the conquerors, but often also fighting other Welsh lords.

Under Welsh rule, conservatism characterised the societal situation. As a result of this, relatively few boroughs were founded. Only in the final period of Welsh rule (c.1240-80) the native lords began to imitate the Anglo-Norman borough foundations. The most successful Welsh new town was appropriately named Welshpool. It was founded in 1241-45, and it contained 225 burgage plots in 1322, which was a relatively high number. Most of the Welsh boroughs were, in contrast to those of the Anglo-Normans, undefended. Apparently, their military significance was limited, and possibly they also had less need for strong defences. They were often smaller, less urban and more closely linked to pre-urban settlements like the mædref, the centre of the Welsh lordship, the tref, the Welsh market centre, or ancient ecclesiastical settlements called llan. In large part they were founded in the heartland of the Welsh lordships, which was the upland. Obviously, economic possibilities were less favourable there than in the lowlands, where the main routes of transportation were located and where the land was more fertile.

1.1.3 Anglo-Norman (re-)conquests

Especially after Henry III’s accession to the throne in 1216 the Anglo-Norman policy of colonisation in Wales was re-vitalised. Mainly in the west and south, the English king and the barons of the Anglo-Norman lordships in Wales founded many new castles, boroughs and villages. Together with this activity, new lines of defence were built, woodlands were cleared and peatbogs were reclaimed. By 1270 the Anglo-Normans had founded more than fifty towns in Wales, most of which were located in the south and in the central border area between Wales and England.

Later on in the 13th and early 14th centuries more towns would be created in Wales, particularly by King Edward I during his conquest of northern Wales. These developments will be discussed in detail later in this chapter.

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15 Rees 1972, pp.35-36.
16 Walker 1990, p.120.
17 Soulsby 1983, pp.11-12. See also Beresford’s table of the chronology of plantations (Beresford 1967, p.342) and fig.0.2. Soulsby counts 30 Welsh “towns”, out of a total of 105. (Soulsby 1983, p.16)
19 Soulsby 1988, pp.18-19.
20 Only Pwllheli, Adpar, Dolforwyn, Llandidloes, Trefilan and Welshpool had castles in their direct surroundings, while, conversely, only five Anglo-Norman boroughs did not have a castle nearby. (Soulsby 1988, p.34; see also below, note 24)
21 Soulsby 1983, pp.1, 3-4, 16-19.
In Wales, as in England, settlements in which specific inhabitants were given special privileges as a community were generally called boroughs. The most characteristic privilege was that of burgage-tenure, which meant that the burgesses, as the privileged inhabitants were called, had the right to hold house lots in free hereditary tenure from the lord. Such house lots were called burgages. The general concept of the borough, with many variations, was brought to England, Ireland and Wales by the Normans.

Many of the boroughs in Wales received a written charter containing privileges and laws. These sets of privileges and laws were often based on those of older towns. The most notable source for these were the customs of the Norman town of Breteuil. The town of Hereford in western England received these customs in the late 11th century, from its new Norman lord William Fitz Osbern, who had already been lord of Breteuil for some time. Later on, Cardiff and a number of other towns received charters which were based on that of

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25 Not all burgesses, however, actually held burgages. In the late 13th and 14th centuries several towns in Wales had the odd principle of ‘burgage by the wind’ (burgagium a vento). Burgesses enjoying this status did not actually live permanently in the town. In a rental from Abergavenny it is written that they paid for the privileges of being considered burgesses ‘...so that they can buy and sell as if they were of the vill’s liberties.’ Apparently, they were traders who were admitted to the urban community in order to stimulate the activity in the town’s market. (Beresford 1967, p.225)

26 Platt 1976 (1), pp.125-126; Dodgshon & Butlin 1978, pp.81, 108-109; Bond 1990 p.94. One must beware, however, to take the ‘borough’ as an absolutely fixed concept. According to Reynolds (1982, pp.16-18), the term ‘borough’ has come to designate a specific concept mainly in the 15th and 16th centuries, when lawyers needed clearer general definitions. The concepts of ‘incorporation’, ‘burgess’, ‘burgage’ and ‘borough’ seem to have slowly become more regular in the preceding centuries.

27 Barlett 1992, pp.172-173; Lilley 2002, p.76-83. Breteuil probably was a newly founded town itself. Duke William of Normandy built a castle there around the year 1060 and placed it in the hands of his cousin William Fitz Osbern, who probably founded the town and who later became Earl of Hereford. (Beresford 1967, p.199)
Hereford. Subsequently, the privileges and laws of these towns were passed on to many other ‘daughter’ boroughs in Wales.28

The towns of Wales were nearly all located in the low-lying parts of the country. Out of the 105 towns that appear in Soulsby’s map of towns created before the 16th century, about 40 are located on or very near the coast, and around 20 lie on the coastal plains, where roads roughly followed the contour of the coastline. The rest of the towns are located in the inland-reaching valleys of eight different rivers. (fig.1.2) Only ten towns were not located near the coast or on the bank of a navigable river.29

There are two main reasons for this relative concentration of towns in specific areas. The first is that in the lowlands of Wales the soil and climate were best suited for cultivation, so that is where the Normans founded manors, castles, churches and boroughs.30 The second is that the towns were sited mainly on the relatively few traffic-routes of importance: the sea, the navigable rivers, the roads through the coastal plains, and the inland roads through the valleys.

The new boroughs were mostly founded next to castles.31 These castles often already existed when the boroughs were added, but in some cases castle and borough were purposely founded simultaneously.32 The boroughs were generally sited on the most level side of the castle, preferably where they could make optimal use of the topography of the natural terrain for their defence, as long as this did not seriously hamper their prime functions.33 So, steep slopes, water and swamp were, to a certain degree, welcome obstacles to surround the towns. (see figs. 1.3, 1.4, 1.6)

Many new boroughs and castles were founded in locations with some kind of pre-existing nucleating feature.34 Thus, towns like Cardiff, Carmarthen, Loughor and Caerleon were founded on the sites of Roman forts. But only in the last of these was the street pattern influenced by the form of the Roman settlement.35 The borough of Cefnllys in central Wales was even located on the site of an Iron Age hillfort, using the natural topography as well as the Iron Age ramparts for its defence.36 Various boroughs were founded in connection with indigenous Welsh settlement cores like a market (tref), a seigneurial seat (maerdref) or a churchyard (llan).37

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29 Soulsby 1983, p.29.
30 Rees 1972, p.28.
31 Of the Anglo-Norman foundations only Caersws, Mostyn, Newborough, Cowbridge and the bishop’s seat of St. Asaph lack the company of a castle. Soulsby mentions three more settlements, but these cannot really be regarded as towns. (Soulsby 1983, p.34)
32 For the early Norman castles and their boroughs, see the table of chronology by Soulsby (1983, p.6).
34 Soulsby 1983, pp.2-4. See also par.5.1.6.
35 Soulsby 1983, p.2. Other towns, like Caerphilly, Llandovery and Brecon, were created near to sites where Roman forts had been; obviously because these locations were well-sited because of the advantages offered by the geographical situation. Additional advantages of the Roman sites may have been the possibility to reuse ancient building materials and roads, for as far as they had survived the ages.
36 Rowley 1986, pp.212-213. Because of Cefnllys’ isolated and high location, it is no wonder that the town was not very successful economically, and that it had fallen into decay already in the 14th century.
37 Butler 1985, p.249; Soulsby 1983, p.3. The churchyard-settlements mostly have an llan-suffix in their name and have a more or less rounded formation core, which was the churchyard itself. Similar settlement forms can be found among monastic towns in Ireland and early settlements at ecclesiastical sites in England. (Swan 1985, pp.77-103; Blair 1986, pp.35-36; Bradley 1990, pp.40-47)
The layouts of the newly founded towns of Wales up to about 1270 show a great variety. Unlike the bastides of southwestern France or the Florentine terre nuove, the new towns in Wales were only rarely laid out on regular orthogonal grid plans. Of the towns from before the rule of King Edward I, Newport (Dyfed) comes closest to a regular grid plan in the layout of its streets and lots. Other town plans generally have less regular forms, but many show a clear inclination towards straightness of streets and plot boundaries, and a roughly orthogonal structure. In general, as is the case for most other parts of Europe, it can be observed that the layout of the towns became more regular and more orthogonal as they were created later in the great town-founding period of the 11th to 14th centuries. Of course, the plans are also more regular when the terrain on which they are laid out is more open and level. But most of them cannot be described in simple terms of basic geometrical figures.

The Norman town foundations of the late 11th and 12th centuries often had a simple layout, consisting of a single street, possibly with one street branching off or crossing, as for instance in Pembroke, and Laugharne. Cardiff is an example of a more complex layout focused on a main street, having more secondary streets that form an irregular grid. The market was mostly held in a widened street, in a triangular open space at a dominant position in the centre of town or in a churchyard. It was often located close to the castle, probably in order for it to be easily overseen from the castle. Indeed, a feature that is quite particular for newly founded towns in Wales is the layout of streets with consideration for perspective from the castle. Various towns have a main street, and sometimes even several streets, whose whole course can be observed from the castle walls. This is the case, for instance, in Pembroke, Newport, Laugharne and Cardiff. The main motive for such layouts seems to have been to allow for the ability to survey the streets from the castle, to observe the inhabitants of

38 This seems to be quite typical for the plans of newly founded towns in the British Isles. (Beresford 1967, p.150) Relatively speaking, the grid plan is more prevalent in Wales than in England (Butler 1976, p.38).
39 In Wales the regular grid got more prevalent towards the end of this period, especially during the rule of King Edward I. (Butler 1976, pp.38, 45)
40 Soulsby 1983, p.31; Butler 1985, pp.476, 484. Other basic grid layouts in towns founded by Norman lords are to be found in the two Newports (see fig.1.5) and in Montgomery.
41 Soulsby 1983, pp.41-47.
the town or to see what was going on in case enemy forces took the town. Another motive probably was to make the castle well visible from the town, as a well-advertised symbolic representation of the lordship.42

1.3 King Edward I’s conquest of northern Wales and town foundations

In the rest of this chapter, a closer look will be taken at the towns founded by the English king Edward I, which were largely created in connection with his military campaigns against the Welsh uprisings in northern Wales. These towns are selected for closer study because they form a compact group, eleven in number, and there is more historic information about their creation compared to most other towns of the period in Wales.

King Edward I played a decisive role in the English domination over Wales. As crown prince he held territories in Wales since 1254, when he was made Earl of Chester at the age of 15. Already by that time his lands were threatened and partly taken by Llewelyn ap Gruffydd, lord of Gwynedd.43 In 1274 Edward, now as king (1272-1307), started a counter-offensive against Llewelyn and his fellow rebellious Welsh rulers, right after he had returned from crusade. This led to the campaign of 1276-77, which came to be known as the First War of Independence. The formal occasion for this offensive was Llewelyn’s refusal to do homage to the new king. Edward’s armies advanced quickly, westward along the north coast, northward along the west coast and westward into the heartland of Wales. Soon, Llewelyn was forced to agree to the treaty of Aberconwy in November 1277, with which English power in Wales was again brought back to its highest previous level.

During the campaign, the royal forces had begun to build new castles and reconstruct old ones in the re-conquered territories. (fig.1.9) Next to some of these castles new towns were created, much like the Normans had done in England and Wales two centuries before.44 The castle of Builth was reconstructed to watch over the crossing of the river Wye in eastern Wales, and at the same time Aberystwyth castle and town were newly built on the west coast. On the north coast the castles of Flint and Rhuddlan were newly built with new towns below their walls. Less effort was involved in the renovation of the existing castles of Ruthin and Hawarden.

42 Lilley suggested the importance of surveillance over the market place from the castle. In Norwich, Bristol and Southampton in England, the Normans laid out new urban structures in which visibility of, and from, the castle seems to have been a consideration of importance. According to Lilley, this phenomenon was introduced into England by the Normans. (Paper ‘Modernizing the Medieval City’, presented at the Sixth International Seminar on Urban Form, Florence, July 1999)
43 Walker 1990, pp.112-114.
After a new rebellion by Llewelyn and his brother Dafydd in 1282-83 (the so-called Second War of Independence), Edward launched a new campaign, which focused on finally conquering Gwynedd, therewith taking the heartland of the ever-returning Welsh rebellions.45 This campaign was successful, and the rebellious brothers were killed. Thereby, the conquest of Wales was completed and Welsh independence actually ended. Again, a number of castles and towns were founded in the newly conquered lands, which for a great part were added to the territory of the English crown.46 From 1282 on the castles of Conwy and Harlech were newly built, both with new towns attached, while the castle of Caernarfon was completely reconstructed and was provided with a new town next to it. The castles of Criccieth, Bere, Dolwyddelan and Caergwrle (or Hope) were strengthened, and the first two of these had new towns founded at their feet.47 The towns that were founded during, or as a result of, the two campaigns will be the subjects of study in the following paragraphs.

It seems that King Edward was not really eager to make Gwynedd his possession. Apart from the fertile island of Anglesey, the mountainous land of Gwynedd was not a country rich in economic resources. Edward was, however, more or less forced to conquer this land and make it his own territory, in order to prevent further rebellions, since these had done much damage to the English holdings in Wales and sometimes even to the lands of western England.48 Like the older English lordships in Wales, the newly conquered lands were not added to the English realm: they were not subject to English courts - although Edward introduced the same criminal law in the crown lands - nor were they represented in parliament.49 This state of affairs would last until 1536, when Wales was actually united with England.

The subjection of conquered Wales to the crown was formally laid down in the Statute of Rhuddlan (1284). The territory under control of the crown was divided into administrative shires, just like in England. And, with the introduction of English criminal and civil law, the state was made responsible for the maintenance of law and order. All individuals were now theoretically regarded as subjects of the state.50 For the Welsh this probably was a new phenomenon, because until then their social life had been organised in clans, which were responsible for the protection of the clan members.51 The Welsh rulers who had fought on Edward’s side against Llewelyn and his allies received their lands again as vassals to the crown. The king also enfeoffed some new lordships to his English supporters. (fig.1.10)

After a last revolt, headed by Madog ap Llewelyn in 1294-95 - that is, the last one on a grand scale until the Glyndwr revolt of 1400-15 - Edward founded one more castle with an attached borough. This town, Beaumaris, was sited on the island of Anglesey in the northwest, where the revolt had been especially fierce.52 For both military campaigns, see Morris 1901, pp.35-270; Davies 1991, pp.333-354. Beresford 1967, pp.344-345; Rees 1972, pp.31-42. Walker 1990, pp.133-134; Humphries 1983, pp.4-10; Taylor 1983, pp.233-395.

45 This can be made up, for instance, from a letter from the king to the sheriffs in England from November 1282: “[…] the king proposes […] to put an end finally to the matter he has now commenced of putting down the malice of the Welsh, as Llywelyn ap Gruffud and other Welshmen, his accomplices, have so many times disturbed the peace of the realm in the king's time and the time of his progenitors and they persist in their resumed rebellion and the king conceives it to be no more convenient and suitable that he and the inhabitants of his realm should be burdened on this occasion with labours and expenses in order to put down wholly their malice for the common good […]” (Herbert & Jones 1995, p.56, B.2).
46 Davies 1993, pp.166-168.
47 Walker 1990, pp.139-145.
48 Davies 1993, pp.166-168. It must also be considered that what have been called ‘Welsh lordships’ above, may actually rather have been clan-territories, ruled by chieftains who generally became feudal lords by about the late 13th century. (Walker 1990, p.92)
Cardiff was founded in the early 12th century by the Norman lord Robert Fitz Hamon. Probably, there had already been a settlement on the site. The Norman castle reused the site of a former Roman castrum.

**fig. 1.8:** Cardiff. Schematic reconstruction of the situation in the early 14th century. (From: Soulsby 1983) Stippled zones indicate the areas where buildings stood.

**fig. 1.9:** Map of Wales with the castles of King Edward I indicated, as well as the directions of attack of Edward’s armies in ‘the second war of Welsh independence’ of 1282–83. (From: Taylor 1997)
In the last quarter of the 13th century, loyal vassals of the king also built castles and towns in northern Wales. Various existing castles were strengthened and extended as well. With all this, Edward and his vassals had more or less encircled the country of Gwynedd with a ring of castles and boroughs.

The towns founded by Edward were no doubt the most programmatic plantations among the new towns of Wales. More than the new towns founded under Edward’s reign in Gascony, which will be treated in chapter 2, most of the boroughs in northern Wales were truly ‘Edwardian’, in the sense that the crown was directly responsible for their creation. Edward visited some of the sites during the process of planning and building, and he even lived there for a while.

The whole operation of the building of castles and towns between 1277 and 1301 was on a scale that was unprecedented in English history. The deployment of labour was gigantic and the operation formed a massive drain on royal finances: the costs of the building of castles and towns amounted to over £95,000 in total - which Taylor calculated to be about ten million pounds in 1963. The costs for the military campaigns of 1277 and 1282-83, meanwhile, can be estimated respectively at about £20,000 and £60,000.

Fortunately, many documents have been preserved regarding the Edwardian foundations, from which relatively much is known about the amounts of money that were spent. This is in contrast to many other castles and towns in Wales, the early history of which often remains obscured by a lack of relevant documentation.

It is a pity, however, that the documentation regards the castles rather than the towns, and in many cases it remains unclear whether specific data consider works on a castle or on a town. What is clear, however, is that the amount of money spent on the castles was many times larger than that spent on the towns.

54 Holt, for instance, was founded shortly after 1282 by John de Warenne, who received the land from the king as a reward for his service in the war against the Welsh. Denbigh, which is also in the northwest, was founded by Henry de Lacy shortly before 1285. (Soulsby 1983, pp.121-123, 144-147; Walker 1990, pp.133-134; Humphries 1983, pp.4-10; Taylor 1963, pp.293-395; Lilley, Lloyd & Trick 2005, s.v. Holt)


56 Beresford 1967, p.35.


58 For the Edwardian castles and towns there is especially important information in the documents of ‘the King’s Works’. This source, which mainly deals with the crown’s finances, is well preserved and gives an unusually clear insight into the building operations in northern Wales. It provides information on (among others) costs, duration of works, amounts of materials, numbers of workmen and names of persons involved. The documents have been thoroughly described and analysed by A.J. Taylor in The History of the King’s Works. (Taylor 1963)

59 In Flint a total of £7,000 was spent on the building of the castle and the town, of which only 3% can be ascribed with certainty to the building of the town defences (‘de claustura villa’). (Beresford 1967, pp.40-41) For Rhuddlan the costs of the building of the town in the period 1277-82 were at least £1,276, while the work on the castle cost about six times as much (c. £7,400) and the work on the canal was just over £500. (Beresford 1967, pp.27-39; Taylor 1987, pp.11-12) At Aberystwyth over £4,300 was spent in 12 years on the building of the castle and the town (Beverley Smith 1977, pp.10-21; Brown, Colvin & Taylor 1963, pp.307-1029; Goronwy Edwards 1951, p.13) In Conwy the total amounted to c. £14,500, mainly spent in 1283-87. (Taylor 1963, p.350) In Caernarfon the building of the town wall, town quay and mill pool cost at least £2,000, out of a total of more than £12,000 up to 1282. (Taylor 1963, pp.374-377) Until 1282 a further £15,000 was spent on the town and the castle. (Taylor 1963, p.86) In Harlech the construction work of castle and town cost c. £5,500 in seven and a half years. (Taylor 1963, pp.357, 359) In Criccieth about £500 was spent on the repair and strengthening of the castle during the nine years after the town foundation. (Taylor 1963, pp.365-366; Avent 1989, pp.2-5) At Beaumaris the building of the castle cost £11,000 in the
Apart from castle towns, there were also two new towns that were founded by the crown with no apparent immediate military cause. The new town of Caerwys first appears in written sources in 1290. It probably replaced a village of the same name, which lay about halfway between the earlier new castle towns of Flint and Rhuddlan. Its creation seems to have been motivated mainly by economic considerations, since it was not walled and its location was of no strategic importance. The new town of Newborough was founded in 1302 on the south point of Anglesey, in order to re-settle the population of the Welsh town of Llanfaes. The crown decided that this older town had to be removed, in order to increase the chances of economic success for the nearby newly founded castle town of Beaumaris.60

1.4 Motives

1.4.1 Military motives

It is clear that military motives were the prime reason for the plantation of the new towns, apart from Caerwys and Newborough. All these new towns were laid out in the shadow of strong castles, built on strategic sites on the north and west coasts of Wales. In this way they more or less surrounded the native kingdom of Gwynedd, where many uprisings against the Anglo-Normans had started. These Edwardian towns did not grow as rapidly as other planted towns in southern Wales did in the late 13th and early 14th centuries.61 For a number of the new Edwardian castle towns this is to a large extent due to the fact that they were planned primarily as service-settlements for the castles, wherefore their locations were primarily determined by the strategic quality of the site and much less by their economic viability.

The prime functions that were foreseen for the towns when they were planned, must have been the provision of victuals, other goods and services for the garrison and administration that were housed in the castle. This is literally stated in a document of the late 14th century in which the burgesses of Beaumaris claim that their town was founded by Edward I ‘[...]' for the munition of the said castle [...]').62 It may also have been a relevant factor in the creation of the boroughs that the townsmen could be called to the defence of the town and the castle.

1.4.2 Economic motives

The economy of the native Welsh society was essentially a barter economy until the 13th century. The Anglo-Normans introduced money as a medium for trade in Wales, just as they introduced a fiscally organised taxation system, agricultural production for the market, and settlement in towns.63 As already indicated in the introduction to this study, these elements were strongly related, and they co-operatively transformed the economy, the society and the landscape of Europe, particularly in the period of about the 10th to 14th centuries.

From the previous paragraph it is already clear that one of the main functions of the castle boroughs was the provision of the castle. This function initially formed the basis of the economy of these towns.64 But apart from that, a town needed craft production and trade with the region and other market centres in order to flourish. From his experience in other lands King Edward must have known only too well that towns could be important sources of income for him, especially when the crown was the direct lord of the town.65 It seems likely, therefore, that the crown also had economic motives for the foundations of the new towns and their markets.

In 1310, the king ordered that: ‘No markets, no fairs nor any other places of trade indeed, for the selling and the buying of oxen, cows, horses, etc., excepting small articles of food shall be held elsewhere in north-west Wales than in the towns of Conway, Beaumaris, Newborough, Carnarvon, Criccieth, Harlech and Bala.'66 Also, it was stipulated that six years up to 1300, there is no explicit record of money being spent on the borough. (Brown, Colvin & Taylor 1963, p.402; Taylor 1999, p.3)
from every house one person was to visit the market of the district every week for the purpose of buying and selling. Some years later this obligation was somewhat relieved and restricted to persons who actually had business to conduct. Aberystwyth had already received a similar market monopoly in 1303.

From documentary and archaeological evidence it is clear that there were close trade connections between towns in Wales and the nearby English towns of Chester, Shrewsbury, Gloucester, Worcester, Hereford, Bristol and other places of less significance. As might be expected from their locations, Chester was closely linked to the towns on the north coast, whereas Bristol was connected to the towns on the south and southwest coast. Ships were the main means of transportation. There was also trade with Ireland and Gascony, which were also (partly) ruled by the English king by then. Besides maritime transport and trade, the coastal towns were also engaged in the fishing industry, herring in particular being an important victual at the time.

The goods traded in the urban markets were for the greatest part agricultural products. From the coastal lowlands crops were brought to the markets and from the Welsh uplands - which were only suited for pasture - came cattle, dairy products, hides and wool. The crafts that were pursued in the towns were mostly the standard occupations to be found in a town anywhere in Europe at this time: butchers, bakers, shoemakers, sowers, skinners, etc. The wealth of wool led to a considerable specialised industrial activity: by 1350 there were at least 75 fulling mills in Wales.

The importance of agriculture to the boroughs of Wales is also reflected by the fact that most towns had extensive town fields surrounding them. The new towns of northern Wales usually took over the land of the manors that were formerly held by the Welsh princes and subsequently by the English crown, largely leaving intact the old administrative spatial organisation. For instance, Beaumaris replaced the manor of Llanfaes, having 1486.5 acres (602 ha.) of borough land, for the main part arable. About 30% of its burgesses, however, held no land apart from their burgage plots, for which they appear not to have been engaged in agriculture. In 1278 new settlers at Rhuddlan were provided with fields of arable land and parcels of land to assart in ‘the king’s woods’ in addition to their burgage plots. Four years later new settlers at Flint received no less than 40 acres (16.19 ha.) of agricultural land each.

It seems that mining and metal-working were also important for the economy of many towns in Wales. Lead and copper had been mined in Wales ever since pre-historic times. The extraction of these precious metals, and especially silver and gold, may even have been one of the main reasons for the Roman colonisation of Wales. It is known that these minerals were also mined after the Romans had gone, although information on this subject is scarce before the 16th century. In 1086, Domesday Book recorded that earl Hugh of Chester, as lord of the manor of Roelent (Rhuddlan), held half the rights of every iron mine in the district.

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new deposits.\textsuperscript{82} Also, it is known that lead was mined in Holywell and Holt in Flintshire in the 14\textsuperscript{th} century. Iron for the construction of Flint castle was actually mined in nearby Ewloe and in 1284 and halfway through the 14\textsuperscript{th} century special royal permissions were granted to the burgesses of Flint to collect wood to fuel their smelting furnaces.\textsuperscript{83}

From this information, it appears that the mining, processing and trading of metals were of considerable importance to the economy of the Edwardian new towns. In particular, Flint and Rhuddlan played a role in the exploitation of iron, lead and copper. Caerwys and Aberystwyth may have had similar roles of somewhat lesser importance. In view of this, it does not seem unlikely that the extraction of metals was significant in the colonising policies of the Anglo-Normans in general and of Edward I in particular.\textsuperscript{84}

Even though it was one of the main functions of most of the boroughs to serve the castles next to which most of them were founded, the towns were of particular importance for the trading economy of in northern Wales. This is true, of course, for just about all European towns in the period under consideration, because towns housed the key markets. But in areas that only relatively recently had come to know the new monetarised economy of trade, such as Scandinavia, Prussia and Wales, it was even more concentrated on the urban settlements. In the words of R.R. Davies: ‘The importance of towns in the economic life of a localized and underdeveloped society, such as that of medieval Wales, was out of all proportion to their minuscule size. They lubricated local trade and accelerated and formalized opportunities for the sale and exchange of produce and, thereby, for the circulation of money.’\textsuperscript{85}

With the emancipation of the boroughs and their populations in the 14\textsuperscript{th} and 15\textsuperscript{th} centuries, more and more of the lord’s privileges were farmed out. For instance, the ferry, the market tolls, or the land rents could be let out to private entrepreneurs or to the communities. Eventually whole boroughs, with about all the returns belonging with them, were granted as fee farms, usually to the communities of the towns.\textsuperscript{86} The same process can be observed in the political autonomy of the castle boroughs. Because of the military importance of these towns - and ultimately also the seigneurial nature of the foundations - it was initially found appropriate and convenient to appoint the constable of the castle, a direct agent of the lord, \textit{ex officio} as the mayor of the town.\textsuperscript{87} Later, often in the 14\textsuperscript{th} century, the burgesses mostly bought the right to choose the mayor themselves.

1.5 Settlers

In the first decades after the foundation of the Edwardian boroughs, the population was mainly made up of immigrants whom were mainly drawn from England, and to a lesser extent from Gascony and Ireland. Like anywhere else in Europe, settlers of new towns would be lured by the promise of several years of exemption from rents and taxes.\textsuperscript{88} A special guarantee was given by the crown to English and foreign merchants against eventual losses they would suffer during the journey, if they moved to the king’s boroughs in northern Wales.\textsuperscript{89}

The urban population, however, was not very stable: the immigrant families often only stayed for three or four generations. In the eleven years between 1295 and 1306, between a third and half of the burgages in the town of Conwy changed hands, while in Caernarfon the displacement seems to have been almost total. It seems likely, therefore, that the purchase of a burgage plot and burghal status were regarded as an investment of a temporary nature.\textsuperscript{90}

An important advisor of Edward I, the archbishop of Canterbury John Pecham, recommended urban life to Edward as a way of civilising the Welsh people: ‘First of all, sire, the savagery and other evils arise from this cause, that they do not live together but dwell far apart from each other. And so, sire if you wish to make them behave in accordance

\textsuperscript{82} Williams 1961, p.95.
\textsuperscript{83} Shillaber 1947, p.299; Neaverson 1954, p.17; Williams 1961, pp.95-96.
\textsuperscript{84} Apart from northeastern Wales, the main mining activity in the 11\textsuperscript{th} to 14\textsuperscript{th} centuries took place in the southernmost parts of Wales. (see Rees 1951, plate 64a)
\textsuperscript{85} Davies 1991, p.168.
\textsuperscript{86} Lewis 1912, pp.71-92. At Aberystwyth the borough was farmed out to the community in 1343-45 for £21 18s. 8d., and in 1356 the farm was granted to the king’s constable of Cardigan castle, Gilbert de Turberville, as a part of his fee. (Griffiths 1978, p.35) At Rhuddlan the burgesses had already been granted the fee-farm in 1279, for seven years duration. (Taylor 1965, p.322; Quinnell & Blockley 1994, p.9)
\textsuperscript{88} In Beaumaris, Caernarfon, Harlech and Criccieth, for instance, the new settlers were promised ten years of exemption. (Beresford 1967, p.164)
\textsuperscript{89} Beresford 1967, p.82.
\textsuperscript{90} Walker 1990, p.155; Williams-Jones 1978, p.81. In Conwy, 124 burgages were recorded in 1312; in Caernarfon, 63 were recorded in 1309. (Beresford 1967, p.255)
with God and the world, and take away their savagery, command them to live in towns […]’.91 It seems, however, that that was not the object of Edward’s or any of the other Anglo-Norman foundations in Wales.92 In a number of cases, the charters clearly forbid the burghal status to Welshmen. In Caernarfon this exclusively non-Welsh character seems to have lasted well into the 14th century, but probably this was a rather exceptional case. In most towns there would be some Welsh burgesses, and in Caerwys and Newborough the majority was Welsh.93 These two towns, however, were exceptional among the Edwardian foundations, as will be described in the survey below. The debarment of the Welsh was not exclusive for the Edwardian or the Anglo-Norman towns94: even the rare town that was founded by a Welsh lord could be intended for non-Welsh immigrants. This is the case with the southern-Welsh borough of Aberaafan, the charter of which, granted by Leisian ap Morgan Fychan (1283-1314), explicitly states that the burgesses are Englishmen.95

The Welsh natives, however, were getting more and more eager to establish themselves in boroughs and to lead the lives of townsmen. Their number among the total of borough-populations gradually grew as they moved upward on the social ladder in the 14th and 15th centuries. Especially Aberystwyth, Ruthin and Beaumaris seem to have had a relatively large and well-integrated Welsh population of about 50% in the late 1320’s.96 The Welsh were, however, not always welcome as urban residents.

In 1345 the burgesses of (among others) Caernarfon, Conwy and Denbigh complained in a petition to the king of the damage and destruction done by the Welsh rebels, who ‘seek to destroy’ them, and they declared that they ‘can not go anywhere for fear of death’. Subsequently they threatened to leave the country unless they received help from the king.97 This illustrates the terror that the borough populations must have sometimes felt: there often was a danger of attack by Welsh rebels, so life was far from secure. Apparently, the rebel attacks made it hard for the urban immigrant population to trust their Welsh neighbours fully.98

### 1.6 Planners

There are no sources that directly identify the planners of the Edwardian new towns. In general it is most likely that officials of the crown took care for the spatial layout.99 However, regarding the towns whose foundation was accompanied by considerable works on castles and defences (Flint, Rhuddlan, Aberystwyth, Conwy, Caernarfon, Harlech, and Beaumaris), the suspicion is strong that Edward’s military engineers planned the towns as much as they planned the castles and additional defensive structures. The defences of Flint first served to encamp the army on its Welsh campaign, so initially it was really a military camp. At Rhuddlan, Aberystwyth, Conwy, Caernarfon and Beaumaris too, large armies had to be encamped in first instance. Hence, it is most likely that at least the layout and form of the defences, whether built of earth or of stone, were planned by the king’s military engineers. But the form of the circuit of walls and the place of the gates therein largely determines the layout of the streets within the defences. Therefore it seems, in absence of clear sources, most sensible to give the credit for the planning of the towns to the king’s engineers, at least in the cases of the fortified castle towns.

The documentation of the King’s Works provides some information on the military engineers who mainly worked at the building and repairing of the castles. Foremost among them was a man from Savoye who played an important role in many of Edward’s military building operations, whose name was Master James of St. George. Unfortunately though, the documents are not explicit as to the question of to what extent he and his colleagues were responsible for the urban layout of the towns. This subject will be

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92 Davies 1993, p.172.
94 For the ethnic division in Anglo-Norman towns in general, see Lilley 2000 (2); 2002, pp.93-99.
95 Pugh 1971, p.341. This situation can be compared with that in eastern Europe, for instance Silesia, where the dukes founded towns and issued charters exclusively for settlers from the west, who were often indicated as ‘Germans’. (Aubin 1966; Kuhn 1984, pp.1-10) The reason for this distinction along lines of ethnicity probably was that, on the one hand, the lords did not want to give up their power over their subjects, which was based on feudal law; but, on the other hand, they wanted to profit from the new economic developments. Therefore they invited foreigners, preferably those who already had capital and experience in the ‘new’ economy, to come and enjoy the privileges granted by the lords and to contribute to their income.
96 Walker 1990, p.160; Griffiths 2000, pp.708-709, 712-713.
97 Carter 1969, p.5.
98 Especially in 1345 there was a hostile atmosphere towards the Welsh in the towns of northern Wales. In Beaumaris the borough liberties of the Welsh inhabitants were suspended, on the grounds that the privileges were originally intended for Englishmen. The privileges could be bought back only for a large sum of money. This punishment was probably a reaction to the murder of the royal attorney in the principality of North Wales, Henry de Shalford, by a band of Welshmen. Similar anti-Welsh measures were taken in Criccieth, Flint and Rhuddlan. (Carr 1982, pp.248-249. See also Williams-Jones 1978, pp.93-101; Griffiths 2000, p.706)
99 The problem of the anonymity of the planners will be elaborated upon in chapter 7.
discussed more amply in chapter 7, which deals with the question of who the planners of new towns were, in the broader context of different regions in Europe.100

1.7 Survey of the Edwardian boroughs of northern Wales

1.7.1 Flint (figs. 1.11-1.14)

In July 1277 King Edward launched his campaign against the rebellious Welsh ruler Llewelyn ap Gruffydd. From Chester, his army marched into northern Wales, along with a large workforce of about 1,850 men, consisting of masons, carpenters, woodmen and diggers.101 Their first stop was 18 km. northwest of Chester, where Edward ordered a castle and a town to be built.

The castle and town were built on a location on the estuary of the Dee that was called Le Flynt, halfway between Chester and the castle of Rhuddlan. There had been no previous settlement on the site. It seems that it was chosen because of the presence of a firm sandstone outcrop there, on which the castle was built, in the midst of more marshy grounds along the Dee estuary.102 The castle stands on a strategic site from where the traffic on the water can be controlled, whereas the town, being laid out directly land-inward from the castle, controls the road, which had been one of the main routes into northern Wales since Roman times.

The building of the castle and town started on July 21 and lasted about nine years, including substantial repairs of the damages from the war of 1282. At first, the town defences served as the protecting boundary for a military camp containing several thousand men of the king's army. Work must have proceeded especially quickly in the first stage, in August 1277, when no less than 2,300 ditch-diggers were set to work.103 The defences consisted of a double earthen bank, protected by a ditch more than 13 m. wide. Stone walls were never built in Flint. It is suggested that the king's workforce also constructed houses out of wood for future settlers, but this is only based on the knowledge that 291 carpenters were set to work in Flint, which is not conclusive.104 The normal practice in town plantation was to make the settlers themselves responsible for building their houses. Therefore it is safer to presume that the carpenters were rather working on palisades, towers and gates to fortify the earthen banks and on the timber parts of the castle and its outbuildings.

The town received meadowland, arable land, woodland and a mill. Permission was given to build another town mill, at a yearly rent of ten pounds.105 In February 1279 burgages were distributed to settlers. Among the settlers were the king’s tailor and several building masters who had been working on the construction of the castle. It seems that settlers were scarce, though, because in 1282 burgages were still being distributed along with agricultural land to ‘all wishing to have burgages or lands at Flynt’.106 In 1292, 74 burgages are mentioned in the tax register.107 During the rebellion of 1294, the town was burnt down when the Welsh were laying siege to the castle. Unlike many other towns, however, it was not burnt by the rebels, but by the constable of the castle, in order to deny them shelter and provision.108

Flint is one of the few towns in Wales that was built on an open and level site. Thanks to these favourable conditions of the site, the plan could be laid out as a regular orthogonal grid with a rectangular outline form. At least, it was as regular, orthogonal and rectangular as could be found in Wales: the corners of the plan were rounded off on the northwest side, the streets are not completely straight and the main transverse street is somewhat offset.109 All in all, however, there can be no doubt that orthogonality was the principle behind
the layout of the plan and, for that matter, the plan looks more like its continental counterparts than like other new towns in Wales or England.\footnote{More or less similar sorts of new town plans of the 12th to 14th centuries can be found, for example, in Nieuwpoort in Flanders, Vianen in The Netherlands, Freienstein in northeastern Germany, and many of the bastides in southwestern France or the Florentine terre nuove, which are discussed in chapters 2 and 3.}

The site on which Flint was built gently slopes down in a northeasterly direction towards the river Dee, which actually is a wide tidal sea-arm here. The axis of the town, formed by the central street blocks on the southeastern side of the main street, lies slightly higher than the other street blocks.\footnote{The ditches on the longitudinal sides of the perimeter may have been sited more or less following natural depressions.}

From the oldest plan of the town, made by John Speed in 1611\footnote{The plan of John Speed was published in his Theatre of Great Britaine in 1611. This work also contains the oldest cartographic sources of many other towns in Wales and England. (Beresford 1967, p.149; Conzen 1968) See also figs.1.11, 1.24, 1.29 and 9.14}, the main town square appears to be a real square, which was quite rare in Wales. (fig.1.11) But unlike many newly planned towns on the continent, the square is not really a constitutive element in the street plan; in fact it is clearly no more than a rectangular space left open by the shortening of the adjacent street blocks.\footnote{See Lavadan & Hugueney 1972, p.114, and par.9.16.} The same holds true for the smaller longitudinal square in the central block, which is not much more than a widening of the transverse street.

In Speed’s plan there is a building with a tower on the corner where the two squares meet: this probably was the shire hall, for which no dates are known. The church, which lay at the high end of the town on the main street, is first recorded in 1291, when it was a chapel dedicated to St. Mary, dependent on Northop parish.

Flint was turned into a distinct parish in the 16th century or earlier. The present church was built on the same site in the Victorian era.\footnote{See Hubbard 1986; http://www.genuki.org.uk/big/wal/FLN/Flint/index.html.}

It is difficult to reconstruct the original structure of the house lots in Flint. Speed’s plan shows that most of the lots lay largely unoccupied by that time. It seems likely that Speed drew only part of the plot boundaries that existed in his time, but it is nevertheless clear that most plots stretched from street to street. Only in the area below, to the right of the main street (southwest of the church), there were small house lots of lesser length, with an extra intermediary back street in between the parallel streets. In the 1870 Ordnance Survey plan there are more lots that lie back to back, but most lots still stretch all the way between the parallel streets. (fig.1.12) Therefore, it seems likely that originally the lots stretched from street to street, which made them about 100 ft. long (c. 30.5 m.). There is, however, quite a difference in the exact distances between the parallel streets. For instance, in 1300 a plot was sold which measured four-score feet by six-score feet (c. 24 x 36.5 m.).\footnote{Soulsbury 1983, p.40.} This plot must have been located in one of the outermost rows, since these rows were the widest. According to Carter, the average size of the original burgage plots was about 40 x 100 feet (12.2 x 30.5 m.).\footnote{Carter 1990, p.194.} He deduced this from the 19th-century plan; but this deduction is not very trustworthy regarding the width of the plots, since, according to Speed’s plan, few of the original plot boundaries survived by 1611. The 40 x 100 ft. size, however, does not seem unlikely, because it was also the official standard lot size in Beaumaris.

Between the castle and the town there was a ditch, which was traversed by a wooden bridge. From the
castle wall and the tower of the outer gate to the castle bailey, it was possible to look through the main street of the town. This street is about twice as wide as the streets that lie parallel to it.

An interesting aspect in the topography of the landscape of Flint and its surroundings is the allotment of the lands of Flint parish, as recorded in the 1837 Tithe Award map. (fig. 1.14) The parish is relatively small (c. 610 ha.), about forty times as large as the town itself. It consists of a roughly quadrangular area between two streams that flow down the slope towards the Dee, with the town situated in the northern corner. Over half of the parish is covered by an area with enclosed fields allotted in a regularly organised pattern. The enclosed fields are of quadrangular form with fairly straight sides lying side by side in rows parallel to the shore of the Dee. Roads and footpaths tend to follow the through-going dividing lines between these rows. The most important of these is the Chester Road along the shore of the Dee, which was the main road into northern Wales and which may be regarded as a sort of baseline for the field allotment.

This allotment is clearly more regular than the field allotments in the neighbouring parishes. It is very interesting that the form of the town fits more or less seamlessly into this field structure. The longitudinal direction of the town plan is parallel to the longitudinal direction of the field allotment, and several of the streets and outer boundaries of the town prolong the lines of the field boundaries. When looking closely, one can observe, though, that the lines of the transverse street and the street on the southwestern side of the town have a direction slightly different from the parallels that separate the rows of fields. This difference in direction seems to stem from the layout of the town streets at right angles to one another; whereas the lines of the field boundaries are not at right angles, but diverge about ten degrees in the directly surrounding area.

The crucial question is, of course, whether or not the field pattern is older than the town, in order to be able to determine in what measure the existing landscape influenced the layout of the town or whether they

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117 This is clearly visible in the 1:10560 Ordnance Survey plan Flintshire IX N.E. of 1914, which I have consulted in the National Library of Wales. As far as I know, such regular field structures are rare in Wales in any case.
were laid out together. On the basis of the layout of the town, with its transverse streets prolonging the parallels that divide the rows of fields, ‘adapted’ slightly in its direction in order to achieve rectangularity, it seems quite possible that the field structure was older than the town. Unfortunately, I have not been able to find out how old the enclosures are, nor how old the field pattern is. Therefore, I must leave the question to students of the local historical geography to answer.

Like many other towns in Wales, Flint was severely damaged during the Owain Glyndŵr rebellion in 1400. In the plan of 1611 (fig. 1.11) it is still possible to see how the town had a distinctly rural atmosphere, since it

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118  Around the three hamlets to the south of the area (Flint Mountain), the Tithe Award map shows a more irregular field structure that seems to be older than the regular allotment. The subject of the relation between town plans and field structures in the surrounding rural area is treated in relation to a number of new towns in southwestern France in par.2.10.6 and more in general in par.9.23.

119  In Britain the enclosures often stem only from the 18th and 19th centuries. In the map with ‘Parishes subject to Parliamentary Enclosure Awards’ in Wales in Huw Owen 1989 (p.256) it seems, however, that Flint parish was not subject to parliamentary enclosure. It is not possible, however, to draw solid conclusions from this.
was largely deserted and there were only about 60 buildings extant by that time. During the course of the last two centuries the old structure of plots has been largely wiped out. In the 19th century, the railroad was laid out right through the town. Later on, terraces of worker’s cottages have been built, thereby splitting up the original burgages that had been largely deserted in 1611.120 In the 1960’s-80’s the transverse street was widened and small-scale housing was cleared to make way for new housing projects in massive apartment blocks and high-rise buildings. (fig.1.13)

1.7.2 Rhuddlan (figs. 1.15-1.18)

In August 1277, the king’s army moved westward from Flint, to arrive at the strategically important stronghold of Rhuddlan. Between these places, a road was cleared through the woods by no less than 1,800 axemen.121 At Rhuddlan in the wide and fertile valley of the river Clwyd, about 5 km. from the mouth of the river, Edward ordered the construction of a new castle with a new town attached to it. The fact that people had been living in the nearby area in different periods ever since Mesolithic times demonstrates that the site was very well suited for settlement.122 The town was built at the point to which the tide reached, which was also the lowest point where the river could be forded, on a terrace about 10 metres above the river. From this site naval traffic on the river, as well as land traffic along the coastal route, could be controlled. (figs.1.15-1.17)

Although there had been earlier Saxon and Norman settlements at Rhuddlan, the town founded by Edward was truly new. The 10th-century Saxon burh of Cledemutha, which certainly lay near here, may have been at the very same site, as Soulsby and others suggested, but it is also possible that the site of this burh had been lost to the sea.123 Around the year 1073, earl Hugh of Chester had built a 20-metre high motte, still largely present, just southeast of where Edward was to build his castle. The accompanying Norman ‘novus burgus’ had 18 burgesses recorded in Domesday Book (1086).124

It is difficult to assess the original layout of the Edwardian town. The town that exists up to the present day to the north of the castle has traditionally been regarded as the initial Edwardian borough. In this view the two straight stretches of large moats and banks that can still be partly traced to the southeast of the castle, were regarded as belonging to the Saxon burh or the Norman borough.125 More recently, though, thorough archaeological investigation has led to the conclusion that they most probably belong to the Edwardian works.126 The defences of the Norman settlement were found to have lain in a much narrower circuit surrounding the motte.127 The town north of the Edwardian castle is, however, also from Edward I’s time, and at the northern end of it remnants of a bank and ditch of similar layout as those on the southeast are still visible. (fig.1.16) So, we are left with an unclear picture of what was initially intended to become the town: was it planned to fill the whole area within the earthen defences, or just the present northwestern part?

Quinnell and Blockley, who proposed the Edwardian date for the southeastern defences, do not clearly describe what they believe to have been the original layout of the borough. They propose that the Edwardian forces, possibly around 10,000 men, were quartered within these defences in 1277 and 1282. Archaeological excavations have clearly shown that there were houses and buildings in the southeastern area in the late 13th century and that iron was worked there. In a 15th-century document this area is described as ‘le Oldtoun’, but by then it was not urban in character.128

It is possible that the area southeast of the castle was originally intended as a military camp, while the area northwest of it was to become the borough. But it is also possible that the whole area was planned to be the town. Originally, the town may well have been planned on a grander scale than eventually realised (with 75 taxpayers recorded in 1292). It seems that Edward wanted to make Rhuddlan a really important central place, since he requested the pope for the transfer of the Episcopal seat of nearby St. Asaph to the new town.

120 See also the estate survey plan of 1770-71 (Peniarth deposit, Coll.II, vol.4, p.57, National Library of Wales).
122 Many artefacts of prehistoric settlement have been found during excavations in Rhuddlan. (Quinnell & Blockley 1994, pp.95-147)
124 Soulsby 1983, pp.227-228; Beresford 1967, p.37. Domesday Book is the first and last written source to refer to the Norman borough at Rhuddlan. (Quinnell & Blockley 1994, p.8)
fig. 1.15: Rhuddlan. Ordnance Survey plan of 1913. (Flintshire IV 7, 1:2500, modified by the author, not depicted to scale) Rhuddlan castle and town were founded by King Edward I in August 1277, during his first Welsh campaign to end the First War of Independence.

fig. 1.16: Rhuddlan. Plan based on a modern Ordnance Survey, with principal historic features indicated. (From: Taylor 1987, modified by the author) The earlier Norman borough lay directly southeast of the new castle and is still recognisable by the remnants of the motte and bailey.
It seems likely that if the king wanted to make Rhuddlan the main town of the bishopric, he also wanted to make it an important place in the hierarchy of secular administration. This plan, however, came to nothing, for some reason presently unknown. It seems likely that King Edward’s attention shifted to other new towns, foremost Conwy and Caernarfon.\(^{129}\)

An objection against the idea that the borough was planned to fill the whole area to the southeast and to the northwest of the castle lies in the siting of the castle. It is peculiar that the castle is enclosed between the areas to the northwest and to the southeast. In the other Edwardian castle towns of Wales - much as in other ones elsewhere - the castle is just about always situated on a corner or extremity of the town. The Edwardian castle towns that are located on the coast all have the castle sited on the seaward side of the town. It should also be considered that normally, when a castle has two gates, one would be directed to the town, and the other to the open country. Here in Rhuddlan, however, the situation is different. The western castle gate was obviously directed to overlook the river and the sea as well as the bridge and the road westward. The eastern gate does not look out on what would become the Edwardian borough, but on the northern edge of the southeastern moated area, and beyond that, on the road that came from Chester via Flint and Cwm.

A problem here, however, is that it is unclear in which direction the bank and ditch exactly went from the point c. 600 m. east of the castle. But in Hylas lane, east of the castle, one can still find a linear depression in eastern direction, which might be a remnant of the ditch. About ten metres to its north, traces of another ditch were found by archaeological excavation.\(^{130}\) This may have been a second, outer, ditch. If this is right, it would seem that the first Edwardian borough was initially planned to the southeast of the castle, re-occupying and enlarging the site of the previous Norman borough, which had seized to be a town long before.\(^{131}\)

The gate in the southeast of the outer castle ward was closed in 1301. This suggests that this gate did no longer function, and may indicate that no important activities, military or economic, took place to the southeast of the castle.\(^{132}\) In the same period of the blocking of the gate, the church was moved from its old site in the Norman borough to its present location in the northwest corner of the town, which also indicates that the urban centre shifted to the area north of the castle.

Quinnell and Blockley suggest the possibility that in August 1277, when Edward and his army first arrived, work was first started on the new castle and the defence-works southeast of it. Within these new defences,

\(^{129}\) Quinnell & Blockley 1994, p.223. The plan for the transfer already existed from 1278. King Edward gave the ground for the cathedral and 1,000 marks for its construction. (see Dugdale 1830, vol.6, part 3, pp.1302-1304)

\(^{130}\) Quinnell & Blockley 1994, p.222

\(^{131}\) Quinnell & Blockley 1994, pp.8, 216-218, 220.

\(^{132}\) Excavations have shown, however, that there were forges directly southeast of the castle. This fits in with the theory that this area became suburban, since smithing and other industrial activities involving fire or environmental nuisance were often located outside the actual town area. (Quinnell & Blockley 1994, p.224)
existing features such as the Norman motte, the Norman church, the Dominican friary further to the southeast, and probably some auxiliary buildings were taken up.\textsuperscript{133} This area was intended to first serve as military camp and subsequently as site for the borough. But in November 1277 peace was signed in the treaty of Aberconwy, and it may be that it was only by then that the foundation of the borough became of primary importance in order to create a permanent royal settlement. It seems likely that after that time the site northwest of the castle was chosen as the one which was best suitable for the borough.

The first document that refers to the new borough dates from February 1278. According to Quinnell and Blockley there are no indications of a change of site after that date.\textsuperscript{134} In my opinion, though, there are some clues that may indicate a change of site in 1279. In March of that year the parson of the old church of Rhuddlan informed the king that settlers had occupied some of the church’s land ‘[…] in order to build burgages near the castle […]’. It seems likely that this land was close to the Norman church, just southeast of the castle. So, by this time new settlers were occupying land that was not officially meant for them, probably to the southeast of the castle, within the large area surrounded by earthworks. Some months later, in July 1279, the clerk William of Louth was ordered by the king to make a survey of the town, ‘[…] to view the void plots of land (‘placeas’) and other plots in that town, and to assess and rent burgages in the same plots and to demise the burgages at the king’s will […]’. He also was to inspect the ditch around the town. Other officials and the townspeople were instructed to help him.\textsuperscript{135} This event may have marked the shift from the area southeast of the castle to the smaller area north of it. In November 1280 it is reported that the burgesses ‘[…] are now building the town and are expending and will expend great costs about making the town, building it and improving it […]’. It is also known from the royal accounts that from 1279 to 1282 a considerable sum of money was spent on diggers and carpenters working on the town’s defences and on transportation by carts of earth and timber for the town.\textsuperscript{136}

So, it is not unlikely that the precise location of the borough was changed in the years 1279-82. Obvious advantages for a borough with trade functions are the presence of the bridge and the interregional road north of the castle. Also, naval traffic from the sea would easily reach the site north of the bridge, whereas it would not be easy for many ships coming in from the sea, to pass the bridge, even if it could be opened.\textsuperscript{137} And indeed, the town quay was built directly north of the bridge in the initial phase of the borough, before the church was built adjacent to it, around 1300.\textsuperscript{138} (fig.1.17)

\textsuperscript{133} Quinnell & Blockley 1994, pp.8, 214-218. The friary was founded shortly before 1238, probably by Llewelyn ap Gruffydd. This foundation seems to indicate the presence of a town at this time, but neither material nor documentary sources have been found in support of this supposition.

\textsuperscript{134} Quinnell & Blockley 1994, p.220.

\textsuperscript{135} Lilley, Lloyd & Trick 2005, s.v. Rhuddlan, Discussion, Early history

\textsuperscript{136} Lilley, Lloyd & Trick 2005, s.v. Rhuddlan, Discussion, Early history

\textsuperscript{137} According to Taylor, the bridge was initially of wood, and was rebuilt in stone in 1358. It seems likely that the wooden bridge could be raised, since it seems to have been possible for sea-going vessels to sail up to the castle. (Taylor 1987, pp.11-12)

\textsuperscript{138} Soulsby 1983, p.230.
Like Flint, Rhuddlan was never walled in stone. Instead, earthwork defences were constructed, at least partly surrounding the town, between 1279 and 1282. These defences were of a rather unique sort, with two banks 10 to 19 m. wide and a ditch in between, 14 to 16 m. wide and about 3 m. deep. In fact, it seems likely that it was an experimental type, the development of which was not followed through. The defences were planned to be topped with a wooden palisade. Timber was shipped in for this reason in 1282, but one year later the palisade was shipped on to Caernarfon ‘for the construction of the castle and the town there’. This clearly illustrates how the initial ambitious plans for Rhuddlan were moderated by the shifting interest of the crown.

The plan of the eventual Edwardian borough north of the castle was quadrangular, with the castle in the southern corner and the church in the western corner. Earthwork defences of bank and ditch were probably planned on three sides of the town, while the riverside was left open. On the side of the river lies a steep ridge of c. 6 (north) to 10 (south) m. height, which makes a turn to the northeast just northwest of the churchyard. North and west of the town lay the flat river-marshes, which meant that the town and the castle really lay on a tactical and well-defendable site. On the north end of the ancient town, the banks and ditch can still be seen at the point where they turned southeastward.

The pattern of streets is not very regular. The most important street, appropriately called High Street, crossed the town halfway, with the bridge on its southwestern end, and most likely an opening in the town defences on its northeastern end. This street formed part of the interregional road parallel to the coast. The road from Flint and Chester, so important for the Edwardian armies, would have come from the southeast though, and probably entered the town east of the castle, but it is unclear exactly where. Soulsby and Lilley, Lloyd & Trick suggest that there was another gate towards the northwest, at the end of Gwindy Street. Church Street and Castle Street are for a large part directed towards the castle, for which they are easily surveyable from its walls. The whole street plan is not orthogonal: apart from High Street the streets have gentle curves, and they are not laid out at right angles. All in all, the plan had a simple grid structure of roughly parallel lines in two directions, formed by the streets and the contour of the walled area.

It is hard to reconstruct the original plot division. No original plot dimensions are known and old plans do not clearly show boundaries that can be recognised to have stemmed from the original layout. Most of the lots are quite irregular in form and size. This may well have been so from the outset, as it seems that the plots were not planned in advance.

An important feature of the building operation at Rhuddlan, was the work carried out on the canalisation of the river to create a fossa maris, in order to facilitate direct access from the town and the castle to the sea. An average of 77 men were working on the canal and dyke for three years from November 1277. This costly work illustrates how important naval communications were for Rhuddlan and the Edwardian castle towns in general.

It is interesting that the documents of ‘The King’s Works’ mention that in 1282 timber was shipped to Rhuddlan ‘in order to enclose the town and to make dwellings therein’. This suggests that the king’s workforce was also involved in the building of houses in the new town, or at least in providing building material. Normally though, in Wales as well as elsewhere in Europe, the building of houses in a new town would be the responsibility of the settlers themselves.

In 1292 the town housed 75 taxpayers. It is not known if it grew further in the 14th century, but that seems most likely, analogous to the other towns of northern Wales in the period. Rhuddlan never achieved a status

139 Quinnell & Blockley 1994, pp.9, 210-211, 219-220, 222-223. Remnants of these earthen defences can still be seen on the northern corner of the Edwardian town, to the southeast of the castle, as well as in Flint on the northeast side of the town.
140 Lilley, Lloyd & Trick 2005, s.v. Rhuddlan, Discussion, Early history.
141 Soulsby 1985, p.229.
142 It is known that they extended in a southwestern direction towards the river, but of the southeastern part no clear traces have been found. It is not impossible that the defences were not actually realised completely, but it seems likely that they extended or intended to continue in a southeastern direction, parallel to the line of Gwindy Street / Parliament Street. Possibly, the line of Conwy Court (formerly Election Row) represents the former ditch, since to the southeast it lies in a hollow, and a fossilised scarp was excavated on its southwest side. (Quinnell & Blockley 1994, pp.222, 225-226) According to the reconstruction of Lilley, Lloyd & Trick (2005, s.v. Rhuddlan, core maps 2 and 3), however, the bank and ditch lay some 20 to 60 m. further to the southwest. (see fig.1.18)
143 Relevant plans are the 1758 Elidor Conway estate map, the 1839 Tithe Award map (Rhuddlan parish) and the 1:2500 Ordnance Survey of 1913 (fig.1.15), all to be found in the National Library of Wales.
144 See Lilley, Lloyd & Trick 2005, s.v. Rhuddlan, Discussion, Design and plan.
146 Apart from the new borough of Bere, which was attached to an older castle on an inland location, all Edwardian castle boroughs in Wales are sited with access to the sea.
147 Taylor 1963, p.333; Lilley, Lloyd & Trick 2005, s.v. Rhuddlan, Discussion Early history.
148 See p.s.9.12.
of great importance, however. Like many other towns in Wales it suffered from the plagues of the 1340’s and
was heavily damaged during the Owain Glyndŵr rebellion in 1400, after which only 37 burgages were left in
1428. At present, Rhuddlan is no more than a sleepy small town.

1.7.3 Aberystwyth (figs. 1.19-1.20)

Just as at Flint and Rhuddlan, the works at Aberystwyth started in the summer of 1277, during Edward’s first
campaign in Wales. In July of that year Edward’s brother Edmund, earl of Lancaster, headed an army that
penetrated northward from the royal base of Carmarthen in southwestern Wales. He also led the beginning
of the works at Aberystwyth. Workmen, materials and food supplies had been assembled in Bristol in the
previous months, and were shipped from there. The castle of Aberystwyth replaced earlier Norman castles
that lay further inland and which, in their turn, had a predecessor in an Iron Age hillfort south of the town. At
first the town was simply called ‘the new town of Llanbadarn’, after the older monastery and village in
whose territory it was sited. The name of Aberystwyth, meaning ‘mouth of the Ystwyth’, was probably trans-
ferred from an earlier royal castle on the river Ystwyth. The new town and castle were, however, not founded
at the mouth of the Ystwyth, but of the river Rheidol, which lies slightly further to the north.

The castle town was situated centrally - to the extent that a coastal town can be central - in the newly
conquered crown territory in Ceredigion, which previously had been under Welsh control. A small region
around Llanbadarn, however, had already been subject to the crown from 1247 until the 1260’s.

The specific location that was chosen for the castle and the town was a strategically sited peninsula with
a low hill, directly north of the mouth of the river Rheidol. The main land route along the coast passed just
east of the site. With the sea to the west, the river to the south and marshland to the north and east, the loca-
tion lay well protected and was easily defensible. Nevertheless, it was found necessary to build a stone wall
surrounding the town. In the following 12 years an average of some 350 men, with a peak of 1300 men, were
set to work here.

Just five months after the works began, on 28 December 1277, the new town was officially made a
borough. It received the same rights as the older borough of Montgomery: a weekly market, two yearly fairs,
a guild merchant and a hanse. Initially, the town was provided with a ditch, with the stone wall to be built
later on.

A mill and millpool were constructed together with the town itself, and in 1281 a weir was made in the
river, all at the expense of the crown. Although the new town was of considerable size (c. 20 ha./50 acres,
with burgages taken up by the early 14th century) Aberystwyth was not made into a separate parish. The old
Celtic monastery of Llanbadarn Fawr, two kilometres east of the new town, remained the ecclesiastical centre
until the 19th century. In the town, a chapel was built just north of the castle sometime before the mid-15th
century; but it was lost to the sea by the 18th century.

It seems that the town did not completely develop as it was planned, since part of its area remained
empty up to the 19th century, probably being mainly used for gardens. It concerns the marginal areas,
particularly the western parts, towards the castle, and the southeastern corner. The destruction caused by
Welsh rebellions in Aberystwyth’s early history may have played a part in this arrested development. Like in
other Edwardian foundations in Wales, some of the men who had worked on the building of the castle and
the town stayed to become burgesses. Nevertheless, in May 1282, five years after the beginning of works,
the king’s military commander of west Wales, Gilbert de Clare, was commissioned to recruit new inhabit-

152 Beverley Smith 1977, p.18.
155 Taylor 1983, pp.201, 394.
157 This appears in old plans and is confirmed by archaeological excavations. (Hague 1977, pp.85-86; Soulsby 1983, p.71)
158 This can be seen in the plan of c.1800, A Map of the Borough of Aberystwyth with several Farms and Messages of Lands (Nat. Library of Wales, Groneddan 110).
159 It concerns among others an attack in 1282, in which the town walls were destroyed and a large part of the population was killed, and a fire that was set to the town in 1287.
ants. Apparently, he was successful: 157 burgages were counted in 1308.\textsuperscript{163} Judging from the names of the early inhabitants it seems that there was no discrimination against Welsh settlers, unlike other places such as Cardigan or Caernarfon.\textsuperscript{164} In the 14\textsuperscript{th} century, Aberystwyth’s initial role as an administrative centre was replaced by Cardigan and Carmarthen.\textsuperscript{165} In the 16\textsuperscript{th} century, only 60 to 80 houses were inhabited.\textsuperscript{166} Apart from the ruins of the castle, no ancient buildings have survived up to the present day: it seems that the oldest buildings in the town date only from the 18\textsuperscript{th} century.\textsuperscript{167}

The outline of the town was determined by the form of the low hill on which it was sited: the town walls were laid out following its contours. It is not certain whether the town also had a wall along the seaside, but it does seem likely. The castle lies on a rock about 15 m. above the sea on the southwestern end of the town. This is, however, not the highest point in the town, the ground level being a few metres higher some 150 m. to the east, at the crossing of Vulcan Place and Prospect Row. A number of streets, more particularly the main streets Bridge Street (to the south), Great Dark Gate Street (to the northeast), and Pier Street (to the northwest), lie somewhat deeper than the ground that borders them, for which they must have functioned as sewers for rain water.

The structure of the streets is far from geometrically regular, but there is a basic regularity of rectangular lots, within rectangular, or at least quadrangular, blocks, boarded by streets that tend towards straightness at more or less right angles.\textsuperscript{168} The town had two main streets, crossing in the centre and protruding in the

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{fig1.19.png}
\caption{Aberystwyth. Town plan by John Wood, 1834. (From: Baynton-Williams 1992). Aberystwyth castle and town were founded by King Edward I in the summer of 1277, during his first Welsh campaign to end the First War of Independence.}
\end{figure}
surrounding countryside via gates. It seems that the street that connected the castle-gate in the southwest with Great Dark Gate in the northeast, was the most important one. The parallel street to the northwest, which seems to be of less importance since it is not as central, also had a gate on the northern side of the town. This gate is an uncommon feature because it is in a street that seems to be of minor importance, and since it is so near to the Great Dark Gate, with both streets prolonging in the same northeasterly direction from the gates. This is remarkable, because commonly the number of town gates would be reduced as much as possible. Gates were vulnerable spots in the defences, and therefore they were generally only built at the end of the main streets, more or less regularly spaced over the circumference (if the landscape was undifferentiated) and giving access to different directions.

The plan of the town can be characterised as a grid plan. Although it is clearly planned, it is not very regular. Streets are not very parallel, they do not all cross at right angles and they are not completely straight. The street most out of sync with the grid is Bridge Street, which connects the nearest bridgeable point over the river with the centre of the town. The plan of 1834 clearly shows that this street was rather irregular in its course, slightly crooked with building lines that protrude and recede, and that it did not really continue in one line into Pier Street. This is also true for the streets paralleling Great Dark Gate Street to the southeast (Vulcan Place / Princess Street / Queen Street). It seems that this is at least partly due to encroachment on the streets by the building fronts during the centuries. The result is that these streets do not look like through-going streets, but rather like separate streets that tend to end near to where the other begins. In the past this effect was even stronger, since the town hall stood at the crossing of Bridge Street / Pier Street and Great Dark Gate Street, actually blocking the line of the former.

This town hall was built in a small square at the crossing of the two main streets. It also functioned as a market hall, but it was demolished in the 19th century. It is not known when this hall was originally built, a length of up to 200 ft. It is possible that this length was only reached when the number of settlers did not meet the original expectations, so that burgages could be larger than might have been planned initially.

The present building line on the west side of Pier Street towards the small square in the centre of town, for example, was changed sometime between 1809 and 1889, so that it formed one straight line; whereas in the earlier situation there had been one building that protruded into the street. By this re-alignment, however, the new street axis connected even worse to the axis of Bridge Street.

In the early 19th century, a new market hall was built in St. James’s Square, and a corn market hall was built in Market Street, which was a newly widened alley.
but it may have been not long after the foundation of the town. The market was held in the small square, and probably also in Great Dark Gate Street and Pier Street, which were the widest streets in the town.

Since the late 18th century, various new streets, largely with terraced houses, were added in the western half and the southeastern part of town, which had mainly been used for garden space in the previous centuries. The town also grew, first to the northeast and later eastward, into the regional centre which it presently is.

1.7.4 Conwy (figs. 1.21-1.23)

The building of the new castle and borough of Conwy was begun in March 1283, six years later than the towns discussed above, during the Second War of Independence. Just after the royal forces had secured the area of the central north coast, in the second week of March, King Edward had his camp put up at the site of the Cistercian abbey of Aberconwy. This abbey was founded in 1186, and was the burial place of Llewelyn the Great and his family. Next to the abbey stood an old lordly residence, which was referred to as ‘Llewelyn’s hall’.\(^1\) The king had the abbey removed to a site 15 km. further inland, for which a compensation of £427 was paid.\(^2\) When the activity on the construction of the castle and the town walls was at its height, in the summer of 1285, about 1,500 men were working on Conwy.\(^3\)

Most probably, Conwy was planned to become an administrative capital: according to a preliminary draft of the Statute of Rhuddlan the county that eventually became Caernarfonshire was to be centred not on Caernarfon but on Conwy.\(^4\) The town became the third largest of the Edwardian boroughs, with 124 burgages taken up in 1312.\(^5\)

Much like the earlier foundations, the town was sited on the coast, at the mouth of a river, the Conwy, where the traffic on the main coastal land route was ferried across. The strategic importance of the area had been acknowledged in earlier times, as is demonstrated by the fact that an Iron Age hillfort, a Roman fort and a Norman castle had already been located in the area.\(^6\) And even today the location is of great strategic importance, since the main rail and road routes from England to Ireland pass by the town. Until the recent motorway was built, both routes actually passed right under the castle walls, bridging the Conwy river from there. The new town was built on an eastward sloping plateau, protected by the water of the Conwy on the northeast side, and by its tributary, the Afon Gyffin, on the south side.

In June 1283 work began on the new royal residence next to the old abbey and on a palisade surrounding the site of the new town. Between 1284 and 1287 this palisade was largely replaced by impressive stone walls, with a total length of 1.3 km. and three gates and 21 towers at regular intervals of about 46 m.\(^7\) In the early years particularly much money and effort was spent on the building of the castle, which is one of the most impressive among the castles of Wales, standing majestically on a rocky spur that protrudes into the Conwy river. (fig. 1.22) The abbey was moved away, but the abbey church was retained and became the town’s parish church.\(^8\)

The mill that had belonged to the abbey was also kept, and a new mill was built for the king. Llewelyn’s hall was partly restored, but it did not become the hall of the king’s wardrobe, since this was newly built northeast of the later Mill Gate (Porth y Felin). According to Taylor it seems likely that Llewelyn’s hall was meant as the residence for the Prince of Wales - a title the king had planned for his son Edward of Caernarfon to assume. This would seem quite appropriate, as Llewelyn had been the first to carry that title, and also since the Treaty of Aberconwy may have been concluded in this hall in November 1277, with which the peace was signed that ended the first phase of Edward I’s conquest of northern Wales.\(^9\) The hall stood in the southwest corner of the town adjacent to the town wall. (see fig. 1.23)

Further east, close to the town wall between Porth y Felin and the castle, lay the office of the ‘Master of the King’s Works in Wales’, probably existing of the house of master James of St. George and other buildings.

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1.\(^72\) Taylor 1963, p.337. It is just possible that there also existed a settlement termed ‘the abbot’s borough’ on the east side of the abbey, but it seems more likely that this was the borough of Deganwy, below the castle on the other side of the river. (Beresford 1967, pp.42-43).

2.\(^73\) Taylor 1963, p.350.

3.\(^74\) Tucker 1960, p.23.

4.\(^75\) Taylor 1968, p.3.


connected with the works. Excavations have shown that no houses stood on Rose Hill Street to the south of the church until at least the 16th century. From maps and prints of the 18th and 19th centuries it appears that the area along the northwestern side of the walls was also very thinly occupied by that time. (see also fig.1.22)

Conwy’s urban form is clearly planned. The contour of the town is made up of straight stretches of stone walls with regularly spaced towers. The form may be described as a somewhat deformed quadrangle. The southern part of the wall circuit was clearly determined by the topography of the site: it is somewhat crooked, since it more or less follows the contour lines of the relief. The northeastern stretch of wall is completely straight, along the bank of the Conwy. The straight side on the northwest, on the contrary, does not parallel the contour lines but climbs the hill. An even steeper climb is made by the southwestern stretch of wall, which was laid out perpendicular to the contour lines. These two sides meet at the highest point in a corner tower which overlooks the whole town. This tower, or rather the corner of the wall circuit, was purposefully planned to be at this point, since it is the highest point in the immediate area. It is possible to survey the northwestern and southwestern stretches of the town wall from the corner tower, because the tower protrudes slightly from the alignment of these stretches. The only entry road on the landward side, which leads to the nearby Upper Gate (Porth Uchaf), could also be controlled from the corner tower. On the riverfront towards the Conwy, two spurs of wall that protruded into the water secured additional protection for the town quay, which lay in between them.

The castle stands out on a rocky outcrop of about 15 m. height, on the sharp eastern corner of the town circuit. It was separated from the town by a ditch, as was usually the case in the Welsh castle towns. Because the plan of the castle was adapted to the shape of the outcrop it was built on, it has an irregular form. Another existing feature that must have influenced the layout of the town was the 13th-century abbey church of St. Mary. It is typical of Welsh towns that the church did not get a prominent position within the new layout. Although it must have been meant to function as the parish church from the time of the town’s

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183 See the printed views by the brothers Buck of 1742 (Soulsby, 1983, pp.112-113) and J. Boydell of 1749 (Beresford 1967, frontispiece) and the manuscript Holland Estate map of 1776 (Lilley, Lloyd & Trick 2005, s.v. Conwy, Downloads, Supplementary images).
foundation, its position was nevertheless somewhat marginalised: remarkably enough, the church was more or less confined by the lots on the streets to the northeast and west of it, which turn their backs towards the church. Deliberately, so it appears, the church was not given a monumental place in the urban layout.

The original street system of the town is well preserved; only the streets lying between the northwestern stretch of wall and the street parallel to it (Upper Gate Street/Chapel Street) and the streets near the castle were created in the 19th century, just like the breaches in the town walls in the northwestern stretch and on both sides of the castle. (see fig. 1.21) The town has three principal streets, which relate to one another in a rather uncommon fashion. Chapel Street/Upper Gate Street was the street that was laid out leading to the gate in the southwest, in a direction more or less parallel to the northwestern stretch of wall. High Street was laid out in a course parallel to Chapel Street, leading down to the main gate towards the quay on the Conwy. So, these parallel streets both end in a gate, on opposite sides.184

A third gate is situated towards the south and gives access to the bank of the Gyffin where the town mill was situated, wherefore it was called Mill Gate (Porth Felin). Most probably the small river could be crossed here to give access to the southward route through the Conway valley. This gate is unusually placed astride the wall instead of in alignment with it. Probably this layout was made necessary by some particular dictating condition of the site, unknown to us at present.185 Another street of greater importance was the street running towards the castle parallel to the quayside wall. The northwestern part of this street (Berry Street) is a little less wide and lies somewhat shifted northeastward in respect to the southeastern part of the street (Castle Street). The whole stretch of this street is, nevertheless, surveyable from the western tower of the castle. Castle Street was the widest street in the town, wherefore it seems as though it may have been intended as a market street. The actual market square, at the southwestern end of High Street, is not really a square: it is an open space which looks as though it was not deliberately planned in this form, even when it is considered that part of the space was occupied by buildings later on.186

The structure of the most important streets in the town is orthogonal. High Street and Castle Street/Berry Street, Chapel Street and Crown Lane are laid out at right angles and are all very straight, by the standards of the 13th-century new towns of Wales. Rosemary Lane, Church Street and Rose Hill Street clearly do not conform to this structure. Their courses are at least partly determined by the course of the wall circuit and by the presence of the older structures of the church and Llewelyn’s Hall. It is hard to determine, though, why Rosemary Lane was not just laid out in one straight line with High Street, which would have been more

184 Conzen calls this arrangement a ‘staggered-parallel street system’. He argues that it was laid out like this in order to provide for two main streets instead of one, so that the amount of traffic-located frontages would be doubled, which was desirable as they were valuable for the shops of traders and artisans. In his analysis, Conzen breaks up the plan of Conway into two different parts, or different ‘plan ideas’ as he calls them. Apart from the ‘staggered-parallel street system’, to the southeast of High Street. He describes the plan as if the planners deliberately composed it from these different types of street systems. (Conzen 1968, p.128) In my opinion, this way of working seems, however, to be rather improbable for the 13th-century town planners. (see par.0.4.2) It seems more likely that this layout was determined by the conditions of the site, particularly the relief, in combination with the ambition to lay out the major streets in an orthogonal structure.

186 Conzen 1968, pp.128-129.
Along Castle Street, Berry Street, High Street and around the market place, there are house lots whose form may have originated from the town’s creation. It is not reasonably possible, though, to establish the original standard lot size. From a rent roll of 1315 it appears, however, that there must have been a standard burgage plot, although most holdings did not conform to that standard by that time.

A close look at the topography within the town shows that a number of streets lie slightly lower than the ground level of the directly surrounding area. The churchyard, for instance, is higher at its corners than in the centre, where the church stands. From here, the surface water was carried off to Castle Street along the connecting narrow lanes. Castle Street then, falls off towards the northwest, where it reaches its deepest point at the crossing with High Street, which lies in a hollow from about halfway along its length, falling to the northeast. At its end, this street reaches the lowest point of the whole town at the appropriately named Lower Gate (Porth Isaf), which must have served as a surface-water drain for the larger part of the town. As with similar hollow roads in Rhuddlan, Aberystwyth and Caernarfon, it is hard to tell whether these depressions are man-made, so the question remains as to whether the streets were laid out in depressions or whether the hollows were dug out in order to facilitate drainage along the streets.

1.7.5 Caernarfon (figs. 1.24-1.28)

In the late 11th century the earl of Chester had built a motte castle just half a mile west of the site where the ruins of a Roman fort named Segontium could still be seen. The first civil settlement on the site was probably founded in the period of Norman rule, which only lasted from the late 11th century to 1115, after which the area was re-conquered by the princes of Gwynedd, who founded a royal court (a llys) and a maenor at the site. The small commercial settlement at the site was chartered by Llewelyn ap Iorwerth in 1221.

But in July 1283 the site was hastily cleared of its older settlement, in order to make way for a new castle and town that were founded by King Edward, who had just conquered the area. The Norman motte was left standing within the bailey of the new stone castle, and the existing moat was deepened and extended. The existing civil settlement, however, was completely erased and re-planned. After an initial enclosure of the site by a timber stockade, the new town was surrounded by a stone wall probably by November 1285. Just like the castle, the town was eventually built in two phases, in 1283-1285 and in 1295-1301, following the heavy damages of the rebellion of 1294.
Like Aberystwyth and Conway, Caernarfon was laid out on a peninsular site, in this case between the sea-arm of the Menai Strait and the streams Seiont and Cadnant. (figs. 1.24-1.27) The Menai Strait, which separates the island of Anglesey from the rest of Wales, was of great importance for naval traffic. From the area around Caernarfon there are several valleys that open up to the interior of northern Wales, which were important for overland traffic. The coastal road also passed by the site, for which the town lay in a highly strategic position.¹⁹³

The small peninsula on which Caernarfon lies is rather low, rising to c. 14 m. at the eastern end of the castle, while just to the north and the south of the peninsula lie hilltops which are considerably higher. The situation is comparable to Aberystwyth and Conway: apparently the presence of a harbour was more important than being sited on a high point. The land rises more gently towards the east, where the Roman fort had been, between the rather steep slopes towards the riverbeds of the Seiont and the Cadnant.

The town quay on the west, the bridge over the Cadnant and the town mill and millpool on the east were created together with the new town. The quay and the bridge were made out of wood at first, but both were to be replaced by stone structures by the early 14th century. In 1304-05 the crown even paid for the building of a swans’ nest in the middle of the millpond, which apparently was seen as a worthy feature for a royal capital. The town did not receive a parish church of its own, however, because it remained part of the existing parish of Llanbeblig, with its church about a kilometre to the southeast of the town. The chapel of St. Mary served as the town’s church, from the time it was built in 1307. It was constructed by Henry Ellerton, deputy master of the works on the castle, on his own burgage plot in the northwest corner of the wall circuit of the town, attached to the corner tower.¹⁹⁴ (see fig. 1.24)

The town had a small market place at the junction of the two main streets, and a large market place outside the town walls, directly east of the castle in the bailey of the former Norman castle, where it was

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surrounded by a moat. An agreement of 1298 stipulated that every burgess of the town was to have a place with a 30-foot frontage on this outer market place, and that shops were to be built there. Baking, brewing, granaries and granges, however, were not allowed outside the town’s walls, since that would be harmful for the food reserves in case the town was besieged.\textsuperscript{195}

In 1284, with the signing of the Statute of Rhuddlan, Caernarfon was made the administrative and judicial capital of the Principality of North Wales. Because of this function as a regional capital, the town had some special public buildings, such as the exchequer office over the East Gate (with an adjoining chancery) and the royal court of justice, which seems to have been located in the southwest corner of the town. As the principal town of the shire, it also had a shire hall.\textsuperscript{196} Around 1300 the population must have counted about 300 to 400 people. A considerable part of the burgesses were active in the administration or the service of the king. Up to about 1330, new burgesses were still recruited from the men who worked on the building of the castle.\textsuperscript{197}

A peculiar feature in the founding of Caernarfon castle and town is the symbolic historical reference that seems to have been an important part of its planned content. In the late 12th century, the anonymous author of The History of Gryffud ap Cynan explicitly referred to the antiquity of the settlement by stating that Earl Hugh of Chester had built his castle ‘[…] in the old city of the emperor Constantine, son of Constans the Great […]’.\textsuperscript{198} This is not completely true: the Roman fort was not a city, it was actually built under emperor Vespasian, and the Norman castle was not really built within it, but half a mile to the west. But the idea of continuity was what counted, not the exact locations.\textsuperscript{199} King Edward certainly was aware of the ancient tradition of the place. In 1283 he ordered the re-burying of what was thought to be the body of Magnus Maximus, the presumed father of Constantine. Most probably he would also have been acquainted with the romance of Maxen Wledig. This story relates how this legendary emperor Maximus had dreamed of journeying from Rome to a land of high mountains, where he arrived at a place where a river flowed into the sea with an island lying opposite. In this place, he had a vision of a great fortified city at the mouth of the river, within it a great fort with many great towers and many colours, and in the hall of the fort a chair of ivory with two golden eagles thereon. The town and castle that Edward started to build can be regarded as the fulfilment of this vision. The clearest reference to the story is to be found in the architectural appearance of the castle, which includes highly uncommon features in its polygonal towers and walls decorated with stone bands of different colours.\textsuperscript{200} With these features the castle evidently refers to the Theodosian walls of Constantinople, the great capital of Constantine, the first Roman emperor to be a Christian. The imperial symbolism is also to be seen in the so-called Eagle tower, which is crowned by three turrets, each bearing a stone eagle.\textsuperscript{201} (see fig. 1.27)

The design of Caernarfon castle certainly was envisaged as something special, the area within its walls

\textsuperscript{195} Carter 1969, p.4.
\textsuperscript{196} Carter 1969, pp.4-5.
\textsuperscript{197} Williams-Jones 1978, p.83.
\textsuperscript{198} A. Jones (ed.), The History of Gryffud ap Cynan. Manchester, 1910. pp.132-133
\textsuperscript{199} Taylor 1963, pp.369-370.
\textsuperscript{200} Unfortunately, the coloured bands of stone can no longer be clearly discerned at present.
\textsuperscript{201} Taylor 1963, pp.370-371.
being relatively large and its architecture being more impressive and more ornamented than the other royal
castles in Wales. The symbolic references found in the architecture have several consequences of which it
is hard to tell in what measure they were explicitly meant to make a statement, or what their relative impor-
tance was. It is obvious that the ancient tradition of the site was used as a justification of its function as a
strongpoint within the structure of a larger empire. Further, the specific prestige of the site was emphasised
through the legend of Maximus’ dream, the ivory throne with golden eagles hinting at its function as an
imperial capital, which is also symbolised by the reference to Constantinople. And indeed, Caernarfon was
planned as the capital of the three new shires of northwestern Wales, the former principality of Gwynedd.202
All in all, Caernarfon castle and town heralded King Edward as the head of an empire of different nations
and as the direct heir of the Roman emperors, particularly the much-revered emperor Constantine the Great,
who was regarded as the first champion of Christianity.

Remarkably enough, the symbolic reference to Constantinople, through the form of the castle walls, was
not extended to the town walls. The western town gate, however, was called The Golden Gate, a name which
recalls the famous Golden Gate of Constantinople.203

A symbolic architectural feature of a different kind was the timber-framed ‘Hall of Llewelyn’. This hall

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203 Carter 1969, p.3.
had been part of Llewelyn ap Gruffydd’s residence at Aberconwy and, after the foundation of Conwy by King Edward, it was first used there as a royal residence; but in 1316 it was shipped to Caernarfon where it was re-erected within the castle.\textsuperscript{204} Apparently, the timber halls that had been the residences of the Welsh rulers were of great symbolic and/or financial value, because such halls were also reused at Aberffraw and Dolbadarn, and one was moved to the new castle in Harlech.\textsuperscript{205} It seems that the reuse of these halls must be taken as a symbolic gesture, representing the continuity of authority, notwithstanding the fact that the English king had taken over from the Welsh princes.\textsuperscript{206}

The outline of the town is determined by the course of the walls, which in turn was determined by the topography of the peninsula. The natural form of the landscape was optimally used to create a fortified town that would be more easily defendable, having direct access to the sea. Like the town, the castle has an irregular outline form: unlike the castles of Beaumaris, Harlech and Rhuddlan, which have regular geometrical plans, it was apparently decided to adapt the form of Caernarfon castle to the circumstances of the site, as determined by the natural landscape and the pre-existing castle. The site of the castle lies somewhat higher than the rest of the town, which gently slopes down to the west and the north. It seems that in the early stages the castle and town were seen as a defensive unit, since the north wall of the castle, towards the town, was built later than the walls of the castle and the town towards the exterior.\textsuperscript{207} The area covered by the town is just 10.5 acres (4.25 ha.), which is relatively small considering its importance. The length of the town walls is just 730 m., whereas at Conwy it is 1280 m.\textsuperscript{208} It is no wonder then, that the town is very densely built, compared to other towns in Wales. This is partly due to the original layout, because the streets are considerably narrower than the average street in the other towns.\textsuperscript{209} (figs. 1.25, 1.28) The castle takes up an area of about a quarter of the whole town.\textsuperscript{210}

The town wall has just one straight section, which is along the quay. The north-south streets are largely parallel to this stretch of town wall and are laid out so that they are visible (and therefore controllable) from the towers of the castle. The course of the easternmost street is somewhat curved, since it follows the curvature of the wall. Originally, this street was only a wall street along the back of the plots to the west of it. The westernmost street has two slight bends near its extreme ends, which makes it hard to see down its length from the castle tower. The southern bend is probably determined by the angle in the stretch of town wall along the quay. The building lines of the streets, especially the north-south streets, are rather irregular, with

\textsuperscript{204} Taylor 1997, p.15; see also par. 1.7.4. This ‘Hall of Llewelyn’ was destroyed long ago.
\textsuperscript{205} Brown, Colvin & Taylor 1963, p.407; see also par. 1.7.6.
\textsuperscript{206} Herbert & Jones 1995, p.6. More or less similar symbolism played a role in the imitation of forms in ancient Chinese palaces: see Wheatley 1971, p.431.
\textsuperscript{207} Taylor 1997, p.12.
\textsuperscript{208} Davies 1996, p.50.
\textsuperscript{209} The streets are about 7–9 m. wide.
\textsuperscript{210} Carter 1965, p.3.
protruding and receding parts. Obviously, the town authorities were not able to protect public space from being intruded on by private constructions, whereby the building lines, which most likely must have been straight originally, were distorted.

The streets show a clear hierarchical distinction. The most important one is clearly the central east-west street, which links the East Gate, the most important gate of the town on the landside, with the West Gate, giving access to the quay. The north-south streets only give access to the residential plots, as well as to the King’s Gate at the castle. The breaks in the northern stretch of the town wall, to which these streets now lead, were made in the early 19th century. The eastern wall street also gave access to the Green Gate, which was a small gate that opened up to the market area east of the castle.

The central street, the importance of which is demonstrated by the name High Street, is not at right angles to the north-south streets. It seems that the direction of the north-south streets was determined by the parallel direction of the shoreline at the west of the town, where the quay was built. The direction of High Street however, may have been determined by the place where the gates on its extreme ends had to be sited to be optimally effective for defence. Both gates are sited about halfway between the wall towers. Another element that may have determined the place and direction of the High Street is the micro-relief. Towards the west, the street lies deeper than the ground to the north and south of it. Thus, the street serves as a sewer for a large part of the walled area, leading surface water through the east gate and into the sea. Similar layouts can be found elsewhere, as in Aberystwyth and Conwy, where main streets also direct surface water towards the shore.

The standard burgage plots initially had dimensions of 60 x 80 ft. (18.29 x 24.38 m.). But in the Ordnance Survey plan of 1887-88 it is not possible to find these dimensions exactly. Along the south side of High Street I have measured the width of the blocks from east to west and found them to be c. 26, 52, 50 and 31 m. respectively. These dimensions suggest that the actual lots were not exactly laid out according to the standard burgage size. It appears though, that on the north as well as on the south side of High Street a number of plot boundaries are to be found at about 18 m. receding from the street. This probably means that the original plots along the main street were sited with their long sides parallel to it, in which case their lengths would have been a few metres longer than the official ‘standard’ size. Apart from the previously mentioned plot boundaries off the main street, I have hardly found other boundary lines that seem to be relevant; even back boundaries halfway the width of the wider blocks, where one would expect the lots to

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212 On the eastern side, the distance from the gate to the tower south of it is c. 59 m., and about 2 m. more to the tower north of it. The western gate lies c. 80 m. from the tower to the south and c. 78 m. from the one to the north. That the distances on the west side are larger than those on the east is caused by the length of the wall stretches from corner to corner: c. 120 m. on the east, parted in two, and c. 225 m. on the west, parted in three.
214 Ordnance Survey map 1:2500, Caernarvonshire XXV 4, 1887-8, 1st ed., in the collection of the National Library of Wales.
They have lain back to back, are very rare. There is one lot, though, which has dimensions which are close to that of the original standard lot: the one where the 19th-century market hall is located east of Palace Street. (number 11 in fig. 1.25) It is possible that the initial division into standard lots has been lost over the course of time, but it seems more likely that the lots were never actually laid out completely according to the ‘standard’. The diverging width of the blocks, ranging from c. 52 to 45 m. (and even less, opposite the church in the north-west corner) for the four wider central blocks and much greater divergences in the narrower blocks next to the walls, make analogous divergences in the original plot lengths necessary.

1.7.6 Harlech (figs. 1.29-1.31)

The borough of Harlech lies on the west coast, about 65 km. north of Aberystwyth and 35 km. south of Caernarfon. It was founded together with its castle, which stands on a c. 60 m. high promontory that protruded into the sea. (see fig. 1.31) The town and the castle overlook Tremadoc Bay and the Llyn peninsula, where the castle town of Criccieth lies. As with the other Edwardian new towns treated above, it had access to the sea and lay on the main coastal land route.

Work on the castle of Harlech began in June 1283, probably just a few days earlier than the works at Caernarfon. The site had been conquered in April by the middle army, which marched up from Castell-y-Bere in a northwesterly direction. Shortly thereafter preparations were made to start work on the castle. The nearby Welsh manor of Estingwern was destroyed, and the wooden hall of Prince Llewelyn ap Gruffydd was moved five miles northward to be installed in the new castle as a symbol of the new dominance.

The new borough received the full privileges modelled on those of the city of Hereford (like Caernarfon and Conwy) in November 1284. Nevertheless, it probably was not meant to become a town of great importance, as no defences seem to have been laid out here. Building a defensive wall for the town would probably have been rather senseless anyway, as it is located on a steep slope just above the ridge, slightly higher than the surrounding countryside.

215 Already in the 14th-century rent rolls and deeds, the plot division did not conform to the standard of 60 x 80 ft. (Beresford 1979, p. 234) For a general discussion of standard plots and the way they were handled, see par. 9.11.

216 Lilley, Lloyd & Trick (2005, s.v. Cearnarfon, Discussion, Design and plan) suggest that all the original burgages measured about 60 x 80 feet, as far as possible. The street blocks, therefore, could have contained about 60 burgage plots in total. They take the fact that a rent-roll of 1298 mentions 55 burgages, as support for the idea. (see also the reconstruction of the original layout in their ‘Core Map 3’).


218 Lloyd 1986, p. 17.

219 Beresford 1967, p. 45.
than the castle but completely overlooked by the higher ground to the east. More level ground was to be found at the foot of the cliff, but the sea regularly flooded this area. There was also more level ground a few hundred metres higher up the mountain, but this was too far from the castle to enjoy its protection or to be under its control.

Harlech did not get a church of its own. The castle had two chapels, one for the ordinary soldiers and one for officers, and the town had a chapel just outside the castle gates. The inhabitants of the town seem to have used this chapel in preference to the parish church at Llandanwg, which is two miles to the south.220

The region in which Harlech was founded, is a rocky area between the estuaries of the Dwyryd in the north and the Mawddach in the south. This area did not contain much fertile ground. In 1329, in a petition to the king, the burgesses stated that they ‘lived on a rock, whence no material advantage accrued to the inhabitants of the town or the castle’.221 Though the town’s hinterland was vast, its yields were low. Cattle and fish must have been the prime products traded in the Saturday-market and the four yearly fairs. The mill, at the foot of the cliff at the north end of the town, was probably planned together with the borough.222 The town had no port or quay: vessels simply landed on the sandy shore. There was a small gate there, at the bottom of the castle-rock, with a path defended by walls leading up to the back of the castle.

Because of the limited economic possibilities, it is not surprising that Harlech was very small among the Edwardian foundations, with just 12 taxpayers in 1292-93. It grew slightly, as 29½ burgages were recorded in 1312.223 In John Speed’s plan of 1611 (fig.1.29) the town consists of about 40 houses, but is still completely overshadowed by the castle. Speed’s image does not seem to be exaggerated: the town was almost completely destroyed during Owain Glyndŵr’s attack in the early 15th century: 46 houses were ruined. In the 18th century the town was still described as ‘the most forlorn, beggarly place imaginable’.224

It is not easy to get a clear picture of the initial layout of the borough, as it is not entirely clear in what measure the forms depicted in the old plans have survived from the original form.225 As mentioned above,

221 Lewis 1912, p.201. In fact, the most valuable land for cultivation would become the reclaimed land in the low-lying marshes north of the town, which the townsmen were granted by the king. (Lloyd 1986, p.20)
224 Soulsby 1983, p.139.
225 The most important plans are John Speed’s of 1611 (fig.1.29), the Tithe Award map of 1842 (parish Llandanwg, 6 chains : 1 inch, copy in the National Library of Wales), and the 1:2500 Ordnance Survey (I have only seen the second edition of 1901, Merionethshire XIX 13, in the National Library of Wales).
the vast part of the town was destroyed during the Glyndŵr rebellion. Assuming that the town was rebuilt more or less in its original form, Speed’s plan of 1611 is the ultimate source on its early layout. A comparison of this plan with the 19th-century Tithe Award map and Ordnance Survey plan may give a rough impression of what the layout of the original borough probably looked like. Figure 1.30 contains a reconstruction of the original plan by Lilley, Lloyd & Trick.

It seems that the original layout of the borough was formed by two slightly crooked streets that crossed not far southeast of the castle. In the Tithe Award plan of 1842 an open space is depicted in front of the castle, which looks like a sort of public square. In Speed’s plan no such space is recognisable. The house lots in the town are also rather irregular. In the 1842 plan the lots in the central part of the town have more or less straight boundaries and right angles, stretching in length from the main street, while further to the periphery the lots tend to be far more irregular, with rounded outlines. The rectangular lots have no equal dimensions or surface areas. Apart from the rather obvious observation that the original burgages probably were rectangular and stretched back from the main street, nothing much can be said of the layout of the original lots. It is noteworthy, though, that no such lots stretch back from the perpendicular street running to the southeast, which may be an indication that this street was not lined with burghal plots originally. The main street was more or less level, whereas the perpendicular street rose steeply to the southeast. Just north of the old town, the main street splits into two branches, of which the northern one descends steeply towards the foot of the cliff.

The stream that flowed between the castle and the borough, towards the waterfall above the site of the mill, may have partly been diverted northward. (see figs. 1.29, 1.30) Looking at the topography, it seems likely that its natural course would have flowed in a westward direction from the bridge depicted in Speed’s plan. It is difficult to reconstruct the flow of the stream, since it was culverted for the greatest part by the 19th century. The pond in front of the castle was probably filled in before 1842.

The irregularity of the layout of the town may be partly ascribed to the fairly steep gradient of the slope on which it was laid out. The castle stands on a rocky outcrop. A small but very steep ravine confines the site to the northeast, and a ditch protects it on the east, southeast and to the south, where a valley steeply slopes down westward. Just southeast of the castle is the only fairly flat part of the town, from where the ground begins to rise again east of the main street. This street lies higher than the castle, and descends to the south and to the north from its highest point, about 70 m. southwest of the crossroads. (see fig. 1.30) It is obvious that in this rugged terrain no regular structure could be laid out without having to move many tons of earth and rock, which obviously was not what the planners wanted to do, for Harlech was most probably not planned to be a town of great importance: it was small, unwalled and had no church of its own. But even when it would have been a more important town, the analogy with the other Edwardian towns in Wales shows that regularity of the layout was not considered important enough to disregard or alter the topography of the site.
The borough of Criccieth lies just across the Tremadoc bay, about 10 km. northeast of Harlech. The castle and town of Criccieth are situated on the south coast of the Llyn peninsula, where the road along the foothills from Caernarfon, across the peninsula, reached the coast. Like Harlech, Criccieth was a small, unwalled borough, laid out on the landside of a castle. The castle at Criccieth, however, was probably built already in the 1230’s by Llewelyn the Great, being one of the relatively few castles built by Welsh lords. It was sited on a promontory about 50 m. high, which protrudes into the sea. The king’s forces captured the castle before 14 March 1283, after which it was repaired and strengthened over the next nine years.\[^{226}\]

It is peculiar that the boroughs of Criccieth and Harlech are so close together. They are easily within sight of one another across the bay, closer than any other Edwardian castle boroughs.\[^{227}\] The reason for this was most probably the combination of the fact that at Criccieth there was a valuable castle at a strategic site readily available and that the most strategic site of the region between the estuaries of the Dwyryd and the Mawddach was to be found at Harlech.

It seems that the development of the borough of Criccieth was even less substantial than that at Harlech. Before the new borough was founded by Edward I, there must have already been some civil settlement at Criccieth, the castle being the maerdf (administrative centre) of the commote of Eifionydd.\[^{228}\] The borough charter of Criccieth was issued on the same day as those of Harlech and Bere, 22 November 1284, but their contents were slightly different. In 1295 the total civil population was counted at just 30. In the mid-14\textsuperscript{th} century it must have grown considerably, as 25 burgages were recorded by that time.\[^{229}\] Nonetheless,

\[^{227}\] Rhuddlan and Caerwys are nearly as close to each other, and Caernarfon and Newborough are much closer still, but these were planned with very different functions in mind, and their foundation dates were much further apart in time.
\[^{228}\] Avent 1989, p.2.
\[^{229}\] Beresford 1967, p.47. Every burgage may have stood for one family, so 25 burgages may have meant a population of about 125-150. This calculation is very rough, as rich burgesses may have held more than one burgage, but probably there were also people living in the borough who did not hold burgages themselves (and, thus, they would not be counted among the burgesses).
Criccieth, like Harlech, disposed of all the prerequisites necessary for a town: a weekly market, annual fairs, a mill and the right to hold court. Trade and industry, however, seem to have been meagre.230

No traces of town defences have been found at Criccieth. The borough was just a group of burgages along a street, like at Harlech; but here the castle really towers above it, standing on a rock which is about 20 m. higher than the ground on which the town stands.

It is not easy to get an idea of the form of the original town, since there is nothing left of its architectural mass, thanks to its thorough destruction during the rebellion of the early 15th century and its subsequent decline.231 An additional problem is that Criccieth is not depicted in old topographical sources, such as the maps of John Speed. The most important sources, therefore, are the 19th-century Tithe Award map and Ordnance Survey plan.232 (fig.1.32) In analogy to most other places of which there is more information, it may be assumed that the structure of streets and plots was rather stable and had largely survived devastation until the 19th century.233

The principal street is directed northeast to southwest. This street has its highest point just northwest of the castle, where it traverses a saddle between the castle hill and the somewhat lower Dinas hill to the northwest. From there the street descends about 25 m. in both directions, towards the beach. The landing place for ships probably lay c. 250 m. to the east, where a small stream flows into the sea. From this street, the land falls further to the north, so that the topography made the borough somewhat better protected than the town of Harlech. At the highest point of the street there is a small trapezoidal place, just northwest of what is now the main street in the old town. From the western angle of this place a street starts off to the southwest, which runs along the back of the houses of the main street (Castle Street / Marine Crescent), and parallel to it. It is quite possible, however, that this secondary street had a greater significance in the past. The lots on the northwest side have their frontages on this street, but the lots on its southeast side might well have also fronted on this street in the past. According to Lewis, the borough charter mentions standard burgages of 60 x 80 ft.234 This size is not recognisable as a rigid standard, but the lots on both sides of this street may well have come near to it. Therefore it is not unlikely that this street was the main street, while the present Marine Crescent may have been no more than a back lane along the outer bank of the castle defences. It is possible

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230 Soulsby 1983, p.118
231 Around 1540 the town was described thus: ‘At Crikith be a 2 or 3 poore houses, and there is a smaule rylle [stream]. There hath beene a franchised toune, now clene decayed.’ (Avent 1989, p.9)
232 Tithe Award map: parish Criccieth, 1839, scale 8 chains:1 inch; Ordnance Survey 1:2500 2nd edition 1900, Carnarvonshire XXXIV 13. Both plans are in the National Library of Wales.
233 See par.0.2.3.
234 Lewis 1912, p.49. The same standard size was mentioned in the charter of Caernarfon, but, as described above, this burgage size can not have been rigidly implemented there. (see par.1.7.5)
that, with the growing importance of the view from the houses, particularly for tourism, the 19th-century houses have turned their fronts towards the sea and the castle. If this assumption is right, then the original main street was probably staggered, set off over the little square, as it is obvious that Castle Street was the old main street, given that it has house lots on both sides. It is possible that the square was somewhat larger and was partly filled in later on its southwest or northeast side. Also, it seems likely that another street went from its northern corner along the back of the lots on Castle Street, parallel to it. (fig.1.33) Along its presumable course we still find the back boundary of the lots on Castle Street - which have lengths of somewhere around 80 ft. (24.38 m.), like the original burgages would have had - where these lots are divided from others that lie behind them. It is odd that these last lots, which are not built on but have dimensions that would be more plausible for house lots than for fields (c.115 x 45 ft. / 35.05 x 13.72 m.), are not accessible by a public road or path. Since it is most likely that every plot originally had some form of public access, it may be assumed that the boundary line between them was originally a street.

1.7.8 Bere (figs.1.34-1.35)

The case of the borough of Bere is rather similar to that of Criccieth as far as its origin is concerned; its successive history is very different, however. As at Criccieth, there was a Welsh castle, Castell-y Bere, which was built from 1221 on for Llewelyn the Great. It was taken by the English forces in April 1283, after being besieged by over 3,000 men. In the summer of 1284 work started on repairs to the castle. On November 22, after the king had visited the place, he granted the new town of Bere free borough status. This was on the same day as the issuance of the charters of Harlech and Criccieth; the privileges of Bere were, however, similar to those of Caernarfon and Conwy. As at Criccieth, the existing Welsh castle, standing on a rock c. 40 m. high, was strengthened, and the new borough was laid out at its foot. The great difference is, however, that at Bere there is nothing left of the borough: there has not been a town there for hundreds of years. (fig.1.34) The ruins of the castle have been thoroughly excavated; regarding the borough, however, the form and even its exact placement are unknown. It is most likely, though, that the borough was built to the southeast of the castle. (fig.1.35) Here we find a fairly level site between the steep castle hill and the progressively steeper side of the mountain to its southeast. It is certain that the borough

235 In the 1839 Tithe Award map, this back boundary line goes all the way through to the northeast end of town, parallel to Castle Street. In 1900 this was no longer so, since the allotment had changed in the northeast part of town, with new houses built along the street that branches off northward.

236 Avent 1997.

237 Beresford suggests the possibility that the borough lay in what he calls the outer bailey of the castle, to the west of it. Actually this is not an outer bailey, but rather the slope of the hill on which the castle stands, now covered with scrub and trees. There are two or three terraces on this side of the castle, but these are certainly not large enough to accommodate the houses and lots of the 16 taxpayers in the 1292 tax list. (Beresford 1967, pp.47-48)
was not identical to the village of Llanfihangel-y-Pennant, which lies 450 m. east of the castle, at the bottom of the valley: this was an old Welsh settlement, which appeared separately in the 1292 tax list. The form of the borough of Bere probably was more or less analogous to Harlech or Criccieth: a number of burgage plots along a street that, like the present road, probably ran from northeast to southwest.

The site of Bere was different from the other Edwardian castle towns in Wales, since it lies about 10 km. from the west coast. It is sited in the relatively fertile valley of the river Dysynni, which is blocked by the majestic Cader Idris mountain just east of the site. The valley is rather isolated, and had no importance for inter-regional traffic. The castle lay in a position where it controlled the valley, and therefore the king and his advisors must have seen the site as being of strategic importance. Apart from this valley, the ‘peninsula’ between the major rivers Mawddach and Dyfi, had no other areas that needed to be controlled by Edward’s armies, since it largely consisted of bare mountainous land.

In retrospect it is not surprising that this urban venture was not successful. In 1292 there were 16 taxpayers, some of whom had Welsh names, which was still more than in Harlech or Criccieth at that time. But from 1298 the borough completely disappeared from all public records. Both the town and the castle were abandoned. The direct cause of this may have been devastation in the uprising of 1294, but it seems likely that the venture was also given up because the location appeared not to be in a strategic place, in military as well as economic terms.238

1.7.9 Caerwys (figs. 1.36-1.37)

Another odd member of the group of Edwardian new towns in Wales is Caerwys. It was founded in 1290 in northeastern Wales, about halfway between Flint and Rhuddlan. Its creation obviously had not much to do with military strategy, because, unlike all other Edwardian towns except for Newborough, it was not founded in

238 Soulsby 1983, p. 105. Through archaeological excavation it became apparent that the castle was at least partly burnt before it ceased to be occupied, sometime towards the end of the 13th century. (Avent 1997)
in relation with military campaigns, nor did it have a castle or town defences. Furthermore, it seems that the site was not even chosen in view of defence. Therefore, the borough must have been conceived with motives of an economic nature. The town was not planted on a main transportation route, however. The main route from Flint to Rhuddlan lay some kilometres further north, and the Wheeler valley, which was an important artery for traffic from Chester to Denbigh and the Clwyd valley, lay just south of Caerwys.\textsuperscript{239} It is most likely that the foundation of the new town must rather be regarded as connected with regional development. The area experienced a phase of considerable economic development in the late 13th century, with town foundations at Flint, Rhuddlan, Ruthin, Denbigh, Overton, Holt and New Mostyn.\textsuperscript{240} Only the last of these towns shared with Caerwys the absence of a castle as well as town defences.

There already had been a village of Caerwys in 1242, but it is unclear where exactly it was located. The church of St. Michael in the new town certainly existed already in 1290, so it is not unlikely that the older village lay on the site of the new town. An overwhelmingly large part of the inhabitants of the new town were Welsh: in 1292, 39 out of 43 taxpayers bore Welsh names.\textsuperscript{241} This relative number is certainly many times higher than in the Edwardian towns described above, where the Welsh were no more than a minority in the early decades after their foundation. These indications all seem to imply that Caerwys was (re-)founded in order to attract more settlers and economic activities, probably in order to intensify land use in the immediate surroundings and to increase revenues.

The new town was sited on the southern end of a fertile plateau, about 175 m. above sea level. Close to its east and west lie small but steep wooded valleys that lead down to the Wheeler valley in the south. Since the town lies east of the hillcrest, its ground falls slightly to the east and south. As at Bere, there is no navigable water nearby but, because of the more friendly nature of the surrounding land, which is more densely populated, the site is considerably less isolated than is Bere.

Analysing the 1742 estate plan (fig.1.36) and the 1913 Ordnance Survey plan (fig.1.41) of the town, it is clear that its form was determined by a cross of broad streets in north-south and west-east directions.\textsuperscript{242} These streets, which are up to 15 m. wide, are fairly straight, but the building lines along them are quite irregular.

\textsuperscript{239} Beresford 1967, pp.48-49. Denbigh was a new castle town, founded not long before (in 1285) by the earl of Lincoln with support of the king. (Soulsby 1983, p.121)
\textsuperscript{240} Beresford 1967, pp.48-49.
\textsuperscript{241} Beresford 1967, p.48; Soulsby 1983, pp.94-95.
\textsuperscript{242} Maes Mynon demesne map, 1742 (Flintshire Record Office); Ordnance Survey 1:2500, Flintshire VIII 3, edition 1913 (National Library of Wales). Another interesting plan is the Tithe Award map of Caerwys parish, 1849, 5 chains : 1 inch (National Library of Wales).
The streets are not completely at right angles, the west-east street tends towards a NW-SE direction, and it bends in a more southward direction towards the east, where it descends to the site of the mill. More or less parallel to these main streets are secondary streets that make the over-all layout to form a grid plan. To the west is a road that has a somewhat more NW-SE direction than the central north-south street, more or less following the hillcrest. This road continues in a northern and, unlike the main street, in a southern direction. These features make it likely that it is older than the town’s main street. At the other end of the town there is a very irregular street, which limits the borough on its eastern end. It is clear that the irregularity of this street was at least partly caused by the progressively steeper hillside, which falls towards the stream in the east. Parallel to the main east-west street there are three more streets. At the southern end of town lies a road with a rather irregular alignment, which connects the main north-south street (North Street, respectively South Street) with roads that lead in south-east and south-west directions. No house lots face this road, but it is possible that the two large lots at its eastern end were originally divided into burgages that fronted this street. Further north, halfway between the southern road and the main east-west street there is a straight and much narrower street leading eastward from South Street. From the structure of the lot boundaries it is clear that this was not just a back street, but that lots were actually oriented on this street. For reasons of symmetry, it would seem likely that this street was originally also planned to stretch westward from South Street. But there the church was located with the glebe land belonging to it. Further north, on the other side of the main east-west street, at about the same distance from it (c. 88 m.), there is a street that is similarly straight and wide. Both streets are directed at more precise right angles to the main north-south street than the main east-west street. A significant difference between the two streets is that the northern parallel, unlike the southern, does extend westward to the western end of the town. Both streets are fronted by house lots on both sides.

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243 In the Tithe Award map of 1849 the large lot to the west of South Street is indicated as ‘glebe land’, which means that this land was of old devoted to the maintenance of the incumbent of the church.

244 According to Lilley, Lloyd & Trick (2005, s.v. Caerwys, Discussion, Design and plan) the two streets may have been Edwardian additions to an original cross-structure which
The gentle curve in the eastern main street is probably caused by the micro relief in this part of the town. In its eastern part it follows a slightly deepened course, which seems to be a feature of the natural landscape, whence probably the name Water Street. South Street also lies somewhat deeper in comparison to the surrounding ground, falling towards the south. The situation is comparable to that of the main streets in, for instance, Conwy and Aberystwyth, and it is not possible to say whether this deepened course was man-made or natural.

The market was probably held in the central square, a more or less rectangular place carved out of the street block to the northeast of the central street crossing, and possibly also in the two main streets. The Maes Mynon demesne map of 1742 (fig.1.36) and the Tithe Award map of 1849 depict freestanding buildings more or less in the middle of the north-south street right next to the market place. These may have been permanent market stalls, shops or a small market hall. In the Ordnance Survey plan of 1913, there is a long and narrow building that seems to stand some metres further westward, but which still protrudes from the building line of the north-south street. Unlike the buildings in the earlier plans, this building is not freestanding in a public space any more, as the ground to the west consists of private lots. This seems like a typical example of ‘market colonisation’, by which market stalls were gradually turned into permanent buildings and by which public space was privatised.

The house lots in the old plans of Caerwys are fairly regular, and for a considerable part they seem to derive from the original burgage plots of which no original standard size is recorded. They vary from 40 to 48 m. in length, and most have a width of somewhere between 10 and 20 m.

1.7.10 Beaumaris (figs.1.38-1.40)

In 1295 work began at the castle and town of Beaumaris on the island of Anglesey. The foundation of the castle must have followed from the military events in the Welsh uprising led by Madog ap Llewelyn in 1294. Probably, it was meant to command the sea arm on the shore of which it was located, the Menai Strait, and another important concern seems to have been to have a bulwark on the island of Anglesey. In contrast to the mountainous mainland of the ever rebellious country of Gwynedd, Anglesey consists of lowland: a landscape of gently rolling hills, with a fertile soil highly convenient for the growing of grain. ‘For this island is incomparably more fertile than any other part of Wales (…)’, wrote Geraldus Cambrensis about Anglesey in the late 12th century. So, this island actually was of greater economic value than the mainland of Gwynedd.

The castle and town not only controlled the sea route, but were also sited on the land route from Chester to Holyhead - and eventually Ireland - which also passed by Flint, Rhuddlan and Conwy. Travelers on this road would be ferried across the Menai Straits at Beaumaris.

It is quite possible, though, that the plan for Beaumaris originated as early as 1283, together with the schemes for the new castles and towns of Conwy, Caernarfon and Harlech. In August of that year, King Edward spent a week in the nearby Welsh town of Llanfaes, and in the next year it was decided that the new royal dominion in the former Welsh principality of Gwynedd was to be divided into three shires: Caernarfonshire, centred on the homononic new town; Merionethshire centred on the new town of Harlech; and Anglesey, which was first centred on Llanfaes. In analogy to other shires, it seems only logical that at least a castle would have been planned to use as a safe base for the administrative centre of the shire. So, it appears that the initial plans were put off until later, in order to be able to concentrate capital and workforce on the more pressing building operations on the mainland. But after the uprising of the Welsh in 1294, which was especially fierce in Anglesey, with the king’s sheriff being hanged and Llanfaes burnt down, it was apparently decided that it was time to build a fortified base at Anglesey.

Work started at the site in December 1294. At first the operation concentrated on the accommodation of the army. Next, in March 1295, a temporary pontoon bridge was built over the Menai Straight, for which 2,300 trees were felled, in order to take across the main army of workmen and the king and his wardrobe. After that, work started on the building of a mighty castle, with two concentric rings of defences, and, right
next to it, a dock designed to accommodate a 40-ton vessel.\textsuperscript{251} The project was taken up with great effort, and in the building season of 1296 over 2,500 men were set to work.\textsuperscript{252} Apparently, the castle had to be finished as quickly as possible, for the danger of new rebellions was far from absent. In February 1296 the master of the works, James of St. George, requested more money to be sent, because work lagged behind and: ‘As to how things are in the land of Wales, we still cannot be any too sure. But, as you well know, Welshmen are Welshmen, and you need to understand them properly; if, which God forbid, there is war with France and Scotland, we shall need to watch them all the more closely.’\textsuperscript{253} Apparently the situation had changed by 1300, because by that time the construction was left unfinished, and the castle even seems hardly to have been manned in the period up to 1306. In that year work was started up again at a much slower pace, until the project was completely abandoned in 1330, leaving the castle still unfinished.\textsuperscript{254} Evidently, the plan for this large castle, which was designed according to the latest techniques in fortification building, had been too ambitious.

The new town, however, swiftly prospered: \textsuperscript{255}¼ burgages were counted after ten years and \textsuperscript{154}¼ in 1317, making it the largest of the Edwardian boroughs. The king had ensured Beaumaris’ economic dominance by making it the obligatory port for all ships with merchandise for Anglesey.\textsuperscript{256} Until about the 17th century it remained a thriving trade and fishing port, after which decline set in.

The site of the castle and the attached borough was very different from the other Edwardian castle towns. It was a marshy stretch of lowland at the mouth of the Menai Strait, where the land gently slopes down towards the east into the sands of the sea-arm. The name of the new town is telling of the nature of the site: Beaumaris means ‘Beautiful Marsh’.\textsuperscript{257} The other (Edwardian) castle boroughs in Wales are nearly all sited on a rock, hill or knoll. The castle at Beaumaris, however, is a real water castle, deriving its protection not from the relief, but from the water in its moat, which was let in from the sea at high tide.

The small settlement of Cerrig-y-gwyddyl, which previously had been located on the site, had to give way for the new town. And, more importantly, the Welsh town of Llanfaes, c. 2 km. to the north, also had to be moved away. This is not so strange, since Llanfaes seems to have been a place with substantial trading activity, for which it was considered detrimental to Beaumaris’ economy, being sited so close to the new

\begin{footnotesize}
\begin{enumerate}
\item[251] Taylor 1987, p.11. The dock is now cut off from the sea, since the sea has deposited sediments on the southeast side of the castle and the town, so that they no longer lie directly on the water. (see fig.1.40)
\item[252] Brown, Colvin & Taylor 1963, p.402; Taylor 1999, p.3.
\item[253] Brown, Colvin & Taylor 1963, p.399.
\item[254] Brown, Colvin & Taylor 1963, pp.403-407.
\item[255] Lewis 1912, p.51; Beresford 1967, p.255. In 1305 six burgages were recorded to be held by Master James of St. George, the probable designer and building master of the castle and, possibly, also of the new town. (Carr 1982, p.239)
\item[256] Lewis 1912, p.80.
\item[257] ‘Beaumaris’ is, of course, a French word, which is not as strange as it might seem, since French was the common language in English aristocratic circles.
\end{enumerate}
\end{footnotesize}

\textsuperscript{fig.1.38: Beaumaris. Plan by John Speed from 1611. Beaumaris castle and town were founded by King Edward I in 1295.}
The town of Beaumaris was built directly southwest of the castle and received its borough charter in September 1296. Part of its inhabitants came from nearby Llanfaes. The land of the new borough and its parish, was cut out of a corner of the old parish of Llanfaes. The chapel of Ss. Mary and Nicholas was built in the early 14th century and may have been envisaged right from the outset. Shortly after 1315 the burgesses requested the king to instruct the bishop of Bangor to consecrate the chapel they had built, for they found that the parish church of Llandegfan lay too far removed from the town. The church must have already been quite an elaborate building of considerable size in the 14th century. The town quay must also have been built not long after the foundation of the town. A mill was built on the small stream to the west of the town (fig. 1.38), and the castle got its own mill in the spur wall flanking the dock, using the tidal flow in and out of the castle moat for power.

A stone town wall was only built after Owain Glyndŵr had taken the town in 1403, although the burgesses had previously petitioned for the building of a wall in 1315. It is probable that the town did not even have bank and ditch defences in the 14th century; it was only in 1407 that the burgesses were granted 10 marks by the king for the digging of a town ditch. It seems likely, however, that initially the town was already planned to receive defences, but that they were not executed. At the southeast end of the castle there was a projecting stretch of wall, between the dock and the outer castle gate, which seems likely to have been the point where the castle walls were meant to connect to a town wall.

With the building of the stone wall in 1414, 30 burgages were destroyed or cut through. This is one of the reasons why it is hard to get a good picture of the original layout of the town. It is highly likely that the two main streets, Castle Street running to the castle gate, and completely surveyable from it, and Church Street perpendicular to it, were newly laid out with the foundation of the borough. These streets are wide and straight, but the building lines of the houses flanking them are not very straight, with house fronts jumping back and forth.

In John Speed’s plan of 1611 (fig. 1.38) the northern stretch of the town wall already appears to have disappeared. The circuit of the wall can be largely reconstructed from the combination of the Speed plan and the 1829 estate map. (figs. 1.38, 1.39) Not all 154 burgages counted in 1317 lay within the wall circuit of 1414. The lots on the south side of Wexam Street, leading out of the town on the northwest, do in fact look like they are of ancient origin, long and narrow as they are. Further, it seems likely that burgages lay along the southwestward continuation of Castle Street outside the gate, and along Chapel Street and Rosemary Lane, to its west. The curved street called Rotten Row (later Rating Row), seems likely to have come into existence only after the town wall was built, for it more or less follows the line of the wall, and turns in towards Church Street before this last street reached the gate at its northwestern end. The curved track of Rotten Row, whose name probably refers to the state of the buildings that once flanked it, probably has to do with the relief here, for its northern part lies deeper than the ground on both sides. It seems that this micro relief is natural. The streets to the northwest and southwest of the churchyard also lie deepened, but here it is...
fig. 1.39: Beaumaris. Estate plan from 1829, drawn by Richard Yates. (From: Bangor University Manuscript Library)

fig. 1.40: Beaumaris. Ordnance Survey plan of 1889. (Anglesey XV 13, 1:2500, modified by the author, not depicted to scale) The two original main streets are indicated in orange, the reconstructed circuit of the town wall of the early 15th century in brown and the presumed extent of the flood plain around that same time in blue.
likely that these hollows are relics of the ditch outside the former town wall. The churchyard itself lies on an elevated platform about a metre high and, since the church is already in the higher part of town, its position marks the high-point within the formerly walled area. In Speed’s plan the churchyard is lined with houses all along Church Street; these can not have been original burgages however, since there was not enough room for them with the church lying so close behind.

The plan of 1611 also depicts a ‘Market House’ northwest of the church. This must mean that the market was held here, probably around this building and possibly along Church Street. This position of the market, eccentrically placed in the town and away from the castle, is a rather uncommon phenomenon among the old towns of Wales.

According to Lewis, the original burgages in Beaumaris measured 40 x 80 ft. There are, however, hardly any lots in which these dimensions can still be recognised. Only at the east end of Castle Street are there some lots of approximately this size, but it seems quite likely that many of the lots on the northwest side of Castle Street were about 80 ft. long in the past.

In conclusion, it appears that the original layout of the borough of Beaumaris consisted of at least two straight streets, perpendicular to one another, probably with rectangular lots of 40 x 80 ft. flanking them. It seems that later, as the borough grew larger in the early 14th century, less regular parts were added along roads to the northwest and southwest. A town wall seems to have been planned initially, but was actually built only in the early 15th century, by which 30 burgages were cut through and others were left outside the walled town.

1.7.11 Newborough (fig. 1.41)

An indirect consequence of the founding of Beaumaris was the plantation of the new town of Newborough, on the southern end of Anglesey, c. 20 km. southwest of Beaumaris. As mentioned above, the Welsh settlements of Cerrig-y-gowyddyl and Llanfaes, which were respectively at and near the site where Beaumaris was planted, were moved away. In 1302, the king ordered the Welsh inhabitants of Llanfaes to move to the new town of Newborough. But they were reluctant: over thirty of them were fined for not obeying the order in time. It seems, however, that a number of the old inhabitants of Llanfaes did not move to Newborough, but rather to Beaumaris. Compared to Caernarfon or Conway, the element of Welsh population was considerable in Beaumaris, both in number as well as in wealth.

The new borough was laid out at the southernmost end of Anglesey, on a gentle south-eastward slope, just below the summit of a hillcrest on which stood the buildings of a royal court and a church. The court, or llwy, dated from the early 13th century and functioned as an administrative centre for the southwestern part of Anglesey for the princes of Gwynedd and subsequently the king. It also was the manor house of the royal domain of Rhosyr. The new town was sited about 600 m. northeast of it, and just five km. from Caernarfon, across the Menai Strait. Because Newborough lies at some height, with the church at the highest point of the hillcrest, it is within sighting distance of Caernarfon.

The total burgage rent in the new borough was set at the same level as it had been in Llanfaes, and the area of ground belonging to the borough was also equal to the old situation. The settlers that moved to Newborough found that people had been living there already in the mardref-settlement of Rhosyr. These old inhabitants were also Welsh, but were of lower status, for they were serfs of the domain of Rhosyr. Apparently, the new inhabitants of the new town did not like to be mixed in with these serfs, or to be bound in space by the lands of the demesne, because in 1305 they petitioned for the name of the borough to be changed from Rhosyr to novus burgus (which was anglicised later), for the bondmen to be moved away, and for the purchase of the demesne land. The crown granted all these requests. Half a century later, a total of 58 taxpayers was recorded. The number of house lots, however, was considerably higher, since seven taxpayers held at least six lots each. It seems that these people must have been successful tradesmen.

No castle or defences were made at Newborough. This is self-evident, since its foundation only came

269 Lewis 1912, p.65.
270 Possibly, there was one more street, parallel to Castle Street. (see n.268)
274 Johnstone 1999.
about as a transplantation of an existing settlement that stood in the way of the new creation of Beaumaris. A windmill and a market cross were built in 1304-05 at the cost of the crown. The church of St. Peter, which originally may have been the chapel of the llys, was to serve the new settlers.

Newborough’s plan clearly has the form of a new town. Two straight streets, crossing at right angles, make up a structure that is evidently planned. The market was held at the crossing of the two main streets, for which the northeastern arm was slightly widened. In later times the town hall stood there, near the crossing in the middle of the street.

The two roads that cross in the heart of the new town continued into the surrounding area. In the Ordnance Survey plans of 1888 (fig.1.41) and 1899 it can be observed that these roads cut through field-boundaries which must be of earlier origin, to the northeast, northwest and southwest of the town. Hence, these roads were most probably newly laid out with the building of the town, whereas the land around the town was not, or only partly, newly allotted. Another road lies to the northwest, parallel to the main NE-SW street, where it straddles the height of the hill crest. This road, now largely a footpath, led to the pre-existent church and llys, which originally may have been surrounded by the settlement of Rhosyr. Since this road does not cut through extending lines of field boundaries, it is likely that it was older than the foundation of Newborough. Normally, it would seem likely that such an existing road would be taken as the main axis for the new town, but for some reason this was not done here. Possibly, the rights over the ground were problematic, or perhaps it was thought better to put the town in a somewhat more sheltered position.

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276 Brown, Colvin & Taylor 1963, p.1028.
278 Ordnance Survey plan 1:2500 of 1888 and Ordnance Survey plan 1:10000 of 1899, both in the National Library of Wales.
279 In the Tithe Award map of 1845 (in the National Library of Wales) it is visible that the fields in the area around the church are generally quite small and irregularly scattered.

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fig.1.41: Newborough. Ordnance Survey plan of 1888. (Anglesey XXII 10, 1:2500, modified by the author, not depicted to scale) Newborough was founded under the rule of King Edward II in 1302, in order to house the Welsh inhabitants who had previously lived at Llanfaes, near Beaumaris. The two principal intersecting streets were laid out cutting through the older agricultural allotment, the plots of which were subdivided to create house lots. The street running in a northeast-southwest-direction was laid out leading right up to the gate of the pre-existing royal court, which lay in the bottom left corner, next to the church. This church may originally have been the chapel of the court.
The two intersecting central streets do not cross at exact right angles, but at an angle of c. 95°. The street in NE-SW-direction was laid out leading right up to a gate in the wall around the royal llws. There is an evident correspondence here to the castle towns where main streets lead up to the castle, such as Flint, Aberystwyth, Conwy and Beaumaris. The building lines along the streets were very irregular, which is especially well visible in the Tithe Award map of 1845. The streets were very wide: c. 19-22.5 m. Later, they were narrowed by the incursion of private front gardens to c. 7 m. In 1845 there already were some buildings that extended beyond the old building line, and these were followed later by more new structures, particularly near the central crossing.

The house lots in the town are quite irregular. Almost all are quadrangular and elongated, with the short side fronting the street, but they are very different in size, and in many cases are not at right angles to the street. It appears that this plot layout was partly determined by the pre-existent allotment of the fields. It seems that, with the laying out of the new town, it was not found necessary to establish an allotment with burgages of a standard size.

1.8 General spatial aspects of the Edwardian towns in Wales

1.8.1 Locations

The boroughs that were founded by King Edward I in Wales were all sited on or near the coast. It is clear that the main reason for this was that eight out of eleven of them were founded next to castles that were intended to control the coastal traffic routes over water and land. An additional advantage was that at those sites the castles could be manned and provisioned by ship in time of war. In the case of Rhuddlan the location of an existing castle and borough, c. 4 km. inland, was re-used, but here the king’s engineers even took the trouble to canalise the river, so that sea-going ships could reach the castle and the town.

The nine Edwardian towns that were sited next to castles were more or less regularly spaced along the coast. The distance between them was about 15 to 30 km., with the longest distance being that between Aberystwyth and Bere and the shortest that between Harlech and Criccieth.

But economic viability must also have played a significant role in the choice of sites for the towns. Transport routes and fertile hinterland were essential in this respect. Both were only to be found in the lower lying coastal plains and the valleys. Therefore it is no wonder that the two boroughs that had no military functions at all, Caerwys and Newborough, were sited in the same region as the other towns.

Eight out of the eleven new Edwardian towns were laid out on sites where there had been earlier settlements. At Caerwys, Beaumaris and Newborough there had been Welsh villages; at Rhuddlan Saxon and Norman boroughs preceded the Edwardian foundation; Conwy replaced an abbey; at Caernarfon there had been a Norman castle and a Welsh town; and at Criccieth and Bere there already stood Welsh castles. Only at the sites of Flint, Harlech and Aberystwyth there seem not to have been previous settlements.

Most of the towns were sited on strategic locations, largely following the choices for the locations of the castles. This could imply that the terrain was rough, as in Criccieth, Conwy and Harlech. But not necessarily so: Flint, Rhuddlan, Beaumaris and Caernarfon are all built on gently sloping, low-lying terrain. Caernarfon and Aberystwyth were intentionally built on sites that were largely surrounded by streams and swampy terrain in order to use these features of the natural landscape for defence.

280 Tithe Award map, parish Newborough, of 1845, 8 chains : 1 inch, in the National Library of Wales.
281 The contemporary records concerning Newborough use the term placeae rather than burgages. (Souldby 1983, p.195) This may have something to do with their unequal size.
1.8.2 Urban layout

The Edwardian new towns of northern Wales have very different plan forms. Obviously, a common founder, and possibly to some degree common plannners, did not lead to a common type of plan.\(^{283}\)

Compared to earlier towns that were created in Wales, the Edwardian boroughs generally have relatively regular plans. By and large, it can be observed that new urban layouts were constructed on increasingly regular plans over the period of the 12th to 14th centuries. As will be discussed in other chapters below, this tendency was not exclusive for Wales, but was also to be found elsewhere in Europe during the same period.\(^{284}\) Flint, Caerwys and Caernarfon have more regular plans than the newly founded towns of the preceding centuries. (figs.1.12, 1.37, 1.25) But this is no rule for all specific cases: Newport (Dyfed), for instance, shows a relatively regular layout for its date (c.1200), whereas Harlech (1283-84) has a quite irregular plan. (figs.1.5, 1.30) In general, though, over time the burgage plots became more equal in form, streets were laid out straighter and their coordination became more orthogonal, and the total layout became more closely connected to the contours of the defences, if present. Of the Edwardian towns, Harlech is the least regular, which is for a large part due to the irregular topography of the site.

As with the earlier towns in Wales, markets were mostly held in the main street. Caernarfon is an exception, in that at least part of the market was held in the old Norman bailey just southeast of the town.\(^{285}\) (later Castle Square, fig.1.25) Flint is another exception, actually having a spacious central market square, much like many newly created towns on the continent. (fig.1.11) Conwy, Caerwys and Aberystwyth also had central market places – in the last two cases very small - but it is unclear whether they were really originally planned in the form known from maps of the last three centuries.\(^{286}\)

In Flint, Rhuddlan, Aberystwyth, Conwy, Caernarfon and Beaumaris important streets are laid out leading up to the castle, so that they are surveyable from the castle and the castle is well visible from the town. (see figs.1.11-1.12, 1.15, 1.20, 1.21, 1.25, 1.28, 1.39) This feature can also be found in various older towns in Wales. (see figs.1.5-1.8) At Caernarfon the three principal north-south streets are all directed towards the castle, and can be observed practically completely from it. The transverse street, on the other hand, could be observed from the towers of the town gates at either end of it. (figs.1.24-1.28) In the case of Newborough it is not a castle at which one of the two main streets was directed, but rather the pre-existent court which lay just southwest of the town. (fig.1.41)

1.8.2.1 Outline forms and relief

The outline forms of the Edwardian new towns are also very different. The towns that had no defences show no traces of communal outline boundaries of any other sort, as for instance simple ditches or fences. Caerwys may have been planned to have a more or less rectangular outline, largely bounded by roads, but that is just a hypothesis. Of the boroughs that did have defences, Flint is the only town with a regular outline, in the form of a rectangle. There is a clear relationship in its plan between the outline form and the internal grid structure of streets and plots. At Rhuddlan the outline seems to have been intended as a more or less regular rhomboidal shape, in accordance with the structure of the streets, which meet at oblique angles. The other towns with defences appear to have been shaped largely by the form of the natural landscape of the site, particularly by the relief and the course of riverbanks and the coastline. At Aberystwyth, Conwy and Caernarfon the natural shape of the site was used to help in the defence by building the walls at least partly along the lines of such natural features. This caused the outlines to be irregular, thereby forcing the internal layout of streets structures and plots into an irregular form, particularly along the fringes. Conwy has an odd layout in which the southwest corner of the wall circuit was purposefully planned at the highest point in the immediate area, so that the town and its surroundings can be surveyed from the corner tower. This demanded that the surface in the western part of town and the southwestern and northwestern stretches of the wall circuit climb rather steeply in order to connect this high point with the low-lying northeastern area.

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\(^{283}\) According to Lilley, Lloyd & Trick (2005, s.v. Beaumaris, Discussion, Design and plan; 2007, pp.9-12) the plans of Conwy and Beaumaris are much alike in type and shape, as both have a sort of T-form in the layout of their main streets. They even depict the plan of Beaumaris in mirrored form to make the similarity more apparent (2007, p.10), and they suggest that the corresponding elements make it likely that they had a common designer, probably Master James of St. George (see par.7.4). In my opinion, though, the correspondence is rather limited and not so much the result of a conscious choice for a specific type of plan, but rather the result of adaptation to the existing topographic situation of the site.

\(^{284}\) See par.10.2.2.

\(^{285}\) Soulsby 1983, pp.41-42.

\(^{286}\) See paras.1.7.3, 1.7.4 and 1.7.9.
House lots

The house lots were generally called burgages in the incorporated boroughs, and the usual rent for a burgage was one shilling a year. As in every other settlement, and the more so in newly planned towns, the house lots were mostly oblong and rectangular, with a short side along the street. The houses stood at the front, and behind it there were yards, gardens, workshops or stables.

According to Lewis, contemporary documents indicate that the official standard size of the burgages was set at 60 x 80 feet in Caernarfon and Criccieth, while in Beaumaris they were to measure 40 x 80 ft. In the case of Caernarfon it is not possible to reconstruct an originally uniform plot size from the 19th-century cadastral plan. In 1298 there were 61 burgages mentioned in a rent-roll. This just about fits with the surface of the original standard lots of 60 x 80 ft., though in the northeast and southeast chequers the lots must certainly have been shorter, as can be deduced from the plan. By 1312, however, the number of occupied burgages had risen to 124, which indicates that many plots had been subdivided by that time.

As in Caernarfon, there were many other towns in Wales where the actual plots were not laid out, or occupied, as regular in form as they may have been intended. In Beaumaris there may have been lots of the set standard of 40 x 80 ft., but documents clearly indicate that, not long after the town’s foundation, there were also many lots of other dimensions. The same holds true for Conwy: in the rent-roll of 1315, holdings of burgesses are described very accurately, even up to the inch: ‘Henry de Latham holds 1 burgage entire in breadth, but 3 ins. superfluous in length’. The high degree of accuracy of the Conwy rent-roll unfortunately is unusual, however, and, apart from that, the size of the official standard burgage at Conwy is not known. Many holdings deviated much further from the standard burgage: in Beaumaris there was even one wealthy Welsh inhabitant who held burgage ground the size of eleven burgages. In Aberystwyth the width of the plots may have been about 40 feet, but the length of the plots was clearly less uniform, extending up to 100 feet. In general, it may be expected that irregularities in the plot layout were caused by features such as the conditions of the terrain, unclearness of the planned boundaries, unforeseen developments in the occupation by settlers, or simply by negligence.

In Newborough the lots were unequal in form from the very beginning. Existing agricultural fields along the two crossing streets were cut up into narrower house lots. The Newborough lots are also special because in the ancient rent-rolls they were not called burgagium (burgages) but placeae (places). The difference may have been that the placeae had no standard size and was not necessarily located in the borough itself. The difference is not essential, however, since it seems that the burgesses of Newborough also paid their rent according to the area of their house lots.

Streets

The streets in the newly founded towns of Wales are often relatively wide. The main streets in Flint, Caerwys and Newborough, for instance, even reached up to about 15 m. or more. A notable exception, however, is Caernarfon. Due to the restricted amount of space within the town walls, the street-width had to be limited to about 7 to 9 m. here. Commonly, the width of the streets is not very constant, because building lines are only rarely really straight.

A remarkable phenomenon in the Welsh towns is that streets often lie somewhat lower than the surrounding ground. They may have been laid out in existing hollows or they may have been artificially dug. Alternatively, the hollows may have been carved out in the course of time, by erosion of the ground surface, caused by traffic and the streaming of surface water - which effect is relatively strong in Wales because of the high amount of rainfall. It is clear, however, that this lower level of the streets facilitates the draining of surface water.
Back streets or alleys opening up to the backside of the house lots seem to have been quite rare. Flint is an exception, with house lots that reached from front to back street.

1.8.3 Architectural elements

1.8.3.1 Town defences

The boroughs that were founded in Wales by King Edward I, as well as by other English or Norman lords, were always vulnerable to attack from Welsh rebels, being centres of relatively great wealth and military power, and as symbols of the conqueror. Most of these towns therefore received defences in the form of earthworks and stone walls surrounding the built-up area. Of the eleven Edwardian boroughs, four or five seem not to have been protected by artificial defences. Caerwys and Newborough, which were both largely settled by Welsh inhabitants, seem to have had no defences at all. This also holds for Criccieth, Harlech and probably Bere, but these small boroughs were settled mainly with English colonists, and had garrisoned castles that watched over them. The other towns were also sited next to castles. Of these, Flint and Rhuddlan were provided with earthen banks with ditches, whereas Aberystwyth, Conwy and Caernarfon were surrounded by stone walls and ditches. Beaumaris received a stone wall only in the early 15th century, but it seems quite likely that a stone wall and ditch were already planned at the time of the creation of the town.

Stone walls were considered the best instrument for urban defence. But, up to a certain extent, the desire for stone walls was also driven by considerations of prestige and symbolism. They stood for power, wealth, urban independence and civic pride. Especially when they were provided with of a multitude of towers, they could even serve as a reference to the heavenly Jerusalem.296 In Caernarfon and Conwy large parts of the walls are have survived up to the present time. The stone walls generally had towers at regular intervals of about 70 m., and were around 6 m. high and 1.8 m. thick.297 Building such stone walls was a very costly operation which could not be financed for every town.

Normally, the construction of earthen banks with ditches in front of them was much cheaper and quicker. By the late 13th century, earthen town defences were somewhat old-fashioned and generally considered as less effective than stone walls. They were not completely out of time, though, and it even seems that new types of a larger scale were developed. Flint and Rhuddlan were surrounded with formidable ditches and banks. Rhuddlan even seems to have had a double circuit of them, measuring up to 17 m. in width.298 Commonly, the earth that was dug from the ditches was used to construct the banks, which were commonly topped with wooden palisades.299 In Rhuddlan, parts of the bank and ditch defences are preserved.

1.8.3.2 Castles

The country of Wales is studded with the remnants of castles from the 11th to 14th centuries. Although often ruinous in the present day, many of these castles are impressive monuments. This holds particularly true for the royal castles of Caernarfon, Beaumaris, Conwy, Harlech and Rhuddlan, which are still relatively well preserved. The castles of Criccieth, Aberystwyth and Flint are still recognisable as ruins that clearly show that they too were once very impressive buildings. The castle of Bere, however, has left hardly more than foundations. Beaumaris, Rhuddlan, Harlech, Conwy and, above all, Caernarfon must have been among the strongest castles in Europe at the time. (figs.1.17, 1.22, 1.24, 1.27, 1.29-1.31, 1.38) They were at least partly planned by experienced military engineers who were recruited from England and the continent.300

The castles have been relatively well-studied and well-described in publications ever since about the 18th century.301 Compared to this, disappointingly little has been written about the subject of the new boroughs that were created next to the castles. At Caernarfon, Criccieth and Bere, existing castles of Norman or Welsh origin were reused as a nucleus. Apparently, these castles were so well-sited in military-tactical sense, that

296 See par.8.1; Soulsby 1983, p.38.
297 Gwyn Thomas 1993, pp.4-5.
299 Soulsby 1983, pp.36-37; Butler 1985, pp.480-481.
300 See par.7.4.
301 Among these works, the various publications by Arnold Taylor deserve special mention (see bibliography). Further, to name just a few: Humphries 1983; Metternich 1984; Kenyon & Avent 1987.
they were retained and subsequently modified and extended by the king’s workforce.302 At Rhuddlan the new castle was built just downstream from the old Norman motte, on the bank of the river Clwyd.

Despite the fact that the new castles were built by the same organisation and were at least partly created under the supervision of the same engineers, they are very different in type and form.303 If there is one typical common characteristic, however, it must be the impressive gate-houses, which have a central porch directly flanked by two projecting towers, round, D-shaped or polygonal in plan.304 The castles are commonly sited on rocky outcrops near the water. In Flint, Conwy and Aberystwyth these sites lie lower than a large part of the actual towns. Despite this, the castles must have dominated these towns anyway, as they also did in the other castle towns, because of their sheer scale.

1.8.3.3 Ecclesiastical houses

As with newly founded towns elsewhere in Europe, it was generally the wish of the founder to make a new town into a distinct parish with its own church, so that it would be a real community in a spiritual sense as well. But often it was difficult to create a new distinct parish because the existing ecclesiastical institutions were conservative.305 Therefore, existing parish churches became the principal town churches. This happened at Caerwys, Newborough and Criccieth, where the existing church was sited in or near to the new town. At Flint, Aberystwyth, Beaumaris, Caernarfon and Harlech the settlers found the distance to the existing parish churches too far, for which they built new chapels to serve the borough populations.306 At Conwy the church of Aberconwy abbey was turned into a parish church and at Rhuddlan the status of parish church was taken from the old Norman church and bestowed on the new church in the new town.

In other parts of Europe, like southern France, Prussia and Austria, churches were often built into or close to the town defences in order to aid in the latter’s military function.307 In the Edwardian towns of Wales, as well as in other towns in this country, however, this was a rare phenomenon. Only Caernarfon had a church built against the northwest corner of the town wall. But this was only done in 1307 and was certainly not part of the original scheme.308 In Beaumaris and Rhuddlan the churches seem to have been planned together with the towns.309 Here one finds a correspondence in siting, in the sense that the churches are located in the corner of town, just inside the perimeter, more or less at the opposite side of where the castle was built. It is not clear whether this placement followed a specific idea or not. It is obvious, though, that in a marginal corner of the town there would be more space (or cheaper space, as we would express it now) available to house a church with its yard.

While in native Welsh towns churches were often dedicated to Celtic saints310, typically Anglo-Norman patronages were chosen for the new chapels or churches in the Edwardian towns. The favourite dedication by far was to St. Mary.311 From these dedications it may be seen how the English colonised not only the land and the people, but in a certain sense also the spiritual life of the population.

1.8.3.4 Town halls

In the first decades of the existence of the Edwardian new towns in Wales, town halls were rare. Councils with representatives of the inhabitants probably gathered in a private house or in the church or chapel. Caernarfon is the only town of which it is known that a town hall was planned initially. The town charter of 1284 already provided for it. It was built right at the central street crossing, but it is not clear when.312 Later on, Caernarfon, as caput of the principality of North Wales, even had a whole range of administrative buildings: a Town Hall, Shire Hall, Justice’s House and, accommodated in the East Gate, the Exchequer Office.

In the centuries after their foundation, most other Edwardian towns also had specific buildings designated as town halls. Often this function was combined with that of a market hall. The creation of such a

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303 See par.7.4.
304 Flint, Conwy and the older Welsh castle of Bere, however, do not have twin-towered gatehouses.
305 See par.9.18; Beresford 1967, pp.169-175.
306 See par.1.7.1 to 1.7.11; see also Soulsby 1983, p.45.
307 See pars. 2.10.5-2.9.18.
309 Soulsby 1983, p.45. The initial plan to move the see of St. Asaph to the new town of Rhuddlan was suspended however, after which a parish church was built. (see par.1.7.2)
310 For instance St. Teilo in Llandeilo, St. Cadog in Llangadog, Saints Illtyd, Tyfodwg and Gwyno in Llantrisant, and St. Ellwy in Llanelli. (Soulsby 1983, s.v.)
311 The chapels and churches in Flint, Rhuddlan, Caernarfon, Conway and Beaumaris were dedicated to St. Mary. See also Soulsby 1983, p.46.
312 Soulsby 1983, pp.49, 58, n.59, 90.
communal edifice was often a matter of prestige and civic pride as much as it was of suitability. As in Caernarfon, these buildings commonly stood in the centre of town, preferably on the market place.\(^{313}\) (figs.1.12, 1.19)

1.8.3.5 Houses

Unfortunately, there seems to be no house left in any of the present-day towns that stems from the period of their foundation. However, some houses from about the 15th century have remained, and there are traces of older houses to be found in the soil. The sparse evidence indicates that the houses were rather small: 10 x 3 and 4 x 3 m. for two wooden houses that were excavated in Rhuddlan.\(^{314}\) Apparently, the original houses were for the most part very basic single-storey dwellings. It seems that they were mostly built of wood or of a timber frame filled in with wattle and daub - despite the availability of different kinds of stone.\(^{315}\) Through the centuries the wooden buildings were gradually replaced by stone structures.\(^{316}\)

1.9 End of the high-period of town foundation

In 1301 Edward I granted the complete crown lands in Wales to his eldest son, Edward of Caernarfon (1284-1307, so named after his birthplace, later King Edward II), and conferred the title of Prince of Wales on him. Since then, it has become tradition to assign this title to the oldest son of the reigning monarch.

After Edward I’s reign few more towns were founded. In 1303 the borough of Newcastle Emlyn was founded next to an existing castle, and Bala was founded around 1310 to keep in check the marauding bands that pillaged the highland region of central northern Wales in that time. This was to be the last notable town plantation in Wales before the industrial revolution.\(^{317}\)

In the early 14th century, the population of Wales, Welsh and English together, may have been about three times as large as in 1070, when the Normans came.\(^{318}\) After the period of growth of population and economy, culminating in the early 14th century, a long period of urban decline followed.\(^{319}\) Some towns just lost their prime function, while the castle was abandoned because its strategic purpose was lost (e.g., Bere and Criccieth), or because naval traffic was hampered by changing conditions of the waters (at Harlech for instance). But mostly the reasons for decline were more dramatic: the Black Death in the mid- and late-14th century, and the grand-scale urban devastations of the rebellion under Owain Glyndŵr from 1400 to c. 1410. During this rebellion, as had been the case previously, the Welsh hostilities seem to have been especially concentrated on the towns, since they were regarded as centres of colonial rule. Recovery from these crises was very slow. Sources from the 16th and 17th centuries still attest to the malaise, with plans showing large areas in the towns lying waste (fig.1.11) and descriptions using the adjectives ‘poor’ (Caersws) and ‘clene decayed’ (Criccieth).\(^{320}\) Only in the 18th and 19th centuries was there a new stimulus to the Welsh economy, particularly from mining and related industries.\(^{321}\)

1.10 Conclusion

There is not much original documentation with regard to the creation or the original form of the newly founded towns in Wales under King Edward I. Also, the towns have suffered a lot of damage through the ages and have been strongly depopulated in most cases, so relatively little is left of the buildings and allotment from the first decades of their existence. Nonetheless, the towns are still there (apart from Bere) and in many of them one can still recognise a great deal of the urban form as it must have been originally. In particular, the street plans appear to have remained pretty much the same. From these forms, as well as from

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313 This was the case in Flint, Aberystwyth, Beaumaris and Newborough.
314 Butler 1985, p.486. For comparison: excavated remains of stone-built houses at Chepstow and Cardiff measured ca. 10 x 4 m., and a three-cell house in Usk, which was at least partly built of stone measured 10.8 x 4.8 m. (Webster 1977, pp.91-93; Manning 1994, p.1)
320 Soulsby 1983, pp.25-28, 93, 118.
archaeological excavations and written and graphic documents, much has become clear about the foundation and formation of the Edwardian new towns.

In general it may be concluded that the forms of the towns, even when they were founded in the same period and by the same founder, are very different from one another. The towns were also founded with different motives. Most foundations were motivated by a combination of military and economic aims, while Caerwys and Newborough were created solely with economic motives. This was directly related to the choice of location: whether the towns were sited next to a castle, at a strategic military location, or in open country, surrounded by fields. The shape of the landscape at the sites of the new foundations appears to have had much influence on the forms of the town plans. Therefore, no two plans are much alike.

Many of the towns in Wales were very small. Harlech for instance, counted only 12 taxpayers in 1292-93, eight years after it was founded. This town became larger, although it suffered severe crises along the way, but at present it is still only a small town with a population of about 1,250 souls. The new town of Bere was even completely abandoned at the end of the 13th century, never to revive again. These settlements may have been small or they may have shrunk to nothingness, but originally they were intended to take on urban functions and to serve as real centres of significant importance relative to their surroundings, in both an economic as well as an administrative sense. Over the centuries it has mainly been the development of the economic network that has caused towns to grow, shrink or shift location. At present, some towns in Wales are bigger and more important than any founder may have ever imagined (foremost the Norman plantation of Cardiff), while others serve as local urban centres more or less as they seem to have been planned, although their military function has been completely lost (like Flint, Conwy, Caernarfon and Aberystwyth); and still others (the other Edwardian new towns) hardly deserve to be called ‘urban’ nowadays, given their limited size and economy and their humble appearance. Finally, there’s also the category of towns that have ceased to exist at all, like Bere.

The towns of Wales, to a large extent, came into existence by deliberate planning in the process of colonisation by the Anglo-Normans, between the late 11th and the early 14th century. This colonisation has proven successful, as Wales is still a principality within the United Kingdom and, more importantly, it has become an integral part of European or Western culture (the ‘modern world’), in which urban life is the constituent factor. By 1300, Wales was almost as urbanised a country as England. Probably about 15% of the population of about 300,000 souls lived in towns, though less than one-fifth of this part was autochthonous Welsh. In the centuries that followed, however, the relative number of Welshmen in the towns was to grow considerably, and at present even descendants of Anglo-Norman immigrants in the towns of Wales consider themselves more Welsh than English.
THE BASTIDES OF SOUTHWEST FRANCE

In the 12th to 14th centuries, new towns were founded just about all over Europe. There are, however, regions and periods in which the intensity of foundations is considerably higher than average. Southwestern France is one of the most extreme examples of such a region. (fig. 0.3) Between about 1220 and 1370, at least 350 new towns were founded here, in a relatively small area, by various lords. (fig. 2.1) These new settlements, which are known by the name bastides, largely determine the settlement pattern and the cultural-geographic image of southwestern France up to the very present.

While the first chapter of this study concentrated on eleven new towns that were founded in Wales under King Edward I, the present chapter treats the much bigger group of bastides broadly, in order to get a general view on the subject. Of course, this implies that the individual town foundations can not be discussed in as detailed a fashion as the Edwardian towns of Wales.

2.1 Introduction: geography and history

The region in Southwest France where these many new towns were founded is best known by the name Aquitaine. The Roman provinces Aquitania Secunda and Tertia evolved into the territorial unity of the duchy Aquitaine. This duchy once largely covered the present administrative regions of Aquitaine and Midi-Pyrénées, but the boundaries changed over time, and the area was reduced in the course of the centuries.

fig. 2.1: Map of Southwest France, showing the locations of bastides that have been clearly identified as such. The open circles are not bastides, but cities of regional importance. (From: Divorne, Gendre, Lavergne & Panerai 1985) Apart from these bastides, there are many more, which are not indicated because they have not yet been clearly identified, either because they never attracted significant settlement, or because they have (largely) disappeared.

1 There is no consensus about the exact number of new foundations. The most important estimates from the literature on the subject are: Higounet 1975 (1), p. 350: c. 400; Higounet 1992, p. 17: c. 300 bastides founded between 1222 (Cordes) and the second half of the 14th century; Weyres 1969, p. 57: 400 to 500 between c. 1250-1350; Lauret, Malebranche & Séraphin 1988, p. 13: almost 500 between 1222 (Cordes) and 1373 (Labastide-d’Anjou); Erlen 1992: c. 350 between 1144 (Montauban) and the late 14th century; Randolph 1994, p. 290: almost 700 in the 13th and 14th centuries; Heers 1990, pp. 102-107: c. 400-500; Bernard 1993, pp. 10-11: 589 identified bastides.
In the 12th to 15th centuries, the duchy was in the hands of the Plantagenet kings of England, and it covered roughly the northwestern half of the whole area this chapter is concerned with. In England the duchy was commonly called Gascony and in France it was commonly known as Guyenne. The southeastern half of the area under consideration consisted mainly of the county of Toulouse, but along its southern and its western fringe (partly in between the two greater lordships of the duke and the count) there were a number of small, more or less independent lordships.5 (figs. 2.2, 2.3)

The region consists of the drainage basins of the rivers Garonne (which more or less forms its central axis), the Adour in the southwest, and the lower part of the Dordogne in the north. (fig. 2.4) The lowland through which these rivers flow is called the Bassin Aquitain. It consists of a hilly landscape with an average height of about 135 m., which is bordered by the Atlantic Ocean in the west, by the Pyrenees in the south and by the Massif Central in the east. In the north the boundary is less clear, with a gradual transition to the less fertile sandy soils of the Limousin, which can be regarded as a historically separate cultural region.3

Already in the Roman era the region had been important because it formed the connection over land between the Iberian peninsula and the rest of Europe on the one hand, and because of the passage between the Mediterranean and the Atlantic Ocean by way of the valleys of the Aude, Hers and Garonne on the other hand.4 After the Roman era the region also formed an important crossroads of interregional traffic. The role of traffic over land even grew considerably in the 11th to 13th centuries, as Santiago the Compostela became one of the most important pilgrimage destinations, and the routes to this city in present northwest Spain, which all came from the north, necessarily led through Aquitaine. In the period considered in this study, these routes were of high economic importance to the region.5

In the 11th century the area was still largely uncultivated, despite the fact that the soil generally was quite well suited for agriculture. Primeval oak forests and heath covered a large part of the land. The fact that there was a lot of uncultivated ground is, in part, explained by a low population density.6 In the following centuries a growing population lead to a strong increase in the cultivation of the land and the creation of many new settlements.

2.1.1 Territorial and political history

The region which is presently called southern France could hardly be called by that name before at least the 13th century. The region to the east of the river Rhône was still part of the Holy Roman Empire; and though Languedoc and Aquitaine were theoretically part of the kingdom of France, in practice the king had very little power here. The mighty lords of the house of Saint-Gilles had built a more or less autonomous territory there, having acquired the lordships of various political regions, as viscounts of Beaucaire, marquises of Provence, dukes of Narbonne and, mainly, as counts of Toulouse. With these offices, they probably were more powerful than the king of France himself, who only held actual power in a relatively small area in northern France. The king of Aragon meanwhile, held most of the Mediterranean coastal area between the mouth of the Rhône and the Pyrenees, with its wealthy cities of Montpellier and Perpignan.7

The duchy of Aquitaine had come into the hands of Henry II Plantagenet (1133-1189) through his marriage with Eleanor of Aquitaine (1122-1204) in 1152, before he became king of England in 1154. Subsequently, it remained in the hands of the English crown for three centuries. This was much to the irritation of the king of France, who was formally the overlord of the land, but whose actual authority over it was very limited. In the year 1202, however, the region of Poitou in the northern part of the duchy was confiscated by the French crown.8

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5 Bernard 1993, pp.121-122, Randolph 1994, p.302; Higounet 1975, pp.207-214. The main traffic streams still largely follow the same routes. The connection between the Mediterranean and Atlantic coasts still follows the same route from Narbonne via Toulouse to Bordeaux, where rivers (Aude, Hers and Garonne), canal (Canal du Midi), railway and highway follow largely the same path. The importance of the roads through the passes over the Pyrenees has decreased, however, in favour of the coastal routes. (see fig. 2.4)
6 Erlen 1992, pp.98-100. The population of Aquitaine must have been about 40% of the total population of present France at the end of the Roman era, but it decreased to only about 10% in the 12th century. (Randolph 1994, p.302) On the reclamation of the region, see Higounet 1975 (2), esp. pp.658-676.
7 Sumperton 1978, pp.16-18, 22-23; Lavedan & Hugueney 1974, pp.67; Laurent, Malebranche & Séraphin 1988, pp.21-22; Dubourg 1997, p.44.
8 Beresford 1967, pp.338-351; Randolph 1994, p.303. After Poitou was lost by the Plantagenets in 1202, the duchy was mostly called Gascony instead of Aquitania. (Beresford 1967, p.349) The region presently known as Gascony is only the southwestern part of the much larger area of the then duchy of Gascony.
Apart from these important and large lordships there were various small and more or less independent lordships in the southwest, between the Pyrenees and the Garonne, such as the lordship Bigorre; the viscounties of Lomagne and Béarn; and the counties Foix, Comminges, Armagnac and Astarac. These smaller lordships managed to profit from their peripheral locations and the rivalry between the greater territorial powers to retain and extend their autonomy. The possessions of the various lords were sometimes incontiguous, or spread over several areas, which made the region all the more like a mosaic of lordly territories.

9 Higounet 1975 (2), pp.657-658; Sumption 1978, pp.19-22; see also Vale 1990, pp.80-112. From the 13th century on, the autonomy of these small lordships gradually decreased, and eventually they were all brought under the actual rule of the French crown. Particularly Béarn and Foix managed to stay independent for a relatively long period, until 1554 and 1607, respectively.
In the 12th century a popular religious movement had risen in the south of present France, which adhered to ideas which the church of Rome condemned as heretical. The followers of this movement were called Cathars or Albigensians. Under pope Innocent III (1198-1216), the Roman Catholic church tried to restore its influence. The Castilian preacher Dominicus Guzmán (1170-1221, presently known as Saint Dominic) was sent on a mission to the region. His preaching, however, did not convert many Cathars and did not restore the power of the pope. After the papal legate Pierre de Castelnau was killed by a page of Count Raymond VI of Toulouse, pope Innocent III decided that he had to take stronger measures: he excommunicated the count and preached a crusade against the Cathars and the lords that protected them. This crusade would come to be known as the Albigensian crusade.

A crusading army conquered Provence with much bloodshed, and initially it was also successful in Languedoc and eastern Aquitaine. But after 1218 Count Raymond VI (1194-1222) managed to reconquer his territory. In 1226, however, the French kings Louis VIII (1223-1226) and IX (1226-1270) joined in the conflict. Most probably, their goal was to turn royal nominal power in the south into actual power rather than to help the Roman church get back its spiritual authority. With this royal interference, the crusade became more of a sort of war between northern and southern France. Languedoc and large parts of eastern Aquitaine were once again conquered at the cost of the count of Toulouse, and in 1229 Count Raymond VII (1222-1249) was forced to accept a peace that was very unfavourable to him: the Treaty of Paris. This treaty compelled him to give up a large part of his territory in the north and in the east. He also had to marry his daughter Jeanne (c. 1220-1271) to a brother of the king. Later on, this would appear to be Alphonse, count of Poitiers (1241-1271). Therefore, with Raymond’s death in 1249, Alphonse also became count of Toulouse. In the treaty it was stipulated, furthermore, that the territory would revert directly to the crown if Jeanne and Alphonse were to pass away without children. This actually happened in 1271.

Thus, the Treaty of Paris of 1229 was the formal end of a large-scale conflict. The heresy, however, was still not completely eliminated. In Albi and Carcassonne (among other places) there still were revolts of an anti-catholic and anti-royal nature many years later, and the fortress of Montségur, which lies deep in the Pyrenees, was only taken from the Cathars in 1244. In 1229 the pope established the Inquisition, as a permanent religious tribunal, led by the Dominican order. The Inquisition condemned landlords for being heretics or protectors of heretics. According to a new decree issued by Louis IX they could be dispossessed after being condemned, by which means their territories would be forfeited to the count of Toulouse or directly to the French crown.

In the end, the Albigensian crusade was a great triumph for the king of France, who expanded his domains and his authority decisively in the south of his kingdom at the cost of his nominal vassals, foremost the count of Toulouse. As we shall see below, these political developments were of great importance to the alterations in the political, social, economic and spatial structures that form the background to the foundation of the bastides.

### 2.2 The term ‘bastide’

The term ‘bastide’ comes from official documents concerning the foundations of new towns in Aquitaine in the 13th and 14th centuries, in which the settlements are designated as bastida seu villa nova (‘bastide or new village’) or bastida seu populo (‘bastide or population core’) or simply as bastide or bastida. The word derives from the Latin bastum, and is directly related to the modern French bâtir, which means ‘to build’.

The fact that the word bastide comes from historical documents does not mean, however, that only the settlements which are called by that name in ancient documents are presently known as bastides. Since the 19th century the word bastide has become a generic term for towns with a particular origin (and a particular

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10 Sumption 1978, pp.32-62. The term Albigensian derives from the city of Albi, which more or less formed the geographical and organisational centre of the movement.
12 Sumption 1978, pp.15-16.
13 It concerned among others the Albigensis south of the river Tarn, the northern part of Quercy and the city of Cahors in the north and the duchy Narbonne and the viscounties of Beaucarne and Carcassonne in the east.
16 Dubourg 1997, p.45.
17 Randolph 1994, p.291; Beresford 1967, p.8; Hignouret 1992, pp.17-18. In previous centuries and also in other regions, related words have been used particularly for fortified buildings: bastio or bastlle for instance. In Aquitaine, the term bastide was also used for fortified buildings in the 15th to 16th centuries. In Provence it was used for lordly farms on estates. (Lauret, Malebranche & Séraphin 1998, pp.14-15).
form), which might have been described by different terms, as for instance villa or castrum in the 13th and 14th centuries. There is, however, no really fixed definition for the term. The meaning of the term has changed through time, and even in the present there is no real consensus about its definition. Different scholars use different definitions, depending on their approach to the phenomenon: students of the settlement history of Aquitaine highlight different aspects than do students of political-institutional history or architectural historians. Some scholars also use the term bastide for new towns from the 12th to 15th centuries elsewhere in Europe. Various scholarly publications about bastides, however, omit the subject of precise definition altogether.

There also appears to be a cultural difference in what is meant by the term bastide. In particular, British and American scholars regard strong defences in the form of a wall circuit as an essential element of a bastide town. In their view, bastides are not specific for southwestern France. Indeed they apply the term to all newly planned, walled towns of about the 13th and 14th centuries throughout Europe.

In this study the term bastide is used for settlements on which the conditions listed below apply. While these conditions can all be found in definitions that have been previously formulated by other scholars, they have not yet been applied in a combined, coherent fashion.

- A bastide is a town that was newly founded in southwestern France in the 13th and 14th centuries. The founder was the lord of the land on which the settlement was founded, possibly in cooperation with other lords. This does not necessarily mean that the settlement was completely new in its physical aspect: there may have been an older core, possibly in the form of a village or a church.
- The foundation of the bastide implied (at least) a juridical action. Special rights and privileges were promised to people who were to occupy a specific part of the founder’s land; by which a separate legal space was created. By this action, the founder intended to attract settlers to that place.
- A crucial element of the legal arrangement was that plots of ground were given to the settlers in hereditary tenure, and that those settlers enjoyed certain freedoms of person and possession.
- A further, crucial element of the legal arrangement was that the town received the right to hold a market.

It is not possible to sensibly indicate a limit with regard to the size of a bastide. Some appear to have consisted of only about ten households, while others were planned for thousands.

So, in short, the term bastide means a market settlement of the 13th or 14th century, located in southwestern France, which was newly founded and peopled with free persons. Elsewhere in Europe other terms were used to indicate new towns in that period. The Florentine town foundations of the first half of the 14th century, for instance, were designated as terra nova, and elsewhere in Europe various other terms were used.

In the following paragraphs not only bastides with all the above-named features will be discussed. Various other settlements in southwestern France will also be considered as material for comparison and in order to describe the origins of the bastides.

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19 For the historiography of bastides and the use of the term over the course of time, see Pujol 1990; Lauret, Malebranche & Séraphin 1988, pp.13-17; Cursente 2004, pp.60-68. Lauret, Malebranche & Séraphin (1988, p.17) work with a definition put forward by Hipponet in 1910, although they readily admit that it is not really appropriate for many cases.
20 The word bastide is used, for instance, by Burke (1955) and Rutte (S.D and 1993) with respect to new towns of the 12th to 14th centuries in the present Netherlands. According to Morris the word has been used to indicate new towns from “the middle ages” in general, but in his opinion it ought to be used only for new towns with predetermined plans, founded in the 13th century in France (particularly the southwest) and for the town foundations of King Edward I in England and Wales. For the rest of the newly founded towns of “the middle ages” the term “planted town” should be used, according to Morris. (Morris 1972, p.82) In my opinion this is rather confusing: the term should be used only for the region where it was actually more or less common in the period under consideration, which was southwestern France.
21 See for instance Carter 1969, pp.2-3; Alomar 1976, p.60; Adams 1978, p.36; Graham 1988, p.51; Herbert & Jones 1988, p.53; Bentley 1993; Corfis & Wolfe 1995, pp.54-59; Walker 1990, p.134. It has already been pointed out above that there is an etymological connection between the term bastide and fortifications. Below (par.2.3.3), it will be seen that this meaning of fortification hardly applies to the bastides as they were originally conceived.
22 It is illustrative, in this respect, that a list of Count Alphonse de Poitiers’ bastide foundations, made up in 1271, also names the settlements of Saint-Michel, Nohic and Orgueil. These were existing settlements that received new charters with rights and privileges from the count. (Lauret, Malebranche & Séraphin 1988, p.15)
23 According to Cursente (2004, pp.74-75) the market place was the crucial element that made a town a bastide, as the market was the element which the function of the settlement revolved around. In my opinion this is not entirely correct, as some settlements which I consider to be (and which are generally considered to be) bastides, did not clearly have distinct market places: here the market was held in a street or a field. These were mainly small settlements, as for instance Saint-Pastour, Léguevin, Labastide- d’Anjou.
24 Erlen 1992, p.238. Most bastides however, were small towns of about 50 to 200 households, with a strongly rural character and function.
25 See chapter 3 and par.9.4. In England, for instance, the terms nous l hugus and nous nill were used, but not consistently. (Beresford 1967, p.8)
Origins: colonisation and settlement foundations in southwestern France, 12th–13th centuries

As described above, southwestern France was relatively thinly populated until well into the 12th century, and consequently only a small part of the land was brought into cultivation. The land was mainly covered with forests. In the 11th century, the valley of the Garonne, the Lauragais and the foothills of the Pyrenees in the southwest were the most densely populated areas in the whole region, but even there the cultivated areas of the villages and estates were surrounded by woods.26 There were very few cities and towns. Toulouse, Périgueux and Bordeaux were the only Roman civitates that still had a more or less urban character in the 11th century. Apart from these, there were some secondary towns, like Cahors, Albi, Carcassonne, Tarbes and Bazas.

The secular authorities were badly organised and only had limited control over the land and the population. The clerical authorities were generally better organised and, through donations, they had come into possession of a large part of the land.

As almost everywhere in Europe, the population of Aquitaine started to grow around the 11th century.27 There are indications suggesting that a part of the growing population migrated southward to the north of the Iberian peninsula, which was in the process of being gradually re-conquered from the Mores.28

28 Onomatological research has shown that particularly in Aragon, Castile and Navarre many people had names that indicate they originally came from Aquitaine. (Higounet
2.3.1 Sauvetés

The population growth led to much new reclamation of land in Aquitaine. Clerical landlords who sought to exploit their uncultivated lands tried to attract settlers to these lands by founding new settlements for which special rights and freedoms were granted, the so-called *sauvetés*. These settlements may have been completely new creations, or they may have had an older core, often focused on an abbey or a church. The term *sauveté* comes from the old documents and toponyms: *sauvetat* or *sauvetat* means something like a ‘protected area’ or ‘refuge’. The element of protection was not a fortification or a garrison, but a safeguard by the clerical institutions that founded the settlements, under the jurisdiction of Heaven. Within the territory of the *sauveté* a permanent Peace of God (Pax Dei) was instituted, warranted by the clerical institutions. The phenomenon of the Pax Dei had come into existence in the 10th-11th centuries, when there was much disorder in Aquitaine, because there was no central authority that could deal with the anarchical situation. Its function was to protect the ecclesiastical institutions, the clergy and other defenceless, unarmed people. Those who broke the Pax Dei could be excommunicated by the church and, if it regarded a feudal lord, his subjects were allowed to ignore their duties towards him.

The great monastic orders, particularly the Knights Templar and the Knights Hospitaller, founded many *sauvetés*. Often, alliances were created between clerical founders and secular lords who thought that the foundation of a *sauveté* was a profitable way to attract colonists and increase the rentability of their domains. Secular lords donated great amounts of uncultivated land to clerical institutions on the condition that (a part of) the land would be given to free settlers in newly created agricultural settlements, the *sauvetés*, the returns of which would be shared by the secular and clerical lords.

*Sauvetés* were essentially legal spaces that were removed from the domains of landlords and placed under the custody of a clerical authority and the Peace of God, in order to attract and protect settlers. These settlers worked the land, which they probably mostly had to reclaim themselves. For this reason they can be regarded as real colonists. In this way the returns of the ground were drastically increased.

The ground-plans of many *sauvetés* show clear signs of planning. Lavedan and Hugueney distinguish between two sorts of plans: linear plans, consisting of a main street, possibly with parallel streets and transverse streets; and plans with an envelope.

![fig. 2.5: Plan of Nogaro. (From: Divorne, Gendre, Lavergne & Panerai 1985) Nogaro is a so-called sauveté. It was founded c. 1060 by St. Austinde, archbishop of Auch, presumably as a double row of elongated rectangular plots along a street, with the church (consecrated in 1060) at the end of it. This original part of the town is drawn in solid lines, while the parts that were probably added later (until about the 16th century), are stippled.](image-url)

1975 (1), pp.418-423)

29 That the foundation of new settlements was directly connected to the growth of the population is obvious, but there are very few clear sources that confirm this relationship. A document regarding the building of a new church in a new settlement near Argenton-Château (Poitou) in 1068-1069, however, mentions that the church was built ‘because of the growth of the population and because of the extension of the fortified settlement’ (‘propter populorum augmentationem et propter castelli dilatationem’; Higounet 1992, p.44)

30 With the inauguration of a *sauveté*, a ceremony was performed to ask appeal to God for protection. A number of clerical dignitaries led a procession along the boundaries of the territory, while pronouncing a curse against violators of the peace. (Ourliac 1947, p.47) This ritual clearly attests to the fact that the principle of the *sauveté* was based on the phenomenon of the clerical ‘immunities’ with right of asylum, usually in a church or a churchyard. (Erlen 1992, p.226)

31 Ourliac 1947, pp.47, 52-55; Gergen 2003. Initially, the Pax Dei was temporary in nature, like a truce, but in the course of time the phenomenon spread over all of France and to surrounding countries, and in the 12th century it became a permanent institution of the church.

32 Lavedan & Hugueney 1974, pp.52-53. The Knights Hospitaller were particularly active in the county of Comminges, where the commandery of Saint-Clar founded more than forty *sauvetés* in an area of about 20 by 40 km. in the first decades of the 12th century. (Erlen 1992, p.137)

33 Ourliac 1947, p.58. Often, a kind of condominium-treaty was concluded, in which it was put down that the secular donor would receive a number of plots and a part (usually half) of the revenues from the new settlement. (Erlen 1992, p.226)
opment of house lots around a central core, which is usually formed by a church.34 (figs. 2.5, 2.6) Just about all sauvetés - probably more than a hundred - in southwestern France were founded between 1050 and 1130. Most foundations took place in the last decades of the 11th century.35 Some relatively successful and large examples are Saint-Nicolas-de-la-Grave, founded around 1135 by the abbey of Moissac in co-operation with the viscount of Lomagne36, and Nogaro. (figs. 2.7, 2.5). Some sauvetés managed to develop into towns or were re-founded as bastides, by which means they attained a higher and more urban status.37

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34 Lavedan & Hugueney 1974, pp.64-67.
35 Higounet 1975 (2), p.676; Lauré, Malebranche & Séraphin 1988, pp.29-30. According to Lavedan and Hugueney (1974, p.61) the sauvetés were founded, more generally, in the 11th and 12th centuries. Similar settlements under clerical protection were also founded by the Knights Hospitaller in Normandy. (Ourlia 1947, p.66)
36 Lavedan & Hugueney 1974, p.66.
37 Some sauvetés that were refounded as bastides later on: Alan (fig. 2.7), Nègrepelisse, La Romieu (Higounet 1975 (2), p.675), Septfonds (Lauret, Malebranche & Séraphin 1988, p.300), Saint-Lys and Montastruc (Lauret, Malebranche & Séraphin 1988, pp.294, 301). Most sauvetés were (and still are) just small villages or hamlets, most consisting of only a few dozen households at the time of their foundation. The sauvete of Fronton, however, was a project on a relatively grand scale, with 300 house lots planned initially. (Higounet 1975 (2), p.675)
2.3.2  Castelnaux

Around the same time, there were also many new settlements of another type created in Aquitaine: the so-called castelnaux. These small settlements can be regarded as the worldly counterparts of the sauvetés.

The word castelnaux, which can be found in ancient documents as well as in toponyms, means something like ‘new castle’. This term is revealing, because these settlements were always founded next to a castle or a motte, and had fortifications that may or may not have been connected to those of the castle. In most cases the castle lies on a hill or a ridge, with the castelnaux sited somewhat lower, along a street that leads up to the castle. (fig. 2.8) The plans of the castelnaux often show a clearly planned regularity, but there are also examples with rather irregular layouts which, therefore, make it appear as though less effort was put into their spatial formation. (compare figs. 2.9 and 2.8)

The castelnaux served various goals: protecting the population against marauders, increasing lordly control over the population, and involving the population in the defence of the castle. Subjects of the lord were sometimes forced to move to the new settlement. Usually the settlers received freedom of person and possession, but in some cases they remained serfs to the lord. For some castelnaux the documents suggest that the population was divided into different social classes. A kind of knights, indicated as milites or cavars, appear to have lived in the houses closest to the castle. The rest of the population were indicated as castlans (meaning something like ‘inhabitants of the castelnaux’).

In some cases the creation of castelnaux went hand in hand with the reclamation of uncultivated lands. Similar settlements were also created elsewhere in Europe during roughly the same period.

Castelnaux were founded between about the second half of the 11th and the end of the 13th century. This means that there is an overlap in the periods of foundation of sauvetés and castelnaux, and of castelnaux and bastides. It is sometimes hard to distinguish between these different types of settlements. For instance, a sauveté can be founded next to a fortified commandery of the Knights Hospitaller, which might make it look like a castelnaux. Or a castelnaux can be created next to the residence of a bishop (as for instance at Auch), and a bastide can be built in the immediate vicinity of a castle of its founder.

Concerning the first overlap, however, a rather clear discrimination can be made on the basis of whether the jurisdiction was in the hands of a clerical or a secular lord – whether the protection of the settlement was given over to God or to a worldly power - and in a physical sense the distinction mostly is whether the historical core of the settlement was a church or monastery, or a castle. Concerning the second overlap, a sensible distinction can be found in the degree to which the castle forms the social and economic centre of power within the community. It is rather arbitrary, however, where exactly the boundary is to be drawn between castelnaux and bastides in this respect.

Adding to the confusion is the fact that the terminology was not entirely consistent in the past: hence there is

38 Cursente 1979, p. 90, n. 11; Cursente 1980, pp. 91-94. There are more than 30 settlements with the toponym Castelnaux or Castelnaux in Aquitaine. They are particularly concentrated in Gascony. (Higounet 1975 (2), p. 656)

39 Cursente gives the following definition of the term castelnaux: ‘a subordinated castle borough with a circuit of fortifications, created by a lord […] between the years 1050 and 1300’ (‘un bourg castral subordonné et doté d’une enceinte mis and place par un seigneur […] entre les années 1050 et 1300’), Cursente 1980, p. 90. For a brief discussion of the castelnaux, see Higounet 1992, pp. 257-262 (based on Cursente 1979).

40 It is often hard to determine whether such a settlement was really newly founded or whether it was created in various phases without a clear lordly policy. (Cursente 1980, p. 87) In most cases it seems that there must already have been a small settlement at the castle gate before the castelnaux’s foundation. What the legal status of these settlements was is mostly unknown. (Cursente 1980, p. 117; 1979, p. 31)

41 Cursente 1980, p. 102.
45 Cursente 1980, pp. 113-114.
46 For instance, the so-called insellino-settlements-settlements in central Italy, of the 10th to 12th centuries (Toubert 1973) and the châteauneufs in central and northern France (Lauret, Malebranche & Scharphim 1988, p. 32). Some decades before the castelnaux were created in southwestern France, settlements of similar kind were also created in Provence and Languedoc. (Cursente 1980, p. 62; Cursente 1979, p. 35)
47 Cursente 1980, p. 90. Higounet 1975 (2) pp. 656-670 writes that the high-tide of castelnaux foundations was between 1100 and 1175; according to Cursente, though, there were hardly new creations between 1140 and 1200. This difference can possibly be explained by the fact that Higounet discusses the whole of Aquitaine, whereas Cursente focuses on Gascony.
49 Or, for instance Cazals, Domme, Palaminy and Saint-Sulpice-le-Point. According to Cursente (1980, p. 8), the types of the bastide and the castelnaux gradually merged from the late 13th century on.
50 Cursente 1980, p. 102.
a bastide which is called castelnau (Castelnau-sur-Gupie) and there are castle-settlements that are described as bastides in ancient documents (among others, Fourcès, fig. 2.10). Moreover, there are also settlements that were sauvetés or castelnaux in origin, but that were refounded (and extended) as bastides later on.

Another important distinction is that, in the bastides, the community of settlers usually had the right of self-representation towards the landlord, while the settlers of the sauvetés and castelnaux generally did not have this privilege.

Initially, only the more powerful lords, like bishops, counts and viscounts, had the authority, organisational power and financial means to create new settlements next to their castles; but after about 1200, lesser lords also managed to take similar initiatives. For the period from about 1250 on, in which many bastides were founded, the castelnau can be regarded as ‘the poor man’s bastide’, as Cursente has put it. This is because castelnaux were smaller than the average bastides, commonly with only about 15 to 50 houses and a population of between 60 and 200.

fig. 2.8: Plan of Biran, based on the cadastral plan of 1827. (From: Cursente 1980) This castelnau was founded before the middle of the 13th century, next to and possibly together with a motte-castle of a local lord on a promontory site (directly northwest of the present church).

fig. 2.9: Plan of Manciet, based on a modern cadastral plan. (From: Cursente 1980) The castelnau of Manciet was probably founded in the fourth quarter of the 13th century by the archbishop of Auch or the count of Armagnac, below an older castle (now gone: ‘chateau disparu’).

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52 Other examples: the formula ‘castrum seu bastidam’ was used with the foundation of a castelnau next to the motte of Cluset (Cluzel) in 1275, with the foundation of Marestaing-Neuf in 1270, the term bastide was used. The fact that both co-founders, the lord Bernard Marestaing and the commander of the Knights Hospitaller, received ground within the walls to build their own castles, makes the term castelnau more appropriate though. (Cursente 1980, pp.79-80) See also Cursente 2004, p.66.
55 Cursente 1980, pp.61, 73. In the present region of Gascogne the number of castelnaux (over 100) is more than five times as high as the number of bastides. Only five sauvetés have been identified as such in this region. (Cursente 1980, p.118; Cursente 1979, p.35)
56 Cursente 1979, p.35; Cursente 1980, p.103.
2.4 Bastides: chronology and founders

About halfway through the 12th century, the process of colonisation and reclamation of uncultivated lands seems to have slowed down in Aquitaine. The cause for this is not entirely clear, but possibly the population growth temporarily diminished, or there may have been an increase in migration to the Iberian peninsula and the cities.\(^\text{57}\) Despite the many small-scale reclaims, whether or not connected to the foundation of sauvetés and castelnaux, the land was still largely uncultivated and there was still a lot of fertile land that could be reclaimed or exploited more intensively.

After the Albigensian crusade (1208–1229) the land of the county of Toulouse lay neglected and partly in ruins. The war and the retaliations of the crusaders had cost many lives among the population; the battles and the pillaging had ravaged cities, towns and the countryside; and political and economic structures were largely swept away during the period of disorder. This situation invited reconstruction and opened up possibilities for re-structurisation.

2.4.1 Bastide-foundations under Count Raymond VII of Toulouse

The Treaty of Paris of 1229, in which the peace between the French king and Count Raymond VII of Toulouse was laid down, gave the count the right to found new settlements, on the condition that they would not be fortified.\(^\text{58}\) The count welcomed this opportunity, in order to regain his grip on the county, its population and its economy. It appears that he engaged in a deliberate settlement policy, by founding new towns (or re-founding existing ones) that filled the vacuum that resulted from the destruction of existing towns and villages during the war.

It has been suggested that the Treaty of Paris was the starting point of the period of bastide foundation.\(^\text{59}\) This is not entirely correct, though, since Raymond VII had already begun somewhat earlier with the (re-) founding of settlements in the area where the crusade had lead to heavy damage.\(^\text{60}\) An impressive example of this is the town of Cordes, which was founded in 1222.\(^\text{61}\) \(\text{fig. 2.11}\) This town is sited on top of a rather steep hill with an extensive view in every direction, on the location of the earlier ‘castrum’ Saint-Marcel, which had been destroyed by the crusading army in 1214.\(^\text{62}\) Cordes was a very successful foundation. Already in the 13th century

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\(^{57}\) Higounet 1975 (2), pp.576-577. In this period, many colonists from northern origin settled in northern Spain (then the kingdoms of Aragon, Navarra, Castilia and Leon) in this period, in old and new villages and towns. (see Higounet 1975 (1), pp.417-439; Bartlett 1993, ch.5-8).

\(^{58}\) Lauret, Malebranche & Séraphin 1988, p.39.

\(^{59}\) Among others: Lauret, Malebranche & Séraphin 1988, p.37; Randolph 1994, p.303. Two earlier newly founded towns, Montauban (1144; Lavedan & Hugueney 1974, pp.57-68; Higounet 1975 (2), p.677-678; Lauret, Malebranche & Séraphin 1988, pp.39-31) and Marmande (1182, Beresford 1967, p.351) also have been described as bastides, since they were founded by great territorial lords, the count of Toulouse, Alphonse Jourdain, and the duke of Aquitaine (and king of England), Richard Lionheart, respectively. In my opinion this is problematic however, because Montauban was founded as a settlement next to the count’s castle that guarded an important crossing point of the river Tarn, and therefore it should more accurately be characterised as a castelnau. With regard to the history of Marmande, there are conflicting opinions as to whether or not it was a re-foundation of an existing settlement or whether a castle was already existent on the site. (Beresford 1967, p.622; Higounet 1975, pp.325-334; Atlas historique des villes de France. Marmande, 1985)

\(^{60}\) According to Saint-Blanquat, the early bastide foundations were inspired by the newly created settlements in present northern Spain. In his opinion there was a considerable similarity in the charters of rights that were given to the new settlements. (Saint-Blanquat 1985, p.12) As far as I know, no further research has been published on this (alleged) correspondence.

\(^{61}\) The term that was used to characterise Cordes in the 13th-century documents is ‘castrum’, meaning something like ‘fortified settlement’. (Lauret, Malebranche & Séraphin 1988, p.14; Cursente 2004, p.63)

\(^{62}\) Lauret, Malebranche & Séraphin 1988, pp.37, 286.

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\(\text{fig. 2.10: Plan of Fourcès. (From: Lauret, Malebranche & Séraphin 1988, modified by the author) Fourcès received coutumes from the English crown in 1289, but it seems quite possible that part of its structure is considerably older. It is one of the few bastides with a rounded form. It was created around a pre-existent castle, which was demolished later to create a central market place. For this reason it actually fits the definition of a castelnau rather than of a bastide. A new castle was built in the southeastern corner of the town after 1488.}\)
98

it was a town with a really urban character.\(^{63}\) In fact, few of the later bastides would reach a comparable degree of ‘urbanity’; most have remained largely agrarian in nature. Around 1222, Raymond also founded Castelnau-de-Montmiral, which, as the name suggests, was built next to a castle.\(^ {64}\)

The rest of Count Raymond’s bastides, however, were founded after the conclusion of the Treaty of Paris. Raymond and some of his loyal vassals, particularly Sicard Alaman, whom the count had appointed as lieutenant for the whole county, founded a total of about 20 bastides and castelnaux.\(^ {65}\) Many of these foundations were strategically sited on hilltops or surrounded by steep downward slopes. In this way they were relatively easy to defend despite the fact that they could not be fortified.\(^ {66}\) Lauzerte, for instance, was a re-foundation by Raymond VII (1241) of the castrum-settlement of Beaucaire, which had been founded on top of a hill by Count Raymond V in the late 12\(^{th}\) century.\(^ {67}\)

It was partly thanks to these new towns, as centres of lordly power and administration, that the count was able to restore his grip on what was left of his territory. These town foundations not only served the political-strategic interests of the founders, but also served to repair the economic, social and administrative organisation of the countryside. It is logical, therefore, that many of the new foundations under Raymond VII took place in the part of his territory where the destruction by the crusade had been most intense: the northern Albigeois and the eastern part of the Agenais.\(^ {68}\) (fig. 2.12, upper left)

The foundations under Raymond VII clearly mark the beginning of the period of bastide creation. Even though his foundations were not all successful, Raymonds policy of settlement creation still appears to have served as an example to other lords.\(^ {69}\)

2.4.2 Bastide foundations in ‘paréage’

Most bastides were founded as a collaboration between two (and sometimes more) landlords. The cooperating lords usually signed a contract in which the rights and duties of both parties were laid down. Such a contract was commonly referred to as a pareagium (rendered in French as paréage), literally meaning some-

\(^ {63}\) Laur et, Malebranche & Séraphin 1988, pp.265-257.
\(^ {64}\) Laur, Malebranche & Séraphin 1988, p.285.
\(^ {65}\) On Sicard Alaman as founder of bastides, see Higounet 1975 (1), pp.305-325.
\(^ {67}\) Laur, Malebranche & Séraphin 1988, p.291. Such militarily strategic locations are not very common for bastides. (see par.2.10.1) Better examples of the average bastide in that respect are Raymond’s foundations, Paymirol (1240) and Lisle-sur-Tarn (1229-1241). (Laur et, Malebranche & Séraphin 1988, pp.292, 298)
thing like ‘pairing’. Usually one party was a local lord, an abbey or a commandery, which furnished the ground and the rights over it. The other party was usually a territorial lord of higher status and power, like a count, duke or a direct representative of the king. This second party usually offered special privileges and military and juridical protection for the community of settlers.70 By entering into such an agreement the smaller lord theoretically became the equal of the greater lord, at least for the limited area to which the parage applied. Similar arrangements for town foundations were also instituted elsewhere in Europe in the same period, but there they are much less common.71 As mentioned above, sauvetés were also founded by collaborations of a similar character72, but the phenomenon of the foundation of towns in partnership between two or more greater and smaller lords is more common for bastides.73

Count Raymond VII, however, always acted as the sole founder, after he had come into possession of the ground by inheritance, purchase, exchange or usurpation.74 After all, it was easy for a lord to found a new

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71 See, for instance, Beresford 1967, p.102 (England); Kuhn 1975, pp.141-142 (Pomerania); Panero 1979, pp.103-105; Panero 2004, p.104; Cortese 2004, pp.286-298 (Italy); Erlen 1992, p.35 (Prussia).
72 Parage agreements are known from about the middle of the 11th to the 15th centuries. (Lauret, Malebranche & Séraphin 1988, p.43)
74 Lauret, Malebranche & Séraphin 1988, p.37. Likewise, the vicomte of Béarn mostly also founded bastides on his own. (see par.2.4.6)

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fig. 2.12: Four maps of southwestern France roughly indicating the spread of bastides that were created under the four main founders: Count Raymond VII of Toulouse (upper left), Count Alphonse de Poitiers of Toulouse (upper right), the dukes of Aquitaine (also kings) princes of England; lower left) and the French crown (lower right). (From: Lauret, Malebranche & Séraphin 1988, modified by the author)
town without partners on his own ground, as long as the domain offered enough economic possibilities and the lord had enough authority and legal power to guarantee the settlers that their future prospects could actually be realised and that the juridical situation would remain stable. In practice, this mostly meant that only the more powerful lords could found new towns by themselves. According to Beresford, the king-duke of Aquitaine founded 39% of the total number of bastides in his duchy on his own, without a paréage, whereas only 3% in the duchy were founded by smaller lords on their own.75

The advantage of paréages to the greater lords was that they could, in this way, enlarge their authority in areas that did not belong to their own domains. By making partnerships with the local lords, who often enjoyed relatively great autonomy in their domains, the greater lords could incorporate these domains, piece by piece, into their dominions. But, apart from extension of power, such agreements were also about financial gain. A principal element of the paréages was that the returns from rents, taxes and justice would be shared by the paréageurs. So, from ground that had yielded little or nothing to the greater lord, he would subsequently collect half the returns from the bastide.76 These returns could be quite substantial, as will be discussed below.

For the local lords the main advantage of concluding paréages with higher lords lay in the alliance with a mighty authority, which offered protection by its legal and military power. On the one hand this formed an attractive extra guarantee for the settlers who had to be attracted; and, on the other hand, this could also mean that the local lord got himself a better position in comparison to rival lords in the nearby area, thereby enabling him to better defend his authority or even to extend it.77 For example, in 1305 a local lord named Arbaud Loup d’Estibeaux requested the king-duke to join in a paréage for a piece of the lord’s domain at Osord (Ozourt) in the region of Gers, ‘in which the lord of Navailles and his men commit great outrages’, with the aim of founding a bastide there, with a population of 2000. As far as is presently known, the king-duke never reacted to the request.78

The rights and duties of the lords were precisely spelled out in the paréage contracts. Often, the main privileges of the future settlers would already be stated in the contracts.79 And, sometimes, the number and size of the lots that were to be issued to settlers were also established, as well as the amount of the rent that was to be paid for them. This included house lots, garden plots that were to be sited right outside the town,

75 Beresford 1967, p.100, table.
76 Randolph 1994, pp.291-292. The right to high justice was not shared; it was held by the major lord.
77 Lauré, Malebranche & Séraphin 1988, pp.43-44. See also par.2.4.5.
78 ‘en laquelle le sire de Navailles et ses gens lui font de grands outrages’ (Trabut-Cussac 1954, p.127). Trabut-Cussac also discusses the similar case of the bastide foundation at Lane in the Bayonne region.
79 Saint-Blanquat 1985, pp.41-50; Lauré, Malebranche & Séraphin 1988, pp.43-44.
plots of arable and possibly also vineyards.\textsuperscript{80}

The \textit{paréage} contract is sometimes labeled as ‘foundation charter’ by scholars, since it records the intention to found a bastide. When concerned with real new foundations on virgin land it is often the oldest record known of the settlements. The contracts are very valuable sources of historical knowledge, as they often are the only documents that provide information about dates, founders, their rights and duties, intended size and various specific circumstances, among which sometimes even the motives for the foundation of a bastide.

\[\text{2.4.3 Bastide foundations under Alphonse de Poitiers}\]

In 1249 Raymond VII was succeeded as count of Toulouse by Alphonse de Poitiers, brother of King Louis IX of France, following the conditions laid down in the Treaty of Paris. Alphonse continued the policy of bastide foundations with an increasing intensity. As mentioned above, Raymond founded his bastides without the cooperation of other lords, on his own domains. Alphonse chose a different strategy, and concluded many \textit{paréages} with local lords and abbeys that offered their lands for the creation of bastides. In this way Alphonse founded around 40 bastides between 1250 and 1270.\textsuperscript{81} The largest and most well-known of these are Sainte-Foy-la-Grande (1255, founded in \textit{paréage} with the abbot of Sainte-Foy of Conques and the lord of Pineuil), Villeneuve-sur-Lot (1253, with the abbot of Eysses) and Villefranche-de-Rouergue (1252, with the bishop of Rodez).\textsuperscript{82} (\textit{figs.}\ 2.21, 6.4, 2.35)

The motive for these bastide foundations is probably best described by the term ‘pacification’: getting more of a grip on the county and the various lordly domains within it, in order to increase the count’s authority and income and to make the county more of a unity.\textsuperscript{83} Together with the foundation of new towns, the count’s administrative apparatus was extended and re-organised. In particular, in the border areas in the north (Agenais and Quercy) and south of the county (Toulousain and Lauragais), Alphonse tried to extend his authority by founding bastides, at the expense of the king-duke of Aquitaine in the north and the counts of Comminges and Foix in the south.\textsuperscript{84}

The foundation of bastides now became a deliberate policy that was modeled on a systematic procedural formula. This appears, among others, from documents that recorded systematic inquiries which were made before it was decided to found a new town. Such inquiries were made into the precise juridical status and ownership of the land that was planned to be involved in the foundation, or into the economic prospects and the possibilities with regard to the attraction of settlers to the new town.\textsuperscript{85} Under Alphonse de Poitiers there were three or four different models of charters with rights and privileges for bastides, the basic content of which was actually largely similar.\textsuperscript{86} From the urban form of the new settlements it can also be concluded that there was a certain amount of systemisation. It should be mentioned, however, that this source has often been interpreted a bit too narrowly; but that will be discussed below.\textsuperscript{87}

\[\text{2.4.4 Bastide foundations under the English king-dukes}\]

The English kings also saw the usefulness of this settlement policy as an instrument of power and a model of exploitation. By the 13th century they had already founded many new towns in England.\textsuperscript{88} During the rule of King Edward I (1272-1307), who was also duke of Aquitaine from 1254 to 1306, however, the foundation of new towns became much more important as an element of royal territorial and economic policy. In chapter 1

\textsuperscript{80} Laur et al. 1974, p.310-311.

\textsuperscript{81} See pars.2.4.3.

\textsuperscript{82} See also pars.2.5.4.

\textsuperscript{83} Paréage.

\textsuperscript{84} See also pars.2.5.1, regarding the foundation of bastides in frontier areas.

\textsuperscript{85} See also pars.2.5.4, regarding the foundation of bastides in frontier areas.

\textsuperscript{86} See Laur et al. 1974, ch.5, s.v.

\textsuperscript{87} See also pars.2.5.4.

\textsuperscript{88} See Laur et al. 1974, ch.5, s.v.
The first ‘English’ bastide foundation was Monségur, in 1263. (fig. 2.13) The policy of bastide creation under the English crown was only really set in motion, however, in the 1280’s. It is likely that the bastide foundations of Count Alphonse de Poitiers in particular provided an example for the English crown. Sixteen of the bastides that were created under Alphonse fell to Edward’s administration in 1279 and 1286, when the Agenais and ‘the three dioceses’ of Cahors, Périgueux and Limoges were handed back over to the duchy, on loan from the French crown. This was a belated result of the Treaty of Paris of 1259, concluded between King-duke Henry III and King Louis IX, in which it was established which domains would fall to the duchy of Aquitaine in the event of Alphonse and Jeanne de Poitiers dying childless.

Although the foundation of new towns was an old and well-tried political instrument to the English crown, the ‘English’ bastides followed a model that was specific for the region of Aquitaine. The rights which were bestowed on these bastides, drawn up in so-called chartes de coutumes, mostly followed the model of the bastides that were founded under Alphonse de Poitiers. These charters were considerably more extensive than, motives of territorial policy also played an important role. Goals directly related to military strategy, however, do not appear to have had much influence. This will be discussed in detail in paragraph 2.5.

The Edwar...
and detailed than those which were common for new towns in England or Wales.\textsuperscript{97} Nor with regard to their urban layout do the ‘English’ bastides diverge significantly from the bastides in general. Various ‘English’ bastides have layouts that are more or less common among the bastides and which are very rare or even nonexistent in England or Wales.\textsuperscript{8} (see for instance figs. 2.13, 2.14, 2.20) Hence, the ‘English’ bastides cannot be clearly distinguished from the bastides in southwestern France in general, with respect to their motivations, functions, rights and forms. In most cases they can be clearly distinguished, however, from the new settlements in England and Wales with regard to these aspects.

Edward I was succeeded by Edward II and Edward III as duke of Aquitaine and king of England. Under Edward II more bastides were founded, but with a lower intensity and less success than during his father’s reign.\textsuperscript{98} The last ‘English’ bastide foundation, Pouriet (or Arbanats, 1348), which was also the only foundation of Edward III, was a complete failure. As a result of the Hundred Years War (1337-1453) the French crown eventually conquered all of the Plantagenet territories in southwestern France, and by 1453 all bastides in former ‘English’ territory had gone over into French hands.\textsuperscript{99}

2.4.5 Bastide foundations under the French kings

After the death of Alphonse de Poitiers in 1271, the whole county fell to the French crown, as a result of the Treaty of Paris from 1229. Subsequently, the policy of bastide foundation was vigourously followed through. Between 1271 and 1373 at least 70 bastides were founded under the French crown.

However, long before the crown held the direct rule over the county of Toulouse, it was already involved in the foundation of new settlements. In the 12\textsuperscript{th} century, for instance, new villages and towns were created in the Paris Basin, as part of a policy that was directed at reclamation and rentabilisation of the royal domains.\textsuperscript{100} In southern France, Louis VIII founded Villeneuve-lès-Avignon in 1226. This town was built on the right bank of the river Rhône, right across from Avignon, after the conquest of this city.\textsuperscript{101} And in 1246, Louis IX founded Aigues-Mortes, a large and completely new town in the most southern point of his territory, the motive for which was to create a fortified port to provide the king direct access to the Mediterranean.\textsuperscript{102} (fig. 2.15)

With the acquisition of the county of Toulouse by the crown, the actual administration of the territory was given to royal lieutenants, sénéchaux, who governed specific sénéchaussées. A relatively well-known sénéchal who was very active as a founder of bastides was Eustache de Beaumarchais, sénéchal of the Toulousain and the Albigeois from 1272 until 1294. He founded 23 bastides.\textsuperscript{103} The most noteworthy of these are Fleurence (1272), Beaumont-de-Lomagne (1279), Mirande (1281) and Grenade-sur-Garonne (1290, fig. 2.22). Under Eustache the systematisation of the procedure of bastide creation was followed through. From 1273 (the foundation of Eutrope de Beaumarchais) to 1373 at least 70 bastides were founded, but with a lower intensity and less success than during his father’s reign.\textsuperscript{104} The greatest part of the royal foundations, and particularly those of Eustache de Beaumarchais, took place in the French part of Gascony, the hilly region to the west of the river Garonne.

\textsuperscript{97} Among others, the chartes de coutumes of the bastides mostly contained regulations regarding the rights and duties, and the method of election and nomination of the representatives of the settlers, the jurati or consuls, who were responsible for the administration of the communitas together with the boile who was appointed by the lord(s) of the town. In settlements of comparable size in England and Wales, these elements of communal organisation and representation were not included in the charters. Various other things, like the amounts of tolls and fines, building regulations etc., can also be found in the chartes de coutumes, while in England and Wales such elements were mostly taken up in separate regulations. (Beresford 1967, p. 220)

\textsuperscript{98} Particularly rare in England and Wales are plans similar to the more regular bastides with central square market places. Only New Winchelsea in Sussex appears similar at first sight, but the square open space which would be the market space in many bastides is a churchyard here. (see fig. 7.1) Lavedan and Hugueney (1974, p. 85) exaggerate, however, when they write that there is no similarity whatsoever between the forms of the foundations of Edward I in England and those in France. Various bastides with less regular plans and lacking square market places, like Cadillac, Montfort-en-Chalosse and Montfaucon, are more or less similar to towns in England and Wales. (see Laurent, Malebranche & Séraphin 1988, pp. 234, 295; Lavedan & Hugueney 1974, fig. 224; cf. Conway, Beaumaris, Flint Caernarfon, see ch. 2)

\textsuperscript{99} From the late 11\textsuperscript{th} until the 14\textsuperscript{th} century many new settlements were founded in the Paris Basin. For the most part these were small reclamation villages, which were often founded in paréage contract over and over again, and the chartes de coutumes were also standardised.\textsuperscript{105} The greatest part of the royal foundations, and particularly those of Eustache de Beaumarchais, took place in the French part of Gascony, the hilly region to the west of the river Garonne.

\textsuperscript{100} Beresford 1967, p. 375.

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Eustache was succeeded as sénéchal by, among others, Guichard de Mauriac, Jean de Trie and Berand de Solomiac, who founded about 15 more bastides.105

Some of the royal bastides were founded on royal domains, with the intention of improving the exploitation of these domains.106 Most of the royal bastides, however, were created in paréage with local lords, and seem to have been intended primarily to get control over regions that previously had been lordships with relatively great autonomy. Particularly in Gascony there had been many counties and viscounties that had gradually gained autonomy in the previous centuries.107 In order to establish royal jurisdiction here, paréages were concluded with local lords who aspired to defend or enlarge their authority viz-à-viz other lords in this way.108

This was the case with, among others, the counts of Astarac, Pardiac and Gauré. Their domains were plagued by the aggression of the count of Armagnac, who regularly raided the region. Therefore, they concluded paréages for the foundation of new bastides with the French crown, in order to gain a mighty ally against this count.109 They hoped that the juridical and military power of the crown would protect them, at least in the area of the bastides that were founded in cooperation with the crown. Commanderies of the Knights Hospitaller and particularly Cistercian abbeys also founded bastides in paréage with the crown. For them the motive for these cooperative town foundations often seems to have been of an economic rather than a territorial-political character. Beaumont-de-Lomagne (1276, in paréage with the Cistercian abbey of Grandseve) and Grenade-sur-Garonne (1290, also with Grandseve) are the most significant examples of these.110

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106 For instance Pampelonne, Rabestans, St.-Martin-en-Bigorre and Revel. (Saint-Blanquat 1985, p.22)
107 Lavedan & Hugueney 1974, p.71; Calmettes 1986, pp.20-21; Dubourg 1997, pp.40-41. The relatively great autonomy of the Gascon princes, with their small territories, was due to the fact that the region was a remote corner of the French kingdom, in between various other lordships (like the kingdom of Navarre, the county of Toulouse and the duchy of Aquitaine) between which the local lords could opportunistically choose their allies.
108 See for instance Calmettes 1986, p.16. According to Calmettes, an important motive for local lords to conclude paréages with the royal administration was that the crown had the means to finance the creation of new towns. I do not know of any sources, however, that indicate that the crown paid (even the larger part of) the costs. The costs and returns mostly seem to have been equally divided between the paréageurs, except for the fact that the local lord contributed the ground, which generally must have been the largest investment. (on the investment of the ground, see Beresford 1967, p.71)
110 See Higoumet, 1992, pp.141-145 and below, par.2.5.4.3.
As mentioned above, smaller lords of various sorts also used the instrument of bastide foundation with the aim of extending their power and income. They founded more than sixty bastides, with or without concluding parêges with more powerful lords, mostly the duke of Aquitaine or the French king. Among others, the counts of Foix, Comminges, Armagnac, Astarac, Pardiac and Bigorre and the viscounts of Béarn and Lomagne tried to create new administrative, territorial and economic cores for their domains by founding bastides.

Already during the rule of Count Raymond VII of Toulouse, his lieutenant and vassal Sicard Alaman had actively ventured into the creation of bastides on his own domains, wholly in agreement with the count’s policy. In the 1250’s some other lords, among whom the count of Foix, also started to found bastides. An important goal for them seems to have been to consolidate their authority relative to the count of Toulouse.

Bernard IV, count of Astarac (1249-1291), also founded a number of bastides with a similar motive. He concluded two parêges with séchéal Eustache de Beaumarchais, probably mainly with the aim of gaining royal protection against the aggression of the neighboring lord, the count of Armagnac, who had slaughtered the count of Gauré and his family some years before during a raid into the small county of Gauré. Of course it was a disadvantage to Bernard IV that he lost some of his autonomy to the crown, which was represented by Eustache, but that was probably the lesser of the two evils he had to contend with. The creation of a bastide could serve various purposes, and that also goes for the conclusion of a paréage in itself. With a paréage common interests were created, such as those involving the jurisdiction and revenues of the bastide and possibly also its strategic location, thereby creating or intensifying strategic political alliances. For the smaller lords it was of the greatest importance that the ally was well chosen. The co-paréageur who contributed an attractive piece of land was always a good partner; paréageurs that did not contribute land to the bastide foundation were commonly chosen for their military and juridical power and authority.

Small local lords mostly acted in paréage with great lords like the duke, the king or the count of Toulouse, but sometimes they cooperated with other local lords. The bastide of Marguestartau, for example, was founded in 1294 by the lord of Marguestartau together with the count of Armagnac. Many of the settlements that were founded by the smaller worldly lords were castelnaux rather than bastides, as they were often created in the direct vicinity of their castles. These settlements can be regarded as a sort of ‘poor man’s bastides’. Not all smaller lords appear to have favored cooperation with other lords. Between 1281 (Bellocq) and 1358 (Bruges), the successive viscounts of Béarn created thirteen bastides in order to strengthen their grip on the population and the economy in their more or less independent lordship. Curiously enough, no parêges are presently known for eleven of these foundations. Apparently the viscounts had sufficient authority to found the new towns on their own and could dispose of enough ground on well-suited locations. They do not seem to have felt that they needed co-paréageurs to make their bastide foundations into successful ventures.

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111 This figure is based on the map in Calmettes 1986, p.21. According to Divorse, Gendre, Lavergne & Panerai (1985, p.22) the bastide foundations of smaller lords in the south accounted for about 25% of the total number of bastides.
113 Higoumour 1975 (1), pp.305-333. It considers, among others, Boulou (1242), Montauroc-la-Conseillère (1241) and Montesqui-Lauragais (1241).
114 Lauret, Malebranche & Séraphin 1988, p.37. The counts of Foix founded, among others, Béziers-sur-l’Hers (1255, in paréage with the abbots of Boulbonne), La Bastide-de-Séran (1252/1254, with the abbots of Combelongue and the abbots of Maix d’Auzil and Campagne-sur-Ariège (1254, with the abbots of Combelongue).
115 He founded Masseube (1274, in paréage with the abbots of Lescaleûries, Mirande (1281, with the abbots of Berdous and séchéal Eustache de Beaumarchais), Moilihan (1281, with the abbots of Berdous and séchéal Eustache de Beaumarchais), Seissan (1286, with the abbots of Faget). (Lauret, Malebranche & Séraphin 1988, p.42)
116 Lauret, Malebranche & Séraphin 1988, p.42. See the previous note.
117 For comparison, one may consider the situation in England. Much as in Aquitaine, small lords could found new towns (boroughs) there on their own domains, without needing special permission from the king. In the course of the 12th to 14th centuries, however, they increasingly felt the need to have the crown affirm the rights and privileges they provided the boroughs with. The crown received a fixed sum for such confirmations. This is not the same as a paréage, but it serves to demonstrate that the power and authority of the higher jurisdiction of the crown was used by town founders as a sort of certificate of guarantee to give their boroughs a higher and officially approved status in a legal sense, which, in turn, offered more security to settlers and to possible third parties such as traders and investors in real estate. (see Beresford 1967, pp.60, 85)
In the 14th century the number of new bastide foundations diminished, much like the number of new settlements in almost all of western and southern Europe. The most fertile lands were already brought under the plow, which meant that new reclamation had to take place on more marginal soils. More important in this context, however, is the fact that the growth of the European economy had come to a halt in the early 14th century and that the Black Death caused a great demographic crisis around the middle of the century. On top of all that, southwestern France experienced an additional crisis in the form of the Hundred Years War between the French crown and the dukes of Aquitaine casu quo the English crown (1337-1453). Because of these worsening conditions, the chance of success for a new settlement foundation diminished dramatically.

In the Lauragais (the area southeast of Toulouse) the founding of bastides continued somewhat longer than elsewhere in southwestern France. The last known bastide foundation is Labastide-d’Anjou, in 1373. This place, which was founded by the French crown, has the honour to be named after Louis d’Anjou, king of Naples. Despite the name, the foundation was no great success: at present it is no more than a small village.

### 2.5 Motives for the foundation of bastides

#### 2.5.1 Military motives

Until some decades ago it was more or less generally agreed by scholars that bastides were founded for reasons of military strategy. They were more often used as a sort of civil castles in conflicts between various landlords, and particularly between the French and the English kings. In particular, Charles Higounet was an influential adherent to this theory. At first sight, the idea seems quite sensible, since there actually were severe conflicts between various lords, and the bastides appear to often have been founded in frontier areas between the different territories. Moreover, a significant number of the towns were surrounded by more or less imposing fortifications. (figs. 2.16, 2.43) Particularly in English-speaking countries the term ‘bastide’ is therefore almost generally interpreted as meaning something like ‘newly founded fortified settlement’.

After closer study it appears, however, that the idea of the primacy of military motives behind bastide foundations is largely due to misinterpretation. In 1954 Jean-Paul Trabut-Cussac published an article in which the almost generally accepted idea was proven wrong. He argues that between 1259 and 1290 and between 1303 and the 1320’s there had been few military conflicts between the French and the English crowns. There had been many conflicts, it’s true, but these were particularly of a judicial nature. With the help of documentary sources Trabut-Cussac also demonstrates, with regard to the ‘English’ bastides, that in most cases there is no proof whatsoever for military motives at the time of their foundation or shortly afterward. It appears that the inhabitants of the bastides were generally freed of the otherwise obligatory military service to their lords for the first ten years after they settled in a bastide. It also appears that the chartes de coutumes of bastides mostly did not contain provisions with respect to a possible military function: the inhabitants very rarely received the right to carry arms, and with respect to the bastides of Alphonse de Poitiers, which often have been regarded as a sort of fortresses, nothing is provided in the chartes with regard to the fortifications. It appears, in fact, that fortifications simply were not planned initially. A number of documents concerning ‘English’ bastides demonstrate that the king-duke was not at all eager to have them fortified. The communities of settlers of various bastides requested, in some cases several times, for permission to
bastides were fortified. In this way territories were enlarged by colonisation and the creation of new legal structures, rather than by seigneurial military instruments. Bastide communities themselves, and they should thus be regarded as communal defences rather than as the dominion of the duchy of Aquitaine. For the most part, these walls were constructed at the request of the short time before or during the Hundred Years War, in which the English and the French crowns fought over an area where lordly rights were not yet clearly fixed could serve as an anchor point for lordly dominion. 

It is, indeed, a fact that most town walls were only built in the 14th century, shortly before or during the Hundred Years War, in which the English and the French crowns fought over the dominion of the duchy of Aquitaine. For the most part, these walls were constructed at the request of the bastide communities themselves, and they should thus be regarded as communal defences rather than as seigneurial military instruments.

Despite the fact that Trabut-Cussac’s arguments have not been seriously countered, it appears that many scholars still adhere to the idea that bastides were generally founded with military motives in mind. It seems that they often assume that the walls, gates and towers which surrounded many bastides in the past, were planned right from the outset of the foundations. In this, they fail to notice that most of these fortifications were only built in the period of the Hundred Years War, and that even then most bastides remained unwalled.

It is, indeed, a fact that bastides are relatively often sited in frontier areas between different lordships. This fact is the main argument which Higounet uses to emphasise the strategic military importance of the bastides, particularly with regard to the frontier areas between the territories of the king-duke and the French crown. However, the siting of many bastides on locations in border areas has to do with the fact that boundaries between the various lordly territories were often not yet clearly determined. A newly created settlement in an area where lordly rights were not yet clearly fixed could serve as an anchor point for lordly dominion.

In this way territories were enlarged by colonisation and the creation of new legal structures, rather than by

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133 Trabut-Cussac 1954, pp.92-94. For example Sauveterre-de-Guyenne and Hastingues (Trabut-Cussac 1954, pp.101, 108-109). The fact that fortifications, particularly stone gates, towers and walls, gave a town an impressive appearance and a higher status may also have played a role.

134 Trabut-Cussac 1954, p.98. Trabut-Cussac discusses the example of Monflanquin, which was founded by Alphonse de Poitiers in 1255 and was fortified in 1282.

135 Trabut-Cussac 1954, pp.96-101. This restrained fortification policy with respect to the king-duke’s bastides was in contrast to the castra, the seigneurial fortress settlements of the king-duke. Under Edward I the latter were generally well maintained, and a number of them were reinforced in 1255, 1274 and 1280. Edward I also acquired various new castra from local lords. (Trabut-Cussac 1954, pp.119-120)

136 Regarding this general misconception, see Pujol 1990, pp.245, 252, 253, 256


138 According to Heers (1990, p.108), only 41 of the 125 bastides in the ‘English’ territory listed by Beresford, were ever provided with stone walls.

139 Higounet 1975, p.247. Reacting to this argument by Higounet, Trabut-Cussac points out that no bastides were founded by the king-duke in the Saintonge. If bastides were founded with military-tactical motives, they should logically have been founded there, since the most northern and traditionally also most vulnerable and crucial border of the duchy was located there. (Trabut-Cussac 1954, p.115)

140 Trabut-Cussac (1954, pp.121-123) emphasised that the borders were not at all clearly fixed. Only a few points were really defined in the frontier areas. He uses the phrase ‘mosaïque de frontières’ (‘mosaic of frontiers’). See also Insigler 1991.
military conquest. It is also relevant that frontier regions generally were relatively uncultivated and under-populated due to less favourable geographical conditions, as is usually the case with border areas. Because of the growing population pressure and the increasing knowledge of agrarian technology it became profitable to cultivate these marginal lands.

With all this, it must be acknowledged, however, that some bastides probably actually had some military significance in the early phases of their existence. A small number of towns were walled relatively early in their existence. This was the case with, among others, Cordes (founded 1222), Domme (1281) and possibly Vianne and Monpazier (both 1284).

Territorial policy clearly was an important motive in many bastide foundations, but motives of an economic nature were also very important. In general, one may assume that, where political structures and rights of ownership were not yet clearly fixed and were disputed among different lords, the political territorial motivation would probably have been more important, and that, where these structures and rights had already crystallised, economic motives were of primary importance.

So, with the possible exception of a few special cases, bastides were generally not created to serve as fortresses in the territorial conflict between the English and the French crowns. For as far as bastides served a role in territorial conflicts between different lords, they rather acted as a pacification instrument, a physical anchoring point of the lordly authority, and as visible sign of lordly ambitions.

### 2.5.2 Protection of population and travelers

The fact that the bastides were not created as seigneurial fortresses does not mean, however, that they were planned without any view to their defensive functions. A number of foundations were explicitly motivated with the aim of providing protection to the population of a particular area and its possessions and production. The forests of Aquitaine housed gangs of criminals and roving mercenaries. They robbed travelling salesmen and pilgrims and sometimes they even plundered complete villages. There also were various members of the nobility that were notorious for their brigandage. It also happened that the inhabitants of border areas between different lordships were harassed by hostile neighbouring lords or their subjects.

Various noble families had long-standing conflicts, and inhabitants of border areas could particularly be the victims of short outbreaks of violence, often acts of revenge for earlier aggressions. A number of bastides were created to provide protection against such plunderings, robberies and harassments. In this way, the inhabitants of the countryside would come to live in larger and more compact settlements, in which they would be better organised to protect themselves.

A clear example is Revel. This bastide was founded in 1332-42 in the Forêt du Vauré, after the surrounding area had been heavily harassed, at least since 1313, by gangs of former mercenaries that lived in the forest. In 1332, King Philip VI bought a part of the forest, with the intention to found a bastide. In 1342, the settlers, who came from six different parishes in the area, received a charte de coutumes. This charter already contained the privilege to dig ditches and build stone walls, which was actually done from 1355 on.

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141 Trabut-Cussac 1954, pp.122-123. See also par.3.5.2 (Florentine new towns).

A bastide foundation where this did not work out well was Saint-Sardos. In 1323 it was founded by the abbey of Stavelot in per périge with the French crown. But the place lay within the Agenais, which belonged to the duchy by that time, although near the southeast border of it. This caused a severe armed conflict, the so-called war of Saint-Sardos, between the duchy and the French crown and their supporters, which lasted two years. (Vale 1990, pp.233-242)

142 Laurent, Malebranche & Séraphin 1988, p.131. According to Trabut-Cussac (1954, p.98) and Higounet (1984, p.22), however, Vianne was of little military value and was walled only later. Domme is located on a strategic site high above the Dordogne river, which was the border between the French and English territories at the time of its foundation in 1281-83. King Philip III the Bold of France (1279-85) founded this bastide after he had bought the ground and the castle lying next to it from two local lords. The town was fairly heavily fortified in the early 14th century. (Lauret, Malebranche & Séraphin 1988, pp.201-202) One may ask, however, what the extra strategic military value of the bastide would have been, since it was located next to an impressive castle that was located strategically on the rocky outcrop at the far point of the hillcrest. In my opinion, the bastide was sited relatively high up for the protection of its inhabitants and their goods, and it seems likely that it was fortified mainly because otherwise the castle would be very vulnerable should the nearby bastide be easily conquered by enemy forces. It does not seem likely therefore, that the town was created to become a kind of castle manned by citizens, as has been the general idea about bastides.

143 Trabut-Cussac 1954, pp.122-123. See also par.3.5.2 (Florentine new towns).

144 This happened, for instance, in the bastides of Saint-Gein, Lias and Frontdeboeuf around 1320. (Trabut-Cussac 1954, pp.105-110) Throughout his article Trabut-Cussac also mentions a number of other cases.

145 See Vale 1990, pp.112-139.

146 Beresford 1967, pp.83-85, 186. A comparable policy was followed with the creation of the Florentine new towns (see par.3.5.1).

147 Doumerc 1976, p.47.

148 Doumerc 1976, pp.49, 58, 59, 63.
The bastide of Molières was also founded in the midst of a forest. It was created in 1284 by the sénéchal of Edward I, explicitly to provide protection to travellers on the pilgrims' route that crossed the area. A more or less similar case is the bastide of Pimbo. The abbot of Pimbo gave Edward I a mandate to build a castle and a bastide on the site that appeared most fit to him within the abbey’s domain, in order to restore the peace in the surrounding area.

### 2.5.3 Administrative motives

The foundation of bastides also served to create more order in the organisation of the territory of the founding lord, with the goal of getting more control over the population and the land. Concentration of the population and reorganisation of the administrative structure were the instruments, which took form in the creation of bastides.

A very important aspect of the control over the population, no doubt, must have been fiscal in character. By organising the population in concentrated settlements, in which the settlers were given house lots and plots of garden, arable land and vineyard of a clearly determined size, it became relatively easy to rate taxes and rents and to collect them from the inhabitants.

It has already been mentioned above, with respect to the bastide foundations of Edward I and Alphonse de Poitiers, that a number of bastides became administrative centres in their dominions. In the second half of the 13th and the first half of the 14th century, a growing proportion of the administrative districts in southwestern France came to be centred in bastides. This can be clearly observed from the administrative organisation of the former domains of Raymond VII. Since the Treaty of Paris of 1229, the county of Toulouse was divided into six judicial districts, the so-called jugeries. In the jugerie Rieux, for example, no less than ten out of the eleven baillies (areas administered by bailiffs) were centred on bastides at the end of the 13th century, and in the jugerie Rivière nine out of ten administrative centres were bastides.

It seems that the town of Villefranche-de-Rouergue was planned as an important administrative centre right from the outset of the project. It was founded in 1252 by Count Alphonse de Poitiers in paréage with the bishop of Rodez. The count instantly gave it the function of capital of the Basse Marche (or Rouergue). This was partly because the earlier capital of the administrative region, Najac, was not favoured any longer because it had revolted against Alphonse in 1249.

### 2.5.4 Economic motives

One of the main goals of the creation of many bastides, as with many other new towns in other periods and countries, was to enlarge the founder’s returns on his lands. It is mostly unclear, however, in what precise measure this was the case for individual towns, as this motive was rarely explicitly mentioned in documents.

Founding a new settlement could be very profitable if the number of settlers in the lord’s domain would be increased by it or when land that previously had generated only small returns could be exploited more intensively. This certainly holds true for a considerable part of the bastides. In other cases, the profit from new settlements was not so much created by an increase of population or more intensive exploitation of the land, but rather by the stimulus that was given to local economies. By concentrating the population, production and trade in settlements that were larger than the villages and hamlets where the inhabitants of the area had previously lived, economic growth was stimulated. The founders levied direct taxes on the agrarian production. Apart from that, the lords also levied tolls for products that were traded in the market and products that were imported into and exported from the towns. Higher production, more transactions and more
consumption consequently led to direct economic benefits for the founding lords.\textsuperscript{156}

The economic motive for the foundation of new settlements is reflected in the many provisions that the founders made to stimulate production and trade: encouragement of reclamations, founding of markets, building of market facilities, construction of roads, bridges and ports and measures that were taken to make rivers easier to navigate.

Only rarely do the documents contain more explicit indications of the economic motivation for bastide foundations. A document of 1245, for instance, records that the bastide of Monte Esquivo was created to ‘increase and improve the revenues of the church’.\textsuperscript{157}

The most direct and relatively easily traceable aspect of the new revenues that lords received as a result of the foundation of a bastide concerns the rents that were paid for the parcels of land every year. Within the settlement there was a fixed rent per specified unit of ground. The rent for house lots was relatively higher than for garden lots or plots of vineyard. The rent for fields of arable land was still lower.\textsuperscript{158}

New tenants had to pay droites d’entrée (‘rights of entry’) when they settled in a bastide. In the course of time these droits d’entrée became more like a sort of purchase price for the ground.\textsuperscript{159} Rent contracts were sometimes even sold by auction.\textsuperscript{160} This probably only concerned the most attractive lots, which were sited on the market place and the main streets. For most bastides it does not seem likely that there were already so many eager settlers at the moment of foundation, that they exceeded the number of planned house lots.\textsuperscript{161}

The initial settlers were exempted from paying rents and taxes for a fixed number of years from the moment they moved to the new town. This was common for new settlements that were created all over Europe in the period of about the 12th to 15th centuries. In this way the settlers were partly compensated for the costs of moving, building new houses and reclaiming new agricultural fields. In the county of Toulouse this exemption usually lasted three years.\textsuperscript{162} After the period of exemption, the founding lords received annual rents for the ground that mostly would have been higher than the previous returns from the same ground.\textsuperscript{163}

When the ground was transferred into the hands of another lord, usually at the death of the lord, the inhabitants had to pay an acapte; and when settlers passed their lands to other renters, an arrière acapte had to be paid.\textsuperscript{164} The lords of a bastide could also levy special taxes, for instance in case of war or when roads or bridges needed to be built or repaired. They could also earn extra income from dispensing justice and levying fines.\textsuperscript{165} These taxes and yields from justice were not exclusive for bastides; they were more or less common for all settlements with free tenure.

It is only logical that a bastide foundation would generate more extra income for a lord when the settlers came from other lordships and when they were economically successful.\textsuperscript{166} In most bastides, however, most settlers came from nearby, in large part from the territory of the founding lord.\textsuperscript{167} In these cases extra income mainly had to be generated by economic growth and natural population growth.

An additional way to gain extra returns from the foundation of a bastide was to rent out fields that did not belong to the legally fixed area of the new settlement. When a bastide was successful in attracting settlers, it often happened that the inhabitants, when they were mainly active in agriculture, wanted to work more land than they were given initially. In such cases, the local landlord, whose domain usually surrounded (or at least partly surrounded) the bastide, could rent or lease out additional fields. It seems that the rents for these lands were often higher and the conditions more advantageous to the lord than in the actual area of the bastide. Saint-
Blanquet even suggests that the amount of land that was distributed to new settlers with bastide foundations was sometimes intentionally kept small in order to generate extra income from the rent of additional lands.\footnote{168}

\subsection*{2.5.4.1 Markets}

With the bastides, new markets were founded. Under Count Raymond VII markets were not yet a standard element of a bastide foundation, but later on they would come to be.\footnote{169} In the chartes de coutumes and the chartes de parêages it was usually determined on which day of the week the market would be held and when the yearly fair(s) would be. Some bastides were provided with no less than six fairs per year; smaller foundations, however, sometimes had to do without.\footnote{170} The newly created market centres were of great importance to the local economy in Aquitaine because of the need to export agricultural products, particularly wine.\footnote{171} Since the transport routes over land were generally in bad condition in Aquitaine, it was important for producers to have a market place nearby. Hence, a relatively dense network of markets was needed.\footnote{172} The importance of the transport to and from the market in the bastides, can be seen in the locations where most bastides were created: on the shores of navigable rivers or on interregional roads.\footnote{173} These transport routes were the economic lifelines of the bastides.

The markets formed lucrative institutions for the founding lords, because they could tax the import, sale and export of goods, apart from the taxes that were levied on harvests and on transport at toll sites. The inhabitants of the bastides and other towns of the same lord, usually were exempted from many of these tolls and taxes. The landlords could also generate income by leasing out stalls in the market place.\footnote{174}

\subsection*{2.5.4.2 Farming out revenues}

Much like elsewhere in lordly domains, the inhabitants of the bastides generally were obliged to make use of the mills, wineries and ovens of the landlord, and for this service they had to pay a fee. The inhabitants of many other (new) towns elsewhere in Europe often were exempted from such obligations, but the coutumes of the bastides generally appear to be more conservative in this respect. In the course of time, however, these lordly monopolies were often farmed out.\footnote{175}

During the period of the 12th to 16th centuries it became more or less usual for lords to farm out various sources of income at a fixed price for one or more years. In the bastides, for instance, the market tolls or the market place itself could be farmed out, so that the farmer could collect the tolls and the rents for leasing out space or market stalls.\footnote{176} It also became usual to farm out tolls on roads and rivers and on other monopolies like mills, ovens and the right to catch fish.\footnote{177}

Initially the farmers were mostly private entrepreneurs, but in the 14th and 15th centuries it was more and more often the community of the bastide that farmed various revenues. An extra advantage would be that with a growing economy the community would have a financial benefit.\footnote{178} It seems that particularly in bastides many revenues were farmed out: from the accounts of the duchy of Aquitaine of 1306-07 it appears that all bailliages where revenues were farmed, 50\% was centred on a bastide in the regions of Périgord, the Limousin

...
and Quercy, and in the Agenais it was even 70%.\textsuperscript{179}

Not only specific rights, but taxes and tolls were also farmed out; sometimes even complete settlements with all associated revenues. Some bastides even seem to have been founded in order to gain quick financial profit by farming them out for several years. A case in point is described by Beresford. In July 1284 Edward I concluded a contract with the rich wine merchant Henry le Waleys, who was an important advisor and diplomat of the king.\textsuperscript{180} In this contract it was determined that Le Waleys would farm the revenues from six bastides for ten years, in return for a yearly payment of 170 pounds sterling. Four of these bastides had been founded only shortly before, and one (Molières) was possibly still in the planning stage.\textsuperscript{181}

In this way the king-duke quickly made financial profits from the bastides that were founded in his dominion. The documents do not describe this motive directly, but it seems likely that many other bastides were also founded primarily to generate new income, whether or not by farming out revenues. Particularly the king-duke, the French king and their respective lieutenants seem to have all acted as a sort of commercial real estate developer.\textsuperscript{182}

That bastides could be relatively profitable projects is also demonstrated by the fact that, according to the accounts of the duchy Aquitaine of 1306-07, a third of the total revenues from the region Bazadas came from just four bastides in this region.\textsuperscript{183} From an assessment of taxable wealth in the towns of the duchy of 1315-16, it appears that about a quarter of this wealth was owned by inhabitants of bastides.\textsuperscript{184} The importance of bastides among the towns of the duchy, probably particularly because of their economic success, is also demonstrated by the fact that between 1317 and 1326 more than half of the towns to which the king-duke directly sent important messages, orders and requests, were bastides.\textsuperscript{185}

### 2.5.4.3 Bastide foundations by Cistercian abbeys

Apart from the counts of Toulouse, the kings of France, the king-dukes of Aquitaine and various lords of lesser importance, there was another party that was very active in the creation of bastides: the Cistercian abbeys of the region. The fact that motives of an economic kind played an important role in the creation of bastides is clearly demonstrated by the Cistercian foundations.

From 1135 on, about twenty abbeys of this order were founded in the region of Gascony alone. The rule of the Cistercian order prescribed that the monks had to live from their own labour. Therefore, the abbeys acquired large tracts of donated land, which typically had only been barely cultivated (if at all) previously. The best tracts of these lands were reclaimed by the abbeys and organised in granges for economic exploitation. These granges were a kind of large-scale farms, similar to the manorial farms on domains of worldly lords.\textsuperscript{186} Great abbeys like Cadouin, Berdoues, Bonnefont and Grandeselve owned up to twelve different granges each, all sited no more than a day’s walk from the abbey.\textsuperscript{187} On the manorial farms of worldly lords the work was generally done by serfs. On the Cistercian granges, however, the work was initially done by the monks themselves, and from about the middle of the 12th century on increasingly by lay brothers (conversi).\textsuperscript{188}

In the second half of the 12th century many lay brothers joined the spiritual communities. They were generally unschooled, and had a clearly inferior rank in relation to the choir brothers. From the early 13th century on, however, the stream of new lay brothers gradually dried up.\textsuperscript{189} This was caused by, among other factors, the subordinate rank and the competition of the mendicant orders, which enjoyed a growing popu-

\[\textsuperscript{179}\text{Beresford 1967, p. 362.}\]
\[\textsuperscript{180}\text{Beresford 1967, pp. 6-7.}\]
\[\textsuperscript{181}\text{It regarded the bastides of Lalinde (founded by the sénéchal Jean de Lalinde in 1267), Beaumont-de-Périgord (by Edward I, the abbot of Cadouin and the lord of Biron in 1272), Beaulieu (by the English crown, 1276-1284), Fonroque (English crown, 1284), La Bastide-Villefranche (or Labastide-Monestier, English crown, 1284) and Molières (sénéchal Jean de Grailly, 1284). (Beresford 1967, pp. 9-10, 28-35)}\]
\[\textsuperscript{182}\text{According to Beresford it was easy to make relatively high profits from the foundation of new towns, because the investments were relatively low. (Beresford 1967, ch.3, pp. 55-98, and esp. p. 360)}\]
\[\textsuperscript{183}\text{Beresford 1967, p. 362. Beresford describes in extensive detail the considerable returns that lords received from their newly founded towns in England. (Beresford 1967, pp. 55-97, 257-270)}\]
\[\textsuperscript{184}\text{In the Bazadas 295 pounds of wealth was taxe in the bastides, from a total of 1180; in the Agenais the figure was 1617, from a total of 3536; and in the Landes 38 from a total of 628 pounds. These figures are based on Beresford’s table IX.5 (Beresford 1967, pp. 265-270).}\]
\[\textsuperscript{185}\text{Beresford 1967, p. 253. Saint-Blanquat believes that the increase in the number of bastide foundations under Alphonse de Poitiers in 1268-70 also indicates that the lordly financial situation was an important motive for the foundation of bastides, since it was particularly in this period that Alphonse was in need of money in order to finance his crusade to Tunis. (Saint-Blanquat 1985, p. 19)}\]
\[\textsuperscript{186}\text{Higounet 1981, pp. 157.}\]
\[\textsuperscript{187}\text{Higounet 1975, p. 269.}\]
\[\textsuperscript{188}\text{Higounet 1975, pp. 180-182.}\]
\[\textsuperscript{189}\text{Higounet, 1975, p. 183; Barrière 1990, pp. 149-159; Barailhé 1997, chapter “La crise économique cistercienne du XIIIe siècle”.}\]
larity and which attracted many lay brothers.\textsuperscript{190} It is also possible that the social class from which the lay brothers came, had found more attractive economic prospects elsewhere, for instance in the bastides.

Thus, the abbeys were confronted with a shortage of manpower to work their lands, which forced them to exploit their domains in another way. In particular cases the abbeys had already employed wageworkers, and in this period this phenomenon became more usual. Apparently however, this was not an ideal solution to the problem; it may have been too expensive or too difficult to organise.\textsuperscript{191} According to canon law monasteries were not allowed to sell land. Therefore, another solution was found: the rule of the Cistercian order was adapted to make it possible to rent out land that was relatively infertile and which was lay at a relatively great distance from the abbeys.\textsuperscript{192} Parts of granges were subsequently rented out in parcels of limited size at fixed sums or shares of the yield.\textsuperscript{193}

Once it was possible for the abbeys to rent out their land, it also became possible to found bastides in order to exploit considerable parts of their domains. For the land of less profitable granges the abbeys started to conclude parêages with worldly lords to found new settlements there. In doing this, part of the rights, and actually also part of the possession, was yielded to the co-parêageur and to the new settlers that rented the ground.\textsuperscript{194} In return, the abbeys received income from the bastides in the form of, among other things, rents, taxes, tolls and fees from justice. Being the co-parêageurs that originally owned the land, the abbeys retained the full rights to the tithes. Usually, they ensured that no other clerical institutions - in the 13\textsuperscript{th} and 14\textsuperscript{th} centuries this particularly meant the ‘new’ mendicant orders - would be allowed to settle in the bastides.\textsuperscript{195} The intention was, of course, to raise the returns from the land in comparison to the pre-bastide situation. Mostly this seems to have actually worked out.\textsuperscript{196}

Thus, by founding bastides, the Cistercian abbeys in southwestern France transformed the exploitation of a considerable part of their landed property from a fairly extensive direct form, centered on granges, to an intensive indirect seigneurial form, involving renting to newly attracted bastide settlers.

Concerning the locations of the Cistercian bastides, it can be noted that they were mostly relatively far away from the abbeys, since they were often created on the land of the most distant granges.\textsuperscript{197} It seems likely that this was done in order to be better able to obey the rule of the maximal day’s travel between abbey and grange.

The various Cistercian abbeys in southwestern France founded at least 44 bastides.\textsuperscript{198} They were mainly created in Gascony, between the river Baïse and the great bend of the river Garonne.\textsuperscript{199} (fig.2.17) The most well known (and largest) Cistercian foundations are Beaumont-de-Lomagne (1276) and Grenade-sur-Garonne (1290), which were both founded by the abbey of Grandseve and Eustache de Beaumarchais.\textsuperscript{200} (fig.2.22)

Thirty of the more than 44 bastides were founded in parêage with the French crown. The rest were mainly founded together with smaller lords, and some were created autonomously.\textsuperscript{201} It seems that the various abbeys chose their partners opportunistically. Often, this meant that they sought for a powerful and reliable partner who had not previously been very powerful in the region of the abbey or the new bastide. Often this would have come down to the count of Toulouse or the crown. As described above, Alphonse de Poitiers and

\textsuperscript{190} Higounet 1981, p.172.

\textsuperscript{191} Barailhé 1997, chapter ‘La crise économique cistercienne du XIIIe siècle’.

\textsuperscript{192} Barailhé 1997, p.1-1; Higounet 1981, p.160. The rule was adapted in 1268.


\textsuperscript{194} For example: in 1256 the abbey of Bonnefont offered half of the land of the area called Lestelle in loan to the count of Comminges with the aim to found a bastide. With this, the count and his successors became vassals of the abbey, and the parêageur Lestelle-de-Saint-Martory was founded. (Higounet 1975, p.281) This formula was also followed in other bastide foundations by Cistercian abbeys in parêage with worldly lords, because the abbeys were not allowed to sell or give away their land. This formula had been more or less common since the Carolingian period. (Reynolds 1994, s.v. church property, benefices or fiefs on)

\textsuperscript{195} Saint-Blanquat 1985, pp.41, 46.

\textsuperscript{196} The Cistercian bastides generally seem to have been founded on less fertile ground. (Higounet, 1975, p.183) The abbeys usually were less motivated to give up fertile land that yielded substantial returns for bastide foundations. (see Saint-Blanquat 1985, p.49)

\textsuperscript{197} In the rules of the Cistercian order of 1134 it was laid down that granges should be sited within a day’s journey from the abbey. But this rule was not always actually followed. (Barailhé 1997, p.1-5) A few bastides were created quite nearby the abbey. (Higounet 1975, p.269) Gimont, for instance, was built very close to the abbey of Planselvèze (also called Gimont). Most probably this was because the location offered particularly advantageous economic prospects, as it was sited at the intersection of a trade and pilgrims’ route of Roman origin and the river Gimone, with an important road parallel to it. (Barailhé 1997, p.1-9)

\textsuperscript{198} Higounet 1992, p.149.

\textsuperscript{199} Higounet 1975, p.266.

\textsuperscript{200} Flaurans is also quite large, but it is not exactly clear in what measure the abbey of Bouilas was involved in its foundation by the count of Gaure in 1272. (Barailhé 1997, p.1-8)

\textsuperscript{201} Higounet 1992, p.151. Cistercian bastides which were not founded in parêage are: Garganvillar, founded by Belleperche in 1290 (Barailhé 1997, pp.1-6, 11, 19), and Labesquière-Candé, founded by Candé in 1255 (Higounet 1992, p.151), for which a parêage was concluded with the lord of Castres only seven years after its foundation (Lauret, Malebranche & Séraphin 1988, p.291). Barailhé suggests that Belleperche also founded Larrazet (in 1234) and other unnamed bastides autonomously. (Barailhé 1997, pp.1-19-20) According to Lauret, Malebranche & Séraphin (1988, p.291), however, Larrazet was founded together with the lord of Terride.
the crown were all too eager to extend their authority, by way of paréages with abbeys or other landlords, to areas where their actual power was limited, at the cost of local lords who previously had great autonomy in the region.202

Some Cistercian bastides were founded out of political motivations of a local, strategic nature. This clearly appears to have been true in the cases of Donzac and Marciac. Donzac was founded by the abbey of Belleperche, in paréage with Alphonse de Poitiers, around the year 1265. The main aim of the abbey seems to have been to get protection from Count Alphonse against the aggression of the locally powerful viscount of Lomagne. It is known that abbot Guilhem Gauffre (c.1263-1294) did not have a friendly relationship with Alphonse de Poitiers, but he nevertheless concluded a paréage with him in order to get an ally against an even more hostile local power.203 The bastide of Marciac was created, according to an early document, by the abbey of La Case-Dieu in order to provide protection against marauding bands. For this foundation, the abbey concluded a paréage with the count of Pardiac and Guischar de Marsiac, the successor of Eustache de Beaumarchais as royal sénéchal of Toulouse, in 1298.204

The phenomenon of bastides that were founded by a monastic order reminds one of the 12th-century sauveté foundations. But in those cases the founders were mainly the monastic orders of the Premonstratensians,
the Knights Hospitaler and the Knights Templar. These orders were also involved in the foundation of bastides, but much more rarely than were the Cistercians. All in all, it is a question of about twenty bastides, of which the Knights Hospitaler had the largest share, with fourteen foundations. In contrast to the Cistercian bastides, these foundations did not involve the reformation of granges: for these orders it was more common to rent out their lands, instead of exploiting them directly.

It was not only in Aquitaine that the Cistercians created new civil settlements: it also happened elsewhere in France and Europe, but in much smaller numbers. In the present Czech Republic, Slovakia and Poland, Cister-cian abbeys also founded relatively many new towns and villages. There it was not a question of the transformation of existing granges, but of newly donated domains which, for the most part, had not yet been reclaimed. Since the phenomenon of the foundation of new towns by the Cistercian order was so intense in Aqui-taine, it seems likely that it was not just the problem with the shortage of lay brothers to exploit the granges that gave the impulse to these foundations. A very important role was also played by specific regional developments in settlement policy in Aquitaine, itself a result of specific economic, political and demographic conditions and from the situation with respect to land use and developments in agrarian technology.

2.5.4.4 Reorganisation of the economy and agrarian structures

It has already been discussed in paragraph 2.5.1 that, unlike what is almost generally assumed, bastides were rarely (if ever) created as military forts. In mostly cases, however, neither were they created to function as cities. The bastides generally assumed an economic function which was rather that of a small market town. Contemporary documents clearly show that the economy of the bastides was largely agrarian. The bigger bastides were certainly founded with the idea of accommodating a number of households that lived mainly off trade and crafts; but most bastides were planned to function as towns with a largely agrarian economy. In fact, many bastides appear to have been created as instruments to stimulate and to reorganise the agrarian economy.

Often, the foundation of a bastide was accompanied by the reorganisation of landed property. Large domains were divided and were given in hereditary tenure to new settlers. In many bastides, the settlers received three or four pieces of ground: a house lot, a garden lot, a plot of arable land (mostly used for growing grains) and often also a plot for viticulture. The gardens and vineyards were mostly located directly outside the bastide, while the arable land lay further off. The paréage of Grenade-sur-Garonne, concluded in 1290 between the abbot of Grandseille and Eustache de Beaumarchais, consisted of a total area of about 1,500 hectares: 71 ha. were meant for the house lots (airals); 426 ha. for the garden lots (casals); and the rest for the plots of arable land (arpents). Grenade was a relatively large bastide, however, planned for no less than 3,000 households. A total area of about 500 arpents (1570 ha.) was more common for a bastide.

For the different types of lots there were different rent tariffs: the house lot was by far the most expensive (relatively and often also absolutely), followed by the plot of vineyard, the garden plot and the parcel of arable land. The rent for the arable land, to be paid in money or in kind, generally was relatively low, so that the settlers probably could get by quite easy. Mostly, they had arable plots in the form of more or less square blocks or elongated strips, divided over various larger fields in different parts of the bastide territory.

205 Higounet 1992, p.349. Unlike the Cistercians, these monastic orders were already active in creating sauveots and constitutions in the 12th century. They founded at least 80 towns and villages in Aquitaine between 1100 and 1355. (see pars.2.3.1, 2.3.2) For a discussion of a bastide foundation by the Knights Templar, see Higounet 1975, pp.293-303. Une bastide the colonisation des templiers dans les Pré-pyrénées: Plagne.
206 Higounet 1992, p.349. For as far as these monastic orders did directly exploit their lands, it mainly involved viticulture from the late 12th century on, for the order’s own use as well as for sale. (Higounet 1992, pp.353-355)
207 Higounet 1992, p.150. According to Higounet, one town was founded by the Cistercians in Italy and four in Germany. Other towns and villages were created in northern France (particularly in Haute-Marne; Higounet 1975, pp.179-180), England (Wyke-upon-Hull 1160-1193, Kingsbridge 1215, Newton Arlosh 1305, Skinburnh 1301, Waver- mouth 1300, Beresford 1667, pp.131-133, 515, 420, 415-416), Scotland (Melrose and Cupar; Adams 1978, p.24), Poland (Kuhn 1968, pp.115, 145-146), Bohemia (Hoenisch 1980, p.124 Kanka 1659, p.140) and Austria (Koller 1978, pp.42-45).
208 Saint-Blanquat 1985, p.61. See also Lavigne 1996, pp.192-195 and par.2.10.6.
209 Saint-Blanquat 1985, p.61. For the parcellation of the bastide area of Grenade, see par.2.10.6. The plots of the area of the arable land were often called arpents, since these plots often mea-sured an arpent in area (the arpent is comparable to the English hide, the German hufe and the Dutch morgen). The surface area of the arpent varied considerably by place and period, but it seems that in the relevant region it mostly measured about 1.1 hectares in the 13th and 14th centuries. (Saint-Blanquat 1985, p.61; Zupko 1978, t.v. ‘’arpent’’, esp. ‘’Haute-Garonne’’)
211 Erlen 1992, p.227, 237, 240-242. According to Erlen the amount of arable land per household in the bastides commonly was about 20 ha., while in the earlier sauveots it had been about 12-15 ha. In my opinion, though, this amount of c. 20 ha. seems too high. (cf. par.2.10.6)
Apart from the various sorts of plots and fields mentioned above, the bastide territories generally also contained uncultivated land. This land mostly served as common pasture and wood supply.\(^{213}\)

The foundation of a bastide mostly went along with the reclamation of uncultivated land. In the past it was more or less generally assumed that many bastides were founded on locations where no settlement had been before and that the whole bastide area was newly reclaimed. At present, however, it seems that there were very few bastides that were created in completely uncultivated territory.\(^{216}\)

But some bastides actually did serve as cores for the reclamation of the surrounding areas. In the bastide Plagne, which was founded in 1303 by the Knights Templar of Montsannès (who contributed the ground to the foundation) in paréage with the lord of Bérat, the colonists each received a fixed amount of arable land, but next to that they also received the right to reclaim as much ground as they could work. It was specifically stated, however, that some particular pieces of land had to be left untouched in order to serve as a wood supply and pasture. A special financial settlement was drawn up for the extra ground that the settlers reclaimed. The returns from the populatio were equally divided between the two paréageurs, but for the extra lands that were subtracted from the domain of the Templars, the latter received two thirds of the rent and a specific part of the harvest in kind.\(^{215}\)

Most bastides seem to have been founded on land that had partly been cultivated before. With the creation of the towns, however, land use was intensified. The ground generally must have been at least partly newly allotted. Sometimes, the co-paréageur who contributed the ground to the foundation deliberately kept cultivated land and existing buildings out of the paréage, in order to minimise the costs of the investment in the foundation.\(^{216}\) Unfortunately, it is mostly very hard to reconstruct the pre-existent situation with regard to land use.\(^{217}\)

Generally, inhabitants of various villages of a region were gathered to populate the bastides. The town of Gimont, for instance, became the centre of a district of six existing parishes, where the population had mainly lived in villages and a small castrum. With the foundation of the bastide, settlement in this district was largely relocated in the new town.\(^{218}\) When Montréal-du-Gers was founded in 1255, no less than 19 parishes were consolidated into the district of the new bastide.\(^{219}\) By the second half of the 15th century ten of these parishes appear to have become almost uninhabited, most likely because the main part of the population had moved to the new town.\(^{220}\) The bastides often were the centers of relatively large districts, as various older administrative units (often parishes) were united with the new foundations.\(^{221}\)

In an article about the formation of the territories of the bastides, Maurice Berthe describes a case study of the diocese of Rieux. Of the 112 present-day municipalities in this diocese, ten are centred on bastides. Four of these were assemblies of various existing parishes, each replacing a number of older villages. Two others replaced one older village each: in 1270 Salles-sur-Garonne replaced the old village of Salles after it was devastated, and in 1249 La-Bastide-de-Besplas was founded on a valley site, replacing an older settlement that was located on a nearby hilltop. The bastides of Plagne (1303) and Labastide-Clermont (1300) may have been really new reclamation settlements. Their territories show no traces of previous settlement, neither in the landscape nor in the documents. There may already have been some extensive agriculture or pasture, however, in the surroundings of Labastide-Clermont, the work of the Cistercians of Feuillants, who were co-founders of the bastide.\(^{222}\)

213 Saint-Blanquat 1985, pp.49-50; Latour, Malebranche & Séraphin 1988, p.89. In some cases the settlers also received rights on pasture and the collection of wood outside of the actual bastide area in specific parts of the domain of the founding lord.

214 Berthe 1990, pp.97-98, 107-108. In general, the character of the bastides was much less that of a ‘reclamation settlement’ than were the new towns and villages that were created in the so-called ‘Ostilokalisations’ in Central and Eastern Europe, which often served as cores for the reclamation of large areas of largely uncultivated land. (see for instance Erlen 1992)

215 Higounet 1975, pp.294-297. A similar right to reclaim as much ground as could be worked was also given to the settlers of the bastides of Bouloc and Labastide-de-Temple.


219 A similar case is the bastide Guilliac-Toula, the territory of which was formed by 16 parishes and other administrative units. (Berthe 1990, p.103, see also pp.105-106)

220 Berthe 1990, pp.98-99. Cf. the tme nucre ferrarinth. (par.2.6) Higounet describes a comparable course of events for various regions in southern Europe. (Higounet 1992, pp.43-50)

221 Not all bastides were meant to concentrate the population that already lived in the area. In the paréage of Mariac (1298, between the citadel of the French crown Guillaume de Marcis, the count of Pardiac and the abbott of Case-Dieu) it is indicated that the inhabitants of the nearby settlements are not allowed to settle in the new town ‘so that fortified settlements and villages close to the bastide are not laid waste’ (‘ut castra et villis non depopulantur prope bastiden’; Beresford 1967, pp.234-235; Higounet 1975, pp.344-353). It may be supposed that this condition was stipulated by the two local co-founders, so that their subjects from the surrounding settlements over which they held full authority and fiscality would not settle in the bastide. For in the new town the authority and the taxes, rents and tolls had to be shared with the other paréageurs.

222 Berthe 1990, p.103. In the present division of the municipalities of southwestern France, it can still be seen that the average bastide-municipality is larger than the mean municipality.
Most bastides that served as reclamation centres were, of course, founded in areas that had been thinly populated and, consequently, little cultivated. This particularly applied to the foundations in the Landes, the flat and ill-drained area close to the Atlantic coast between Bordeaux and Bayonne. 223

The fact that most bastides were strongly focused on agrarian production and the trade in agrarian products can sometimes be clearly read from contemporary documents. In 1282, one year after the foundation of their town, the inhabitants of Sauveterre-de-Guyenne declared in the court of King-duke Edward I, ‘The site of your bastide is good and convenient […] and with time it will abound in land, meadows and vines; it will produce almost every commodity.’ 224 Many newly founded towns in other regions were not so much aimed at agrarian production. In England for instance, many a town created in roughly the same period did not have any arable land in its territory, and there are also various documentary sources that show that many town foundations here were particularly focused on the stimulation of trade. 225

The new organisation of the structure of settlement and land use that came with the foundation of bastides, was generally accompanied by a new economic organisation. Markets were founded and the infrastructure was improved, so that the agrarian production could be sold and carried away. 226 A clear expression of this can be read in a document of 1289, in which Edward I ordered the construction of a port at the bastide of Monségur: ‘because they had many good commodities which they could sell if they had a port in the river Dropt, which would be useful for the whole country and for us.’ 227

Particularly because the population came to live more concentrated and closer to the market, it became easier to sell products and to buy other goods with the money that was earned. The production became more focused on the market and, in turn, this probably stimulated higher production and innovation. In short, the circulation of money and economic goods increased.

Concerning the specific sort of agrarian products, the agrarian and economic re-structurisation of the region can be regarded as part of the general European phenomenon of the ‘cerealisation-process’. This meant that agrarian production was increasingly focused on cereals instead of extensive cattle breeding and the production of other crops, with which the yield per square meter was strongly increased in terms of nutritional and financial value. The agrarian colonisation in Europe between about the 9th and the 15th century must generally be understood against the background of this process. 228

2.5.4.5 Viticulture and wine trade

Another crop that was increasingly grown from the 12th century on in southwestern France was the grape, for the purpose of wine production. The soil and the climate were very well suited, but it only seems to have become lucrative to produce wine after the English crown lost the regions of Maine, Poitou and Aunis to the French crown. The harbour of La Rochelle, which was founded around 1130-50 by William, duke of Aquitaine, had been a very important port for the ex-French crown. The harbour of La Rochelle, which was founded around 1130-50 by William, duke of Aquitaine, had been a very important port for the ex-French crown. The harbour of La Rochelle, which was founded around 1130-50 by William, duke of Aquitaine, had been a very important port for the ex-French crown. The harbour of La Rochelle, which was founded around 1130-50 by William, duke of Aquitaine, had been a very important port for the ex-French crown. The harbour of La Rochelle, which was founded around 1130-50 by William, duke of Aquitaine, had been a very important port for the ex-French crown. The harbour of La Rochelle, which was founded around 1130-50 by William, duke of Aquitaine, had been a very important port for the ex-French crown.

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tion in Aquitaine to grow: existing vineyards were extended and new ones were created, on newly reclaimed ground as well as on existing arable land. With this, the economy of the ‘English’ part of southwestern France was going through a process of specialisation, which would go on until well in the 14th century. In the early 14th century, about two times as much wine was exported from Bordeaux as in the mid-14th century. This export was balanced, to some extent, by the import of fish, hides, wool, cloth and cereals, particularly from England.

At first, the wine was exported to England, but in the course of time the demand for wine from southwestern France also grew elsewhere in the North, in the Low Countries and the northern German lands, among other places. Transport by river was of vital importance to the wine trade, since land transport was difficult. The roads in southwestern France were generally in bad condition, which is very unfavourable for the transport of wine, as the taste is badly affected by bouncing and shaking and because the barrels were only to a limited extent shock-proof. Therefore, it was particularly with the customs on wine transport in mind that king-dukes Edward I and II tried to improve the navigability of the rivers Lot and Tarn, and to facilitate the loading and transfer of barrels by the construction of port facilities.

The profitability of the wine trade meant that landlords tried to stimulate it in various ways. Many bastides already had part of their agricultural grounds reserved for vineyards from the moment of their foundation. This ground was taxed higher than the arable land: the founders often received one third of the yield, versus 1/7 to 1/10 part from the arable land. Hence, viticulture was more profitable for them than arable farming. Because the growing of grapes and the production of wine was relatively very labour-intensive, it was all the more important to the founding lords to attract many settlers to their territories. Transport by river was of vital importance to the wine trade, since land transport was difficult. The roads in southwestern France were generally in bad condition, which is very unfavourable for the transport of wine, as the taste is badly affected by bouncing and shaking and because the barrels were only to a limited extent shock-proof. Therefore, it was particularly with the customs on wine transport in mind that king-dukes Edward I and II tried to improve the navigability of the rivers Lot and Tarn, and to facilitate the loading and transfer of barrels by the construction of port facilities.

The amount of the wine production and export was enlarged considerably by the foundation of bastides like Fronton (1120-22) and bastides like Beaumont-de-Lomagne (1279) and Grenade-sur-Garonne (1290). The bastide Libourne (1281) was even the most important port for export of Dordogne wine, owing to its location near the mouth of the river. This importance was reflected in the relatively great wealth of the town. In 1315-16 it was larger than any other ‘English’ bastide. A third important wine-port in the duchy was Bayonne. Being located in the far southwest of Aquitaine, where the river Adour washes into the Bay of Biscay, this was the main export harbour for the southern part of the duchy. After 1280, many bastides were founded in this part of the duchy by the king-duke and various local lords, for which the production and export of wine seems to have been a major motive.

It can be concluded that the economic opportunity for the foundation of so many bastides in Aquitaine between about 1250 and 1350 was to a considerable extent the result of the rather sudden opening up of the possibility of wine export to England. This, in turn, was made possible by the overthrow of the Plantagenet rule over the northern regions in France, which traditionally had produced much wine for export to England. The production of wine for export then largely moved to southwestern France, where it found hospitable circumstances in the availability of uncultivated or extensively used lands, favourable soils and climate, and navigable rivers and ports for transport.
2.6 Actions preceding the foundation of bastides and foundation rituals

The paréage documents that are presently known give some insight into the foundation schemes of bastides. Before the actual foundations, however, there were probably many more things that were considered and planned than can be presently read from these documents. Fortunately, there are also a number of documents preserved that concern preparatory investigations into the juridical status with regard to the ground, the economic prospects, and the possibilities of settling the bastides with inhabitants. These sorts of investigations must have often preceded the paréages. It had to be clearly established, for instance, which area was exactly concerned in the bastide foundation and that no other lords or possessors had rights there. Sometimes the result of this might have been that rights had to be bought off or even that another lord had to be included in the paréage. After the conclusion of the paréage, people were set to work to find the most suitable location for the town itself. This subject will be discussed in more detail in paragraph 2.10.1 and, more generally, 5.1. Once the location was established, the ground had to be cleared and allotted. This subject will be amply treated in paragraphs 2.10.2, 6.3.1-6.3.3, 7.5, 9.6 and 9.7. At around this point the process of attracting settlers to the new town was probably started. In the territories of the lords, and probably also elsewhere, it was announced that a new town would be created, and doubtless the advantageous settlement conditions would be recommended. This recruitment of settlers was sometimes called preconisatio. Below, in paragraph 2.8, the aspect of attracting settlers will be dealt with in more detail. Before this stage, a name may already have been established for the bastide. This may have been a new name or an existing toponym.

Somewhere during this process, a foundation ceremony was carried out. Contemporary written sources offer a glimpse of what such rituals looked like. On a specific date and time, which was established in advance, a pole was erected to which the heraldic shield of the founding lord was fixed. The pole was called pal, palum or pau. The shield signified the authority of the lord and, in the case of a paréage, two or three shields were fixed to the pole, by which the partnership of the lords was also symbolised. With the erection of the pole the paréage was actually effected. It had to be clearly established, for instance, which area was paréage, allotment. The similarity of the ceremonies rather seems to derive from the general symbolic value that was attached to the centre of settlements in many ancient cultures. In various cultures these centres were marked by vertical structures. In the case of the bastide, the erection of poles may well have been derived from the crosses that were erected in the centre of the market place. This ritual was called the fixatio pali.

With the foundation of Toulouzette in 1321, it was the sénéchal of the king-duke in the Landes, Guillaume de Toulouse, after whom the bastide was named, who dug the hole and placed the pal himself. Subsequently he declared that anyone who wished was allowed to build a house in the bastide and live in it, and that those who did so would receive the same charter of rights as the inhabitants of the nearby bastide of Geaune-en-Tursan, which had been founded three years earlier. After this, he confirmed the charter in name of God, the Holy Virgin and All Saints, and he handed the patent letters with the seals of the king-duke and himself to a representative of the future settlers.

It is likely that similar rituals were carried out with most bastide foundations. Various scholars have suggested that the ceremony with the pal was derived from the ancient Roman use of the groma, which was an instrument on a pole that helped surveyors to set out right angles in a centuriatio (a particular sort of orthogonal land allotment). The Romans also seem to have had some sort of ceremony to set up the groma for the allotment of a settlement plan in the place that would become the centre of the grid. The pal, however, had nothing to do with the setting out of the bastide allotment. The similarity of the ceremonies rather seems to derive from the general symbolic value that was attached to the centre of settlements in many ancient cultures. In various cultures these centres were marked by vertical structures. In the case of the bastide, the erection of poles may well have been derived from the crosses that were erected in the centre of the market place. (Divonne, Gendre, Lavergne & Panerai 1985, pp.44-48)

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The suggestion is made by, among others, Divonne Gendre, Lavergne & Panerai (1985, p.48) and Kauh (1990, pp.40-42). Elsewhere, Divonne c.e.s. also suggest that the orthogonal form of many of the bastides was somehow related to ancient Roman knowledge. (Divonne Gendre, Lavergne & Panerai 1985, pp.8, 39) This suggestion is not explained, however, and only seems to be based on superficial similarities. (see also par.10.2.1)

See Kauh (1990, Müller 1981. Regarding the sauveté, see Orlac 1957, p.47.)
When the ground was already allotted, the lots were subsequently issued to the settlers.\textsuperscript{250} With this, the bastide was not fully settled however. Mostly it took some decades before the settlement was actually filled with most of the settlers that had been foreseen by its founders, if that number was reached at all.

2.7 ‘Chartes de coutumes’

As with most new settlements from the period of about the 11th to 14th centuries, the attraction of the bastides for the settlers was to a considerable extent formed by the specific rights that were promised.\textsuperscript{252} These rights were recorded in so-called chartes de coutumes or chartes de franchises, that were granted to the community of every bastide.\textsuperscript{253} Such chartes actually form the record of the association between the landlords and the communities of ‘colonists’, in which the mutual relations, rights and duties are defined. Despite the fact that there could be various differences from case to case, there clearly are common basic characteristics in the coutumes of the bastides.\textsuperscript{254} Together with the parêage contracts the chartes de coutumes are the most important written sources with respect to the bastide foundations.

The various articles in the coutumes are mainly of an organisational and administrative nature.\textsuperscript{255} It was of primary importance that the ‘colonists’ received a quantity of land in hereditary tenure, over which they could freely dispose, and which could be inherited and sold to other members of the bastide community. Another very important article established that the inhabitants were free of person and possession.\textsuperscript{256} Privileges of an economic character, such as exemptions from tolls and taxes, also formed an important section in the coutumes.\textsuperscript{257} An even more important economic privilege, and thereby a principal attraction for new settlers, was the communal right to hold a weekly market and annual fairs on specified days.\textsuperscript{258}

The chartes de coutumes also contained articles on administrative self-representation of the bastide community. Often the community was represented by consuls or jurati and also by an administrative council of 12 or 24 elected representatives. In many cases, the coutumes also stipulated that the bastide would have a court of law for the district and a communal seal.\textsuperscript{259} With these rights, the bastides were truly ‘communities’, just like real cities.

Commonly, the coutumes were only delivered some time after the actual foundation. In this way the founders ran a smaller risk, because they could wait to see whether a sufficient number of settlers would show up before they would issue privileges to the settlers that were already present.\textsuperscript{259} In return for the charte de coutumes the community of settlers had to pay a previously established sum.\textsuperscript{260}

2.8 Settlers

The settlers of the new bastides generally came from the surrounding region. This appears to have been the case from, among other evidence, the many complaints by neighbouring lords, who reluctantly saw how their subjects moved to new settlements that were located in the territories of other lords. The bishop of Rodez even went as far as to excommunicate the inhabitants of the bastide of Villefranche-de-Rouergue, because there were many of his former subjects among them, who had moved to the new town without his consent.\textsuperscript{261} A document of 1269 describes how the settlers of the bastide of Salles-sur-l’Hers complained to...
their new landlord that their former lords still demanded services and fees from them and used force to get what they wanted. Hence, the settlers demanded protection from their new lord.262

Many, or probably most, new inhabitants came from the territories of the founding lords. It seems that at least partly they were selected by the founders. It is known, for instance, that the count of Astarac tried to arrange especially advantageous conditions for the inhabitants of his nearby castrum of Renso in order to settle in the bastide of Tournay, which he founded in 1307 in paréage with the French crown.263

But bastide founders generally did not want all their subjects to re-settle in the bastide, as that might involve the loss of particular rights or power over these subjects. Therefore, founders forbade their subjects to settle in the new town without their special consent. It is likely that most of the people that were allowed to settle in the bastides had mostly already enjoyed relatively great freedom previously. According to Saint-Blan-quat, it was even a general principle that serfs were not allowed to settle in bastides.264 This is not entirely true, however, as is shown by a petition in name of Edward II to Philip the Fair of about 1305, requesting the king not to receive serfs or hommes questaux in his bastides.265

As with the inhabitants of the castrum of Renso, specific inhabitants of territories of founding lords were stimulated to move to new bastides. In this way, a bastide could serve as a means to restructure a territory and to regroup its population.266 The population of Cordes, for instance, was largely re-settled from the towns of Cahuzac, La Guéprie and Saint-Marcel, which had been destroyed in the Albigensian war. Likewise, Castelnau-de-Lévis was settled with inhabitants who came from six parishes that had also been devastated.267 According to contemporary documents, the bastide of Saint-Sulpice(-le-Point) was to be populated with people ‘you unite from different places’ and Lestelle was founded with the goal to ‘gather the population’.268 Of Montréal-du-Gers, Gimont (fig. 2.27) and a number of bastides in the southern Périgord it is also known that they were settled by the transplantation and concentration of the population of various small settlements in the countryside.269 The lords may sometimes have applied force to stimulate their subjects to move to the bastides, but there are few sources that clearly attest to this.270

Of course, the concentration of population served all the goals that were desired with the foundation of bastides: without a population there would not be a bastide. But, apart from that, it also had other advantages to the lords: it became easier to control the population, to tax it, and to protect it (and its capital) against brigandage and enemy forces.271 In a sense, the distance between the lords and the population was shortened, and the lordly territory was unified to a certain extent.

Some of the settlers may have come from further away, beyond the territory of the founding lord and neighbouring lordships. It seems, however, that this was the case for only a small part of the population. The founders would certainly have welcomed merchants and craftsmen, but the greatest part of the settlers must have been small farmers. Noblemen and clerics generally were not allowed to own houses in the bastides.272 In the Albigeois, however, there were some bastides where the nobility was allowed to live and possess administration.

When new inhabitants settled in a bastide, they swore an oath to the lords of the town - not to the community, as was the case with the communes of the free cities. The settlers had to build a house within a year from that

262 Saint-Blanquat 1985, p.69.
263 Saint-Blanquat 1985, p.69.
264 Saint-Blanquat 1985, p.70. The status and prosperity of serfs could vary quite markedly, but it is logical that the poorest people were not allowed to inhabit the bastides, as they probably could not afford the droits d’entretire, nor did they have the capital to build a house or buy tools, cattle and the seeds for sowing. In the older scholarly literature, however, it was often presumed that the settlers of the bastides (and other new towns and cities from the period elsewhere in Europe) were mainly serfs that were attracted by the freedom that was granted in the new towns. In some instances this is still repeated in more recent publications, as for instance Dubourg 1997 (pp.68-69). This theory, however, can largely be ruled out by more recent research. It appears to have been founded largely on outdated 19th-century views of a revolutionary bourgeois nature, in which town and countryside were set off against each other. (see pars.0.4.1, 9.9)
265 Vale 1990, p.103. In 1299 King Philip the Fair had abolished serfdom in his domains in the Toulousain and Albigeois. The ground that the serfs had worked was given in hereditary tenure. With this, however, serfdom only partly disappeared in Aquitaine. (Saint-Blanquat 1985, p.70)
266 See also pars.2.5.2, 2.5.4.4, 9.1.1 and 9.1.4.
268 ‘ex diversis locis coadunatis’; ‘congregare populationem’. (Higounet 1992, p.47) Higounet discusses various examples of the principle of concentrating population from different places in lordly territories in new settlements in his article ‘Congregare populationem’: politiques le peuplement dans l’Europe méridionale (XIe-XIVe siècle) (1992, pp.43-51). (see also par.9.1.1)
270 Higounet 1992, p.48; see also par.9.9. Dubourg writes that the population for the bastides of Corses (1331, a paréage between the French crown and the abbot of Saint-Pé-de-Gênes) and La Bastide-de-Flavacourt (1330, paréage between the French crown and the archbishop of Auch) was deported from the surroundings of Lavedan and Barèges by royal officials. Higounet writes that the last bastide in Bigorre were forcibly settled with the population of remote valleys in the Pyrenees. (Higounet 1992, p.48) According to Bernard, coercion was also used to settle Libourne (1270, founded by the English sénéchal Roger de Leyburn). (Bernard 1992, p.20)
271 Higounet 1992, p.50.
272 See also par.9.11.
273 This was the case, among others, in Cordes in 1292 and Arthès in 1239. (Saint-Blanquat 1985, p.70)
moment, and commonly they had three years of tax exemption after taking up the ground.274

Usually it took at least a decade before a considerable number of settlers had gathered.275 But it could also happen that the plans failed entirely because not enough settlers were attracted to form a sizeable settlement at all. This happened when people did not see enough advantages in settling in the bastide and when settlers were not deported to them by coercion.

The inhabitants of the bastides gradually formed ever more tightly knit communities, which became increasingly more organised and emancipated. With their representative organs the communities gradually attained more legal and administrative autonomy, at the cost of the bailes, who represented the lordly interests. Over time the communities purchased more of the lordly rights, so that the relation between the lord and the bastide community increasingly came down to the yearly payment of specified amounts of money to the lord.276

2.9 Planners

A very interesting question is, of course, who were the persons responsible for the spatial planning of the bastides. Unfortunately, hardly anything is known about this, as written sources on the subject are very rare and vague. According to some authors, professional town planners were involved.277 This may well have been the case, because a considerable number of bastides look like they were planned with great care and accuracy - particularly in comparison to the new towns of Wales -, but this is not what the written sources tell us. The few sources that mention people involved in the process of planning only refer to surveyors, notaries and, in one case, a Dominican friar.

In chapter 7, which deals with the planners of new towns from the high-period of town foundation in different regions of Europe, a special paragraph is devoted to the bastides; and the information from the written sources will be analysed in detail there.278 In the scholarly literature on the bastides one can also find speculations about the geometrical techniques that were used by the designers of the plans for the determination of dimensions and proportions. This subject will be dealt with in paragraphs 6.3.1 to 6.3.3.

2.10 Spatial aspects of the bastides

In the paragraphs above, we have seen how the bastides acted as instruments in the reformation of existing structures. Along with the structure of settlement, the social, juridical, economic and political structures were adapted to the changing conditions of increasing population, increasing communication, increasing importance of the monetary economy and a changing political situation. The most clearly visible aspect, however, is that the spatial structure of the surface of the earth was adapted. This re-structurisation of space was not, or was very rarely, a goal in itself, but nevertheless the traces of it in the landscape are among the most important sources for our present knowledge of all the changes named above. These spatial aspects will be discussed in detail below.

2.10.1 Locations

For the success of a bastide it was essential that it be given a good location and a quantity of land around it that would be large and fertile enough to guarantee thriving agricultural production. These two conditions must have largely determined whether or not a bastide was attractive to settlers, as they were important requirements for a flourishing economy.

Bastides were built on various sorts of locations. Of course, they were preferably built on the most advantageous sites, but in many cases the idea to found a bastide would have been prompted by a specific situation in a particular area, by which the place where the town could be founded would be limited to that area. For instance, Count Raymond VII came to found bastides as a result of the devastations of the Albigensian

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274 The oath towards the lord, the obligation to build a house within a year, and several years of tax exemption are common elements for new settlement foundations throughout Europe in this period. (see pars.9.2 and 9.12)
275 Saint-Blanquat 1985, p.73. In rare cases it seems to have lasted only about five years.
276 Saint-Blanquat 1985, pp.91-99. See also par.2.5.4.2.
277 For instance Higounet 1975, p.366.
278 See par.7.5.
war in the northeast of his territory, particularly on locations where older settlements or castles had been destroyed. Other locally determined incentives for bastide foundation could be a local abundance of uncultivated or extensively used land; a lack of safety in a particular area because of brigandage; or the threat that a local population would move to nearby bastides of other lords. These or other specifically local situations concerning the ‘management’ of an area and its population could inspire lords to apply the concept of bastide foundation, which had proven to be effective by about the middle of the 13th century, to a specific place.

Essential conditions for the location of a new town were the availability of drinking water and firm ground to build on, the absence of malaria and protection against floods. But for the economic success of the bastide it was also of great importance to be well connected to other towns and cities. The bastide had to be well situated with respect to navigable water and the existing road network, or it had to be connected to the transport network by newly laid out roads. In the duchy of Aquitaine, 24 bastides were river ports. This is 20% of the total number of bastides in this area. Of course, the intersections of communication routes (land or water) offered extra advantageous locations. It was also important for the choice of location that the plots of garden, vineyard and arable land would be within easy reach of the town.

A very different motive for the choice of a specific location, which often led to the selection of rather different sites, was defence from bands of robbers and other enemies. These locations were particularly chosen for bastides that were created in unsafe areas and areas that were disputed by different lords. When defence was an important motive for bastide foundation, locations that were easy to defend and from which the surrounding area could be controlled were the most desirable. Hilltops with steep sides offered great advantages in this respect, but low sites surrounded by water were also possible locations. The demand for defence was, however, often contradicted by the demand for a comfortable and economically viable location.

In many cases, there already was some sort of settlement on the site of the new town. Such previous settlements may have been isolated farms, hamlets, villages or sauvetés. Generally, they were much smaller than the new bastides. In some cases these settlements were absorbed into the new towns, which thereby actually were re-foundations and extensions rather than literally new settlements. In other cases the pre-existent settlement was demolished to make place for the new one. This second course of events can only be known from older elements that were retained, such as the churches of Lisle-sur-Tarn and Vianne, or from archaeological or written sources. However, there has been little archaeological research in bastides up until now, and the contemporary written sources are generally vague regarding the previous spatial situation at the specific locations.

From the above, it already appears that the sort of locations where bastides were built could be rather different in character, depending upon, among other factors, the motive or immediate stimulus for the foundation and the land that was available to the founder. Three general sorts of locations can be distinguished: high sites (on a hilltop, a hillcrest or on the end of a hillcrest); low sites (commonly in a valley on the bank of a river); or some-in between (for instance halfway down a gentle slope, mostly on an existing road through the site). As a sense, exaggerated.

According to Lavedan and Hugueney, the type of location chosen depended upon whether a bastide was founded with a military motive or not. They claim that the bastides in the border areas between the ‘English’ and the ‘French’ territories are much more often sited in high positions than in the more easterly regions, because the former were meant to serve a military purpose. However, the difference between the types of locations in

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279 The risk of flooding was limited at most locations in southwestern France, but in some cases it was a very relevant matter. Mirepoix, for instance, was re-founded as a bastide in 1279, after the old town was destroyed by a flood of the river Hers. The new town was built on a somewhat higher location in the same valley. (Lauret, Malebranche & Séraphin 1898, pp.172-174)

280 Libourne and Aquies-Mortes were both built on slightly elevated sites in low-lying areas that flooded once in a while. Therefore they both were provided with raised cause-ways as entry roads. (Beresford 1967, p.376)

281 England ports comprise 42% and in Wales 32%. (Beresford 1967, pp.120-121) Of the total number of bastides in southwestern France, the percentage of port locations is considerably lower than 20%, since the ‘English’ territory was on the lower end of the rivers Garonne, Lot, Dordogne and Adour. Higher up the rivers were not navigable.


283 For example Saint-Claix, Cordes, Septfonds, Najac, Sauvetterre-de-Rouergue and Villérel. In some cases it seems that nothing much was added to the form of the existing settlement with the bastide foundation, as for instance with Alan and Fourcha.

284 On the pre-existing churches, see Lauret, Malebranche & Séraphin 1898, pp.268-269; Higounet 1952, p.91; Higounet 1984, pp.18-21.

285 Examples of bastides sited on hilltops are Cordes (fig.2.11) and Monflanquin (fig.2.31), while Bassoues (fig.2.26) lies on a hillcrest and Gimont (fig.2.27), Montréal-du-Gers (fig.2.28) and Beaumont-du-Périgord (fig.2.14) are sited on the end of hillcrests. Among the bastides built on low-lying sites are Fourcs (fig.2.10), Sainte-Foy-la-Grande (fig.2.21), Béretou (fig.2.33) and Grenade-sur-Garonne (fig.2.22). Monpazier (figs.2.19-20) and Villefranche-de-Rouergue (fig.2.35) lie about halfway down gently sloping hillside.

286 Lavedan & Hugueney 1974, p.92.
the different areas is actually quite limited, and the claim that high locations necessarily imply military interests on the part of the founders is too much of a generalisation.288

2.10.2 Setting out the allotment

In a number of contemporary documents, the allotment of the bastide land is called perticatio. There are no clear sources as to how this perticatio was exactly carried out, but considering the results, there seem to have been considerable differences in the process in the various bastides. Regular distances were probably set out by the use of ropes (or chains) and sticks of specific lengths, and relevant points were probably marked with pegs or poles hammered in the ground or with large stones.289

It appears from the documents that sometimes the perticatio was not carried out correctly, and that corrections or rectifications were made afterward. The chartes de coutumes of Trie-sur-Baïse and Revel, for instance, mention that settlers would have to pay additional rent on top of the standard amount, if it appeared after an eventual re-measuring of the bastide grounds that their lots were bigger than the standard size.290 This actually appears to have happened at Grenade-sur-Garonne. In 1322, 32 years after the foundation of the town, it was decided that the town and its grounds would not be newly measured out completely, but that individual lots were to be measured on request, after which rents were to be adjusted. Nine years later, however, the situation apparently still was not satisfying, as a new survey was carried out for the whole settlement.291 Unfortunately, the documents do not reveal whether the problems concerned house lots, garden plots or agricultural plots.292

It seems highly likely that the perticatio was normally led by people experienced in land measurement. Unfortunately, it is not known to what extent they really were professional surveyors.293 It also seems likely that the planners of the urban form were often the same people as the ones who actually made the allotment, but once again there are no sources that confirm or deny this. At Beaumont-de-Lomagne, in any case, the surveyor of the city of Toulouse was present when the lots were handed over to the settlers in 1282, which makes it likely that it was he who had actually set out the allotment.294

2.10.3 Historiography of the urban form of bastides

When one studies the ground plans of the bastides, it clearly appears that many have a more or less regular orthogonal form.295 Already in the 18th century, some French historians mistakenly came to believe that
not many, but all bastides had a regular grid plan. In the 19th century this misconception became more widespread. 296 The growing consideration for the regular layout of the bastides caused a curious revolution in the conception of ‘medieval town planning’ in the French study of (architectural) history at the time, which is interesting from the present historiographical point of view. Initially, ‘medieval’ architecture and town planning was generally presumed to be irregular. In the 1850’s, the highly influential architect and theorist Eugène Emmanuel Viollet-le-Duc wrote: ‘Up until the Renaissance symmetry and general regularisation of plans were not considered. The laws of symmetry, laws which are so ridiculously tyrannical in our own day, never exercised their influence on the population of the Middle Ages.’ 297 These sentences demonstrate how much this vision was determined by an unease with contemporary 19th-century architecture, as can also be felt in the works of other influential authors of the 19th century, like Pugin and Sitte. 298 However, from the time that scholars like Jean-Justin Monlezun and Félix de Verneilh brought the regular orthogonal plans of the bastides to the attention of a larger public, about halfway through the 19th century, another vision of the past gradually took form. De Verneilh and, after him, various other historians who studied bastides, came up with a new conception of ‘gothic town planning’. In 1847, De Verneilh wrote - in reaction to the romantic vision of Victor Hugo, who was a great lover of the remains of ‘medieval’ Paris: ‘In the common language, a “gothic town” is synonymous with a badly planned and completely irregular town; this expression should, however, be erased from our vocabulary. The most typical gothic towns, which were created in the 13th century, are the most regular ones that we have. This being the case, I beg Monsieur Victor Hugo’s pardon, but these towns are truly grid plan towns, and most of the grid plan towns are medieval towns.’ 299 In this way De Verneilh made the regular bastide with orthogonal plan the archetype of ‘gothic’ town planning. This new notion of ‘gothic’ town planning subsequently became more or less generally accepted in France (unlike most other countries) up to the present day. With this, De Verneilh presented an important modification to the then common vision of ‘medieval town planning’, which is described above in the words of Viollet-le-Duc. One should consider, however, that De Verneilh was also partly wrong, in his definition of bastides as regular grid plan towns. 300 Unlike what he claims, many settlements that were founded as bastides do not have very regular plans. In some cases, an initially intended regular structure may have not been realised because circumstances that did not allow it; and in others an original regular structure may have been erased in the course of time by ‘erosion’ and changing property boundaries. 301 But in many cases the founder seems to have been interested in his settlement’s administrative, legal and economic organisation, rather than its spatial organisation, for which little or no energy was put into the realisation of a regularly ordered town plan. (fig. 2.1.8)

2.10.3.1 The ‘archetype’ of the bastides

Since De Verneilh’s publications, the definition of the bastides as regularly planned urban structures has been more or less generally accepted. At the same time, the image of what a bastide would look like has become more and more generalised. 302 The plans would be orthogonal, the street blocks would be rectangular, in the centre there would be a square market place which was surrounded by covered galleries in front of the houses (so-called couverts) and in the midst of which would stand a market hall / town hall, and the bastide would be surrounded by a wall or palisade following a rectangular outline. It is remarkable that this archetypical form strongly resembles the archetypical form of the ancient Roman coloniae. After Viollet-le-Duc had come to know the work of De Verneilh, some years after he wrote the above quotation, he wrote in a later volume of his very same Dictionnaire with regard to the bastide of Monpazier: ‘Like all town plans that were laid out in this period in Guyenne and Périgord, the town of Monpazier is not only aligned with a perfect regularity, but all the houses also have the same dimensions and are distributed in the same manner. Monpazier’s street blocks with their houses show with what cellular uniformity these settlements are built. […] Even the regularity that can be observed in modern
towns like Napoléon-Vendée or certain towns in Algeria, is nothing but disorder compared to this absolute symmetry [...] Curie-Seimbres, who published the first general study on the bastides in 1880, and who knew the subject very well, even wrote: ‘It is demonstrated with certainty by the study of the bastides, that they were all built on an identical and perfectly regular plan [...] With their chequer board plans, the bastides have a character which is so neat and so distinct that one recognises

fig. 2.19: Monpazier. Aerial photograph, view towards the south. Monpazier was founded in 1284 by Jean de Grailly, as sénéchal to the king-duke, and the lord of Biron.

fig. 2.20: Two plans of Monpazier. (From: Divorne, Gendre, Lauergne & Panerai 1985, modified by the author) On the left is an idealised plan, originally created by De Verneilh in 1847, which has been published many times as ‘the plan of Monpazier’. On the right is the actual plan, after a cadastral plan of the early 20th century.

303 “Comme tous les plans de villes cette époque tracés en Guyenne et en Périgord, la ville de Monpazier est non seulement alignée avec une régularité parfaite, mais encore toutes les maisons sont d’égales dimensions et distribuées de la même manière. Un îlot de maisons de la ville de Monpazier fait voir avec quelle uniformité cellulaire ces habitations sont construites. [...] Certes, la régularité observée dans les villes modernes comme Napoléon-Vendée, commes certains villes d’Algérie n’est que désordre en comparaison de cette symétrie absolue [...].’ Viollet-Le-Duc 1854-1868, vol.6, pp.246-247.
them at first sight in maps [...].304 According to this passage, all bastides would have been built on the same, perfectly regular plan. When one carefully studies the actual plans, however, it becomes clear that no two of the more than 300 bastides have the same layout, and that perfect regularity only exists in theory.

Monpazier has almost generally come to be regarded as the ‘archetype’ of the bastides in general.305 (fig. 2.19) And, indeed, this bastide does have a relatively very regular plan. The actual plan of Monpazier in the 19th century, however, was not regular enough in the eyes of the authors quoted above, so they conveniently supplied a reconstruction of what they believed was the original plan. (fig.2.20) This reconstruction was originally made by De Verneilh in 1847. It contains considerable modifications of the actual plan which, for the most part, were not founded on firm evidence but only on the assumption that absolute regularity had been the starting point of the planners.306

There are about twenty bastides that have a regular layout which is more or less comparable to the plan of Monpazier.307 Hence, it is an unjustified over-generalisation to consider Monpazier as an archetype of the bastides in general.

Apparently, the bastides with plans that are comparable to that of Monpazier have been regarded as the most characteristic of all varieties of bastide plans.308 Up to a certain extent, that is understandable, because this sort of plan is easy to recognise as having been planned, and in contrast to various other sorts of plans (as for instance the single-street plan), it is quite typical for the region. It seems that around the middle of the 13th century the archetypical plan was first laid out in the region, possibly at Montréal-du-Gers or Sainte-Foy-la-Grande (both 1255, founded by Alphonse de Poitiers)309, subsequently inspiring the planners of other bastides. And, indeed, this is the single-street plan), it is quite typical for the region. It seems that around the middle of the 13th century the archetypical plan was first laid out in the region, possibly at Montréal-du-Gers or Sainte-Foy-la-Grande (both 1255, founded by Alphonse de Poitiers)309, subsequently inspiring the planners of other bastides. It should be considered, however, that this sort of plan is not unique to southwestern France: similar sorts of plans were also laid out at roughly the same time in central-eastern Europe and, sporadically, elsewhere. (see figs. 3, 4, 7, 9, 13, 19)

The 19th-century archetypical image of the bastides also contained the elements of foundation in parage, sitting on virgin ground, and charters that were exclusive for the first settlers.310 The freedoms of the settlers were greatly emphasised, as was the ‘high democratic content’ of the communal institutions: the bastide was presented as a sort of means of emancipation of the population of the countryside and the formation core of the bourgeoisie.311 In the second half of the 19th century, the bastides were more or less presented as a southern-French version of the civic communes of northern France. It was particularly Curie-Seimbres who described the bastides in this way, among others, with the goal of demonstrating the historical autonomy of southern France.312 This generalised image of the bastides, which Pujol calls ‘l'image symbolique de la bastide’ in his historiographical study, is still largely adhered to at the present time, despite attempts to modify and refine it in the past decades.313

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304 ‘Un point mis hors de doute par l'examen et la composition des bastides, c'est qu'elles forment toutes construites sur un plan idéal et parfaitement régulier [...] Les bastides avec leur plan en damier ont un cachet si net, si distinct, qu'on les reconnaît à première vue sur les cartes [...]’. Quoted by Laurent, Malebranche & Séraphin 1988, p.55.

305 This does not mean that Monpazier was the oldest occurrence of the ‘typical’ bastide, but that it most clearly shows the various characteristics that are supposedly typical for the bastides in general. The town of Montauban is almost generally regarded as the ‘prototype’ of the bastide because of its plan, its founder and its early date. (Brinkmann 1920, p.17; Lavedan & Hugueney 1974, pp. 67-68 and s.s.; Divonne, Gendre, Laverge & Panerai 1985, pp. 11, 58; Heers 1990, p.143; Erlen 1992, p.138; Dubourg 1997, pp.8-9) Montauban was founded in 1144 by Alphonse Jourdain, count of Toulouse (1112-1148), on a strategic location next to a castle. The town plan is regarded as precedent to the plans of the later archetypical bastides. In my opinion, however, the idea of Montauban as a unique creation in its time, and as the sole predecessor (by about a century) of the bastides, makes little sense. Montauban was not the sole town creation of its time; in fact many settlements were founded next to castles, although they were rarely so successful. (see par.2.3; Cursente 2004, pp.72-73) And, although the plan has a central quadrangular place, it is not orthogonal and hardly regular. Another problem is that it is not clear which parts of the plan actually date back to the original foundation in 1144.


307 These are: Bretenoux (fig.2.33), Carcassonne, Damazan, Geneve-en-Tursan, Grenade-sur-Adour, Grenade-sur-Garonne (fig.2.12), Lannepax, Marcia (fig.2.41), Miramont-de-Guyenne, Mirande, Monpazier, Montéral-du-Gers (fig.2.58), Nac, Revel, Sainte-Foy-la-Grande (fig.2.21), Sauveterre-de-Rouergue, Tournay (fig.2.59), Trie-sur-Baïse and Villerefranche-du-Périgord.

308 See the following paragraph.

309 Sainte-Foy-la-Grande was created in paraje with local lords. It seems that the basic elements of this sort of plan had already been used in more embryonic form earlier, for instance at Molandier (1246, founded by the count of Fox with the lord of Belpech).

310 Regarding the form, see Lavedan & Hugueney 1974, pp.72-73.


312 Pujol 1990, p.364.

313 Pujol 1990, p.367. Still largely adhering to the old image, for example, are: Divonne, Gendre, Laverge & Panerai 1985, esp. pp.73-75; Faucheur 1988, p.74; Randolph 1994. These authors actually write that there are also bastides with different, less regular, layouts, but still they treat the bastides as if they (almost) all comply with the old archetypical image. In 1956 Lavedan already tried to give a more realistic - less generalising - picture of the spatial form of the bastides. (Lavedan 1956) According to Weyres, however, Lavedan went too far in the opposite direction (Weyres 1969, p.73, n.7). In my opinion this is not the case. It can hardly be emphasised enough how much variation there is in the layout of bastides. One example to demonstrate this is Guidoni’s discussion of the planning of bastides. (Guidoni 1992 (II), pp.97-113) Although Guidoni’s knowledge of bastides is mainly based on Lavedan, he treats them as a sort of ‘ideal cities’, all variations on the archetypical model described above, inspired by an inclination to “experiment” with the basic layout.
2.10.3.2  Typologies

In the scholarly literature on the spatial form of the bastides from about halfway through the 20th century on, attention is mostly strongly directed at a comparison of the different plan forms - at least as far as the plan form is not generalised to the ‘archetype’ described above. Various scholars have tried to create order in the evident great variety of plans by making typological classifications. In this way they hoped to offer a manageable system by which, ideally, all bastides can be logically categorised. Among others, the important works on bastides by Lavedan & Hugueney, Divorne, Gendre, Lavergne & Panerai, and Lauret, Malebranche & Séraphin contain such classifications. The relatively great attention paid to formal classification is not unique for the bastides: it can also be found in literature on town planning of about the 12th to 14th centuries elsewhere in Europe, but here scholars seem to be most focused on typology.

The classifications of bastides on the basis of plan forms can be regarded as variations on the categorisations that historians have used, for instance, on the basis of who the (main) founder was, on the types of coutumes, or on the supposed original functions envisioned. These last categorisations have some historical relevance, since these distinctions were, or may have been, actually regarded as making a relevant difference at the time of the bastide foundations, although the various possibilities probably were not clearly classified by that time. In my opinion, though, the various typologies on the basis of plan form barely have historical relevance. Below I will briefly discuss a number of problems and objections, mainly based on the example of the relatively elaborate typology of Lauret, Malebranche and Séraphin.

According to Lauret, Malebranche and Séraphin, the great variety in bastide plans can be brought down to a number of standard models, which in practice are adapted to the topographical situation. It is not explicated whether these ideal models were actually known by the planners or whether they only serve as types for formal classification, but from the description of the models it appears that the authors believe that the one or another of these models were actually chosen from the variety of models at the time of the creation of the towns.

The following types and subtypes are described:

1) Atypical plans: plans without traces of planning, mostly bastides with an older core.
2) Plans dictated by the site: the plans are mostly strongly influenced by the form of the landscape. This type is subdivided into bastides sited on high and low locations.
3) Ancient models, envelopments and closed structures: plans that are mostly more or less symmetrical around a central element like a church, market place, road or castle and clearly enclosed. This model is subdivided into:
   - circular villages
   - square villages
   - revolving formations: compact, more or less orthogonal structures of which the street plan has a sort of swastika shape
   - linear formations: organised around a central main street, possibly with parallel streets and a central transverse street
   - place-villages: plans with a relatively large market place, surrounded by houses
4) Systematic plans: orthogonal plans without prescribed boundaries. This is the type that is given most attention by Lauret, Malebranche and Séraphin. In their opinion it would have been applied mainly to bastides from the middle of the 13th century on by Alphonse de Poitiers and his successors, since it was suited very well to systematic foundation policies. The type is divided into six sub-types that are largely specific to particular regions:

315 See par. 2.1.4.2.
316 See Gouron 1955; Ourlac & Gilles 1951; Saint-Blanquat 1985. There are also typological classifications based on the functions of the bastides, for instance in the use of the terms bastide-frontière and redamation-bastide. (for instance Higounet 1975, pp. 178-183, 245-254, 293-303) As with this functional classification, terms of topographical typology are also often used. For instance, some scholars classify bastides by their location on a hilltop or in a valley. (for instance Divorne, Gendre, Lavergne & Panerai 1985, pp. 39-44) But as far as I know, these typologies are not really thought through or used systematically.
318 Regarded strictly, there are just two bastides of this type: Montesquieu-Launagaud and Téou. In both cases the form is strongly influenced by their location on small hills, for which there is a complete overlap with the type plans dictated by the site. Apart from these two there are other settlements that are re-founded as bastides: Sarrant, Fourcés (fig. 2.10), Larresingle, Villeréal (fig. 2.44) and Miradoux. (Lauret, Malebranche & Séraphin 1988, p. 59)
319 This type, which is essentially determined by the street plan, is almost completely overlapped by the subtype square villages.
320 This type, in most cases, overlaps the type plans dictated by the site.
321 The relatively low number of houses, however, is mostly the result of arrested development, so that the originally planned market place has become relatively large. The examples given for this type mostly do not really have closed envelopments, wherefore it does not seem justified to regard it as a separate subtype.
• Modèle quercinois: a main street with perpendicular residential streets, the so-called herringbone plan. From the examples given by the authors it appears that many plans do not conform to this model very clearly, and that the plan type can also be found outside the Quercy region.322

• Modèle aquitain: this is more or less the same as the archetypical model. A square market place is surrounded by rectangular street blocks with primary streets in one direction, the church being located in the street block diagonally next to the market place. This model would be typical for the Bazadais-Agenais-Périgord region, which is called Aquitaine here.323

• Modèle gimontois: this type is named after the main example of it, Gimont (fig.2.27), and has a central main street that widens into a place in the centre. Two parallel streets are connected to it by transverse streets at regular distances.

• Modèle gascon: the sole distinctive mark of this model is the site of the church, which is separated from the market place by a street block.324

• Checkerboard plan: plans with square street blocks.325

• Other models: types that only cover a very small number of bastides, for instance those determined by the site of the church, which is directly next to the market place in the modèle armagnacais and in the perimeter of the town in the modèle de Vianne.326

In my opinion, this extensive typology suffers from many flaws. The more important ones relate to the logic of the classifications.327 The classification into main types is unclear because atypical plans are set next to plans dictated by the site, next to ancient models, envelopments and closed structures and, finally, systematic plans. In

322 For instance, Saint-Félix-Lauragais and Valentine barely follow the definition of the type. (see Lavedan & Huguene 1974, figs.221, 249) Gimont does follow the definition quite closely (fig.2.27), but gets its own type because of the form of the market place (see below).

323 The authors add that there are variants with streets of equal value in the two perpendicular directions. (Damazan, fig.2.40; Lauret, Malebranche & Séraphin 1988, pp.66-70)

324 Since this subtype is only characterised by the relative placement of the church and the market place, it is completely covered by other types, such as the modèle aquitain and the quadrillage.

325 From the examples that are given of this plan it appears, however, that the street blocks are often only partly or nearly square. (see Lauret, Malebranche & Séraphin 1988, p.77)

326 Of the models de Vianne and Armagnacais the same can be said as of the modèle gascon: see n.324.

327 The flaws in specific types and subtypes are partly described in the footnotes above.
my opinion it would be more logical to set unplanned (atypical plans) next to planned (systematic plans), and to subdivide these main types. It is non-sensical to take plans dictated by the site as a separate type, since the authors claim that all their types are ideal types that are, in practice, adapted to the site. The type ancient models, envelopments and closed structures can be planned as well as unplanned, wherefore it does not seem sensible to classify it as a separate type. It is also problematic that there are large overlaps between these types, as well as between the various subtypes. Furthermore, the various subtypes of systematic plans are rather unclear because their definitions are not purely morphological, consisting of aspects of urban form as well as of geographical region. This makes the classification all the more unclear since it appears that these subtypes actually are not unique for the regions they are specified for.

The classification of bastides by plan types suggests that the founders and planners would have thought in such types, even though most authors who proposed such classifications do not explicitly state that this was the case. This idea is, however, wrong: founders and planners did not think in terms of such plan types in the period under consideration. The typological approach of bastide creation is anachronistic. It is strongly

fig. 2.22: Cadastral plan of Grenade-sur-Garonne, 1827. (From: Lauret, Malebranche & Séraphin 1988) The plan is oriented NNW. Grenade was founded in 1290 in paréage between Eustache the Beaumarchais (as sénéchal of the French king) and the abbey of Grandseve. The town was not walled but a certain moment, probably in the 14th century, ditches were dug to the north and south, where the boulevards are indicated in the plan. It seems that the other sides were only fixed by the natural course of the rivers to the west and southwest, and by the low but steep natural slope of the flood terrace of the river Garonne, to the east.
fig. 2.23: Plan of Jegun. (From: Lauret, Malebranche & Séraphin 1988, modified by the author) The town was founded in 1280 by the count of Armagnac, near a site where the count of Fézensac had possessed a castrum in the 12th century.

fig. 2.24: Plan of Montaut. (Pyrenées Atlantiques. From: Lauret, Malebranche & Séraphin 1988, modified by the author) The town was founded by the viscount of Béarn and the abbot of Saint-Pé in 1308 under the name of Saint-Hilaire-de-Lassun. The church was built in the centre of the square in the 16th century, on the site of the previous market hall.

fig. 2.25: Plan of Bassoues. (From: Lauret, Malebranche & Séraphin 1988, modified by the author) Bassoues was founded in 1295 by the archbishop of Auch. The town is sited on a low hillcrest, with the central main street along the top of the crest, and the market place at the highest point. The town wall and the castle in the northeast corner were built around the middle of the 14th century.
influenced by the methods of modern town planners, who primarily think in plan forms and types. The plan typologies have little or no historical relevance, in the sense that they do not provide any information on the way the forms of the bastides came about.

In a number of typologies, various specific types are coupled with non-morphological historical and geographical factors, like the way the bastides were created, specific founders, regions, or sorts of locations. These connotations are not explained, however, and in most cases it appears that the link between type and the connected factor is not exclusive. As is the case, for instance, with the regional subtypes described above. This strongly detracts from the sense of the connections.

All in all, the plan typologies are of little or no use for the understanding of the creation of the bastides.

For instance, Lavédan and Hugueney (1974, pp.85-86) connect the origin of the two-axe type to their founder, Alphonse de Poitiers, whereas the subtype in which a block of houses is sited between the market place and the church, is associated with the founder Eustache de Beaumarchais.
fig. 2.28: Plan of Montréal-du-Gers. (From: Lavedan & Hugueney 1974) The town was founded by Count Alphonse de Poitiers in 1255. It is sited on a ridge which ends on the west side of the town, and which largely determines the form of the outline of the town. Montréal is one of the very few bastides for which we know who was responsible for its planning: the notary Pons Maynard.

fig. 2.29: Plan of Roquepine and surrounding area. Based on aerial photographs. (From: Beresford 1969) The town was founded 1283 by Bertrand Panisals, who was a lieutenant of the English royal sénéchal, Jean de Grailly. The town was not successful, so it has eventually become reduced to no more than two farmsteads along the former main street. The dotted lines indicate the former streets and the outline of the town, which can be identified in aerial photographs as crop marks.

fig. 2.30: Plan of Villefranche-de-Lauragais. (From: Lavedan & Hugueney 1974, modified by the author) The town was founded by Count Alphonse de Poitiers in 1254-57. Probably it originally only consisted of the small part with two rows of lots on either side of the main street in the area around the church, which is marked with a thick grey line. Around 1280 the town was extended under French royal rule, and it seems to have been extended again in later phases.
Since the various authors hardly explain the motive for, or the goal of, their typologies it is not even clear whether they meant them to be used for the study of history. The authors simply seem to have followed one another in the making of classifications rather than asking what goal such classifications might serve.

It should be mentioned, however, that there are specific aspects of the plans of bastides that can be discerned to have historical relevance. For instance, it can be determined that plans that are clearly focused on one central street are generally formed on the basis of an existing road; and when it is a question of two crossing streets, there generally was an existing crossing of roads at which the bastide was founded. Also, there is one specific plan element that appears to be special for one particular region. This is the narrow house blocks that originally consisted of only two or four house lots, divided by narrow streets or alleys at right angles to the main streets. This specific form of street block is, among the bastides, to be found only in the Quercy-Rouergue region.\textsuperscript{329} (figs. 2.34, pp. 19-21, 2.35) It is not possible, though, to create a sensible and complete typology of bastide plans on the basis of such aspects: there simply are too many differences, and the plan forms commonly can not be logically correlated with specific creators, periods, regions or other aspects.

### 2.10.4 Urban layout

Because of the great variation in bastide plans it is almost impossible to make general remarks on the urban form of these towns. Other authors have mainly treated the urban layout of the bastides by describing the typological classifications made by them. However, as argued above, the typological approach on the basis of bastide plans does not make much sense for the study of history. Apart from the fact that it is simply impossible to give all bastides a place in a classification that is logical, such categorisations do not help to understand how these towns were actually created.

In the chapters on the Edwardian new towns of Wales and the Florentine terre nuove (ch. 1 and 3) the focus is on groups of towns of limited size, which can therefore be treated town by town. In this chapter on the bastides, however, a much larger group of towns is treated. I have explicitly chosen to take a broad view, in order to show the great variety among the bastides, particularly to counter the old approach in which the focus is narrowed down to the archetypical quadrillage-bastides.

In the following subparagraphs the spatial layout of the bastides will be discussed. First, some remarks will be made on the general plan forms and subsequently specific elements of the plans will be examined. In the following paragraph (2.10.5) the buildings that originally were built in the towns will be briefly discussed.

#### 2.10.4.1 General plan forms of the original plantations

The archetypical bastides described in paragraph 2.10.3.1, such as Monpazier, Sainte-Foy-la-Grande and Grenade-sur-Garonne (figs. 2.19-20, 2.21, 2.22), have plans that are among the most regular of all bastides. There are, however, also other sorts of layouts which are very regular. Jegun, for instance, has a plan that is also very regular, although it is quite unlike the archetypical bastide plan. It has long and narrow street blocks in which only single rows of houses are accommodated, and the central market place is comparatively very small.\textsuperscript{330} (fig. 2.23) Conversely, there are also bastides that basically have the same sort of street plan as the archetype, but which have a much less regular layout.\textsuperscript{331} One example is Montaut, which has an orthogonal grid layout with a large square market place in the centre. The building lines of the streets, however, are not very straight, the allotment is quite irregular and the street blocks have no standard dimensions. (fig. 2.24) As with many other bastides, the irregularity increases towards the margins of the town.

Almost all bastide plans contain clearly visible elements of regularity, thereby implying spatial planning. There is a clear inclination towards straightness of streets and plot boundaries, and angles generally tend towards perpendicularity. Moreover, there mostly are traces of regularity in the size of plots and street blocks and in the width of streets. Apart from that, one also recognises a clear coordination in the layout of streets and the orientation of plots upon them in almost every bastide.

\textsuperscript{329} In the typology of Laur et, Malebranche & Séraphin this is the modéle Quercinois. (1988, pp. 64-65)

\textsuperscript{330} Other examples are Bassoues (fig. 2.35), Le Plan (fig. 2.37), Tournay (fig. 2.39), Masseube (Laur et, Malebranche & Séraphin 1988, p. 293), Montjoie-en-Couserens (idem, p. 60) and Labastide-de-Bousignac, (idem, p. 61).

\textsuperscript{331} See for instance Blayé (Laur et, Malebranche & Séraphin 1988, p. 77), Lestelle (p. 292), Beauregard, Blasimon (idem, p. 283), Bruges, Boulogne (idem, p. 284) and Montaut (fig. 2.24).
As with the towns of Wales, a very basic distinction between different plan forms can be made. The smallest towns often have a layout with houses along one single street. Larger bastides may also clearly have one main axial orientation, often centred on the 'spine' formed by a single main street. (figs. 2.13, 2.25-2.27, 2.30, 2.38) Another basic plan form is based on two perpendicularly intersecting directions. (figs. 2.21, 2.22, 2.33, 2.35, 2.36, 2.40, 2.44) The reason why one of these layouts was chosen by planners in the past, mostly must have been that there was one important road in the existing topographical situation, or alternatively there may have been an intersection of two roads. Still other plan forms have no clear orientation in their layout. This is the case with, among others, the ones with rounded forms (fig. 2.10), but more generally those with no clear main orientation are rather irregular in structure. (see fig. 2.18)

It would be interesting to count the number of different sorts of bastide plans, in order to get a general idea of the relative number of the basic varieties (such as irregular form, rounded form, single-street plan, cross-street plan and grid plan). It is very hard to actually do this, however. For one thing, the number of bastides is so large that many of them are still not exposed in publications. Moreover, there still must be quite a number of bastides which have not yet been identified: foundations that failed, foundations whose location is not clear, and conversely, existing settlements that may actually be bastides but which cannot be positively identified as such. In the publications by Lavedan & Hugueney (1974) and Laurent, Malebranche & Séraphin (1988) many bastide plans are depicted. But in both cases, as in most other publications on the morphological aspects of the bastides, the more regular and larger bastides are relatively over-represented.

It may well be that the most common form of plan is the simple single-street arrangement, although one certainly does not get this impression from the literature on the bastides published so far. These settlements are all relatively small, and it is hard to tell whether they were intended to be so small in their original conception. Possibly, many of them were not meant to be single-street villages, but have come to be that, simply for lack of development. An example of a town that seems to have been meant as a single-street town is Bassoues. (fig. 2.25) Roquepine on the other hand, has been reduced to a single-street layout with just a few buildings on its main street. However, crop marks in the surrounding fields suggest that there must have been more streets in the past. (fig. 2.29)

Mostly, the landscape topography had a great influence on various aspects of the plan form. For instance, as already been noted above, the choice of a single-direction-plan or a two-direction-cross-plan was probably often determined by the position of pre-urban roads at the site. The aspect of the natural relief of the site and its influence on the urban form will be discussed in paragraph 2.10.4.3.

2.10.4.2 Outline forms

Within the group of the bastides there is a wide variety of outline forms. According to the archetypal image of the bastides they should be rectangular in shape, in agreement with their inner grid structure, but in actuality this is quite rare. It is always hard to determine what the original outline of the plan was. It is quite possible that some towns did not even have a planned outline, since the number of future settlers was not

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332 Examples of other plans of single-street bastides: La-Bastide-du-Haut-Mont (Lavedan & Hugueney 1974, fig. 195), La-Bastide-du-Temple (idem, fig. 196), Caumont (idem, fig. 207) and the bastide-extension of Najac (idem, fig. 209).

333 See par.2.10.3.1.
has recognisable been preserved of the original ditches, earthen banks and palisades, so not much is known about their precise form.

334 Mostly it is not known how large the original urban layout was meant to become, or even if there was a clear limit to the size of the town. In some scholarly publications, however, various bastides with regular plans are depicted as though they were planned as a rectangular unit, often of nine blocks, with the central one as the market place. (see, for instance, Lauret, Malebranche & Séraphin 1988, pp.66-78) Oddly enough, no explanation is given for this way of depicting the plans. Sauveterre-de-Rouergue and Verfeil-sur-Seye actually have such a layout, which once was delimited by walls and ditches. But even in these two places this seems not to have been the originally planned layout, as it is clearly visible in plans that the grid of streets once extended further outward. It is not known, however, whether this area was originally planned to be given out as house lots (cf. par.2.10.6). (see Alary & Marlhac S.D., p.22; Grimbert 1988, plan 1835 of area surrounding Sauveterre; Lavedan & Hugueney 1974, fig.323) The abstract form of the nine squares, with the central one left open, has even become the logo of the institute of the CEB. (see the various publications of the CEB, or http://etudebastides.ifrance.com/)

335 See pars.2.5.1, 2.10.5.3.


337 Trabut-Cussac 1954, p.91. This was the case at, among others, Saint-Osbert, Sauveterre-de-Guyenne and Monségur (fig.2.13). (Lauret, Malebranche & Séraphin 1988, p.131)
Stone town walls were mainly built from about the 1320’s on. The exact placement of the wall circuit was often strongly influenced by the area of the built up part of the town at the moment of construction, as well as by the topography of the existing landscape. By taking these elements into account in determining the course of the circuit, the costs of the relatively very expensive stone walls would be minimised, while optimal use would be made of natural barriers in the landscape, such as water streams or relief, in order to make the walls more effective for defense. Hence, there are many bastides that have regular internal structures of streets and plots but rather irregular wall circuits. (see figs. 2.13, 2.14, 2.31, 2.35, 2.44) Looking at the regular internal structure, one would normally expect these towns to have been enclosed by a rectangular outline coordinated with the urban grid. It is always hard, or rather impossible, to tell in what measure a circuit of walls or ditches reflected the idea of the outline of the town as it was originally planned. In some cases it can be clearly recognised that the circuit was laid out cutting through an existing allotment that extended further outward, as in Grenade-sur-Garonne (fig. 2.22, 2.52, 2.53), Verfeil-sur-Seye, Revel, Mirepoix and Carcassonne. In par. 2.10.6 this will be discussed in detail, particularly regarding Grenade.

There were circuits with rounded outlines, circuits with angular outlines with more or less straight stretches between the angles, and there were also circuits that combined these forms. (see for instance figs. 2.31, 2.13, 2.14, 2.35, 2.44) Angular outlines with straight sides were the most common, however.

Concerning the originally planned form of the bastides, a distinction should be made between the layout that was newly created and parts that may have already existed before. Septfonds, for instance, was centred on an older sauveté, which is hardly recognisable in modern plans, but quite visible in older ones. Of course, one should also try to distinguish the parts that may have been added later on. Sometimes this is very difficult or even impossible, because the sources are too meagre to allow such distinctions. Often, though, parts that were added later show different forms or dimensions. Regarding Villefranche-de-Lauragais (see fig. 2.30), for instance, it is known from documents that the bastide was founded in 1254-57 by Alphonse de Poitiers and that it was extended around 1280. On the one hand this is recognisable in the plan, since the core around the main street near the church has a structure with smaller

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338 An important reason for the increasing activity in building defences was the outbreak of the Hundred Years War in 1337 and various smaller conflicts that lead up to it. (see Trabut-Cussac 1954, Vale 1990)

339 See Lavedan & Hugueney 1974, fig. 233; Doumerc 1906, plan of 1777; Lauret, Malebranche & Séraphin 1988, pp. 172-174 (after being newly built around 1280, the area of Mirepoix was reduced from 28 blocks to 9, when it was walled in 1354); idem, p. 175 (Carcassonne was newly built around 1262, and was walled in 1355, but this only affected the central core of about 65 street blocks, instead of the full layout which is said to have totaled 145 blocks. See also Mot 1963, p. 18)

340 In the plan of Septfonds published by Lauret, Malebranche & Séraphin (1988, p. 301), the central part around the church shows some odd irregularities with respect to the rest of the plan, while in the older plan of Lavedan & Hugueney (1974, fig. 322) it is clear that this central part must be the old sauveté, remnants of the wall circuit of which are recognisable in the plan.
plots and back alleys, while the other plots are much deeper and have no back alleys. On the other hand, however, one can only guess about how large the extension of 1280 was meant to be, since there is no very clear boundary separating it from still later additions.

2.10.4.3 Relief

It has already been mentioned above that the relief of the natural landscape often played a significant role in the choice of the specific layout of defensive circuits. Apart from that, the relief also had its influence on other aspects of the urban form. Bassoues, for instance, is built on a hillcrest (see fig. 2.25), and it is clear that the form of the landscape has had a great influence on the form of this town. The central street, which is the main axis of the town, lies right on top of the hillcrest. The slight bend of the main street, and thereby of the whole urban structure, just to the west of the market place, is determined by the course of the hillcrest. The market place is sited at the highest point.

Comparable bends in the main axis of the plan structure determined by the form of the landscape can be found in the plans of, among others, La-Bastide-Clairence (Lavedan & Hugueney 1974, fig. 229), Gimont (idem, fig. 242), Beaumont-du-Périgord (idem, fig. 245, and fig. 2.14 in the present study), Pouminol (idem, fig. 247), Montréjau (idem, fig. 148), Castillonnès (idem, fig. 250), Valence-sur-Baïse (idem, fig. 255), Monségur (idem, fig. 218, and fig. 2.14 in the present study) and Boulogne-sur-Gesse (idem, fig. 342).
In many other bastides one may also find either the market place or the church at the highest point. In Grenade-sur-Garonne, for instance, which was laid out on a fairly flat terrace in between the rivers Save and Garonne, the highest point is in the southern corner of the marketplace, from which point the streets slope down in every direction. (see fig. 2.22) The northwest-southeast street crossing this point is the highest street in town, along its whole course. It is no coincidence that this is also one of the two main streets of the town: at both ends there were bridges crossing the town ditch and the facade of the main church is faces this street.

Commonly, the plans are more regular when the terrain is more open and level. There are, however, exceptions to this general principle. Monflanquin, for instance, is sited on top of a rather steep hill. The form of the hill is reflected in the outline of the old town, which was formerly surrounded by a town wall that followed the contour line. But apart from that, the structure of the plan, which forms a somewhat irregular grid, does not hint at the fact that it is located on a hilltop. (fig. 2.31) As in various other bastides, the church was sited on the highest point of the town.

Even on flat sites in valleys or on plateaus the streets are never completely level, in order to allow for the draining of surface water. Often they follow the slight inclinations of the natural relief, which leads rainwater to streams. Alternatively, streets may have been given artificial inclinations. This can be seen, for example, in the bastide of Carcassonne, where the north-south streets in the northwest part of town were given inclinations so that the water is conducted to the west-east streets which, in turn, slope down to the river following the natural relief. Sometimes, it is clearly visible that streets were specifically laid out through natural gullies. For instance, in Monségur the street just northwest of the market place does not fit well in the regularity of the street system. One would have expected a street that extends from the west side of the market place in a northward direction; but instead, the street is sited somewhat further westward, so that it can conduct the rainwater from the deepest point of the main street (along the north side of the market place) in a northwesterly direction down the hill. (fig. 2.13)

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342 See pars. 2.10.4.7 and 2.10.5.3.
343 This is the case, for example, in Septfonds, Mazères and Revel.
344 Without scrupulous archaeological research it can not be established whether this layout is really authentic, but, judging from the age of the buildings alongside the streets, the layout seems to be some centuries old at the least.
345 A similar situation is to be found in Beaumont-du-Périgord, where the third street south of the church is a small street that does not really fit in with the otherwise regular structure. (fig. 2.14) This street appears to be laid out here, in order to conduct the water in an eastward direction from the easternmost of the two parallel main streets, which lies in a slight depression here. Another similar case is the alley northward from the midpoint of the northern side of the market place at Granges. (see Lavedan & Hugueney 1974, fig. 315)
As almost everywhere else, the house lots in the bastides were preferably given an elongated rectangular form. The houses were meant to stand at the front of the lot, and behind each of them would be yards with gardens, workshops, sheds or stables. Sometimes the chartes de paréage or the coutumes mention a standard size for the house lots or ayrals, as they were often called.\footnote{Laur et al. 1988, p.85. Sometimes a house lot was called a llicium or platea. (Dubourg 1997, p.109)} Usually the dimensions of the lots are about 6 to 10 m. wide and 18 to 30 m. long, with proportions of width and length varying from 2:3 to 1:4.\footnote{See par.9.11 and appendix C.} From bastide to bastide there could be quite a difference in the standard lot size, and in towns where no such standard was set there also could be a considerable difference between the individual lots. (fig.2.32) And even in places where such standards were set in the official documents, there may have been sizeable variations in reality. In the course of time this variation grew, since in successful foundations the larger lots would be split up as the demand for house lots grew and, conversely, in less successful towns, lots remained empty or were amalgamated. It may still be noticed today how the difference in lot sizes can give various bastides a very different character. In Bretenoux, for instance, there is hardly any open space left in the walled core of the town; whereas in nearby Puybrun there still are large surfaces covered with gardens at the back of the plots. (fig.2.33) This is caused by the fact that the original size of the plots was much smaller at Bretenoux. But another cause was that in Bretenoux an area of limited size (c.100 x 100 m.) was walled in the 14th century, while at Puybrun a much larger area of about 300 x 500 m. seems to have been moated later on, but remained largely unbuilt on in the peripheral parts for lack of settlers.

The average plot size in the bastides is smaller than in the new towns of Wales or many other northern European regions, and is closer to the sizes that can be found in towns in southern Europe.\footnote{See par.9.11 and appendix C.} But like almost anywhere else, there were many towns where the actual plots were not laid out or actually distributed in as regular a form as may have originally been intended. Irregularities were often caused by the lack of homogeneity of the site, by limited clarity of the planned plot boundaries, by unforeseen developments
during the flocking in of settlers (as in the abovementioned example of Puybrun), or by the negligence of the determined lot dimensions.\footnote{For the ‘irregularisation’ of theoretically regular plans and lots, see par.9.6.2.}

In many bastides there were also garden plots in the periphery, which were mostly called cazals or cazalères. Surrounding the town, there were agricultural plots, often called journaux or ayrals.\footnote{Lauret, Malebranche & Séraphin 1988, p.85; Dubourg 1997, pp.110-111.} These suburban plots will be treated below in paragraph 2.10.6.

\subsection{Street blocks} As almost everywhere else, the house lots were arranged in rows or blocks, bordered by streets. Mostly, these blocks had a more or less rectangular form with more or less straight sides. But when the lots were irregular in form, or the bordering structures - mostly streets, but possibly a stream or the perimeter of the settlement - were not straight or not at right angles, the blocks might take on other forms.

Within the category of the more regular blocks, the proportions of the sides vary from about 1:1 to about 1:4. The facades of the houses are on the short side of the house lots, which is oriented towards a street or the market place. The short side of the lots usually is on the long side of the block, which normally is oriented on the more important streets. The perpendicular cross streets are of minor importance and are often less wide.\footnote{In many of the more successful settlements, there are also facades on the cross streets. But mostly this was only a secondary development, when the lots on the cross streets were divided and additional houses were built on them (for instance in Mirepoix, Cologne, and Créon). Only in a number of towns with residential streets at right angles to the main traffic streets, are the facades also oriented on the primary streets along the short sides of the blocks. These so-called ‘fishbone plans’ can be found in, among others, Villefranche-de-Rouergue and Le Plan. (figs.2.35, 2.37) In other bastides similar solutions were used for the street blocks that border the market place on their short side. (see below)}

There are different sorts of street blocks with regular forms. (fig.2.34) The most basic type is the simple row of plots, with the houses on the front of the lots facing one street, and the back of the lots on another street.\footnote{In successful settlements, as for instance Mirepoix, the plots in these kinds of street blocks are often divided in two, with additional houses built on the backside of the plot.} A somewhat more elaborate type of street block contains double rows of lots, lying back to back. Sometimes there are small alleys or back streets dividing the two rows. Street blocks that lie on two crossing primary streets, or on a primary street and the market place, often have a number of plots perpendicular to the other ones at the end of the block. In the cases where this is applied to the double-row block with a back street (or alley), this back street usually also has a perpendicular part at the end of the block, so that it is T-shaped in plan. (fig.2.34, numbers 1-4) For bastides with regular plans it may be assumed that, in most cases, they were planned to have one type of block.\footnote{For the blocks adjacent to the crossings of primary streets or next to the market place, however, there commonly would be adapted blocks with house fronts on their perpendicular sides. (see above)}

In the Rouergue region there are bastides that are mainly built up of a rather different sort of street blocks. These towns do not mark a separate type in their whole plan, but (part of) their street blocks are distinct from most other bastides. These blocks seem to have been just two lots wide and were separated by narrow secondary streets perpendicular to the major streets. In most cases a narrow alley accommodating the flow of rainwater separated the houses on the two lots. Such blocks may be found in Villefranche-de-Rouergue, the bastide-extensions of Villeneuve-d’Aveyron and Caylus, and originally probably also in Labastide-l’Èveque and the extension of Najac.\footnote{See Grimbert 1988; Lauret, Malebranche & Séraphin 1988, p.64, fig.A. Among the bastides this layout is rare, but in other regions of Europe one may find similar layouts}
In Villefranche-de-Rouergue (fig. 2.35) most of these street blocks, which measure about 15 m. by 34 to 60 m., consist of two long strips separated by a narrow alley about half a meter wide. Originally, such a strip probably contained two house lots arranged back to back, so that the blocks originally consisted of four lots, each about 7.5 m. wide and about 17 to 30 m. long. This more or less corresponds with the charte de fondation of the town, which says that the standard lot was to measure 4 x 10 cannes, the canne being a rod of c. 1.8 - 2 m. In the following centuries, however, the lots were divided several times, so that, at the present time, there are many blocks that contain up to around 15 small house lots.

2.10.4.6 Streets

As mentioned above, the streets in the bastides generally tend to be more or less straight. In most cases the streets, or in any case the ‘front streets’, were intended to have unbroken building lines. It is not always explicitly mentioned in the coutumes, but it seems that it was generally forbidden to build structures attached to the house fronts that projected into the street. In some cases the width of the streets was prescribed in the paréage or the coutumes. Very wide streets of around 20 m., as can be found in some newly founded towns in Wales or elsewhere in Northern Europe, are very rare in the bastides. The usual width was about 6 to 10 m.

In many of the bastides with more than one street, a basic hierarchy of streets can be recognised by their width. According to the chartes de fondation of Ribouisse, Lignairolles and Mirepoix, all three of which were (re-)founded by Gui de Lévis, lord of Mirepoix in the 1270’s, the main streets were to be 4 brassées wide, and the secondary streets just 3. An analysis of the urban form of Monpazier it appears that the main streets must have been planned 24 feet wide, the secondary ones 16, and the alleys must have been 6 feet wide. The most important streets were generally the ones that connected the heart of the town (usually the market place) with the interregional road network. In Libourne the main street, the magna carreyra, was to be no less than 11 m. wide. The secondary streets could be residential streets with little function for traffic apart from opening up to the house lots, or cross streets on which no facades were planned. Such primary and secondary streets were called carreyras, because they could be traversed with a cart. Sometimes the main

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356 Calmettes 1986, p.64.
357 See par.2.10.5.5.
358 In the coutumes of Mirepoix there is an article that prescribed that ‘the streets must stay at the alignment and that nobody has the right to build on the public road’ (‘les rues doivent rester à l’alignement et que nul n’a le droit d’empiéter sur la voie publique’, Courtieu 1988, p.84).
359 Lavedan & Hugueney 1974, p.74; Lauret, Malebranche & Séraphin 1988, p.39. In Molségur, for instance, the streets were to be 24 ft. wide.
360 Divorne, Gendre, Lavergne & Panerai 1985, p.56; Randolph 1994, p.294. According to Weyres (1969, p.68) the main streets were often 24 ft. wide.
361 Lavedan & Hugueney 1974, p.74. The brassée was the length of two arms extended from the tips of the middle fingers, usually between 5 and 6 feet. (Zupko 1998, p.30)
364 For instance, in Miramont-de-Guyenne the primary streets were about 10 m. wide and the secondary ones about 7 m.; in Mirande it was 9 and 6 m., respectively; in Monpazier 8 and 6 m.; in Carcassonne 6 and 5 m.; and in Villefranche-de-Rouergue the primary streets were about 6 m. wide and the secondary ones (at right angles to them) about 3 m. (Divorne, Gendre, Lavergne & Panerai 1985, p.67, n.1; Lauret, Malebranche & Séraphin 1988, p.99).

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fig. 2.39: Plan of Tournay. (From: Lavedan & Hugueney 1974) Tournay was founded by the French crown in paréage with the count of Astarac in 1207. A centralized plan like this is rare among the bastides. Strangely enough, a rather similar town plan can be found in the Czech Republic: Nový Jičín (see fig. 8.7). The location of the church, just outside the actual town, is less rare, but in this case it was only built in the 19th century.
streets were distinguished as viae. In towns built on terrain with significant inclination, the primary (longitudinal) streets are mostly laid out in the least steep direction, while the secondary (cross) streets are steeper, sometimes even paved with steps.

As explained above in paragraph 2.5.1, many bastides were enclosed with a town wall later in their history. In most cases, the wall circuit was laid out in such a way that it was most convenient for defensive purposes and least expensive. This meant that not every street could end in a gate, so a selection had to be made of where to place the gates (usually there were four). This often meant that not all primary streets terminated in gates, and that sometimes secondary streets actually did. Since street frontage on busy streets was commercially important for shopkeepers, this generally meant that the value of property on a primary street decreased when it was blocked by a town wall, and that it increased on a secondary street which had direct access via a town gate.

Apart from the main streets and secondary streets, many bastides had back streets or alleys of about 1 to 3 m. wide. These served to give access to the back of the lots, and also functioned as sewers to drain the rain water from the back of the lots. These back streets and alleys appear in the documents as ruelle, ruelle, venelle or carreyrou. In many cases they were progressively built over and annexed by the owners of the neighbouring lots during the centuries, so that only fragments are left at present.

Not all bastides, however, had this distinction of different kinds of streets, if only for the fact that many had no more than one or two streets. Until the 18th century most streets in the bastides remained unpaved. Open sewers were often in the centre of the street, until gutters on the sides of the streets and sidewalks were introduced in the 19th century.

2.10.4.7 Market places

In towns of earlier periods, castles, monasteries or churches were the most common focal points of the settlement. In the bastides, however, the market place generally was the social, economic, symbolic and spatial centre of the town. From the prominent position and significant surface area of the market place in most bastides one can read the importance of trade for the creation of the towns. The symbolic importance of the market place is underlined by the fact that the foundation ritual with the pal was usually performed in the centre of the market place and that the municipal institutions would normally be sited on or at the place, as it is generally called in French.

Mostly, the market place was sited right in the centre of town. But if it was not, it was still most often the spatial centre in the sense that the main roads usually passed the place or even crossed there. In most cases it seems that the first houses of a new bastide were built on the market place, followed by houses on the main streets and subsequently on the secondary streets. Normally, the

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366 Lauret, Malebranche & Séraphin 1988, p.100.
367 Often they were 1 canne or 1 brasse wide, which is about 2 m. (Lauret, Malebranche & Séraphin 1988, p.99)
368 Divonne, Gendre, Lavergne & Panerai 1985, pp.56-57. In Villeneuve-sur-Lot, for instance, the back streets, after slowly being annexed, were completely turned over to the owners of the adjacent lots in 1845, after which their structure disappeared almost completely. (Lauret, Malebranche & Séraphin 1988, p.99)
369 Lauret, Malebranche & Séraphin 1988, p.100.
370 See pars.2.3.1 and 2.3.2.
371 Randolph 1994, p.300; see also par.2.6; Lauret, Malebranche & Séraphin 1988, p.101.
market place remained central for as long as there were no features in the landscape that impeded growth in all directions. When the town was not successful and remained very small or, later on, even shrunk, the few houses mostly remained concentrated on the place. (fig. 2.36)

Unlike the contemporary new towns of Wales, most bastides have real market places. In Wales, as well as in various other regions of Europe, the market was mostly held in a widened street, but this is relatively rare in the bastides. Some bastides have market places of irregular form, but often they are more or less rectangular, and many of these are nearly square.

The rectangular ones are mostly to be found in bastides with more or less regular grid plans. Amongst these some basic sorts may be discerned: fairly often part of a street block seems to be ‘cut out’ in order to create room for the market place (fig. 2.37), in a few cases this is done symmetrically on both sides of the main street (see figs. 2.25–2.27, 2.38), and many market places appear as though a complete street block is left open (figs. 2.20–2.22, 2.28, 2.33, 2.36). A special case of this last sort of market place is the one in which it is clear that it was not simply a random block left open, but where it can clearly be recognised as the actual core of the whole structure of the town plan. This is the case in Tournay, where the whole structure of lots sort of radiates from the square, with streets in a more or less square circuit around it. (fig. 2.39) This plan, however, is unique among the bastides. More often one may find the sort of plan like those of Damazan or Grenade-sur-Garonne, where the square market place appears to have been the basis of the plan, with four straight streets laid out along its sides and extending from it, most of the other street blocks being elongated rectangles instead of squares. These street blocks were made elongated in order to save on street space in favour of space for house lots. (figs. 2.14, 2.20 – 2.22, 2.40) From these cases, it appears that there was a preference for square market places.

In many bastides the market place is so large that it seems to be over-dimensioned in relation to the rest of the town. Often this appears to have been the result of an arrested or negative development of the

372 In Sainte-Foy-la-Grande, for instance, it seems that the relatively peripheral location of the market square within the pre-20th-century town was a result of the fact that the town could not grow in a northwesterly direction because the river Lot impeded this, while the tributary stream to the southwest of the town blocked growth in that direction. (see fig. 2.21)

373 In Rabastens-de-Bigorre even two blocks are left open. (see Lavedan & Hugueney 1974, fig. 346)

374 Among the bastides this plan is unique, but in Czechia two more or less similar plans can be found in the roughly contemporary newly founded towns of Nový Jičín and Vysoké Mýto. (see figs. 539 and 524 in Lavedan & Hugueney 1974 and fig. 8.7 in this study)

375 For a more detailed analysis of the plan of Grenade-sur-Garonne, see par. 6.3.1.
The houses that flank the market place often have upper stories that project over the public space, supported by arcades or posts. (fig. 2.4.2) It has often been assumed that these galleries, generally called couverts, were planned with the very origin of the towns, to enclose the market place all around. This is, however, a mistake that followed from the over-generalised traditional idea of the archetypical bastide. The couverts were only built later on, and were generally built separately by the individual owners of the houses.

In many of the larger bastides a market hall was built on the market place. (figs. 2.42, 2.46-48) Much like the couverts, however, they were often demolished in the 19th or 20th century. Most market places were also furnished with a well or a cistern and a market cross. In some bastides the church was built in the market place. More often, however, one may find the church on one of the sides along the place or in a corner just off the place.

As mentioned above, the market place was often sited at the highest point in the town. This is the case, for instance in Alan, Miramont-de-Guyenne, Libourne, Grenade-sur-Garonne and Bassoues. This is, however, a mistake that followed from the over-generalised traditional idea of the archetypical bastide. The couverts were only built later on, and were generally built separately by the individual owners of the houses.

In many of the larger bastides a market hall was built on the market place. Much like the couverts, however, they were often demolished in the 19th or 20th century. Most market places were also furnished with a well or a cistern and a market cross. In some bastides the church was built in the market place. More often, however, one may find the church on one of the sides along the place or in a corner just off the place.

A curious case is Albias. The charte (1287) of this town mentions, oddly enough, that the town was to have a market place in which annual fairs could be held. Usually this was just outside the town in a common field.
2.10.5 Architectural elements

In this paragraph the different sorts of buildings and defences that were originally built in or around the bastides will be briefly discussed. Unfortunately, not much is known about these original structures. The various functional types of architectural elements are treated in subparagraphs, ordered according to their general size, from great to small.

2.10.5.1 Town defences

As explained above, the general image of the bastides as being, originally, heavily fortified towns, is a misconception. At least a number of bastides were originally surrounded by simple ditches, possibly supplied by earthen banks with thorny hedges or wooden palisades. Later on, mainly in the 14th and 15th centuries, more and more bastides were being fortified with stone walls. The town community had to ask the lord of the town for permission to fortify it. If this was permitted, the lord would usually dedicate a specific part of his income from the town to meet the costs. When stone walls were built, it was more or less normal that the lord took care for the building of the gates (usually four per town), and that the community was responsible for the building of the walls.

Of the original ditches, earthen banks and palisades hardly anything has been preserved and, therefore, not much is known about their form. Many of the stone walls have been dismantled since the 18th century, but some of them have remained. At Cordes, Domme and Vianne a large part of the wall circuits is preserved, and at many other places smaller fragments remain. It is hard to make general remarks about the architectural form of the stone walls and gates, since there appear to have been a wide variety of forms. The walls generally were between one and two metres wide, generally were built of cut or broken stone or boulders, though sometimes they were (partly) made of brick. At the corners of the circuit, and on long stretches in between, there were wall towers of rounded or rectangular plan. The gates mostly had a rectangular plan with a low tower above.

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391 See par.2.5.1. Possible exceptions, however, were Cordes (founded 1222), Domme (1281) and possibly Monpazier (1284). These towns were walled relatively early in their respective lives. (Lauret, Malebranche & Séraphin 1988, p.131)
392 See par.2.10.4.2.
393 An important reason for the increasing defence works was the outbreak of the Hundred Years War in 1337. (see Trabut-Cussac 1954)
395 Trabut-Cussac 1954, pp.91, 96, 98, 102, 134; Lauret, Malebranche & Séraphin 1988, p.133; see also par.9.17.
396 Lauret, Malebranche & Séraphin 1988, p.133.
The subject of the outline form of the wall circuits has already been discussed above.397 The town gates were normally placed at the end of the main streets. Mostly there was a street or path along the inside of the wall circuit, but often it was gradually annexed by the owners of the adjoining plots.398

2.10.5.2 Castles

Some bastides were founded next to existing castles.399 Others were planned together with adjoining new castles or had a castle built next to them later on.400 Montségur (Ariège) for instance, was an old ‘castrum’ of the lords of Mirepoix, located on a hilltop. It is well known because the supposedly ‘last Albigensians’ were besieged there in 1243-44 by the armies of the French crown. After the castle had fallen, the community was relocated in a new bastide at the foot of the mountain, and the castle was rebuilt so that the bastide and the surrounding countryside could be controlled by the vassals of the crown. Similar transfers of power and settlements occurred in a number of other places where old castles had been conquered by the crusaders or the royal armies.401

In the chartes de paréage of a number of ‘English’ bastides the possibility is reserved for the king to build a castle in or next to the town.402 At Beaumarchès it even happened that two paréage-lords of the town both had a castle built near the bastide.403

It is hard to discern general characteristics typical for the castles associated with the bastides. Of course, the castles were preferably built on the best defensible site available: on a high point with steep sides, as at Montségur, or (partly) surrounded by water, as at Bellocq. When the castle was sited directly adjoining the town, it was most often at a corner of the town’s outline. (see fig.2.25)

2.10.5.3 Ecclesiastical houses

As with new towns of the same period in other parts of Europe, the bastides were preferably set up as distinct parishes, in order to make them into real social communities. But the existing religious institutions generally

397 See par.2.10.4.2.
399 For instance Cazals, Domme, Palaminy and Saint-Sulpice-le-Point.
400 For example, the castles of Molières, Beauregard and Eymet were built some decades after the town foundations. (Lauret, Malebranche & Séraphin 1988, p.137)
401 Lauret, Malebranche & Séraphin 1988, pp.135-136. Other examples are Roquefixade, Dun, Lagarde, Najac and Penne-d’Albigeois.
402 For instance at Pimbo, Saint-Gein, Montguilhem and Geaune-en-Tursan. (Lauret, Malebranche & Séraphin 1988, p.136)
were not eager to change
the existing ecclesiastical
organisation.404 In many
bastides, chapels would
be turned into parochial
churches only after many
years: in Créon for instance,
the chapel of 1320 became a
parish church only around
1500, and at Monflanquin
the 14th-century church only
became a parish church
after the small older church below the town had become a ruin in 1714. Many other bastides, however, would never
become distinct parishes. In some cases they even remained divided between two pre-existing parishes.405

A small number of bastides were centred on older churches with small settlements that were incorporated into them or re-structured. In Villeréal, for instance it is clearly visible that the new town incorporated a small rounded settlement which centred on a church.406 (fig. 2.44) In Lisle-sur-Tarn only the church of the older settlement, which appears to have been demolished in 1229, remained after the town was re-founded later on.407 Much the same happened in other towns, such as Vianne and Sainte-Livrade.

In most bastides the building of a church was undoubtedly foreseen with the foundation of the town. The 1325 charte de fondation of Saint-Louis in the Périgord actually mentions that the inhabitants were to be responsible for the building of a church, as well as other communal edifices such as bridges, wells and town walls. The construction of the church commonly only began some decades later, when the new settlement had proven to be more or less successful by actually attracting settlers. Especially between about 1280 and 1350, many churches and chapels were under construction.408 Before a real church was built, however, a small chapel built of wood may have already been standing in its place.409

The church building often served more functions than purely religious ones. Large public meetings were often held in the church. In Beaumont-de-Lomagne for instance, the consuls and other communal officials were chosen in the church every year on December 27. In some cases the church tower contained the town prison.410

Many churches also served as places of refuge when towns were threatened by hostile forces. In their early history, the bastides were still unwalled, and the church was about the only solid stone building, which made it

404 See par.9.18; Beresford 1967, pp.169-175.
405 As, for instance, in Labastide-Castel-Amouroux. (Lauret, Malebranche & Séraphin 1988, p.110)
406 The fortified church is from the 14th century, but most probably it replaced a predecessor. (Lauret, Malebranche & Séraphin 1988, p.305)
407 Lauret, Malebranche & Séraphin 1988, pp.119, 268-269, 292. Other examples of bastides founded at the locations of older churches (and settlements) are Saint-Ybars, Saint-Clar, Vianne, Sainte-Livrade, Saint-Sardos and Cazères.
408 Lauret, Malebranche & Séraphin 1988, p.119.
410 Lauret, Malebranche & Séraphin 1988, p.121.
the best place to seek refuge. Probably, it was also important that people believed that they would be most safe in the church because they were under God’s protection there. The fact that many churches were built with the secondary purpose of defence can be read from their architecture, which is solid and closed, and sometimes even with machicolations and loopholes. Most bell towers also served as watchtowers, since they were the highest buildings in the towns. The churches of Villéréal, Montjoie en Beaumont-de-Lomagne, for instance, were fairly heavily fortified. The church of Rudelle even looks like a stronghold rather than a church. (fig. 2.45) In Castelnau-de-Lévis, Labastide-de-Lévis and Lisle-sur-Tarn (among others) there are churches which have fortified towers. Many churches were, however, only fortified in the Hundred Years War.

As already mentioned above, there are cases where the church is located in the middle of the place. (figs. 2.24) In others it is located adjacent the market place (figs. 2.33, 2.35) and, particularly in bastides with regular grid plans, the church was often built in a block just off the market place, but visibly connected with it diagonally through one of the corners of the place. (figs. 2.13, 2.20, 2.21, 2.25, 2.40) In many cases, however, the church is located somewhat further from the place. Sometimes there is just one street block in between the two (figs. 2.11, 2.22, 2.27), but often the church was sited further towards the periphery of the town (figs. 2.10, 2.36, 2.37, 2.38, 2.39), most often somewhere along the main street.

Generally it is not known whether the location of the church was planned right from the outset of the creation of the town, but in many cases that may be assumed. An advantage of the peripheral locations was that there the church and the cemetery did not take up valuable space that could easily be rented out; in some cases, however, an additional motive may have been that in the periphery the church could better function as a defensive structure. In a number of towns there are fortified churches in the outline of the town, which may have been walled later on or at about the same time as the building of the church.

Quite often, the church was sited at the highest point of the town. This may have been the reason that the church was located at a specific place within the town, such as at the market place or in the periphery. In a number of cases, though, the church could be sited at the edge of the town and at the market place at the same time, when there was only one street block in between the two. This is the case, for instance, in Beaumont-du-Périgord and Montréal-du-Gers, which are both sited on narrow ridges with steep sides. In these places the outline of the town follows the relief, and therefore it has an elongated form, with the market place near to the outline. (figs. 2.14, 2.28)

411 Rey 1925, pp. 132-169; Laurent, Malebranche & Séraphin 1988, p. 121.
412 The chapel was built around 1300 for the lord of Lacapelle-Merleval, whose predecessor had founded the town about half a century before. The consuls of the town held the keys to the church, and there was a well in the building that served as a supply of drinking water. In 1639 the church still served as a place of refuge within the unwalled town. (Laurent, Malebranche & Séraphin 1988, p. 245)
413 Rey 1925, p. 138.
414 In 1354, for instance, the community of Trie-sur-Baïse (founded in 1235) received permission from the crown to fortify the church and the town itself, for which purpose a part of the royal revenues from the bastide were reserved. (Saint-Blanquat 1985, p. 124) The cathedral of Mirepoix was also turned into a defensive structure in this period, which led to a conflict between the consuls and the bishop over who had the right to hold the keys to the church. (Rey 1925, p. 130)
415 For instance, the location of the church within the town must probably have been planned right from the outset when the church was built adjacent to the market place, at the side or in the corner, since houses would have been built there otherwise.
416 See, for instance, the fortified churches at Rudelle, Montrun, Carcassonne, Sauveterre-de-Rouergue, Caudeconce and Cologne. Many other churches also lie in the outline of towns, whether or not they are part of the town wall, but are less evidently fortified: for instance Montréal-du-Gers (fig. 2.28), Beaumont-du-Périgord (fig. 2.14), Monflanquin (fig. 2.31), Castillonnes, Molières, Valence-sur-Baïse, Bellocq, Saint-Pastour and Monclar.
417 For instance in Réalière, Domme, Cordes (fig. 2.11), Beaumont-du-Périgord (fig. 2.14), Monflanquin (fig. 2.31), Cazals, Septfonds and Pampelonne.
It might well be that one of the motives for the siting of churches on locations where they were easily visible from outside the town, was to enhance their symbolic power. Not only did the church buildings give strength because of their solid stone walls, they were also revered for being the ‘house of God’. It was a taboo to damage a church or to harm people in it, and it could therefore provide some degree of protection even when it was not fortified. It is known from written sources concerning other towns that churches or monasteries were believed to provide protection to towns through divine intervention.418

When regarding the siting of churches within the structure of the bastide plans one should not only consider their location but also their orientation. According to liturgical tradition, churches had to be oriented east-west, with the choir to the east: literally ‘oriented’. Considerable deviations from this rule seem to have been acceptable, since most churches in general were only roughly oriented eastward.419 This is also the case with the churches in the bastides. In most instances it is impossible to determine why a church was oriented with a considerable variance from the east. In the bastides with regular plans, however, a clear distinction can be made between churches that are adapted in their orientation to the general orientation of the structure of the town plan. Such is the case in Sainte-Foy-la-Grande or Grenade-sur-Garonne (figs. 2.21, 2.22), which was more common, and churches that freely diverged from the norm in order to be oriented more accurately, as in Beaumont-du-Périgord (fig. 2.14), Saint-Pastour and Hastingues.420 It seems that in the one case spatial harmony was considered more important than liturgical prescriptions, while in the other case it was the other way around.

418 Haverkamp 1987, p.137.
419 See Price 1955, p.9.
420 For Saint-Pastour, Hastingues and Pavie, see Lavedan & Hugueney 1974, figs. 254, 256, 383. A remarkable case is the church of Montréal-du-Gers, which diverges from the grid of the town plan, following the edge of the plateau rather than the grid, even though this grid is more or less oriented. (see fig.2.28) The reason for this was to incorporate the side wall of the church into the defences of the town, which also follow the edge of the plateau.
Every parish had a cemetery, which often lay right next to the church. In many cases where the cemetery lay in the middle of a densely built settlement, as in Villeneuve-sur-Lot and Monpazier, they have been cleared in the 19th or 20th century to make room for parks or automobile parking spaces.421

In the chartes of several bastides it is mentioned that a hospital was to be founded in the new town, commonly to be run by a feminine religious order. Unfortunately no such early hospital has been preserved.422 Religious houses of other sorts, such as monasteries and friaries, eventually settled in many of the larger bastides. When a religious order was one of the founders of a town, it was usually explicitly stated in the charte de paréage that no other orders could settle in the town.423

2.10.5.4  Market halls and town halls

In many bastides a market hall was built within the market place itself. Often it would be an open structure with a large roof supported by pillars of wood or stone, standing right in the middle of the market place.424 In many cases the same building also housed spaces for communal and administrative use on the second floor, by which the building also formed a town hall or maison de consuls, as it was often called.425 Many of these halls were demolished in the 19th and 20th centuries. Of the ones that still stand, many are thought to be ‘medieval’, but actually they were only created in 16th to 18th centuries. In most cases it is likely, though, that they had predecessors from not long after the date of town foundation.426

It seems likely that the building of market halls was often foreseen with the planning of the town. In the coutumes of Revel (1342) the creation of a public market place was permitted along with the building of a market hall combined with town hall on it. Later on, though, when the hall was actually built in 1377, the community had to obtain a special dispensation to do it, for which 200 livres had to be paid to the sénéchal of the French crown. The hall also housed a prison, meat counters, grain measures and a small bell tower.427

The community of Réalmont only obtained similar permission for its hall in 1341, almost 70 years after the town was founded. The market hall of Grenade-sur-Garonne is one of the few that still largely dates from the 14th century. It is a quite large building, with 36 pillars of brick supporting a timber roof with a smaller timber frame town hall on the second to fourth floors.428 (fig.2.46) More or less similar structures were erected in other bastides, such as Cordes, where the present hall possibly still dates from 1353, and Villereal. (fig.2.47) It is not true, however, that this was a standard type that could be found in most bastides, as has been suggested in the past.429 Not all bastides had a market hall and, if they had one, it could have taken very different forms. Nor were they all built right in the middle of the market place. In the many bastides without real town halls, private houses, preferably located at the market place, would often be used for this purpose. From about the 15th

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422 Laur et, Malebranche & Séraphin 1988, p.113.
423 Saint-Blanquat 1985, p.46.
424 Laurent 1988, p.58.
425 Similar types of buildings with combined administrative and market functions can be found in northern and central Italy and also in Germany, Czechia and Poland, often also located in the middle of a market place. (See Pevsner 1976, pp.27-28; Gutkind 1972, p.272 and fig.3.15 in the present study)
429 Laurent 1988, n.7. See par.2.10.3.1.
century on, these were often turned into real town halls, commonly adorned with relatively rich decoration.\textsuperscript{430}

Especially remarkable are the market halls of Bassoues and Gimont, which stand right in the middle of the market place, seemingly not taking special notice of the fact that the main street passes through the centre of the market place, right through the market hall. (figs. 2.25-2.27, 2.48)

2.10.5.5 Houses

The newcomers to the bastides were responsible for the building of their own houses. Usually, they had to be erected within a year and a day from the agreement to settle in the town.\textsuperscript{431} In Monségur, Sauveterre and Saint-Osbert the requirements regarding the construction of the houses were further specified: in the first year at least a third part of the house had to be completed, in the second year another third had to be built, and for the rest the owners were free to act as they wanted.\textsuperscript{432} In the case of a number of bastides founded by the English crown in the region of Bazas, the stipulation was much the same, but here it was specified that the facade had to be built in the first year.\textsuperscript{433} If the owner failed to meet these requirements, a fine had to be paid or the house lot would revert back to the founder of the town. In some of the foundations in the sénéchaussée of Toulouse it was stipulated that the value of the houses to be built had to be at least 60 sous parisis.\textsuperscript{434} It is likely that in most cases the settlers built the houses themselves. If they moved in from nearby, they could reuse the materials that came from the demolition of their old houses.

Usually, the houses were initially built of wood or of a timber frame filled in with wattle and daub or mud brick. Later on, these were largely replaced by stone buildings.\textsuperscript{435} The old houses that presently can be found in the bastides are mostly only of a second or third generation, so it is hard to tell anything about the form of the very first houses or the form that might have been intended by the planners. The positioning of the houses, however, mostly seems to be more or less as originally intended: they were built at the front of the lot, with the façades forming a more or less closed street line.\textsuperscript{436} The rare houses of the 13\textsuperscript{th} and 14\textsuperscript{th} centuries that can still be found in some bastides all have stone walls, since the houses of less durable materials have all perished. (fig. 2.49) Since these stone houses were relatively expensive they do not provide us with an accurate impression of the average house, which surely had a more humble character. An exceptional stone house, which seems to give a more true impression of the size of the average house in the 13\textsuperscript{th} and 14\textsuperscript{th} centuries, is preserved in Montcabrier.\textsuperscript{437} (fig. 2.50)

Usually, the settlers were permitted to take building materials such as wood, sand, clay, thatch and stone from certain parts of the domain of the founder, in order to decrease the costs of building a new house, thereby making it less expensive for the new settlers to move to the town.\textsuperscript{438} In some bastides the chartes stipu-
lated obligations as to certain architectural elements of the houses. In Bruges, for instance, settlers were obliged to build the facades of their houses out of stone. In other cases, such as Revel, it was left to the consuls to see to the form of rainwater conduits, dormers, windows and other openings in the facades.439

A basic distinction can be made between two kinds of houses: those with the roof-ridges parallel to the street, and those with the ridges at right angles to it. This distinction has nothing to do with the form of the house lots, but is mainly determined by the building tradition of the region. In the northern part of the area where the bastides were built, that is to say in Périgord, Quercy, Rouergue, Agenais and Landes, the type with the ridge at right angles to the street predominates, while the other type is prevalent in the south.440

Narrow alleys of about one foot wide, called andrones, generally separated the houses with the ridges at right angles to the street, so that the water from the roofs could drip down into the alleys and be carried away. Such andrones may sometimes also be found with houses that have the ridges parallel to the street. Here they seem to have served, among other functions, to prevent the rapid spread of fires.441 At present, many of the andrones have disappeared, having been annexed to one or the other lot with the extension or rebuilding of houses.

As already pointed out above, the houses along the market places often have upper stories that project over the public space of the place or the streets that surround it. These so-called couverts442 are supported by arcades, columns or posts. Contrary to common belief, the couverts were generally only built long after the towns were founded, and were mostly built separately by individual owners in front of their own houses.443 This can be clearly seen, for instance, in Monpazier, where the couverts of different houses have rather different architectural forms, or in Molières, where only one house on the square has a gallery projecting over the street. (figs. 2.42, 2.51) In most bastides special permission was required to build a couvert, and commonly an extra rent had to be paid. To meet the costs, the renter could hire out market stands in the covered space.444 In later bastides, such as Revel (1342), the building of couverts was foreseen in the coutumes: the owners of the houses on the market place were allowed to build a galerie couverte as long as it would not hamper the flow of traffic.445 Many of the couverts were demolished in the 19th and 20th centuries, especially the ones in the corners of the squares, in order to create more room for traffic.446

Usually the founder of the bastide, who previously had owned the land, reserved one or more house lots for his own use. For instance, with the foundation of Lubret-Saint-Luc, by the French crown in paréage with the local lord, Bernard de Castelbajac, the latter was granted the right to take up two lots on the market square and two more wherever he wished. This foundation proved to be a failure, but in other bastides one may find lordly houses that cover more than one of the standard plots, built in stone and often with exterior elements that reflect their noble stature, like stair towers and machicolation. Often, the local representative of the lord, the baile, resided there.447 Mostly, however, these buildings were only from a second or later generation.

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439 Lavedan & Hugueney 1974, p.74; Doumerc 1976, p.178. Stone facades were also mandated by the charter of the Florentine new town of Giglio Fiorentino. (see par.3.9.3.5)
442 The term couvert is generally used at present; in sources from the 14th and 15th century the projecting upper stories are sometimes called ambona or projecta. (Teyssyere 1988, p.5)
445 Doumerc 1976, p.179.
446 Lavedan & Hugueney 1974, p.93.
447 Laurat, Malebranche & Séraphin 1988, p.96.
2.10.6 Spatial structures of extra-urban town grounds

Studying the areas directly surrounding bastides from plans or aerial photographs, one sometimes finds a land division there which looks as though it is directly connected to the allotment of street blocks in the cores of the towns. Examples of this can be found at Grenade-sur-Garonne, Saint-Denis, Cologne, Revel, Sauveterre-de-Rouergue and Plaisance-du-Gers.448

As already mentioned above, settlers of bastides often received not only a house lot, but also agricultural plots: a garden lot (ort or casal), situated at the periphery of the town, and arable land (arpent) commonly sited further away. And in many bastides the settlers also received a piece of vineyard.449 In some cases it is known from the chartes de paréage or the coutumes what the intended sizes of these lots were.450

Scholarly attention has been focused on these rural allotments only relatively recently, particularly in the work of Jean-Loup Abbe and Cedric Lavigne. They argue that scholarly attention has been concentrated too much on the urban structure of the bastides, at the cost of consideration of the rural land division which, in their opinion, is an integral part of an all-over structure.451 According to these and other scholars, the

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448 For Cologne, Revel, Sauveterre-de-Rouergue and Plaisance-du-Gers this can be seen in the topographical maps of the Institut Géographique National, Série bleue 1:25000 or on aerial photographs on http://maps.google.com/. The cases of Grenade and Saint-Denis will be dealt with below.

449 Abbe 1997, p.310. In the bastides of Puybegon and Sainte-Gemme the tenants received even more pieces of land, as they were also provided with a field of meadowland. In Plagne the settlers received a plot of woodland in addition to house lot, garden and arable. But there are also bastides where the settlers were given only a house lot and a garden plot. (Abbe 1997, p.311) This was planned, for instance, for 1000 of the 3000 intended settlers of Grenade-sur-Garonne. (Lavigne 1996, p.192)

450 This information, concerning 16 bastides, is reproduced in the table in Abbe 1997, p.311. Concerning house lots, many more dimensions in different towns are given in appendix C of this study.

structure of streets, blocks and house lots in the more regular bastides may well be the result of the way the surrounding land was parceled out for agricultural use.452

Their case is built on a small number of specific examples, of which Grenade-sur-Garonne and Saint-Denis-de-Saissac are the most important. The act of paréage for Grenade, accorded in 1290 between the abbot of the Cistercian abbey of Grandselve and Eustache de Beaumarchais (acting as sénéchal of the French crown), states that the bastide grounds were to contain 3,000 house lots, 3,000 garden plots and 2,000 fields of grainland. The standard house lot measured 5 x 15 brasses (which is about 8 x 24 m., costing 5 denier toul. rent a year); the garden measured a quarter of an arpent (costing 3 d.); and the field had a surface of one arpent (10 d.).453

In the present-day situation the lines of the streets, which are spaced 55.05 m. apart, extend over one kilometre NNW and over two kilometres SSE of the built-up area of the town.454 (figs. 2.52-53, cf. fig. 2.22) According to Lavigne and several other authors, these lines are the dividing-lines between the original plots of arable land. From this they conclude that the plots for the houses, the gardens and the arable land were allotted following the same over-all structure.455

In my opinion however, this is only partly true. The land immediately north and south of the town must have been (at least partly) intended for house lots that were never occupied, since there is only room for about 750 house lots of the reconstructed original size within the outline of the town as it is presently known.456 The area of the town as it was originally planned, with 3,000 house lots, must have been about four times as large. According to Lavigne, the foundation of Grenade was planned to cover at least 1,635 ha.: 71 for the town itself, 427 for gardens and the rest for the fields.457 It is clear that the regular allotment along the lines extending north and south from the town covers an area which is far greater than the 71 ha. built-up area of the town as it was planned; but the area is considerably smaller than the originally foreseen 3,000 house lots and garden lots together.458

Since the garden lots were usually situated closer to the built-up area of the town than the fields of arable land, it seems logical that it was the garden lots rather than the fields that were planned in this structure that corresponds to the structure of the town proper. Therefore, house lots and some of the garden lots were most probably planned and laid out within the same grid-structure; arable fields, however, do not appear to have been allotted correspondingly.
larly of the plan structure and documents strongly suggests that the original plan was based on uniform sizes for house lots, garden lots and fields.\footnote{Abbe 1995, pp.109, 112.}

It is not known how large the town was planned originally. However, having the case of Grenade in mind, one should be very careful about making assumptions as to how many of the blocks of the orthogonal allotment around Saint-Denis were planned for house lots, gardens or fields. Grenade was planned on a scale that was far too ambitious and this may also have been the case with Saint-Denis.\footnote{Abbe 1995, pp.112-113} Therefore, this is not correct. The allotment of the fields around Saint-Denis is very uncommon, since square fields and roads surrounding every field are highly unusual for the division of agricultural structure.\footnote{Abbe 1995, pp.116-118} In my opinion, however, the orthogonal structure covered about 150-180 ha. (Abbe 1995, pp.112-113) Therefore, either his plan must be wrong, or he exaggerates the surface of the allotment. The total area that originally belonged to the bastid structure measured c.575 ha. according to Abbe.\footnote{Abbe 1995, pp.113-116, 118.}

The plan shows that the original number of blocks may have been at most 14 x 14, which is a maximum of 196.\footnote{Abbe 1995, pp.112-113} If this allotment was meant for house lots and garden lots only, the town would have probably intended for about 625 households at most.\footnote{Abbe 1995, pp.113} If it was also meant to include the fields, the town may have been planned for around 130 households.\footnote{Abbe 1995, pp.113-116, 118.}

According to Abbe, the squares and rectangles beyond the built-up area of the town must have been planned as agricultural fields, and he interprets the overall structure as a rural allotment rather than as an urban structure.\footnote{Abbe 1995, pp.113-116, 118.} In my opinion, however, this is not correct. The allotment of the fields around Saint-Denis is very uncommon, since square fields and roads surrounding every field are highly unusual for the division of agricultural structure.\footnote{Abbe 1995, pp.113-116, 118.} In my opinion, however, this is not correct. The allotment of the fields around Saint-Denis is very uncommon, since square fields and roads surrounding every field are highly unusual for the division of agricultural structure.\footnote{Abbe 1995, pp.113-116, 118.}

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More or less similar situations can be found in some other bastides, but commonly the extending structures are less easily recognisable and cover smaller areas.\footnote{Abbe 1995, pp.106, 113-116, 118.} At Barcelonne-du-Gers (founded 1316) there is a larger...
regular structure of fields of arable land to the southeast of the town, which actually has more or less the same orientation as the orthogonal structure of the town itself. But here the dimensions of the fields show no correspondence to the street blocks in the town.

The few bastides that show such a correspondence in structure between the actual town and the surrounding area seem to have made a deep impression on present-day students of the bastides. The historian Jaques Heers, for instance, writes that the Cistercian bastides were mainly focused on the agricultural economy, and he concludes this on the ‘evidence’ of the correspondence of urban and rural allotment: ‘The streets, which are very wide in order to make it possible for carts to pass each other, stretch out into the countryside, which is cut up into geometrical blocks, thereby securing a true taking into possession of a vast area, inseparable of the built-up area.’ This is a great exaggeration, however.

It must be kept in mind here that the foundation of a bastide was not necessarily accompanied by a new distribution of agricultural land. In fact, many bastides were founded to congregate people already living in the nearby area and already having their fields there.

Notwithstanding that fact, there are various scholars who regard the structure of the streets, blocks and lots in the bastides as though it is influenced by the way land was parcelled out for agricultural use. Berthe, for instance, argues that the perception of the rural field division as an extension of the plan structure of the town – as in the above quotation from Heers – could just as well be turned the other way around. In my opinion, however, both rural and urban allotments may follow the principle of regular orthogonal order for conceiving an easily comprehensible and useful division of space; but that does not mean that the one allotment lay at the basis of the existence of the other. In this respect one should consider that many ancient buildings also had a regular orthogonal structure, but that their plans did not develop from agricultural field divisions or urban allotments, nor was it the other way around.

It must be noted that by far most of the bastides with regular orthogonal plans do not show any formal similarity to the layout of the surrounding rural field structures. Indeed, in most cases the field division around bastides is not very regular at all. Consequently, it appears unlikely that the layout of the many bastides that have regular orthogonal plans would generally have been influenced by the allotment of agricultural fields.

### 2.11 Conclusion

Many new towns were founded in southwestern France in the 13th and 14th centuries. Apart from the sauvetés and castelnaux, which were for the most part created in an earlier period, at least 350 towns were created that have come to be known as bastides. These creations were not all successful, but all in all it may be concluded that the bastides have largely determined the present pattern of settlement of the region.

That being said, however, the bastides do not form a very homogeneous group. They were founded by many different lords, unlike the groups of towns treated in the preceding and following chapters, and were given many different layouts, unlike the archetypical image of them that has often been presented. The main discriminating features that set them apart as a group are the facts that they are (1) newly founded market towns, (2) in southwestern France, (3) in the period between about 1230 and 1350.

There is also a great variation in the size of the bastides. Originally, some were meant for about fifteen families, whereas others were meant to become relatively large towns housing up to 3,000 families. This variation is even stronger in the present. Various bastide foundations failed completely, having left hardly any traces in the landscape; while others have become towns of substantial size. Villeneuve-sur-Lot and

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469 See Lavigne 1996.
470 Another problem for this case is that the area with this field allotment does not actually reach up to the occupied area of the town. It begins only about 200 m. southeast of the place where the structure of the ancient moat can be recognised in the 19th-century cadastral plan. (cf. aerial photograph on http://maps.google.com/ and Lavedan & Hugueny 1974, fig. 389)
471 Les rues, très longues pour permettre le passage de charrues, se prolongeaient dans le campagne qu’elles découpaient en blocs géométriques, assurant une véritable prise de possession d’un vaste district, nécessaire de l’agglomération’. Bastides that were founded with military motives, on the other hand, can be recognised, according to Heers, by the street lines that end at the edge of town. (Heers 1990, p. 107). This misinterpretation stems from Higounet’s original work (1975, p. 272), but is strongly enlarged.
472 See above, n. 468.
473 In principle, it is also possible that there was no organised distribution of new agricultural land, since the founders of new towns could have had the hope that their foundation would develop a really urban economy, without the need for much agricultural land. This seems to have been the case with Grenade, at least for a third of the intended number of settlers. (see above in this paragraph).
474 Berthe 1986, p. 10. Abbe and Lavigne are of the same opinion (Abbe 1995, p. 118; Lavigne 1996, p. 162), and Randolph also considers the possibility. (Randolph 1998, p. 302)
475 For instance, this is to be seen in aerial photographs: Fleurance (Erlen 1992, p. 231, Luftbild 3), Saint-Louis, Beauchatot (Higounet 1975, pp. 260, 280), Saint-Pastour (Diverne, Gendre, Lavergne & Panerai 1985, p. 17), Sauvetere-de-Guyenne, Monflanquin (Lauret, Malebranche & Stéphan 1988, figs. 208, 209), Villefranche-de-Rouergue, Castillonnes, Villéral (Calmettes 1986, pp. 50, 125, 130) and Mirande (Guidoni 1992, pp. 121, 133). Many other examples can be seen in aerial photographs of the region published on the Internet (see for instance http://maps.google.com/).
Libourne, for instance, have populations of over 20,000 inhabitants. Most bastides however, are small towns or villages with a rural atmosphere. In fact, they also seem to have been planned as such, at least in the sense that their original function was mainly agricultural.

There is also a variation in the motives behind the creation of the bastides. It has often been assumed that they, and particularly the bastides of the king-duke and the French crown, were mainly founded with military tactical motives in mind. This appears, however, to be a misinterpretation, largely based on the fact that many bastides were surrounded by town walls and lay in areas that were heavily contested, for which reason they have come to be regarded as fort-towns. But the town walls and the military hostilities mainly stem from about the second quarter of the 14th century onward, long after most bastides had been founded.

The motives for the foundation of most bastides appear to have been primarily of economic character. That is not to say that territorial and political strategy did not play a role. It is a fact that bastides are relatively often sited in border areas between different lordships, the rights to which were not clearly defined. Many of these seem, at least in part, to have been created in order for the founding lord to enlarge his territory or to gain specific rights over the area by appropriation. Many bastides were founded in paréage between a local lord and a mightier lord of higher stature. In these cases the higher lord also gained rights and income over ground where his influence had previously been limited, in exchange for protection by his jurisdictional and military power. Other motives for bastide foundation were to provide protection to travellers on impor-

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476 For numbers, see Calmettes 1992.
tant regional roads and to inhabitants of an area against brigandage, to create administrative centres, or to increase the effectiveness of taxation.

Bastides were generally founded because landlords sought to increase the income from their land, by having it cultivated more intensely. Agriculture was the core business of most of the bastides, and most of them were explicitly founded with that idea, as were many towns elsewhere in Europe. Landlords sought to make their land more profitable, if possible in a monetary form, and tried to do this by stimulating a more ‘modern’ form of agriculture, producing for the market, which could then be better incorporated into an inter-regional economic system. Instead of keeping land to themselves, they found that it would be more profitable if it was rendered to free farmers in hereditary tenure, in return for a relatively low rent. With this, they hoped that production would rise and that the circulation of capital would intensify, so that they would increase their income from it by way of rents, taxes and tolls. In particular, wine was a product that increasingly found its way to the international market, and it seems that its production was purposely stimulated by the foundation of bastides.

Trade was centralised in markets, and people were grouped together in compact settlements surrounding the market places, so that there was a clear spatial order - mirroring the legal order as laid down in parages and coutumes - which would be easy to survey. Inhabitants from older settlements at the site were offered new settlement contracts and new settlers were attracted. All this was mainly motivated by the ambition to maximise the returns on the land by intensifying its agricultural use and taxing the yields more efficiently.

This development is an integral part of the European economic evolution in the period of about the 11th to 15th centuries. It did not just concern the bastides and the contemporary newly founded settlements elsewhere in Europe, but also earlier phenomena, like the sauvetés or castelnaux, and, in the period of the bastide foundations, it also affected other existing forms of settlement. It is a fact, however, that in southwestern France the consequences for the settlement pattern were more thoroughgoing than in most other regions in Europe, because here the pattern was altered more drastically in a relatively short period of time.

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477 Erlen 1992, esp. pp.9-10; Bartlett 1993, pp.106-167; Duby 1978. See also par.0.1.4.
479 There are some other regions, however, where the consequences for the present settlement pattern, by reclamations and foundation of towns and villages, were about just as great. It concerns among others Holland, the Po-valley in northern Italy and various areas in central-eastern Europe.
3 THE FLORENTINE TERRE NUOVE

The third and last group of new towns from the high-period of town foundation that will be dealt with in this study are the so-called Florentine new towns, or terre nuove fiorentine. As is suggested by the term, these towns were founded by the government of the city-state of Florence. This chapter will particularly focus on six towns that were founded in the late 13th and the first half of the 14th century.

In Tuscany, new towns were founded at least since the early 12th century. Their founders were feudal lords, monasteries, bishops and, unlike nearly all of the rest of Europe, governments of older cities.1 The Florentine new towns of the late 13th and first half of the 14th century form an especially interesting group among these, because they are comparatively well documented, relatively homogeneous in function and layout, and are distinctive in the way they were designed.

In the present chapter the main concern will be with six towns that were founded by the Florentines between 1299 and 1350: Castelfranco di Sopra and San Giovanni Valdarno (both founded in January 1299 in the Valdarno di Sopra, about 30 km. southeast of Florence); Scarperia (1306, in the Mugello valley, c.25 km. north of Florence); Firenzuela (1332, in the Apennines, c.40 km. north of Florence); Terranuova Bracciolini (1337, again in the Valdarno di Sopra, c.30 km. southeast of Florence); and finally Giglio Fiorentino (1350, in the Valdambra, c.45 km. southeast of Florence). (fig.3.1)

The Florentines had founded other new towns earlier, and even founded some others in this same period, but these are less interesting in the present context, since they are less well documented and the history of their origin is rather obscure, or the projects were aborted at some point and their original layouts were lost.2 Some of these towns will be touched on, however, in the margins of the following discourse.

The six above-named terre nuove fiorentine are relatively well preserved, compared to most other new towns of the period. This is true of both their physical form as well as the written sources concerning them. Giglio Fiorentino was founded, but soon the project was aborted and the town was never actually built. Despite that, some valuable and extraordinarily detailed documents have survived regarding its foundation and planned form. Indeed, the historical documentation regarding the creation of the terre nuove may be among the most complete of any new town of the high-period of town foundation.3

Since the terre nuove and the documents related to their creation are relatively well preserved and, as such, they are particularly interesting objects of study. Therefore, they are already relatively much discussed in the scholarly literature.4 In this literature, however, there are various controversies, not only in approach and vision, but also in the information that is presented. In particular, there is a great deal of disagreement on the subject of the method by which the plans of the towns would have been designed. This problem will be dealt with in chapter 6; in the present chapter the history of the foundation of the terre nuove and their forms will be described.

3.1 Introduction: geography and history

Tuscany, the Roman province of Tuscia (or Etruria), broadly lies between the ridge of the Apennine mountains in the north and east (with altitudes up to c. 2000 metres), the lakes of Trasimeno in the southeast and Bolsena in the south and the coast of the Tyrrenian and Ligurian seas in the southwest and west. (fig.3.2)

The landscape is varied, from bare mountains in the north, tree-covered mountains in the east, a flat coastal plain in the southwest, and different kinds of hilly landscapes in between. Most of the region belongs to the

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1 See Cortese 2004. New towns founded by city-states were not exclusively Tuscan, but are typical for northern and central Italy.
2 See below, par.3.3.
3 Friedman 1988, p.5. It is quite possible, however, that there is yet more complete documentation to be found or to be published on other new towns of the same period elsewhere. In particular, Eastern Europe or Spain may be fruitful areas in which to search. Regarding the terre nuove fiorentine, relatively many of the ancient written sources have been studied and published. This is largely due to the fact that Florence is regarded as the ‘birthplace of the renaissance’, for which it has been disproportionally thoroughly studied by historians over several centuries.
4 Richter and Higounet published articles that particularly discuss the Florentine foundation policy. (Richter 1949; Higounet 1964) Friedman linked the founding history of the towns to the design of their plans. (Friedman 1974) Moretti wrote a general historical booklet about the terre nuove and Van den Heuveld published an article in which various problems regarding the planning are highlighted. (Moretti 1980; Van den Heuvel 1983, pp.35-44). In 1988, Friedman published the most complete and profound study into the subject, Florentine New Towns. Urban Design in the Late Middle Ages. (Friedman 1988) The papers of the terre nuove congress of 1999 contain various articles on different aspects of the subject. (Various Authors 1999; Friedman & Pirillo 2004) There are also many publications in which the terre nuove are discussed in a wider context. For instance, Guidoni offered suggestions as to how their town plans were designed in a book on Tuscan architecture in the 13th to 14th centuries, and various authors wrote small articles in a book devoted to Arnolfo di Cambio, the supposed planner of some of the terre. (Guidoni 1979; Bartoli 2003)
drainage basin of the river Arno, while the south of the province feeds the river Ombrone. In the valleys and on the hillsides one finds the most fertile land, on sandy and limy clay soils. Since the climate is also good, Tuscany is one of the most fertile areas of Italy. Many of the best wines of all Italy are grown here, while grains, mulberry trees for silk production and olives (these last two in past centuries, but hardly any more at present) were also grown in large quantities. The mountains and the coastal plain of the Maremma, meanwhile, are well-suited for pasture.

From about the 9th to the 5th century B.C. the Etruscans held the region, but it was gradually conquered by the Romans. The Romans founded various towns. In the heart of the region, in the middle valley of the Arno, the colonia of Florentia was founded around 59 B.C. It was founded at the site of an earlier Italic settlement, where the Roman Via Flaminia, which connected Rome to the north, crossed the river. Since then, Florentia (Firenze in Italian, Florence in English) has been the main economic and political centre of Tuscany.

Unlike most of the rest of Europe, urban culture did not completely vanish in Italy during and after the time of the ‘barbaric invasions’ (4th to 6th centuries). Although the city and its civilisation were heavily damaged during successive invasions of different peoples, there is a thread of continuity that links Roman Florentia to its revival in the period around the 11th century. According to tradition, the city-republic was founded in 1115, when the city declared itself independent of its nominal lords, the emperor and the margrave of Tuscany.

From about the 10th century on, Florence gradually grew in population, size, power and wealth. Despite its lack of immediate access to the sea, it came to play an extraordinarily important role in international trade, foremost in textiles, and from about the 13th century on also in industry and banking. Florence's power and importance generally outweighed that of other Tuscan cities of Roman origin, such as Pisa, Lucca, Pistoia, Arezzo and Siena, which were eventually all dominated by Florence.

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6 Davidsohn 1956, vol.I.
7 Only Pisa, profiting from its maritime location, was able to equal and exceed Florence's power during certain periods of time between the 10th and 14th centuries.
3.1.1 Florence and the countryside

For its prosperity and security Florence was highly dependent on its control over the countryside. The city needed the surrounding rural region for its supply of food products, raw materials for crafts and industries, and even a significant part of its tax money. The Florentines considered the surrounding region as legitimately belonging to the city, since the area had previously belonged to the city during the Roman era, as its comitatus. This region was called the contado Fiorentino. Just like other contemporary Italian city-states, Florence did not control the surrounding area continuously. In the period of Lombard rule (568-774) the contado was separated from the city because the rulers gave the area in fief to their feudal vassals, in exchange for the latters’ sworn allegiance and support. In the following centuries, subsequent Florentine administrations did their best to get the region back under control again. This was strongly opposed, however, by the landed nobility, which had come to regard the land as its own dominion since the Lombard period.

The Florentine administration used a number of different methods to reconquer the contado. The peaceful way seems to have been the most successful. Large and small pieces of land were acquired by purchase, leases, donations, seizure or by concluding agreements in which landlords, whether or not of noble stature, and village societies submitted to the jurisdiction of the comune of Florence. In this way the land was, to a certain extent, implicitly extorted from the authority of the feudal lords. Noble lords were forced to take up residence in the city for a specified number of days per year. In exchange they were granted citizenship. This did not automatically mean, however, that they became loyal citizens.

The word ‘peaceful’, as a qualification for the method of territorial extension, must not be taken too literally, however. According to the Florentine chroniclers and the submission contracts themselves, the so-called ‘atti di sottomissione delle comunità rurali e dei signori locali’ (‘acts of submission of the rural communities and local lords’) were important milestones in this process.

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8 According to Richter, the unity of city and countryside may even be considered the main characteristic feature of the Italian cities in general from about the 11th to 15th centuries. (Richter 1949, pp.351-386, 351)
9 Friedman 1988, p.39. In the period when the city no longer ruled the contado, the boundaries of the area were still relevant as borders of the clerical administrative districts of the dioceses. The division into dioceses was based on the worldly administrative districts of the early Christian era, and hence the dioceses were largely conterminous with the ancient comitati, the later contadi’s. (Ennen, 1972, p.32)
10 Richter 1949, p.351. Particularly after the banishment of the Ghibelines from the city in the late 13th century (see par.3.2.1), much of their land was seized by the city administration.
11 Davidsohn 1962, vol.IV, pp.338-364; Fabbrini 1980, pp.284-287, 286. Submissions of rural communities to the city-state were not uncommon in this period. The advantages to the rural population could be: better protection from plundering, liberation from old feudal bonds to other lords, and tax exemptions of five to ten years as reward for submission.
12 Gutkind 1969, p.73; Friedman 1988, p.40.
ties and local lords’), the acquiescence happened on voluntary basis or even on the initiative of the communities and lords of the countryside. But this was often not the truth. Many times, the city-state applied more or less gentle force against the feudal lords and the comunità rurali, which often had barely wrested themselves from the rule of the old feudal lords.

Apart from this peaceful method there was also a military one. When a landlord offended the city-state of Florence or its citizens, that might sometimes provide an excuse to launch a military campaign against the offender. In this way, various lords of the landed nobility were driven from their land, after which their land was seized and their castles were torn down. The comune subsequently ensured its continuous dominion over the land by garrisoning a stronghold in the area.

This process had started around the late 12th century. At the end of the 13th century, Florence had brought a large part of its contado back under its effective control. The last pieces of the territory, however, appeared to be the hardest to conquer. In the next paragraph it will be explained that this was largely due to severe political conflicts. In particular, near the borders with other larger territories (mainly the contado’s of other cities), the land was under the control of some very powerful and persistent noble families. Because their lands were relatively far away from the city, they managed to retain their power over the land and the population for a relatively long period. In this, they also profited from the competition between the various cities, which often disputed with each other the boundaries of their territories. (fig. 3.3) In particular, the families of the Pazzi, Guidi and Ubertini in the Valdarno di Sopra, to the southeast of Florence, and the Ubaldini in the Mugello valley and the Apennine mountains, to the north of the city, were very tough adversaries of Florence.

3.2 Origins: the decades preceding the creation of the terre nuove

3.2.1 The political situation in Florence in the late 13th century: Guelphs and Ghibellines

In the 13th century, Florentine politics was dominated by an internal struggle between the two factions of the Ghibellines and the Guelphs (Ghibellini and Guelfi). In fact, the conflict between these two parties dominated politics in many areas of the Holy Roman Empire in the 12th to 14th centuries. The discord often led to armed conflicts, and sometimes even great battles. The precise nature of the conflict varied by region and period, but for central and northern Italy the main difference was that the Guelfi supported the pope, and the Ghibellini the emperor in their political ambitions. This was, at least, nominally the case; but often the true content of the conflict was much more of a regional-political, or even of a familial or personal, character.

Florence lay in the boundary area between the imperial and the papal territories. In principle, it was part of the Empire, but in reality it was more or less politically independent, and the amount of influence exercised on it by the emperor or the pope changed all the time, largely being dependent on the military threat or the other one could exercise. With this influence, the power of the two factions varied as well.

Both the Guelfi and the Ghibellini originally were noble factions. But in Florence a significant and ever clearer difference emerged between the economic positions of the parties: the Ghibellini formed the landed nobility, which based its power and wealth on its possessions in the contado, while the Guelfi were ever more economically dependent on trade in the city, more and more becoming the party of the rich merchants. Hence, the economic interests of the factions were quite different. The Guelfi were willing to defend the interests of the city above those of the countryside: they wanted to invest in the city and make the countryside serve its welfare, at borrowed funds. But this was often not the truth. Many times, the city-state applied more or less gentle force against the feudal lords and the comunità rurali, which often had barely wrested themselves from the rule of the old feudal lords.

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In the 13th century, Florentine politics was dominated by an internal struggle between the two factions of the Ghibellines and the Guelphs (Ghibellini and Guelfi). In fact, the conflict between these two parties dominated politics in many areas of the Holy Roman Empire in the 12th to 14th centuries. The discord often led to armed conflicts, and sometimes even great battles. The precise nature of the conflict varied by region and period, but for central and northern Italy the main difference was that the Guelfi supported the pope, and the Ghibellini the emperor in their political ambitions. This was, at least, nominally the case; but often the true content of the conflict was much more of a regional-political, or even of a familial or personal, character.

Florence lay in the boundary area between the imperial and the papal territories. In principle, it was part of the Empire, but in reality it was more or less politically independent, and the amount of influence exercised on it by the emperor or the pope changed all the time, largely being dependent on the military threat or the other one could exercise. With this influence, the power of the two factions varied as well.

Both the Guelfi and the Ghibellini originally were noble factions. But in Florence a significant and ever clearer difference emerged between the economic positions of the parties: the Ghibellini formed the landed nobility, which based its power and wealth on its possessions in the contado, while the Guelfi were ever more economically dependent on trade in the city, more and more becoming the party of the rich merchants. Hence, the economic interests of the factions were quite different. The Guelfi were willing to defend the interests of the city above those of the countryside: they wanted to invest in the city and make the countryside serve its welfare, at borrowed funds. But this was often not the truth. Many times, the city-state applied more or less gentle force against the feudal lords and the comunità rurali, which often had barely wrested themselves from the rule of the old feudal lords.

Apart from this peaceful method there was also a military one. When a landlord offended the city-state of Florence or its citizens, that might sometimes provide an excuse to launch a military campaign against the offender. In this way, various lords of the landed nobility were driven from their land, after which their land was seized and their castles were torn down. The comune subsequently ensured its continuous dominion over the land by garrisoning a stronghold in the area.

This process had started around the late 12th century. At the end of the 13th century, Florence had brought a large part of its contado back under its effective control. The last pieces of the territory, however, appeared to be the hardest to conquer. In the next paragraph it will be explained that this was largely due to severe political conflicts. In particular, near the borders with other larger territories (mainly the contado’s of other cities), the land was under the control of some very powerful and persistent noble families. Because their lands were relatively far away from the city, they managed to retain their power over the land and the population for a relatively long period. In this, they also profited from the competition between the various cities, which often disputed with each other the boundaries of their territories. (fig. 3.3) In particular, the families of the Pazzi, Guidi and Ubertini in the Valdarno di Sopra, to the southeast of Florence, and the Ubaldini in the Mugello valley and the Apennine mountains, to the north of the city, were very tough adversaries of Florence.

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the cost of the old relationships which characterized the feudal world. The Ghibellini were more conservative, however, being afraid of losing their power in the countryside.

Looking back from the present, it may not be surprising that the Guelfi eventually won in Florence. In 1267, the Ghibellini were definitively banished from the city, after the Guelfi had first been banished themselves. The Ghibellini, largely consisting of the old landed nobility, moved to their castles at the fringes of the contado or to neighbouring territories, from where they tried everything to regain their power over Florence and to inflict revenge on the Guelfi. They started a guerrilla-like war on the Guelph government of Florence, which was particularly fiercely fought by the families of the Pazzi, Guidi, Ubertini and, above all, the Ubaldini. These families and their allies and supporters plundered Florentine territory whenever the conditions made it possible: they burned harvests and they assaulted travellers and the transporters of wares, which the city was highly dependent on for its economy and food supply. Substantial campaigns were even launched from the territories of the city-states of Arezzo, Faenza and Forli, which sometimes managed to seriously threaten the city of Florence.

At the end of the 13th century, the influence of the guilds in Florentine politics increased strongly. The members of the more conservative ‘sub-faction’ of the Guelfi Bianchi, which split off from the Guelfi Neri around 1290, were also banished from the city by 1302. Many of them subsequently joined the rebelling Ghibellini. The headquarters of the rebels was in the heavily fortified castle Montecacciano, which was owned by cardinal Ottaviano d’Ubaldini. The mountainous area of the Apennines in the north of the Florentine contado, which had been Ubaldini territory for a long time, now became the most important power base of the rebelling Ghibellini and Guelfi Bianchi.

3.2.2 Earlier town foundations by other city-states of northern and central Italy

In order to secure its authority over the contado, the safety on the inter-regional trade routes and the supply of victuals, the city had to get the revolting nobility under control. From 1284 on, a new policy was followed to do so: the plantation of new fortified towns in the areas where the nobility was still powerful. These new towns formed a strategic means for the conquest of the contado, directed at the retention and extension of the administrative and economic territory of the city.

This policy was not a Florentine invention. It had already been used many times, from the late 11th century onwards, by other city-states of northern and central Italy (e.g., by Brescia, Cremona, Bologna, Pisa and Lucca), with a very similar motivation. These city-states had founded many new towns in their territories, with the goal of breaking the authority of the mighty noble landlords. The inhabitants of the countryside were freed from the authority of their former lords when they moved to the new settlements, where they were protected by the city-states and often also by significant defences with ditches and stone walls. In northern Italy, the foundation of such settlements reached a high point around the middle of the 13th century, and came to an end in the first half of the 14th.

By the foundation of these new towns, feudal lords lost much of their power to the expanding city-states. In a certain sense this can be regarded as ‘civil capitalism’ expanding at the cost of the old feudal structure of power. The landed property was reorganised and, in the process, the feudal landed property, which was worked by farmers who were bound to the land and the lord, gave way to civil landed property, which was largely leased to free farmers.

In Tuscany, new towns were founded by city-states from at least the early 13th century. For instance, Pistoia founded Montale before 1206 to reduce the power of the Guidi counts; Siena founded Monteriggioni around 1214, mainly to guard the border with the city-states of Volterra and Florence; and Pisa probably founded Pontedera before the middle of the 13th century. It seems, however, that four towns founded by the city of Lucca in the 1250’s (Castelfranco di Sotto, Santa Croce, Pietrasanta and Camaio) may have served most directly as examples to Florence (see figs. 3.1, 3.4).

3.3 The Florentine new town foundations in contemporary documents

In the 13th century Florence already founded some settlements in the contado. For instance, Montelupo was a small fortified settlement which is reported to have been re-founded in 1204. It was sited on a strategic location to provide defence against Florence’s mighty adversary, the city-state of Pisa. A similar re-foundation on a new site of tactical importance was carried out at Incisa in 1223-1224. There are more documentary sources on the new town of Pietrasanta (presently called Casaglia). It was created in 1284 on the highest
point of the pass-road from Florence to Faenza, in order to guard the road against the rebels of the Ubaldini family. It is reported that by 1285 town walls and a palatium comunis were constructed there. In 1291 fifty Florentine burgesses were ordered to build ‘castle-like’ houses there and in 1322 the Florentine republic had a new stronghold (a rocca) built at the site. Evidently, the small town foundation was realised. But it did not prove successful, despite several efforts to revive the town foundation. At present there is only a small village, which shows no traces of fortification and no clues as to the original 13th-century layout.

The oldest document that clearly shows that the idea of founding new towns was an issue in Florentine politics dates from 1285. According to a report of a governmental council meeting, the capitano del popolo, who was the head of the faction of guilds and thereby representing the merchants and craftsmen, introduced a plan for the foundation of one or two new settlements in the Valdarno di Sopra ‘[...] in order to oppose the malicious actions of the exiled citizens [...]’. This plan was the result of increasing rebel activity by the Ghibellines in the area, after they had been expelled from Pisan territory. In particular, the Pazzi family of the Valdarno di Sopra had mobilised a feared rebel army. From the report of the council’s discussion of the capitano’s plan, it appears that most members of the council were against the fortification of the future settlements. In the final voting the plan was even completely rejected.

Thirteen years later, however, two new towns were founded in the Valdarno di Sopra, and they even received defences of substantial nature. On 26 January 1299 the Council of the Hundred, the main political assembly of

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33 Repetti 1833-1846, s.v. ‘Casaglia del Mugello’ and ‘Pietra Santa’.
34 Pirillo 1981.
35 ‘[...] pro obviando malitiis exbannitorum [...]’. (Friedman 1988, p.306, doc.1, 13 August 1285)
37 Richter 1940, pp.355-356; Friedman 1988, pp.40-41. Possibly, the enthusiasm for creating new settlements was low because the creation of the earlier settlement of Pietrasanta (1284) had not been successful. (Pirillo 1981, pp.179-200)
the city, decided to found three new towns.58 These towns were to be built in the Valdarno di Sopra, about 30 km. southeast of Florence. The direct result of this decision was the creation of the towns of Castelfranco di Sopra and San Giovanni Valdarno.59 (figs. 3.1, 3.5-3.15) There are no traces of work having started on a third settlement, but 38 years later more new plans were made for new towns in the area, as will be discussed below.60

In the meantime it was decided, on 29 April 1306, to found two more towns in the northern part of the contado, one in the Mugello valley, about 25 km. north of Florence, and one Ulta Alpes, north of the Appenine watershed, about 40 km. from the city.61 Work on the first of these two, Scarperia (originally called Castel Santa Barnaba), was begun immediately, whereas the actual creation of the second one, Firenzola, only started in 1332.62 (figs. 3.1, 3.19-22) These four towns will be studied in detail below.

A legislative document of 1329 shows that a settlement called Terre Nove Plani Asenti was founded on the Consuma pass at the eastern border of the contado. (fig. 3.1) This project was, however, aborted some time between 1337 and 1350, after substantial work seem to have been carried out.63

According to a legislative document of 1337, twelve rural communities from the Valdarno di Sopra had petitioned the Florentine government for protection against ‘tyrants or other corrupt lords’. In response, the Florentines planned to found one or two settlements in the area. The creation of the town of Terranuova Bracciolini, originally called Castel Santa Maria, was the direct result of this.64 (figs. 3.1, 3.23) The second settlement was probably never begun.

Finally, in 1350, the new town of Giglio Fiorentino was founded. It was to be built in the Valdambra, c.45 km. southeast of Florence, but the project was soon aborted and it seems that nothing was ever actually built. Despite that, the Giglio Fiorentino project, just like the town of Terranuova Bracciolini, will be given much attention in the following paragraphs as well as in chapters 5 and 6. This is particularly because of the interesting documents that have been conserved with regard to this project, namely a legislation document and an elaborate description of the form of the town that was to be built.65 (fig. 3.27)

Hardly anything is known about the projects for ‘il Tartagliese’ in the Valdarno di Sopra (1307-9)66, for a fort that was meant to provide refuge to the country population in the Valdarno di Sotto (1300)67, and for the ‘Castellum della Badia di Capolona’ (1342)68. It is not even clear to what extent these projects were actually realised. In any case, nothing remains of them except for some more or less vague references in administrative documents and chronicles.69 Therefore, they will only be considered superficially below.

### 3.4 The term terre nuove fiorentine

The newly founded towns in northern and central Italy of the 11th to 14th centuries are generally called borghi nuovi or borghi franchi, i.e., ‘new boroughs’ or ‘free boroughs’.70 The new towns considered in this chapter,

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However, are generally designated as terre nuove (fiorentine), meaning (Florentine) new towns. The term terre nuove literally means ‘new grounds’ or ‘new settlements’. It is found in the contemporary documents, as for instance the document of January 1299, which speaks of ‘[...] terre seu comunitates de novo construantur et edificientur et siant et populantur [...]’, literally meaning ‘settlements or communities to be newly constructed and built and made and populated’.

3.5 Motives for the foundations of the terre nuove

In the contemporary written sources regarding the terre nuove fiorentine, various motives are mentioned for their foundation. But just as with the new towns of Wales and southwestern France, not all true motives are unveiled by the ancient documents. Therefore, it is hard to get a clear picture of the functions that were foreseen for the new towns. In the following paragraphs the various motives for the foundation of the terre nuove will be discussed, for as far as they can be reconstructed.

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51 Richter (1940) uses the term terra murata, which means ‘walled town’; this term was also used for older non-newly-founded settlements that were walled.
52 Document ASF. Provvisioni IX, fols. 136r-137v, January 26, 1299. (see Richter 1948, p.379, doc.1; Friedman 1988, p.308, doc.2) (According to Richter (1948, p.379, doc.1) the document says comites instead of comunitates, which could be understood in the sense of gatherings of people) The term terre can also be found in most of the other related documents, but there the term is not specified as clearly as in this phrase.
3.5.1 Military motives

3.5.1.1 Fighting the rebels and gaining control over the contado

As mentioned above, the main reason for the foundation of the terre nuove was for the city of Florence to gain control over the surrounding countryside, the contado, at the expense of the rebelling feudal families. These families had their territories at the fringes of the contado and were allied with the Ghibellini and Guelfi bianchi that were expelled from the city, as well as with other city-states that politically opposed Florence. In the foundation documents - or rather the legislative documents – this is indicated in various phrases. According to a document of 1299, the terre nuove of the Valdarno were founded ‘[…] in order to increase and better to preserve the honour and the jurisdiction of the commune of Florence […]’. 53 The aim of the two northern foundations of 1306 was described as ‘to crush the arrogance of the Ubaldini and others of the Mugello and the land beyond the Appennines, who have rebelled against the commune and populace of Florence and built the castle of Montecaccionio and others elsewhere, and who wage war […] and no longer have God before their eyes, and who do not remember that they were born part of the commune of Florence’ and to ‘[…] totally destroy their resources […]’. 54 Furthermore, it is stated that these terre nuove were founded ‘for the defence and conservation of the peaceful and quiet state of the city of Florence and its jurisdiction and territory’. 55

In the early 14th century, the Florentine chronicler Giovanni Villani expressed the motives for the foundation of the terre nuove in somewhat different words, but the meaning is largely the same. According to his Cronica, Castelfranco and San Giovanni were founded ‘[…] so that the populace could better fortify itself in the contado, and to affect the power of the nobles and mighty of the contado, especially that of the Pazzi of the Valdarno and the Ubertini, who were Ghibellines’. 56 Scarpiera would have been created ‘[…] to fight the Ubaldini, and to cut them off from their followers, and make them free, so that [the castle of] Montecaccionio could never be rebuilt’, whereas Firenzuzola was built ‘so that the Ubaldini could not rebel anymore, and the rural folk of the Florentine region over the mountains, who were serfs and followers of these Ubaldini, would be free.’ 57

3.5.1.2 Fortificatory function

So, according to the written sources, the primary motive for the foundation of the terre nuove was the ambition to control and crush the rebelling magnates and to protect the population of the countryside against them. In order to achieve this goal, various sub-strategies were embodied in the new towns.

An important function of the terre nuove was to create military strongpoints by way of concentrating the population that was loyal to the city-state. These strongpoints could serve as defences against the rebels as well as against other enemies from outside the territory. Since the terre were relatively large settlements, meant for about 300 to 500 families - while most villages of the countryside contained no more than about 50 families -, comparatively large civil militias could be formed there. These militias were placed directly under Florentine command and were organised and armed according Florentine regulations. 58 This function of creating militias is not directly recorded as a motive for the creation of the terre nuove, but can be deduced from the importance given to the militias in various documents from the early history of the towns. 59

Another military function of the towns was to serve as fortresses. This function can be clearly read from the quite imposing fortifications that were (planned to be) built shortly after the foundation of the towns, and which are still partly preserved. Stone walls with impressive gates, towers and ditches determined the military importance. (see pars.2.5.1 and 9.1)

53 '[...] pro honore et jurisdictione communis florentie amplianda et melius conservanda [...]’ (Richter 1940, p.379, doc.1; Friedman 1998, p.308, doc.2; translation Friedman 1988, p.41)
54 'Ad repromptum effrenandum superbiam Ubaldinorum et Aluinorum et Mugellorum et alia alpium, qui Comuni et populo Florentine rebelserunt causum Montis Acicianii et aliae (belligerat et gueram faciunt et non hastam faciunt dicit Comuni et populo Florentine, non habentem Deam pro osulis et non riminisendo quod non sint Comuni et populo predicto’ (Friedman 1998, p.310, doc.3; translation Friedman 1988, p.41) According to Friedman (1988, p.41) the last phrase is also to be found in the foundation document of the two northern terre of 1306, but I cannot find it in his publication of the document (pp.310-313, doc.3) nor in the part of the document published by Richter (1940, p.380, doc.3).
55 'pro defensione et conservatione pacifici et tranquilli status civilis Florentie et jurisdictionis et territorii eiusdem' (Friedman 1988, p.313, doc.3)
56 'il popolo per meglio fortificarsi in contado, e semmare la forza de’ nobili e de’ potenti del contado, a spezialmente quello de’ Pazzi de Valdarno e degli Ubertini ch’erano ghibellini’ (Giovanni Villani, VIII, ch.17; Villani 1823, vol.III, p.249)
57 '[..] per fare bastielli agli Ubaldini, e terrere i loro fedeli, e fecingli franchi, accicché Montaccianico mai non si potesse riporre.’ (Giovanni Villani, VIII, B6; Villani 1823, vol.III, p.163) ‘accicch’é detti Ubaldini piu non si potesser rebelare, e bastieli contattit di Firenze d’altri l’uomo fare di loro libero e franchi, che loro servo e detti Ubaldini.’ (Giovanni Villani, X, 190; Villani 1823, vol.IV, p.251)
58 Lewis Mumford writes about the new towns of the 12th to 14th centuries: ‘In a sense these towns — as in the Roman military colonies — were a cheap substitute for a standing army. By giving the new burghe the right to bear arms, the ruler avoided the necessity for otherwise paying for their use.’ (Mumford 1961, p.304) For the terre nuove this is certainly right. But for the new towns of the period in general this is too much of a generalisation, since many towns were founded with rather different motives and do not seem to have played roles of military importance. (see pars.2.5.1 and 9.1)
59 Richter 1940, pp.337-338; Friedman 1988, p.41.
appearance of the towns. (figs. 3.8, 3.14, 3.25, 3.30, 3.32, 3.33) In Scarperia and Firenzuola strongholds were built within the towns, and in Giglio a stronghold was planned at a corner of the town wall.60 (figs. 3.21, 3.27) The walls were built as soon as possible after the foundation of the towns, but since this was a very expensive and slow operation, they were often preceded by palisades of wood.

In principle it could have been that the only function of the fortifications was to provide protection for everything within. It is obvious, however, that the towns had a more important tactical military function. This can be deduced from the strategic locations where they were built, typically near the borders of the territory, along major entrance routes into the contado.61 The case of Scarperia in the ‘Visconti war’ of 1350-51 serves to illustrate that this function actually worked. In this war, Scarperia played a very important role as a stronghold along one of the main routes into the Florentine territory, which was able to be held despite a long siege by a large army of the Milanese ruler Giovanni Visconti.62

The fortifications of the terre nuove meant that they not only functioned as strategic military strongholds, but that they also served to protect the population and their possessions.63 Among these possessions, the harvested crops and cattle were very important, in economic as well as in military respects. Invading armies usually fed on provisions that were collected by plunder.64 Foodstocks were of course also essential for the functioning of the terre nuove as military strongpoints in times of siege. Furthermore, the city itself was highly dependent on provisions imported from the contado and abroad, which made it all the more important to protect the food stocks.

### 3.5.1.3 Guarding the main routes and protecting travellers

Directly related to the military function and the choice of location at the main entrance routes to the Florentine territory, was the function as defended staging points on the main trade routes, from which the roads could be patrolled in times of turbulence.65 The importance of safe connections between Florence and other economic centres can hardly be overestimated, since the city largely lived on trade and industry. The rebels understood this well, and directed much of their efforts at robbing (convoys of) travellers and transports of wares.66 Inns provided places for overnight-stays in the new towns, at about a day's ride from Florence, and a two-days' ride in the cases of Firenzuola and Giglio.67

Contemporary documents clearly demonstrate that the towns were meant to protect the trade routes. The first known account of deliberations about new town founding in the Florentine council, in 1285, clearly mentions the goal of making the roads safer.68 Scarperia and Firenzuola appear to have been founded in relation to the building of the new road over the Giogo pass, the main goal of which seems to have been to provide better protection to travellers against the aggression of the Ubaldini rebels.69 The legislative document for the Terre Nuove Plani Asenti of 1329 clearly mentions the safety of the pass road as one of the reasons for its foundation.70

### 3.5.2 Dispossessing the rebels of their subjects and land, and enlarging the territory

A very important function of the new towns was to extort subjects from the feudal magnates, particularly from the rebelling Ghibelline lords. As already quoted above, Villani wrote in the early 14th century that Scarperia liberated the subjects of the Ubaldini, so that the castle of Monteaccianico could not be rebuilt, while Terranuova was populated with the subjects of the conti Guidi di Battifolle ‘[…] to forever deprive every

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60 These strongholds were intended to house the garrisons of the Florentine army. Most likely they were not only created to protect the towns, but also to prevent revolts within those towns.
61 The subject of the sitings will be discussed in which will be discussed in pars. 3.8.1-3.8.6 and 3.9.1.
63 Friedman 1988, p.42. It is relevant, in this context, that sixteen more or less spherical grain storages were found under the loggia of the Palazzo d’Arnolfo, the town hall of San Giovanni. They appear to date from the 15th century. So, by that time at least, San Giovanni must have functioned as a sort of defended warehouse. (Boldrini & De Luca 1988, pp.64-68)
64 Plunder was no rare phenomenon in times of unrest. Invading armies, the rebelling magnates and their supporters, and bands of mercenaries on the loose regularly pillaged the countryside and undefended villages. This violence often was the immediate cause for rural communities to submit to the Florence government, in order to get protection from it. The foundations of Terranuova and Giglio Fiorenti were the result of such submissions. (see pars. 3.5.1.1)
67 Sterpos 1983; Various Authors 1985, C, p.100; Szabó 1992. Particularly Scarperia and Firenzuola had many inns where trans-Apennine travellers lodged until the 18th century.
69 Sterpos 1983, pp.101-102; Friedman 1988, p.44; see pars. 3.8.3, 3.8.4.
70 Richter 1940, p.381, doc.4; Friedman 1988, p.327, doc.12.
jurisdiction and fidelity from those counts'.77 The other terre were also largely peopled with the rural population that had partly been subject to the feudal lords of the countryside.72 Below, in paragraph 3.6, the process of populating the new towns will be studied more closely.

The creation of the terre nuove not only served to extort subjects, but also land from the authority of the nobility of the countryside. As rural communities submitted to the city-state, whether or not of their own free will, the Florentines considered the lordly rights over the land of these communities to come with it. As communities and populations were subsequently moved to the new towns, and the old villages and hamlets were destroyed, ancient rights over these old settlements became much harder to be imposed by the old feudal lords.73 The foundations of Terranuova and Giglio even seem to have been planned to annex land that had traditionally formed part of the contado of Arezzo.74

3.5.3 Administrative function

The foundation of the terre nuove also served goals of an administrative nature. In the period of the creation of the towns there was a great reorganisation going on in the administrative and military organisation in the Florentine contado. The countryside was organised into large regions, which were centred on towns where the capitan resided. The terre nuove were made into such regional administrative centres. Some decades later, with a new administrative reorganisation creating larger provinces, San Giovanni, Scarperia and Firenzuola were promoted to form centres of these new vicariati.75 In these regional administrative centres relatively large and monumental palazzi were built where the representatives of the city-state resided.76 (figs. 3.15, 3.21)

The terre nuove may be regarded as satellites of Florence: they were representatives and reflections of the mother city. They acted as binding agents between the countryside and the mother city. In this sense, they are more or less similar to the colonial towns in the overseas colonies of the 16th century and beyond.77

3.5.4 Economic motives

Another highly important motive for the creation of the terre nuove was economic in nature. As we have seen above, the protection of the most important interregional roads and the commerce over these roads was an important function of the terre. This function was crucial for the economy of the city, since the roads were the lifelines of Florentine trade, as the city was not sited on navigable water. Another important function was to secure the production of the countryside, since the city was largely dependent on the contado for victuals and raw materials for its crafts and industry.78

The terre nuove were also given an important economic function as market towns. The documents regarding both the foundation of Pietrasanta (presently Casaglia) on the pass road to Faenza in 1284, and the aborted Terre Noves Planes Asenti on the Consuma pass in 1329, clearly mention that these towns were founded to channel raw products from the Romagna and Casentino regions to the Florentine territory.79

71 Giovanni Villani, VIII, 86; Villani 1823, vol III, p.163 (see above, n.62). ‘per terre in perpetuo ogni giurisdizione e fedeltà a detti conti’ (Giovanni Villani, XI, 54; Villani 1823, VI, p.111).
72 C.f. Heers 1990, p.117. The precise status of the rural population in this period and the power of the old landed nobility over it, is rather vague though. Various authors assumed that the new towns were peopled with serfs that earned freedom by their settlement in the new towns. However, at the end of the 13th century little was left of the old feudal service of servitude in the region. (Fabbrì 1980, p.247; Lesnich 1985, p.16; Pieretti 1972, pp.98-99) Many of the rural population were free farmers who leased their land from landlords from the city or the countryside. (Herlihy 1980, pp.236-237; Stopani 1979, pp.10-11) They were largely united in the social and administrative bodies of the comun villati. (Fabbrì 1980, p.248) This does not mean, however, that the landed nobility did not still exert its power over a large part of the rural population.
73 Friedman 1988, pp.47-48. Old jurisdictions and rights could nevertheless be very persistent. Among other examples, this appears from the case of Pietrasanta (Casaglia), where the Conti Guidi still levied a road toll in 1343, almost 60 years after the new foundation of the settlement by the Florentine government. (Muzzi 1989, p.49)
74 Terranuova was founded in the border area between the two territories, probably even on ground that officially belonged, or had belonged, to the contado of Arezzo, judging from the boundary between the dioceses of Florence and Arezzo. (see maps in Fabbrì 1980; Moretti 1983; see also n.9 above) Two weeks before the legislative document for the new town was drawn up on 4 April 1337, hostilities between Florence and Arezzo had stopped after podestà Pier Saccone Tarlati of Arezzo had submitted the authority over the city-state to Florence for a period of ten years, in exchange for a large sum of money. (Fabbrì 1980, p.493) So, the foundation of Terranuova may have been an attempt (stealthily) extend the Florentine contado. It is most likely, however, that in analogy to the other terre nuove, extorting power from the Conti Guidi was the main motive. This motive is also supported by the written documents. (see above) The land of the abbey of Agnano that was ceded to Florence, providing the opportunity for the creation of the new town of Giglio Florentino, had been part of the territory of Arezzo. It is highly likely that the town was to be founded on this land. (see par. 3.8.6)
77 Richter 1940, pp.361-362; Friedman 1988, ch.6. About the colonial character of the new towns of the 12th to 14th centuries in general, see also par.10.3.1.
78 See Barlucci 2004, pp.189-197.
79 Davidsohn 1962, vol.IV, p.398; Pinto 1918, pp.107, 113, 306. The foundation document of the Terre Noves Planes Asenti mentions that one of the goals of the foundation was that ‘people from the Casentino-valley and the province of Romagna come here with corn, grain, feed, and domesticated and wild animals and other victuals’. (Cet Casentinorum et aliorum contornuorum confluente cam frumento, blado, foras et bestiis tan domesticis quos silvestris et aliis victualibus) Friedman 1988, pp.43-44, 327, doc.12. Richter 1940, pp.326, 328, 131-132; see also Picollo 1901, p.189. The name, or rather designation, Terre Noves Planes Asenti is not yet given in this document, but is mentioned in a
In the 16th century, Giorgio Vasari wrote that the towns of Castelfranco di Sopra and San Giovanni were founded: ‘[...] for the commodity of the city and the victuals, by way of the markets [...]’.

In fact this must indeed have been an important motive for the foundation of these two and other terre nuove, since Florence had problems with its food supply in this period, and the government did its best to improve it, for fear of riots. Indeed, the fact that the government felt the need to expand the territory of the city-state at all was, to a large extent, the result of the problematic food supply.

3.5.5 The official main motive versus economic motives

The politicians and officers that were concerned with the foundation of the terre nuove probably did not explicitly consider all the separate functions of the towns as described above. Only the functions that are mentioned in the relevant administrative documents are sure to have been explicitly considered. It is likely, however, that most of the other functions described above stimulated the effort that was put into the creation of the towns, as they were highly advantageous to the city-state.

It is evident that the terre nuove were founded to curb the power of the rebellious nobility. However, it should be considered that an important reason for doing this was of an economic character, in addition to the reasons of a military nature. Florence depended on the countryside for its economic prosperity: apart from food and raw materials for its crafts and industries, the contado was also a rich source of tax money and rents. This economic dependence may have formed a more direct motive for the creation of the new towns than their service in the military struggle against the rebellious magnates. By way of its new satellite towns the commune of Florence gained direct access to the production of the countryside, since the towns were settled with producers.

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Fig. 3.6: Plan of Castelfranco di Sopra, after a 19th-century cadastral plan. (From: Friedman 1988) Castelfranco was founded by the Florentine government in 1299. Large parts of the original wall circuit can be recognised in the rectangular outline of the lots which, particularly in the east, north and west corners of the town, are amalgamated and largely unbuilt upon. In the piazza there was a freestanding loggia for ceremonial and market purposes.
and in the markets of the towns their produce was sold. An additional advantage was that, when the city-state controlled the production, trade and population, the magnates could no longer profit from them, and their position was thereby weakened. It should be considered, however, that the military motive may have been more important for the one foundation than for the other.

The economic motivation of the Florentine administration is barely expressed in the official documents regarding the town foundations. This is not surprising, since overt expression of the economic advantages for the city probably would not motivate the rural population that was to inhabit the terre. The city’s motives for founding the new towns were preferably formulated as being of a more noble character. A favourite theme was the protection of the rural population, which was so brutally oppressed by the noble magnates of the countryside.84

The conclusion to this section on the motives for the creation of the terre nuove is that the towns were meant to serve as secondary centres in an economic, military, social and administrative sense, within a structure in which Florence was the primary centre, theoretically encapsulating the whole contado. The spatial, social, administrative and economic structure of the contado was altered, by which means the city - and particularly its major citizens, as members of the administration and as landowners - took over the dominant role formerly played by the old landed nobility, incorporating the countryside into the city-state. In this way the city-state gradually developed into a territorial state.

3.6 Settlers

The settlers of the terre nuove mainly came from villages in the areas surrounding the new towns, which were selected by the government of the city-state. For Scarperia no less than 27 communities were selected to be re-settled.85 The settlers were mainly farmers, who had their fields near the villages from which they originally came. To the extent that they were not yet free from their feudal bonds to the nobility, they were freed from them by their new bond to the city-state.86

It appears, however, that people were not always eager to move from the villages and hamlets, despite the fact that they received freedom from taxation for a period of five to ten years. But if they refused to move within a given period of time, they were fined. In the case of Scarperia the Florentine officials were even granted the authority to destroy villages in order to ensure that the inhabitants would move to the new town and that the villages would not fall into the hands of the Ubaldini.87

The description of the project for Giglio Fiorentino explicitly mentions that people ‘from outside the contado of Florence’ may come to reside in the new town.88 It is likely that there were also settlers who came from beyond the surrounding countryside in the other terre, but their number was probably low.

There was also a group of people which was explicitly excluded from the terre nuove: the nobility, from the countryside as well as from the city. At Scarperia all those who had been loyal to the Ubaldini during the siege of the castle of Monteaccianico were excluded as well. The nobility was even forbidden to possess land or buildings in the towns or within one or two miles around.89

The terre nuove were subordinate to the Florentine government and had only limited autonomy. The inhabitants were subjects of the city-state, but seem to have had limited rights in comparison to those enjoyed by the citizens of Florence. This is not so strange, however, considering that even for immigrants to the city it was difficult to acquire the status of citizen.90

As mentioned above, the households that settled in the new towns received a tax exemption of five to ten years. This exemption was meant to meet the costs and effort of moving to the new town, building a house there and

83 Detti, Di Pietro & Fanelli 1968, pp.35-37; see also par.3.5.2.
84 For instance, with regard to Firenzuola (Villani) and Terranuova, see pars. 3.5.1.1 and 3.8.5.
85 Richter 1940, pp.360-362; Friedman 1988, pp.313-314, doc.4. See also figs.3.5.3.26.
86 Richter 1940, pp.361-362.
87 Friedman 1988, pp.46-47, 313-314, doc.4. Some of the people that were selected to move to Scarperia seem to have feared repercussions from the Ubaldini. (Friedman 1988, p.171)
88 See appendix A; Friedman 1988, pp.317-343. The legislative document for Giglio, of two weeks later, also explicitly mentions ‘other foreigners’ that could take up house lots. (Friedman 1988, p.345, doc.20)
90 In the literature on the terre nuove the matter of the rights of the towns and their inhabitants in the period directly after their foundation is not discussed. Probably, this is because there are no surviving clear sources to inform us. On the subject of acquiring citizenship in Florence, see Nenci 1981.
for further obligations imposed, such as paying for and working at the construction of the town’s fortifications.91

The settlers of Castelfranco and San Giovanni were also obliged to pay for the ground that was needed for the building of the towns. In Scarperia, Firenzuola and Terranuova they seem to have received their plots for free.92 The document describing the project for Giglio mentions that the government was to pay for the ground of the town, with a maximum cost of hundred florins. Furthermore, it is established that the annual rent was to be one chicken.93 Obviously, this rent was not so much meant to generate income for the government; rather it was a ‘recognition rent’, intended to make clear who the landlord was, by the ceremony of paying a chicken every year. Regarding the other towns it is not clear whether rent was to be paid nor how much it was to be.

The lots were distributed by the local representative of the government, and in the case of Giglio Fiorentino he was to be assisted by representatives of the communities that were to be re-settled. It is not clear how the house lots, which structurally varied in size in every town, were divided among the settlers. It seems logical that the larger house lots were granted to the wealthier households.94

Within the towns, the population seems to have been settled in clusters, according to the provenance of the people, so that the populations of the various villages remained close together. Yet the regular structure of streets and lots in the new towns meant that the various clusters could not fence themselves off from each other.

Originally, the terre were all divided into four quarters, not only in a physical sense, by the two major intersecting streets that linked the four gates, but also in terms of their administration. These quarters all had a name and formed separate social and administrative units. A number of clusters of settlers, and sometimes possibly one large cluster from a larger village, formed a quarter. In this way old social structures remained partly intact. The result of this method of clustered settlement could be that the quarters were not equally populated.95 In plans from the 19th century the unequal population of the quarters is clearly visible.96 (figs. 3.6, 3.19) In Terranuova the division into quarters is still reflected in the four chapels in the centres of every quarter, three of which were dedicated to the same saints as were the old churches in the villages from where the settlers were recruited.97 (figs. 3.23-24)

The settlers were obliged to build houses on the lots that were assigned to them within a limited period of time, mostly only a few months.98

### 3.7 Planners

In the 16th century, Giorgio Vasari attributed the design of San Giovanni and Castelfranco to the famous architect and sculptor Arnolfo di Cambio and that of Scarperia to the architect/sculptor Andrea Pisano.99 These attributions do not appear to be very reliable, however. It is most unlikely that Andrea Pisano was involved; whereas Arnolfo’s involvement is not unlikely but cannot be verified and, given Vasari’s intentions, may well be a fabrication.100 Nevertheless, these attributions are still largely accepted, particularly in Italy.101

The original documents show that the government of the city-state appointed officials or governmental committees with elected officials to lead the foundation and construction of the towns. These officials and committees appear to have hired employees, paid by the day or by the month, to perform specific services,
such as that of a treasurer, a notary and a clerk. Most probably there also must have been a master who stood at the head of the building crew, whether it consisted of professional workers or of residents of the region who were obliged to contribute their labor to the project. It is unclear, however, who created the actual design of the town plans. According to Friedman, professional architectural designers who acted as advisors to the committees must have been responsible for the layouts. There are no concrete sources, however, that confirm this view.

It appears likely that the relations of the dimensions in the plans of the terre nuove were designed by use of a complex geometric method (see below, paragraph 6.4). This has consequences, though, for the subject of the capacities of the planners, which will be discussed in paragraph 7.6. The question of who the planners of the terre nuove were will be treated more elaborately there, within the wider context of new town planners in Europe in the period under consideration.

3.8 Survey of the terre nuove fiorentine

The following paragraphs contain a survey of the six Florentine new towns for which there is substantial information about their foundation history and their original urban form. Their early history will be briefly treated and their original layouts and relevant later changes will be described. In paragraph the towns will be compared and their common traits will be highlighted.

3.8.1 Castelfranco di Sopra

The foundation of Castelfranco di Sopra was formalized in a document of 26 January 1299. The text refers to three new towns to be built in the upper Valdarno, to the southeast of Florence. Two of these were to be built in the plain of the area Casuberti, east of the river Arno, where the magnates of the Ubertini family had ruled. This only led to the creation of Castelfranco, however. The third town was to be built to the west of the Arno. This would become San Giovanni. The reason for the foundation was ‘[…] to increase and better to preserve the honour and the jurisdiction of the commune of Florence […]’. Doubtless, the decision to found the new towns was preceded by discussions within the Florentine government, but unfortunately no records of these have been found.

The name Castelfranco was not yet used in the document, though it would soon be chosen as the official name for the town. Castelfranco means ‘free castle’, indicating that the town was fortified and that the inhabitants were free from feudal bonds. The name was already used for various other newly founded towns in northern and central Italy; among others, for the 13th-century Lucchese new town of Castelfranco in the Valdarno di Sotto, west of Florence. In order not to confuse the two, both town names were extended in later times, with di Sopra (‘upper’) added to the Castelfranco in the Valdarno di Sopra and di Sotto (‘lower’) to the one in the Valdarno di Sotto.

The legislative document mentions that the priors of the guilds were to determine the exact site and the form of the town. Most probably, they delegated this task to employees. Not long after, the building was begun at a site c.30 km. southeast of Florence, on a plateau to the east of the Arno, which slopes down lightly in a southwesterly direction. (figs. 3.1, 3.5) The plateau lies in the valley, but not at its deepest point, since the river has cut out a wide and deep riverbed in the loamy Pleistocene alluvium of the valley. The plateau is very fertile, which meant that it was already settled relatively densely in the Etruscan period. Ever since this period there was an important road there, which connected the towns of Fesulea (Fiesole) and Aretium (Arezzo).
Later, the Roman Via Clodia largely followed the same route.110 This Roman road had a successor in the Strada dei Sette Ponti (‘Road of the Seven Bridges’), on which the town of Castelfranco was built, on the point where this road was joined by another road that connected both sides of the valley.110 The site was well suited for the new town, because of the fertile soil and the good connections for its market, the market place being located in the centre of town, where the roads came together. Since the Strada dei Sette Ponti was an important access road to the Florentine territory from the south, and since the site was near the border with the territory of Arezzo, the location was also of strategic military importance.

The town was planted near the edge of the plateau, where the steep slope down to the valley bottom begins. Directly to the north and south of the site there are small gorges with tributary streams. Because of the sandy soil there is constant erosion, and the gorges get deeper and steeper, which causes landslides at the edge of the plateau every now and then. This has caused the western and southern corners of the original town to be washed away. (see figs. 3.6-3.8)

It is possible that there was an earlier settlement on the place where the new town was built. According to the 19th-century geographical standard work by Repetti, the castle of Sofena, which belonged to the Uberti family, had stood on the site.111 A document of 1072 already mentioned that a castle of the Uberti lay nearby the abbey of Sofena, which is sited just east of where the town was built.112 According to local tradition, however, there had been a village on the site of the later town, and the castle had stood to the west of it.113 It is not impossible that a castle on or near the site of the new town was destroyed by the Florentine armies in order to make way for the new town. A similar course of events may have taken place at San Giovanni, Scarperia and Terranuova (as will be described below), and at several other settlements in the Valdarno di Sopra.114 It is likely, however, that historical sources would have mentioned this if it had actually happened.

The inhabitants of Castelfranco and San Giovanni were recruited from among the (former) subjects of the noble families of the Pazzi, Uberti, Conti Guidi, the lords of Ricasoli and others.115 As we noted above, both Castelfranco and San Giovanni were founded, according to Villani, ‘[…] so that the populace could better fortify itself in the contado, and to affect the power of the nobles and mighty of the contado, especially that of the Pazzi of the Valdarno and the Uberti, who were Ghibellines’.116

The land on which the town was to be built seems to have been levelled so that a plain was created which slopes down slightly to the west. On this terrain a rectangular and strictly orthogonal symmetrical plan was set out with its main directions oriented more or less at the half-winds. The outline was almost square, measuring c. 235 x 263 m.117 A simplified depiction of the town from the 16th century still shows the original rectangular outline. (fig. 3.8)

The town was surrounded by ditches and stone walls, with gates in the centres of all four sides. The southwestern and southeastern gates still stand, with small pieces of the town wall adjoining them. (fig. 3.32) The gates open onto two straight streets that cross at right angles in the heart of town. (fig. 3.9) In the centre, at the intersection of the main streets, there is a rectangular piazza. (fig. 3.10) This piazza is not completely symmetrical with respect to the streets, since it is larger on the southwest side of the street in the NW-SE direction than on the other side. The open space appears as if it consists of a number of house lots that were left open in the four central street blocks. With its closed corners, this type of piazza was a rare phenomenon in the period of its creation.118

110 Maroni 1973, p.49; Merlini 1981, p.16. This road is described in the late-Roman Itinerarii Antonii.
111 This road was called Via Urbinense. At its west end it is connected to the road along the western shore of the Arno, at the 12th-century market settlement of Figline. (Merlini 1981, p.16)
114 The historian Carlo Fabbrini kindly pointed out to me the site of the castle to the west of the later town on our visit there on 29 January 1999. According to local tradition, some of the older buildings in the present town even remain from the older village. This seems unlikely, however, since the buildings fit perfectly well in the regular structure of the new town, though small parts of buildings, like a wall in the sacristy of the church of San Tommaso, might be older. According to a tourist brochure (Castelfranco di Sopra, Storia, Arte, Natura 1998) the new town would have been partly built with the material that came from the castello di Piandimezzo, which was destroyed by the Florentine armies in 1255. No source I know confirms this information. The castello di Piandimezzo was owned by the Pazzi family and was taken by the Florentines in 1270. (Villani, VII, 23; Villani 1823, II, p.199) It probably lay about 1 km. southwest of the later town. (La Storia del Valdarno, vol.4 (1983), p.945) It is not impossible that this castello may actually have been the same as, or may have been confused with, the castle of Sofena.
115 These other settlements were Piantravigne (1270), Montemarciano (1380) and Traiana (1344). These were small villages that were destroyed by the Florentine army and were subsequently rebuilt on regular plans, but without defences. (Pozzana 1985, pp.107, 113, 115)
117 See n.56.
118 Landslides have demolished the western and southern angles of the town, whereas the northern angle can hardly be recognised any longer due to redevelopment in the second half of the 20th century. (fig. 3.7)
119 It is not impossible, however, that the corners of the piazza originally opened up onto narrow alleys along the back of the house lots (see below). It seems likely, however,
The house lots were arranged in sixteen parallel rows in a NE-SW direction, along a central main street and eight parallel streets of lesser width. All streets were straight. The outer two streets were bounded by the town wall. Of these parallel streets, only five are still largely existent. Another one, the outer one on the southeast side, has only been preserved for a small part of its length. The 19th-century cadastral plan shows residues of the other streets in the northern quarter of the town. (fig. 3.6)

At right angles to the rows of house lots there was a central cross street with four narrow secondary streets parallel to it. Two of the secondary cross streets were sited halfway between the central cross street and the perimeter of the town (fig. 3.29), and the other two were laid out along the town wall. Only parts of these streets have been preserved.

The two outer streets along the town wall were connected to the other two outer streets, so that a continuous ‘wall street’ ran all along the four sides of the town. On the northwest and southeast side of the town the wall streets functioned as residential streets and connections, while on the other two sides they only served as connections, since no house frontages were located on them. The wall streets also had an important military function: since they connected the gates, the corner towers and the various parts of the town wall, troops could be distributed quickly over the defences in case of surprise attacks.

All the house lots in the town originally had the same width of about 5.80 m., which most probably corresponded to 10 braccia fiorentina.119 The length of the lots, however, varied. It decreased in stages from the central main street (the one which ran in a NE–SW direction) outward. Many of the original lots have been amalgamated in order to create larger houses, and particularly in the northwestern part of town the original lots have completely dissolved. The original dimensions of the lots can be reconstructed, however, from measurements of the remainder of the lots in the old structure.120 It appears that the lots along the main street were about 30 braccia long, whereas the lots to their backs were about 26 b. long. Then there were two rows on either side of the town with lots c. 19 b. in length; then two rows of c. 18 b.; and finally two rows with lots about 16 b. long.

Cadastral plans show that there were narrow alleys in between the two rows of lots in the southernmost street blocks. (figs. 3.6, 3.7) Closer study of the plan reveals that there are also traces of alleys in some of the other street blocks. It is likely, therefore, that originally there were alleys cutting through all the street blocks. Probably they were meant to provide light to the back of the houses and to drain away rainwater. Since they only were about two braccia wide, they probably were not meant to provide accesses to the back of the lots.

The inhabitants of the town originally were mainly farmers, who had their fields in the surrounding countryside, near the villages where they originally came from. Apart from these fields they also had gardens where vegetables were grown. Particularly in the smaller house lots there probably was no space for gardens, since they only measured about 5.85 x 9.35 m. It is likely, therefore, that there were gardens just outside the town.121

Not much has been preserved of the original architecture of Castelfranco. Small parts of the town walls and two gates still stand on the southwest and southeast sides of the town. (figs. 3.7, 3.32) The original form of the wall has only been preserved for a very small part on the southwest side. It had a projecting machicola-tion on the inner side and crenellations on top, and it was built mainly of natural stones collected from riverbeds. There seem to have been four gate towers and four corner towers.122 Of the two gate towers that still remain, the southeastern one was decapitated in the 18th or 19th century. The walls were surrounded by a ditch, which may partly have been of natural origin, with four bridges in front of the gates. (see fig. 3.8)

The principal church of the town was located at the northeast side of the piazza, along the main street.123 The present main church of San Tommaso, which is sited on the main cross street near the southeast gate, is said to date from the period of the town foundation, but its architecture suggests that it was built in various stages in later centuries.

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119 In this study, the braccio is taken to be 0.5836 m., as has commonly been accepted since the 19th century. According to Finiello Zervas, the Florentine braccio da penna was, on average, 0.583597 m. (Finiello Zervas 1975, p.9) For Pirillo it is 0.5835 m. (Pirillo 1986, p.13), and Friedman it is 0.583 m. (Friedman 1988, p.236, n.2)
120 See appendix B, esp. table IX.
121 According to Romby & Diana (1985, p.78, n.50) the statuti of Castelfranco determined that every household would have its own garden.
122 According to Moretti, however, there were sixteen towers. (Moretti 1979) He gives no arguments for this claim, but it seems unlikely that this is correct, since there are no traces of eight more wall towers. Luschi even suggests that there were 32 towers originally. The suggestion is not impossible, but does seem highly unlikely. (Luschi 2003, pp.111-112)
123 This appears from the statuti of 1394 (Friedman 1988, p.240, n.22) and from the 16th-century plan. (fig. 3.8) It probably was a simple building with a single aisle, analogous to the other terre and other towns and villages in the region.
The house where the representative of the city-state, the capitano, resided, which also functioned as a sort of town hall, was sited in the southeast side of the piazza.\footnote{This house was designated as ‘casa del commune’ in the statutes of 1394. (see Friedman 1988, p.387, n.54)} The present town hall is still to be found there, but its outer form has been changed considerably since it was first built. It seems that the original building did not take up a very prominent position, nor that it had a very distinct outer appearance.

In the piazza there was a freestanding loggia in front of the church, dating from before 1394. (see fig. 3.6) Its primary function seems to have been ceremonial, but it probably also provided a covered market space.\footnote{See par. 3.9.3.5}\footnote{Sequi 1895, p.12; Friedman 1988, p.189. In the schematic 16th-century depiction of the town (fig. 3.8), some sort of structure is depicted in the piazza, but it looks like a well rather than a loggia. It is not known whether the loggia depicted in the cadastral plan of the 19th century (fig. 3.6) was actually the same as the one of the 14th century.} The original houses were probably quite humble structures, largely built of cheap and easily available materials like wood, rammed earth, sun-dried bricks and stones from riverbeds. On the larger lots the back-
fig. 3.9: Main street of Castelfranco. Photograph taken from the northeast.

fig. 3.10: Photograph of the southern part of the piazza of Castelfranco, with view through the main street toward the southwestern gate tower.
side was originally left open for yards or gardens. Following the regional tradition, the roofs were built with their eaves parallel to the front street. The houses generally shared common side walls.

It seems that the town was never completely filled with houses. In particular, the north and west quarters were only for a small part occupied, according to the 19th-century cadastral plan. (fig. 3.6) It is not known for sure, however, whether this has always been the case. At present, Castelfranco is a small town, surrounded by woods and vineyards. In the 20th century the occupied area of the town has become about four times as large as it originally was. The layout of the extensions is much less regular, however, than that of the original town.

3.8.2 San Giovanni Valdarno

The foundation of San Giovanni Valdarno was a result of the same political decision as Castelfranco, early in the year 1299. Three new towns were to be built, and for one of these the location was clearly determined: ‘in or next to the bourg of the Plain of Alberti’. Shortly after this decision was made, the name of the new town was determined to be Castel San Giovanni, San Giovanni (Saint John) being the patron saint of Florence.

The town was built only about 6.5 kilometres southwest of Castelfranco. It lies a hundred metres southwest of the river, not far above the riverbed. Directly to the southeast lies a stream that flows into the Arno. The plain on which the town is built slopes slightly to the south and east. Directly southwest of the town the land starts to rise in the form of hills that were created by erosion of the sandy alluvium.

Like Castelfranco, the town was created in the area that had been dominated by the Pazzi and Ubertini families, who were the major Ghibelline adversaries of Florence in the upper Valdarno. The settlers were drawn from the former subjects of these and other lords of the countryside. A 15th-century source mentions that they came from the settlements ‘castel vecchio di piano alberti, la villa di Santa Lucia, la villa di ricasoli, la villa di San Mariano, la villa di Monte Maggio’ and ‘la villa di Vacheraccia’.

The locations of these places are shown in fig. 3.5. It seems that Castel Vecchio di Piano Alberti, Ricasoli, S. Mariano and Vacheraccia were compact, walled settlements. Only Ricasoli presently still exists, as a small hilltop village; the others have all vanished, mainly due to the creation of the new town. At least some of the old settlements were destroyed by the Florentines to prevent them from being taken by enemies of the city-state.

The greatest migration distance for the settlers, between Ricasoli and San Giovanni, was about four kilometres. This must have meant that the settlers from this village, probably nearly all of them farmers, became further removed from their fields. This disadvantage of moving to the new town was partly compensated by the fact that they were to live very near to the market place.

It is not clear whether or not the new town of San Giovanni was built on the exact site of the burgo Plani Alberti (also Borgo di Pianalberti or possibly Castello di Piano Alberti), as its exact location is not presently known. Various historians have expressed different opinions about the matter. According to Tracchi, there was a Castro di Piano Alberti, which was the same as the Castel Vecchio, and a Borgo di Piano Alberti. The first one was already in existence before 1074, when it was first mentioned in a document. The second was probably created in about the middle of the 12th century, when inhabitants of the Castro migrated to the bottom of the valley, where land was reclaimed from swamps and where a new trade route was laid out along the shores of

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128 Giovanni Villani, VIII, 177; Villani 1823, III, p.29. See par. 3.8.1.
131 A map with the locations of these places was kindly given to me by Mr. Romano Marini, head of the Uffizio Urbanistico of San Giovanni, who also supplied me with plans of the town and relevant literature, for which I am very grateful.
132 Repetti 1830, vol.V, pp.55, 615; Cioni & Nocentini S.D., p.76. San Mariano originally was a village belonging to the monastery of Nonantola. The inhabitants were serfs of the monastery, but like many other small communities in the period, they bought various enfranchisements (in 1225, 1286 and 1293), by which they became largely free. Eventually Florence gained the right to install the podestà of the community. This demonstrates that not all the settlers of San Giovanni were subjects of the noble families of the Valdarno. It seems, however, that the nobility still had a lot of power over the inhabitants of the region.
133 Of San Mariano, it is known that it was destroyed by the Florentines. Of the others, apart from Ricasoli, this also seems likely. (Repetti 1830, vol.I, p.205) The once mighty Castel Vecchio di piano alberti (also called Piano Alberti in altum) was reported to have almost vanished by the early 14th century, after its remnants had been plundered by the Ubertini in 1302. The fortifications probably had been, by that time, torn down by the Florentines. (Tracchi 1983, p.950)
134 The confusion over the matter has been caused by, among other things, the fact that it can easily be mistaken for the Castel Vecchio di Piano Alberti, which probably lay c.2 km. southwest of San Giovanni on a hilltop which is still marked by the toponym Castelvecchio. On this location, traces of a fortified settlement have been found. (Tracchi 1983, pp.948-949)
the river Arno. Such transfers of settlements from fortified hilltops to the bottom of the Arno valley also happened in the same period at the nearby settlements of Figline and Montevarchi. San Giovanni would have been built at the very site of the Borgo di Piano Alberti. Polverini even suggests that the campanile of the church of San Lorenzo was founded on the walls of a Villa Alberti, and Tracchi claims that the small side aisle of the church would have been the church of the previous settlement. Neither of these claims has been confirmed by archaeological or architectural-historical research. An inscription suggests that the building was constructed only in 1306. A church of San Lorenzo de Piano Alberti was, however, already mentioned in a document of 1276-77, but this, of course, need not have been the same building. According to Friedman, San Giovanni was built on land that had been swamp until the 13th century. It is true that the valley floor had once been a swamp. It is most unlikely, however, that this situation lasted until the 13th century in the region around San Giovanni. Most probably, the area had been reclaimed, at least partly, much earlier. In the Roman era there had already been settlements in the vicinity, and in 1125 there was a monastery called Badiola di S. Maria in Mamma nearby, which may have been founded in the Carolingian period (see fig. 3.5). According to Tracchi the monastery may have reclaimed its land on the bottom of the valley by the middle of the 11th century. From at least 1073 there had been a pilgrims’ hospital called spedaleto di Riofino or di Ubaldo on a small island in the Arno close to San Giovanni, the Isola di S.Maria di Piano Alberti. This implies that there already was an interregional road there at that time, which was used by pilgrims. In addition to these indications, there are various toponyms in the area which suggest that the floor of the valley was cultivated and that there must have been a road of some importance well before the 13th century. Therefore, it is highly likely that San Giovanni was built on an inter-regional road, probably on the site of an earlier settlement. The location was highly appealing from an economic perspective, both because of this road, and also because the place was surrounded by fertile land. The site lay close to the border with the territory of Arezzo, which made it also of strategic military importance.

The layout of the town has significant similarities to Castelfranco. (figs. 3.11, 3.12, cf. 3.6, 3.7) The walled outline was rectangular and the streets were all straight and arranged in an orthogonal structure with the residential streets running in one direction (parallel to the long axis) and the cross streets perpendicular to them. Originally the layout was symmetrical along the central main street of the town and a central cross street that widened into the piazza. This is no longer the case, however, since the southwest gate of the central cross street was blocked by the building of an oratory in the late 15th century and since a flood destroyed the southeastern corner of the town in the middle of the 16th century.

Unlike Castelfranco, the plan of San Giovanni is elongated in a NW–SE direction. Originally, it measured about 190 x 462 m. The rows of house lots are laid out along five parallel streets in this direction. The outer streets along the walls have partly disappeared, however, as they were turned into private lots for gardens and buildings. The original wall streets were about as wide as the central main street (about 11 m.), which

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134 Tracchi 1983, pp. 938-939. Repetti is largely of the same opinion. (Repetti 1830, Vol. 5, p. 934) The oldest document in which the Borgo di Piano Alberti is mentioned is dated 1131. (Nice 1947, p. 50)

135 According to Polverini the Castel Vecchio in Piano Alberti was also variously called Castel S. Giovanni, San Giovanni di Sopra or San Giovanni in Altura, and it would have lain on a hilltop just south of the new town, on the site of the later monastery of Montecarlo. (Polverini 1915, p. 23) This is quite unlikely, however. The idea is probably based on a misinterpretation of Poggio Bracciolini’s Storia of the 15th century.

136 Detti, Di Pietro & Fancelli 1988, p. 34. Other examples in Tuscany were Cascina (stimulated by the city-state of Pisa), Buonconvento (by Siena) and Pietrasanta (by Lucca, fig. 3.4). Outside Tuscany there are also many similar examples of the 12th to 14th centuries. (see par. 5.2)

137 Polverini 1915, p. 23; Tracchi 1987, p. 133.

138 According to Baldrina & De Luca, no archaeological evidence has been found at all for an earlier settlement at the site of San Giovanni. (Baldrina & De Luca 1998, p. 21; Baldrina & De Luca 2002, p. 10)

139 Porri S.D., pp. 34-44.

140 Friedman 1988, p. 8. This idea is based on Plesner’s hypothesis of the Rifoluzione stradale del Dugen, which describes how the main routes followed the hillcrests until they were replaced by routes through recently reclaimed valleys in the 15th century. (Plesner 1979; see par. 5.2).

141 See par. 5.2.

142 Repetti 1830, vol. 5, p. 55. A document of 1125 indicates that the monastery held much land in the Valdarno di Sopra and that it also held the castellucio di S. Mariano. A document recording a donation by Charlemagne may be a later forgery.


144 Polverini 1915, p. 23.

145 Among others, there are toponyms that refer to the presence of pilgrims’ hospitals, which are mostly are of pre-13th-century origin: just south of San Giovanni we find Spedalzola and, further north, Spedaleto and Spedale. There are also older toponyms referring to the period of the reclamation of the land, like Catena and Cetinale (meaning something like ‘cleared terrain’), Roncatiaco (“ploughed ground”), and Il Colto (“the cultivated place”). According to Porri (1983, pp. 725-726), these toponyms are of ‘early medieval’ origin.

146 See fig. 3.13 and also the plan by Bernardo Buontalenti of 1588, reproduced in Friedman 1988, fig. 110. This second plan depicts a project for the protection of the town from floods, of which the present layout may be the result.

147 The house lots along the long sides of the piazza may originally have been oriented towards the piazza, however, which meant that they were the only lots which were not arranged perpendicular to the main axis of the town. (see Friedman 2004, p. 148)
was about one third wider than the other two streets parallel to the main street. After the town walls had lost their function as strategic military fortifications, in about the 17th century, the wall streets were narrowed and lots were given out along the town wall.

The old layout is shown by a town plan that was drawn up in 1553 by the surveyor Piero della Zucca. (fig. 3.13) The plan also shows the wall streets along the short sides of the town’s perimeter and the cross streets halfway in between the central piazza and the short sides of the perimeter. It is also visible that the southwestern gate (left of the piazza) was turned into an oratory chapel, with a building adjoined it on the outside of the town wall.

The central piazza has an elongated form, perpendicular to the long axis of the town. Almost in the middle of it, just southwest of the main street where it crosses the piazza, stands the early 14th-century town hall. (fig. 3.15)

In Della Zucca’s 1553 plan, the corners of the piazza are all the same, with the outermost rows of houses extending further than the other ones. At the present time the situation is different, as it appears that houses have been demolished on the southwest side of the piazza in order to open the view from the piazza to the facade of the oratory that was built there in the late 15th century.

As at Castelfranco, the house lots were arranged back to back, with alleys in between; though here the alleys seem to have been wider, probably measuring four or five braccia (1.75 or 2.33 m.), which make it seem likely that they were intended to provide rear access to the lots, as well as to serve as a source of light and a conduit for rain water. Considerable parts of these alleys have been blocked by later extensions to the houses.

The lots were all 10 braccia (5.84 m.) wide. As in Castelfranco, their length diminished the further they were from the central main street. The lots on the main street were about 23 m. long; those on the next 16.7 m.; the next 14.3 m.; and the outermost ones 11.3 m.

Parts of the original town wall of San Giovanni are preserved on the northwest, northeast and southwest sides. The ditch that originally surrounded the town has disappeared completely. It seems to have lasted at least until 1311, and perhaps even until 1363, before the fortifications were finished. Originally,
there probably were 24 towers along the wall circuit, including four gate towers and four corner towers.\textsuperscript{152} (see fig. 3.14) Apart from the four gate towers, eight other towers were also sited at the end of streets, so that they would be quickly accessible from within the town and that the streets in the town could be surveyed from the towers. The original southwest gate tower, with its ‘ante-gate’ has been preserved in the Oratorio delle Grazie (see below).\textsuperscript{153} Two more towers have been partly preserved at the north end of the town.\textsuperscript{154} (fig. 3.12)

The oldest church in San Giovanni seems to have been the parish church of San Lorenzo, which is found on the south end of the piazza. As mentioned above, the institution already existed in 1276-77, but it was then in the older village of Plano Alberti, which may or may not have been on the same site as the later San Giovanni. The modest rectangular church, with its one small side aisle, was probably rebuilt in 1306.\textsuperscript{155} The church of San Giovanni Battista, on the northeast side of the piazza may have been founded in 1300.\textsuperscript{156} The church on the southwestern end of the piazza, the Oratorio delle Grazie (or Basilica di Santa Maria delle Grazie), was only founded in the late 15th century. It was built in the ante-gate after a miracle had taken place, involving a Madonna that was painted above the gate’s portal.

The early 14th century town hall of San Giovanni, the so-called Palazzo Pretorio, occupies a very prominent position in the centre of the piazza. (fig. 3.15) The building also functioned as market hall, jail and as the seat of the representative of the city-state. Originally it had a largely open, arcaded ground floor, which served as a ceremonial space and as a sort of market hall.\textsuperscript{157} Similar types of edifices with combined administrative and market functions can be found in northern Italy, in the bastides of southwest France and in central-eastern Europe, often also located in the middle of market places.\textsuperscript{158} (see figs. 2.46, 2.47) The open ground floor was enclosed by walls in the first half of the 15th century, after which time a gallery with a closed second storey was built surrounding the building.\textsuperscript{159}

\textsuperscript{152} The number of 24 towers is suggested by a 16th-century plan, of which only half has been preserved (see Cerudelli, Leoni & Ventura 1978, p.53; Friedman 1988, p.10; Bianchini 2003, pp.95, 104); and this number is also mentioned in the capitoli of 1487. (Beccastrini, Billi, Galli et al. 1989, p.50) Additional indications of this number are given in drawings by Charles Rohault de Fleury (1870-73). A number of 16 towers is suggested by the plan of Piero della Zucca of 1553 (fig. 3.13), by a 16th-century depiction in a fresco in the Palazzo Vecchio in Florence, by Giorgio Vasari and Giovanni Stradano (fig. 3.30) and by an etching of the 18th century (fig. 3.14). These depictions all appear to be inaccurate on this point, since they arrange the 16 towers in different ways along the wall circuit.

\textsuperscript{153} Bianchini 2003; Boldrini & De Luca 2004, p.265. The ante-gates probably were later additions of the late 14th century. They had a more or less square plan and crenellated walls.

\textsuperscript{154} Bianchini 2003.

\textsuperscript{155} Porri S.D., pp.34-44; Tracchi 1987, p.133. The narrow side aisle may be somewhat younger than the main aisle. In the 15th or 16th century the church was vaulted.

\textsuperscript{156} Friedman 2004, n.8. This also was a rather modest building, having an unvaulted single aisle without an apse. In 1672 it was made a parish church. (Dragomanni 1834, pp.27, 139)


\textsuperscript{158} See pnr. 110-5, 4; and figures Lavedan & Hugueney 1974, pp.LXXXII, LXXXIX; Getkind 1972, p.272. For the early building type of the town hall in general, see Peerser 1976, pp.27-28.

\textsuperscript{159} Boldrini & De Luca 1988, pp.48-54.
From the outside it seems that not much is left of the original houses in San Giovanni. It is likely, however, that behind many younger facades parts of old houses are still preserved.\(^{160}\) Research in one such house along the main street (Corso Italia 105) has uncovered important clues as to its form in the past. In the absence of other sources on old houses, this building may be regarded as example of the typical 14\(^{th}\)-15\(^{th}\)-century house in San Giovanni. (fig. 3.34) The walls on the ground floor were built of rammed earth, and the side walls on the second and third floors were constructed of brick pillars with fields of sun-dried bricks in between. The facade projected forward, above the ground floor, and may have been constructed (partly) of timber.\(^{161}\) It is likely that many of the very first houses in the town were more modest in size.

The larger house lots were not completely covered by houses initially. The backsides of these lots were probably left open for yards or gardens. (fig. 3.34) These open spaces were gradually largely covered by outbuildings and extensions to the houses. Eventually, the houses came to cover the lots almost completely, only leaving room for small courtyards in some cases.\(^{162}\) (see fig. 3.12) In the 16\(^{th}\)-century town plan by Della Zucca a section is drawn through the rows of houses (at the bottom). This section suggests that, by that time, most houses already covered the lots completely. It also shows that the houses on the main street were the highest ones, probably consisting of three floors, and that the houses became lower the further away they stood from the main street. (see fig. 3.13)

Along the main street and piazza, and to a lesser extent along the secondary streets, narrow galleries were built in front of the ground floors of some of the houses. (see fig. 3.12) It does not seem likely, however, that they were part of the original project for the town. (see fig. 3.15, on the right)

The town of San Giovanni was quite successful in an economic sense. It has always been the largest of the terre nuove, and presently its surface area covers at least ten times that of the original town, with a population of over 17,000. Of particular importance to this success was the location of the town. The bottom of the Arno valley has always remained a very important transport route from northern to southern Italy. Apart from the road, a railway was laid out immediately southwest of the old town in the 19\(^{th}\) century; and in the 20\(^{th}\) century a motorway and a high-speed railway were laid out on the other side of the river.

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\(^{160}\) In 1999 I was shown a house, opposite the church of San Lorenzo in the Via Alberti, which appeared to contain various elements of possibly 14\(^{th}\)- or 15\(^{th}\)-century origin, such as an old courtyard and a well.

\(^{161}\) Boldrini & De Luca 2004, pp.270-277.

\(^{162}\) Cerutelli, Lenti & Ventura 1978, pp.53, 60; Cardinale & Serafini 1990.
Scarperia was founded in 1306. The legislative document of 29 April 1306 states that two towns were to be created in the northern part of the contado, one in the Mugello valley, and one Ultra Alpes, on the other side of the Appenine watershed. Work on the first of these was begun immediately. This became the town of Scarperia, sited in the Mugello valley, about 25 km. north of Florence, on the main road to Bologna and northern Italy. (see figs. 3.1, 3.16) The actual creation of the second town, Firenzuola, only started in 1332.

As described in paragraph 3.5, the aim of these two town foundations was to control the northern part of the contado and the main road to the north, and to ‘destroy the resources’ of the rebelling magnates of the

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163 See Richter 1940, pp.380-381; Friedman 1988, pp.310-313, doc.3.
164 See par.3.8.4.
mighty Ubaldini clan, among other things by freeing their subjects. Scarperia was particularly created to control the region that had been dominated by the strong Ubaldini castle of Monteaccianico. A week after it was decided to create the two new towns, this castle was besieged. (fig. 3.17) According to Davidsohn there was an acute necessity to act, as a large army was gathering to attack the Florentine territory from Bolognese soil. This army would have had an important and strong base at Monteaccianico. The siege lasted until August and ended with the conquest of the castle. The Ubaldini subsequently signed a treaty in which they promised to abandon Monteaccianico and several other castelli in return for a compensation of 15,000 fiorini. After this, the castle was demolished and the actual building of Scarperia began on September 7, ‘so that Monteaccianico could never be rebuilt’, according to Villani.

Originally, the town was called Castrum Sanc Ste Barnabae or Castello San Barnabae. This name was most probably chosen because Saint Barnabas was the patron of the faction of the Guelph, which dominated the Florentine administration at the time. It seems, however, that the older name of the site, Scarperia, soon came to prevail over the official name.

According to a document of 18 July 1306, the inhabitants of Scarperia should be drawn from 26 comuni in the nearby area, among which was Monteaccianico. Romby and Diana have pinpointed the original locations of 22 of these comuni. They lay within five km. of the new town, except for Marcoiano, which was at seven km. distance. Five of them were only about one km. from Scarperia. The document assigns the authority to lead the works for the creation of the town to an official called dominus Matteus. He also receives the authority to destroy villages in order to ensure that the inhabitants would move to the new town and to insure that the villages would not fall into the hands of the Ubaldini.

The location for the new town was well chosen. It was sited in the fertile Mugello valley, at the edge of a low plateau, which lies at the foot of the Apennine mountains. (fig. 3.16) The plateau slopes lightly to the south, towards the river Sieve. To the east and west of Scarperia lie small valleys through which streams flow. Directly west of town there is a steep slope of about 20 m. deep. The town wall was built right above this slope, but just as at Castelfranco this has suffered some damage due to landslides in the course of the centuries.

Scarperia was built about three kilometres southeast of the hilltop on which Monteaccianico had stood. The precise location was probably partly determined by plans that were made to construct a new pass-road over the mountains to the north of the town. This road, the construction of which was begun at about the same time as the town, was intended to replace the old route, which went by Monteaccianico, over to the pass of Osteria Bruciata. (fig. 3.18) The new route was laid out because the Florentines were still not sure whether they were able to control the old route, because it went right through Ubaldini territory. According to an anonymous writer, Monteaccianico was even destroyed specifically ‘so that everybody could go safely from Florence to Bologna’. The Ubaldini had also levied tolls on the road, without Florentine permission. It is unlikely that the new road was built mainly to make transport more efficient: the new route was just a bit shorter and the pass, which was called Giogo, was just slightly lower (882 instead of 917 m. AMSL). Nor was there much difference in the conditions of the terrain, like its slope, soil and vegetation. Both the old and the new road were not passable by carts.

The precise location and layout of Scarperia makes it most likely that the site was chosen so that the town would mark the beginning of the new road. It lies just east of where the old route went by, and the main

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165 See pars. 3.5.1, 3.5.2, 3.5.5.
166 Friedman 1988, p.46.
168 Giovanni Villani, VIII, 86; Villani 1823, vol.III, pp.163-164; see also pars. 3.5.1.1. Already in 1258 Monteaccianico had been destroyed by a Florentine army, but it was rebuilt with even stronger defences by the bellicose Cardinal Ottaviano Ubaldini. In 1271 and 1272 the Florentines also campaigned against Monteaccianico. (Pigoznet 1962, p.13)
169 In 1299, Azzo Ugolino di Filiccione, fr. 1404, the lands of the Ubaldini and the Guidi were finally expropriated by the city-state. This dispossession was contested, however, and hostilities between the city and the Ubaldini in the northern part of the contado went on until well in the 15th century. (Fabbri 1980, pp.602)
170 Davidsohn 1962, vol.IV, p.373. Only several centuries later was the new Giogo route widened in order to make it passable for carts.
street of the town, which was to form part of the new route, is oriented precisely in the direction of the route between San Piero a Sieve (the next significant settlement on the route to the south) and the Giogo pass.

The first time the new road was used, as far as is known, was in 1342, when a Florentine army was defeated somewhere along the road while it was trying to reach Firenzuola in order to free it from a siege by the Ubaldini. In fact, Firenzuola was built at the other end of the new route over the Giogo pass, as will be described in the next paragraph.

Scarperia was not located as close to the border of Florentine territory as were the other terre nuove, though it was well chosen in military-strategic sense, as is demonstrated by the prominent role of the town in the wars of the 14th and 15th centuries. Although not directly at the border, it protected the main part of the territory from incursions from the north, since there were only a few possible routes over the Apennines. The Osteria Brucia and the Giogo were the most important passes. The latter even became one of the main trans-Apennine routes in the whole of Italy.

It is possible that Scarperia was built on the site of an existing village. There are various sources which suggest that this is the case, but they only date from the 17th to the 19th centuries. It was claimed that the well in the piazza, the church of Santi Jacopo e Filippo on the southeast side of the piazza, and the Palazzo dei Vicari on the opposite side (fig. 3.21) contained remnants of older structures dating from before 1306. There are no concrete indications that confirm these claims. The structure of the town and its buildings

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178 According to Grandini (1978, p.23) the route was officially opened only in 1361. Friedman (1980, p.45-46) argues that it was probably already in use in the 1330’s.
179 The ‘Giogo’ remained a very important route until the Passo della Futa was opened in 1762. (Grandini 1978, p.14) Scarperia’s economy profited greatly from the traffic on this route by its market, shops and many inns. In the 14th century Scarperia had more members in the guild of inn-keepers than any other town in the Florentine contado. (Grandini 1978, p.23) In 1393 there were no less than 11 inns in the town. (Friedman 1988, p.233, n.17)
180 Brocchi 1798; Repetti 1830, vol. 3, p.221; Romby & Diana 1985, p.96.
is regular and does not show traces of older elements. This does not mean, of course, that there could not have been a settlement at the site before the new town was created.

The layout of the town has some relevant similarities to San Giovanni. The town was built on a levelled piece of land, which lightly slopes to the south. Actually, the document of 18 July 1306 explicitly mentions that the site had to be levelled.\textsuperscript{181} The outline of the town can be described approximately as an irregular elongated rectangle of about 128 x 303 m., the four sides of which are not all straight and not completely parallel, nor are the angles right. (figs. 3.19, 3.20) The western side follows the edge of the plateau, which accounts for the fact that it is not straight. The northern, eastern and southern sides of the circumference do not appear to contain elements dating from the 14th century. In the 15th or first half of the 16th century, large earthen bastions were added to the corners of the town. The original stretches of wall on the south side, and probably also on the north and east sides, seem to have been demolished in the 17th or 18th century.\textsuperscript{182} The outline of the town on the south and north sides was altered in this period.\textsuperscript{183} It is likely that the north, east and west sides of the original outline of the town were straight and at right angles, in analogy to the other terre nuove.

As at Castelfranco and San Giovanni, the street structure basically consisted of two intersecting streets ending in gates in the middle of every side of the circumference. The house lots were oriented on the longitudinal main street and the streets parallel to it, which were somewhat narrower. Presently, there are streets parallel to both sides of the main street and another one further beyond, in the northwest quarter of the town. (figs. 3.19, 3.20) It seems likely, however, that originally there were also parallel streets further out in the other three quarters. In the rear boundaries of various lots one can recognise former street lines. In the southeast quarter of the town there can still be seen a short, dead-end street which seems to be a remnant of one of these original streets. Originally, this outer parallel street on the east side of town was probably laid out along the inside of the defensive perimeter.\textsuperscript{184}

It is possible that the main cross street originally was an elongated piazza rather than a street, similar to the situation in San Giovanni. The gates probably lay a little south of the present cross street: it seems that the original west gate was incorporated into the keep that was built on the west side of the piazza around 1355. There are secondary cross streets about halfway between the centre of town and the northern and southern ends, and at both of these ends there are also cross streets. The southern one probably lay on the inside of the original defences. Of the irregular northern one it seems that only the part directly west of the main street is a remnant of the original wall street; the other parts were probably

\textsuperscript{181} The word used in the document is ‘splanare’. (Richter 1946, p. 328-329; Friedman 1988, p. 313, doc. 4)

\textsuperscript{182} The bastions may be seen in a 1556-59 fresco in the Sala Cosimo I in the Palazzo Vecchio in Florence, painted by Giovanni Stradan. (published in Friedman 1988, p. 23) The southern and eastern stretches of the 14th-century town wall also appear in it, but in a late 18th-century plan (Archivio di Stato Firenze, Conventi soppressi, 136, 143/I, no. 23, published in Friedman 1988, p. 25) they appear to have been demolished.

\textsuperscript{183} It is likely that the original southern stretch of wall lay along the south side of the street perpendicular to the main street, and joined the southwest corner tower, parts of which may date back to the 14th century. Likewise, the fortification outline may have been extended somewhat northward on the northwest corner of the town.

\textsuperscript{184} The distance from the central main street to the outer parallel street in the northwest quarter is almost equal to the distance from the main street to the remnant of the second parallel street in the southeast quarter and to various back boundaries in the northeast and southwest quarters, which suggest that the original layout was basically symmetrical.
rearranged when the defences were rebuilt in the 15th to 18th centuries.

In the centre of town lies the piazza, astride the main street and the major cross street. It has no absolutely central and symmetrical position within the urban structure, as at Castelfranco and San Giovanni. It is likely, however, that the piazza was originally planned to be central and symmetrical, with an elongated form perpendicular to the main street, as at San Giovanni. The layout was partly changed during the 14th century, when the church to the east of the piazza, the Palazzo Vicarile on the west side, and possibly also the house and the loggia on the south side, were built.185

The cadastral plans of the 19th and 20th centuries show few traces of alleys (figs. 3.19, 3.20), but it seems that they did exist in the original plan, since they were mentioned in the statuti of the early 15th century and remnants of them can be found in the northwestern quarter.186

The house lots originally were 12 braccia (7.00 m.) wide.187 Just as at Castelfranco and San Giovanni, their length diminishing as they lay further from the central main street. The lots on the main street were about 27.5 braccia long, the ones behind them c. 20 b., and the lots in the third and fourth rows were 19 b. long.188 The inhabitants also received garden plots that were located just outside the town.189

It took at least 64 years before the stone town wall was finished. Before that time the town was defended by a timber palisade.190 It seems that parts of the original stone wall are only preserved on the west side and, possibly, on the northern part of the east side. An older gate tower appears to have been integrated at the back of the mid-14th century keep, giving access to it from outside the town.191 The imposing castle-like building with its high bell tower still dominates the piazza and, in fact, the whole town. It was built shortly after the middle of the 14th century, acting as a keep and a residence for the garrison and the Florentine governor, the vicario, for which it is called Palazzo dei Vicari.192 (fig. 3.21) It is not known whether the building

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185 See below.
186 The statuti of the 1420’s prescribe that the alleys must be paved to facilitate the drainage of rainwater. (Romby & Diana 1985, p. 82) The remnants of alleys suggest that they were about 0.9 m. wide, which make it seem unlikely that they also served as back access to the lots. (see appendix B, par. B.3.4)
187 It seems, however, that a number of the corner-plots may have been 14 to 15 b. wide, as may be observed in 14 out of 47 possible cases. In only five of the remaining 33 corner-plots the width is about 12 b.; in the rest of the cases the lots have been subdivided or amalgamated.
188 See appendix B, par. B.3.4. It is likely, however, that the width of the former alleys (probably 1.5 b.) between the first and the second rows of lots, now no longer recognizable, should be subtracted from the lot length of the first or the second rows.
189 A document of 21 April 1338 records the assignment of a garden plot outside the north gate of the town to a settler. The plot is described as lying between the garden plots of other inhabitants. (Friedman 1988, pp. 316-317, doc. 0) The 15th-century statuti of Scarperia mention that every household would have its own garden. (Romby & Diana 1985, p. 78, n. 50)
190 A stone wall was only completed after 1370. (Richter 1940, p. 364, n. 62; Friedman 1988, p. 237, n. 5; Santi, Romby, Brunori and others 1990, p. 11)
191 It is known from a petition of 1360 that the building of the keep made the communal bell tower no longer accessible to civilians. (Friedman 1988, p. 275, n. 76) According to an old tradition, however, this older tower was the high tower at the front of the keep, facing the piazza. (Romby & Diana 1985, p. 93) In my opinion, this is less likely. It seems more logical that a towered town gate already existed, and that it served as a bell tower (as in Castelfranco) rather than that there was a freestanding tower in the middle of the piazza. I have not been able, however, to thoroughly study the construction of the building.
192 Friedman 1988, pp. 65, 198, 275, n. 76.
was planned right from the outset, but this does not seem very likely since it blocks the street to the west of the main street, and originally probably also the westernmost street parallel to the main street. Later on, the building became the town hall.

The first church in Scarperia was built soon after the foundation of the town. The simple, unadorned building was situated on the north side of the piazza and was dedicated to Santi Iacopo e Filippo. It lasted until 1375, when the inhabitants of the town and the government succeeded in having it promoted to the status of a parish church, at the expense of the old parish, which was dependent on the nearby abbey of Fagna. Around 1325 the Augustinian order founded the convent of San Barnaba. Its church was built on a very prominent site at the east end of the piazza.\(^{193}\)

At the southeast side of the present piazza stands the oratory of the compagnia di piazza, a local lay confraternity. The building already existed in 1353. By that time it was a single storey open loggia; later on, a storey was added and the arcade of the loggia was walled up. The loggia was probably also used for communal public ceremonies.\(^{194}\)

Not much is known of the first houses that were built in the new town. Most probably they were largely built of cheap and easily available materials like wood, unhewn stones or rammed earth.\(^{195}\) The settlers were obliged to cover the roofs with tiles, probably to prevent the construction of straw roofs, which easily caught fire.\(^{196}\)

Scarperia remained an important market town and a road station with many inns until the 18th century. In 1762, however, the road over the Futa pass was reconstructed, about 10 km. east of the Giogo road. The opening of this better and easier route to Bologna meant that most travellers no longer passed by Scarperia, which resulted in a considerable decline in its economy and territorial centrality. At present, Scarperia is just a quiet small town.

### 3.8.4 Firenzuola

The creation of Firenzuola, in 1332, was the result of the same decision that had previously created Scarperia, in 1306. For reasons that are not specifically known, the actual beginning of the work at Firenzuola was 26 years later.

The legislative document for the town was drawn up on 9 April 1332. It indicates that the town was founded ‘[... ] for the honour, peace and good state of the Commune and populace of Florence and the Guelph Party and the

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\(^{193}\) Friedman 1988, pp.174-175.  
\(^{194}\) Friedman 1988, pp.180-195.  
\(^{195}\) Romby & Diana 1985, p.80. A document of 1368 describes a house in Scarperia as being built of wood. (see Friedman 1988, pp.318-321, doc.8)  
\(^{196}\) Two documents of 1308, published by Friedman, in which house lots are assigned to settlers, mention that the roofs are to be covered with tiles (‘coprire de tegulis’). (see Friedman 1988, pp.314-318, docs.5, 7)
holy mother Church’, that it was to be built in the ‘Plain of the Arca’ and that the ‘settlement or castrum’ was to be called Fiorenzuola. In his Cronica the Florentine chronicler Giovanni Villani boasted that he invented this name, when he was a member of the committee that was to oversee the building of the new town. The name explicitly refers to the mother city, Firenze, the Italian name for Florence.

According to Villani, the moment of the official foundation of the town was determined by astrology. This moment was the eighth hour of the eighth of April 1332, because at that hour the sign of the Lion would be ascending, which would mean that the town would be ‘stronger, stable and powerful’. This was the day before the legislative document was drawn up. It is not known what this official foundation involved, but most probably it was a ritual, possibly the circumambulation of the site and/or the planting of a cross or stake holding the arms of Florence.

Various documents of the years 1334-38 indicate that construction work was being done on houses, four gates, palisades, a church and even a town hall. It seems, however, that the astrologers had made a mistake, because despite the signs of early activity it appears that the town developed very slowly. The chronicler Matteo Villani (Giovanni’s brother) relates that Firenzuola was plundered by a Ubaldini force in 1351, writing that the town was undefended, since it still had no ditches, banks or palisades at the time, and the people lived in huts rather than houses.

The town was besieged, plundered and burnt down (among other occasions) in 1342, 1351, 1371, 1372 and 1402, in which actions the Ubaldini played important roles. This must have seriously hampered the development of the town, and we shall see below that only in the late 15th century was it possible to actually complete it in the form we presently know.

The Piano dell’Arca, on which the town was built, lies at the bottom of the valley of the Santerno river. The place lies at a relatively high altitude of 422 m. and is surrounded by mountains of up to c.1250 m. It lies on flat terrain that slopes towards the south. It is sited just 300 metres north of the place where the new road over the Giogo pass crossed the river. In the original layout, as described in the foundation document, the road from the Giogo pass connected to a northward road over the Passo della Radicosa towards Bologna, and in the centre of town it crossed the road along the Santerno, which joined the old Osteria Bruciata pass road westward and went in the direction of the city of Imola, to the east.

The region was not logically part of the Florentine contado, since it lies on the other side of the Apennine
watershed. The area is rather isolated, at about 40 km. from both Florence and Bologna, 35 km. from Imola and 15 km. from Scarperia. In the time of the town’s foundation this isolation must have been felt much stronger, which perhaps also explains how the nobility could hold on to its power here for a relatively longer time. The location of the new town was quite close to the border between the Florentine and the Bolognese territories.

There are no indications of an earlier settlement at the site. The legislative document of 1322 lists eight village communities in the area near the future town, from which the population was to be drawn. Six of these lay south of the new town, at a distance of up to 6 km. The closest settlement was the Comune et populus S. Petri de Santerno, which lay about a kilometre to the east.

It seems that the 1332 legislative document for Firenzuola was drawn up later in the planning process than the legislative documents for the towns described above, because it mentions, among other things, a specific location, a name and various features of the layout, which details are lacking in the earlier documents. With regard to the layout, it establishes that the town is to measure 633 by 342 braccia (c.200 x 370 m.). It also mentions that there is to be a straight street from Florence to Bologna ending at gates called ianua Florentina (‘Florentine gate’, towards Florence) and ianua S. Ioannis (after the patron saint of Florence). This main street is to be called the via Florentina. Another straight main street, called the via S. Maria is to be laid out connecting gates called S. Petri and S. Maria.

In our own time, however, the town has a very different layout from the one described in the document. At least since the 15th century the dimensions have been only about 213 x 188 m. - about half the size of the original plan - and there are only two gates, towards Florence and Bologna, and there is only one main street. (fig.3.22) It is likely that the changes were made at the time the defences were rebuilt in, first in 1371-75 and then again in the late 15th century. Two gates, the lateral ones towards the east and west, probably were not rebuilt in order to reduce both the costs and the number of vulnerable points in the fortifications. The town was probably reduced in size because it turned out that there were not as many inhabitants as had been foreseen in 1332.

The town has a rectangular outline, with the long axis in NNW-SSE direction. This outline is still largely determined by the fortifications of the late 15th century. The main street connects the two impressive gates in the middle of the northern and southern sides of the rectangle. There are two secondary streets parallel to the main street. The westernmost street is irregular, since the middle part was widened and partly protruded on, but originally it must have been straight. The elongated rectangular house lots were originally all oriented on these three streets. Perpendicular streets connected the three streets at their outer ends along the town wall and halfway in the northern part of town. The northern wall street has vanished, however, as it was almost completely occupied by buildings in the 18th to 20th centuries. The perpendicular street halfway in the northern part had a monumental layout, with church facades at both of its ends. This layout dates from the 15th century. In the 20th century the western church building was demolished, however, and the street was extended into

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205 Friedman 1988, p.329, doc.13. According to Repetti, however, the early statutes of c.1332 mention that only the comuni di Tirli e di Bordignon were re-settled in the new town. Repetti 1890, Vol.2, p.386. In the legislative document of 1322 these communities are not mentioned as such, though it is stated that officials have deliberated with communities from the area around Bordignon. According to Romby, the inhabitants of the new town were gathered from 19 village communities. (Romby 1988, p.11) Neither author mentions any sources on which they might base their opinions.


207 Walls, gates and the interior of the town were reportedly rebuilt in 1371-75; repaired in 1471-76, and further work was done on the fortifications in 1495-99, under the direction of the architect Antonio de Sangallo the elder. (Richter 1941, n.61; Friedman 1988, pp.31, 229, n.7; Cohn 1999, p.81)

208 The eastern church, SS. Annunziata, appears to have dated from the 15th century, but was largely destroyed in World War II.
fig. 3.22: Plan of Firenzuola, after a 19th-century cadastral plan. (From: Friedman 1988) Firenzuola was founded by the Florentine government in 1332. According to the original foundation document, however, its dimensions were to be considerably larger, and the document also prescribes that the new town have four gates, instead of the two depicted in this plan. Therefore, it seems likely that the present form of the town was largely re-shaped in the period until the late 15th century, after the town had been heavily damaged several times in wars and earthquakes. The fortifications in this plan were built in the late 15th century, designed by Antonio da Sangallo the Elder.

As mentioned above, the fortifications of Firenzuola were restructured in the 14th and 15th centuries. The original wall circuit was to have sixteen towers, including four gate towers. The fortifications were not finished before 1351, and probably not even before several decades later. Various documents of the years 1334-38 describe the form in which the gates, walls and towers had to be built. The walls were to be 2 braccia (1.17 m.) thick and 16 braccia (9.35 m.) high and to be topped by a machicolation with crenellations of a further 2 b. in height.

According to Repetti, Firenzuola was supplied with a keep around the year 1362, and from 1377 on, this keep also functioned as the residence of the Florentine representative, the potestà. Repetti believes that this was the keep that stands in the middle of the western face of the defences. It seems more likely, however, that that keep was only built in the 15th century, along with the reconstruction of the defences.

Two years after the foundation of the town, work on a church seems to have started. Unlike the churches

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209 See Friedman 1988, p.240, n.22.
210 See par.9.11 and appendix C.
211 Richter 1940, nr.5h.
213 Richter 1940, pp.371, 382-386, nrs.5b-5m.
215 This can not be verified, however, since the building was heavily damaged in World War II and was subsequently largely reconstructed. See also Carli 1981, pp.6, 8.
in the other terre nuove it appears to have been financed at least partly by the Florentine administration. This is probably the church of San Giovanni at the northeast side of the piazza, which was destroyed in World War II. In 1334 a document mentions the building of a palatio comunis, a kind of town hall, apparently at the cost of the government. From the 15th century on, a town hall stood at the short east side of the piazza, with a loggia in front of its facade. (see fig. 3.22)

Along the main street and part of the piazza, galleries were built in front of the ground floors of the houses and the church. (see fig. 3.22) They probably only date from the 15th century on.

Firenzuola was damaged many times by warfare in its early history. It was also severely affected by various earthquakes over the centuries and by bombing in World War II. Because of that, its original structure and architecture have barely been preserved, unlike the other terre nuove. Like Scarperia, the town’s development was negatively influenced by the opening of the new road over the Futa pass in 1762, which left both towns far beyond the main traffic route. At present, Firenzuola is not much more than a village, with some small extensions dating from the 20th century.

3.8.5. Terranuova Bracciolini

The foundation of Terranuova Bracciolini was legislated on 2 April 1337. The legislative document records that twelve rural communities from the Valdarno di Sopra had submitted to the Florentine city-state in order to receive protection against ‘the suppression of tyrants or other unjust lords’, and that the government therefore planned to found one or two settlements in the area of the Valdarno di Sopra near Castro S. Ciconie.

In October 1336 the inhabitants of (among others) the borghi murati (walled villages) of Pernina, Pozzo, Cave, Ganghereto, Terraio, Viesca and Moncioni revolted against the conti Guidi, and submitted to the jurisdiction of the comune of Florence. Of course, Florence accepted this submission. According to Giovanni Villani, Terranuova was populated with the subjects of the conti Guidi of Battifolle ‘[…] to forever deprive every jurisdiction and fidelity from these counts’. He also wrote that the conti Guidi received a compensation of 8,000 florin.

According to Repetti, however, the Ubertini were the lords of the site on which the town was built.

The town was originally called Terra Santa Maria. This dedication may have referred to the older monastery of Santa Maria di Ganghereto, which lay nearby. The later name Terranuova makes clear that it was a ‘new settlement’ or ‘new ground’ (terra nuova). The suffix Bracciolini was added in 1862, a reference to its most famous native, the humanist Poggio Bracciolini (1380-1459).

Terranuova was sited on the right bank of the Arno, quite close to the earlier new towns of Castelfranco and San Giovanni, about 8 km. south of the first and 4.5 km. southeast of the second. (figs. 3.1 and 3.5) It lies on the fertile floor of a valley through which the Ciufenna, a small tributary of the Arno, flows just south of town. It was built on a low spur, which causes it to slope gently to the east, south and west.

The site lay on a road that connected the more important inter-regional routes on the east and the west of the river Arno, at which points Castelfranco and San Giovanni had been built. Since both these routes connected Florence to Arezzo, the connecting road can only have been of regional importance. As we mentioned in paragraph 3.5.2 above, Terranuova was probably situated just over the ancient border of the Florentine contado, in the old territory of Arezzo. At the present time, the town actually lies in the province of Arezzo. The strategic importance of the site seems to have been limited, since it was not on a major access route into the territory. Because of the limited military and economic importance of the site, it seems
that Terranuova’s creation was mainly born from opportunism, the submission of the rural communities providing the opportunity to enlarge the contado at the cost of Arezzo’s territory.

According to Repetti, there had been an earlier settlement on the site of Terranuova. From at least 1085 there had been a fortified settlement called Castello di Ganghereto had stood on a hilltop about a kilometre east of the town. In 1271 the Florentine government ordered the inhabitants of the place to move to a new settlement in the valley nearby and to tear down the old castello. The new settlement was called Castello di S. Maria (di Ganghereto). According to Repetti, the inhabitants of this new settlement were among the communities that rebelled against the conti Guidi in 1336 and turned to Florence for defence. After this, the Florentine government decided to have the Castello di S. Maria (di Ganghereto) fortified with stone walls and towers, and this became the town that we presently know as Terranuova.

This would mean that Terranuova was created in two phases, in 1271 and 1337. Due to the very regular structure of the urban layout, this seems quite unlikely, however. If it is true that a new settlement was created on or nearby the site in 1271, it was probably destroyed to make way for the creation of a truly new town in 1337.

The legislative document mentions that the new town was to be built ‘[…] in the Valdarno on the side of’

\[226\] It is a fact, however, that it was not completely torn down, since the place was still inhabited later on and still had some military strategic significance in 1312. (Davidsohn 1960, Vol.III, among others p.682)

Castro S. Ciconie. 228 Cicogna (or Ciconia) is a small walled settlement about four km. east of Terranuova. The document lists the twelve communities that submitted to Florence and that were to deliver the settlers of the new town. Among them, there is no Castello S. Maria, however. There is a Comunis de Ganghereta, but this was probably the community centred on the old settlement on the hill east of Terranuova. Therefore, it seems that Repetti’s version of the story is incorrect. I have only been able to locate four of the twelve places. They all lie on hilltops at a distance of up to 2.5 km. from the new town.

The layout of the town is regular, and shows clear traces of having been even more regular originally. (figs. 3.23-24) The outline is an elongated rectangle measuring 159 x 333 m. The long axis is directed northeast to southwest. The circumference was completely walled, but the short sides were largely demolished in the 19th and 20th centuries. There were four gates, one in the centre of every side, which were connected by two straight streets that intersect in the centre of the town.

The central main street, along the long axis of town, is paralleled by three streets of lesser width on either side.229 In contrast to Castelfranco, San Giovanni and Scarperia, there are no double rows of house lots in between, but only single rows. Closer study reveals that on either side of the main street the parallel streets nearest to and furthest from the main street are less wide than are the middle ones.230 There are various indications that there originally were also relatively wide streets parallel to these streets, along the inside of the town wall.231 From this it can be deduced that the parallel streets that presently lie nearest to and furthest from the main street were originally only meant as back streets. The houses must originally have been turned towards the middle parallel streets, which they still largely are, and to the wall streets. Apparently, the wall streets were allotted and given out to the owners of the adjoining lots at some time in the 16th to 18th centuries (in any event, before 1734; see fig. 3.25). The wall streets were deemed no longer useful, since the

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228 ‘... ad facienda construi et de novo fieri unam vel duas terram et terres in partibus Vallis Arni a Castro S. Ciconie citra’. Richter 1940, p. 386, doc. 6; Friedman 1988, pp. 332-334, doc. 16.

229 In the southern quarter of town there are only two parallel streets. Instead of the outermost street, with adjoining house lots, there are a large parking-lot and a monastic complex here. It seems most likely, however, that a street was planned originally, since it would form part of a symmetrical structure, analogous to what we see in the other terre nuove.

230 From this it can be deduced that the parallel streets that presently lie nearest to and furthest from the main street were originally only meant as back streets. The houses must originally have been turned towards the middle parallel streets, which they still largely are, and to the wall streets. Apparently, the wall streets were allotted and given out to the owners of the adjoining lots at some time in the 16th to 18th centuries (in any event, before 1734; see fig. 3.25). The wall streets were deemed no longer useful, since the
stone walls of Terranuova had lost their military value as they had become obsolete due to new military techniques, and Terranuova had lost its strategic position after the Florentine Medici dynasty had come to rule the whole of Tuscany. The wall streets were not really needed to reach the adjoining houses, since they could simply be reached by way of the back streets, which subsequently became the main access streets to these houses.

As in the earlier terre nuove, the central cross street has four streets running parallel to it: two along the short sides of the outline and two about halfway in between. Their function was to connect the longitudinal streets; originally no house lots seem to have been oriented on these streets.

In the very centre of town there is a symmetrical rectangular piazza, measuring about 40 x 53 m., with the long axis perpendicular to the long axis of the whole town. Its corners open up to the back streets between the first and second rows of houses (counting from the main street).

Most probably, the original house lots all had an elongated rectangular form, laid out perpendicular to the long axis of the town. They had a standard width of 10 braccia (5.84 m.), but their length varied. As at San Giovanni, there were four different lengths. The lots facing the main street were about 17.5 m. long, the lots in the second rows from the main street measured c.14.9 m., those in the third rows c. 12 m. and the outermost ones originally were c. 8.5 m. in length. From a document it appears that in 1367 the stone walls were finished and that eight towers were completed. Sixteen more towers were still to be finished, however. It seems that the locations of the towers were principally the same as the 24 towers at San Giovanni, mainly built at the end of the streets. (fig. 3.25) Considerable parts of the town walls have been preserved up to our own day. (fig. 3.33) As in Castelfranco and San Giovanni, the walls and towers were largely built of natural stones found in (ancient) riverbeds. The former circuit of the town ditch can still be recognised from the structure of streets and lots outside the town walls.

The original division of the town into four administrative and social quarters is still recognisable from the small churches that lie centrally located at the crossroads in every quarter. (figs. 3.23, 3.24) The church of San Biagio ai Mori, in the western quarter of town, must have been built before 1367. The dedication appears to have been transplanted from an earlier church in the village of Mori, which was situated on a hilltop not far north of Terranuova before the new town was created. This simple single-aisled church was built on a space as large as four half house lots.

Unlike the other terre nuove, it seems that no church was built on the central piazza of the town. The town hall originally seems to have been the only building with a special function that was located on the piazza. The original house lots have been preserved up to our own day. In a plan of 1734 it is indicated next to the western corner of the piazza. (fig. 3.25: ‘Casa de comune’) Later in the 18th century, the town hall was moved to a larger building on the south corner of the piazza, in front of which a loggia was built. (see fig. 3.25) Unfortunately, no details are known about the early houses in Terranuova.

At present, Terranuova is a small town surrounded by agricultural fields. The built-up area has grown to about eight times its original size in the 20th century. As at the other terre nuove discussed above, it is remarkable that the layout of the extensions is considerably less regular than that of the original town.

3.8.6  Giglio Fiorentino

The short-lived history of the terra nuova Giglio Fiorentino seems to have been largely forgotten until David Friedman found some highly interesting documents in the Florentine Archivio di Stato. A document of 16 January 1350 records that the abbot of the Badia Agnano submitted its lands with seven villages to Florence, in order to gain its protection against the plundering and usurpation of ‘certain magnates that were the enemies of Florence’. These magnates, or at least some of them, were members of the mighty

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232 See appendix B, par. B.3.1, table II. For the outermost lots this length is based on the few old buildings that still have their original back boundaries along the former wall streets.
233 Richter 1940, p.316, n.2; Friedman 1988, p.236, n.3.
235 The present church on the east side of the piazza was only built in 1443. (Friedman 1974, n.30)
236 A plan of 1779 indicates that the town hall was in the south corner of the piazza by that time, and that a loggia stood in front of it. (Biblioteca Nazionale, Firenze, Manoscritti, A.1.13, fol.34; depicted in Friedman 1988, p.21)
237 Domenico Bacci writes that the old houses are mainly built of rounded natural stones from riverbeds, and that brick was sometimes used for the storey facades. Only the facades of the houses of the wealthiest inhabitants were built of hewn stone. (Domenico Bacci 1936, p.98) It seems likely, however, that the earliest houses were largely built of cheaper materials like wood and rammed earth.
238 Friedman 1988, pp.334-335, doc.17.

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Ubertini clan. This family had originally founded the abbey and had donated much of the property belonging to it. Therefore, they regarded the abbey’s possessions more or less as their own. In this period, the bishop of Arezzo, who was actually the ruler of the city, was a member of the Ubertini family. The area around the abbey actually lay in the bishopric of Arezzo and the territory of the city-state of Arezzo, and hence it was very vulnerable to the Ubertini, as it would not get protection from the bishop or the administration of the city-state. Therefore, the abbot turned to the government of the mighty city-state of Florence for protection by submitting the abbey’s possessions and ensuring its defence by contract.\textsuperscript{239} Four days later, on January 20, the communities of the villages in the area also submitted to Florence.\textsuperscript{240}

A document drawn up on 25 January records that the Florentine committee of the Ufficiali della Castella, which was responsible for the fortifications in the Florentine countryside, was instructed to make plans for the creation of a ‘great settlement’ in the ‘newly acquired Florentine Val d’Ambra’\textsuperscript{241}. The next thing that is known of the project is a document of 19 May 1350, in which it is described in detail. Because this document gives such a good and rare insight into a town planning project of the high-period of town foundation, the text is reproduced in our appendix A. Among other stipulations, the site of the new town is determined, the ground plan of the town is described (including its dimensions), the names of the four gates are determined, and the name of the new town is established. In addition, the coat of arms of the town is described, it is determined that the market shall be held on Saturday, and some details of the form of the houses are prescribed. Furthermore, it is established which rural communities are to be re-settled in the new town, that the houses of the old villages must be torn down, and that the settlers shall be exempted from direct taxes for five years. Some of these stipulations will be discussed below.

The official document containing the legislation for the new town was drawn up on 2 June of the same year.\textsuperscript{242} No reason or motive is given in the documents regarding the creation of the new town. As at Terranuova, it clearly was an opportunistic action of the Florentine administration, a means by which its authority was to be extended over a larger territory.

After this, nothing more is heard of the project. It seems that it was aborted soon after this document was made up. The reasons for this are not precisely known, but it is most likely that severe armed conflicts in 1351 played an important part in it. The great conflict was the war between Florence and the Visconti rulers of Milan, and a smaller one was the occupation of the Valdambra and the castello of Agnano by the Ghibelline clans of the Ubertini, Pazzi and Tarlati.\textsuperscript{243}

The name Giglio Fiorentino means ‘Florentine lily’ or, literally, ‘flowering lily’. This flower was the main element in the coat of arms of the city-state. Just like Firenzuola, the name thus indicated more or less directly that the town was created by Florence and belonged to its territory.

The location where the town was to be built is not exactly known. The documents only mention that it was to be laid out on ground in the Valdambra that was newly acquired by Florence (25 January 1350), while later it was decided that the location was to be Selvapiana (19 May and 2 June 1350), which literally means ‘forested plain’. (fig. 3.1) I have not been able to locate Selvapiana. In analogy to the other terre nuove it seems logical, however, that the town was to be laid out on the bottom of a valley on a main road. This makes it most likely that the town was planned near the river Ambra on the road that connected the Valdarno di Sopra and Florence to the Sienese territory and the south. Of course, the location must also have been fairly close to the settlements that were to go up in the new town. Of the eight communities mentioned in the documents that were to be re-settled in the new town, I have been able to locate seven, at a maximum mutual distance of about 7 km. (see fig. 3.26) In my opinion, it seems most likely that the new town was to be built at or near Capannole, which was one of the settlements to be replaced by the new town. On this location the Scerfio stream joins the river Ambra and a road leads off from the main road to Badia Agnano. Another possible location is the plain directly north and northeast of Badia Agnano. This seems less likely, however, since this location was not on a main road, and therefore could not serve the purpose of guarding interregional traffic and the access to Florence’s territory and would be less helpful to the economic success of the town. Capannole lies at a

\textsuperscript{239} Friedman 1988, pp.47-49; Cini 1907, pp.56-59.

\textsuperscript{240} Fabbri 1980, p.502.

\textsuperscript{241} Friedman 1988, pp.334-335, doc.17. On the committee, see par.7.6; Friedman 1988, pp.152-153.

\textsuperscript{242} Friedman 1988, pp.345-347; doc.20.

\textsuperscript{243} Fabbri 1980, p.590; Matteo Villani, II, 18-19 (Villani 1823, I, pp.199-200).
distance of c.45 km., as the crow flies, from Florence. With this site, the town would have been the farthest outpost among all the terre and a true border town.

From the description of the town’s structure in the document of 25 January, Friedman has made a reconstruction of the town plan design, which is depicted in figure 3.27. The document gives many dimensions, in whole Florentine braccia’s. Most dimensions are multiples of 10 b. (5.836 m.). The outline of the plan was to be 470 b. long and 246 b. wide. (274.29 x 143.57 m.). It is not explicitly mentioned that it would be rectangular, but the fact that the length and width are given, and the analogy to the other terre nuove strongly suggest that this was so. The town was to be surrounded by ditches, and a palisade was to be built and later replaced by a stone wall. In every side of the outline there was to be a gate. Though it is not explicitly mentioned, in analogy to the other terre it is most likely that these would be placed in the middle of each side and that they would give way to the main street and a cross street.

The main street was to run along the long axis of the town and was to be wider than all the other streets, measuring 14 b. The layout of the town was to be symmetrical around this main street. Parallel to it, eight other streets would be laid out. The nearest two on both sides were to be 10 b. wide, then there was to be one of 8 b. wide, and the streets along the walls were to be 10 b. wide. It is not mentioned in the description, but it may be assumed, in analogy to the other terre, that there would also be wall streets along the short sides of the outline of the town, since these were vital to the defence of the town and since it is most unlikely that the residential streets and back streets were planned as dead-end streets. Secondary perpendicular streets halfway between the centre and the short sides of the town, as in the other terre, are not mentioned either. Since they were less vital to the flow of traffic, they may not have been planned, but it is also possible that, like the wall streets, they were simply forgotten in the description of the plan.

The piazza was to be sited in the centre, measuring 90 x 70 b. (52.52 x 40.85 m.). Nowhere in the document is it mentioned that walls, streets or other boundaries were to be straight, but it may safely be assumed that this was the intention. The analogy to the other terre nuove strongly suggests that the plan was intended to be orthogonal.

The house lots were to be 10 b. wide and decrease in length from the main street outward. The ones facing the main street were to be 28 b. long, the lots in the second and third rows off the main street were to be 20 b. and the lots in the outermost rows were to be square, measuring only 10 by 10 b. (5.836 x 5.836 m.). House lots of such a small size were very unusual for new towns in the period. In fact, I know of no other new towns where lots of such a small size were planned. The square form is also very unusual; the normal form of a house lot was an elongated rectangle. Every row of houses was flanked by streets on both sides. It is likely that the houses in the second and third rows were arranged with their front sides turned towards one another, so that the backside of house lots would all be turned towards the first and the third streets parallel to the main street. With this layout, these last streets would provide back access to the house lots, as originally had been the case in Terranuova.

The ditches were to be 20 braccia wide and 10 b. deep. No specifications are given for the walls or palisades. Relatively many specifications, however, are given for a small stronghold that was to be built in one corner of the town, towards Montozi. This building had the form of a tower 40 braccia high, with three storeys. It was to be surrounded by a ditch and a wall, with gates and bridges towards both the town and the surrounding countryside. This stronghold seems to have been planned to fulfil a purely military function. Possibly it was to house a small garrison. On the other three corners of the town wall towers with open backsides (‘false towers’) were to be built.

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244 See appendix A. In this study, the braccio is taken to be 0.5836 m. (see above, n.119)
245 See par.6.4.2 and appendix B, par.8.4.
246 According to the foundation document of 2 June 1350 ‘And the men of the said valley were forced to build and maintain at their own expenses palisades and brattices, until the town was walled in stone all around.’ (‘Stecchatos quoque et bertescas homines dicte vallis eorum sumptibus facere compellantur et manutenere donec terra ipsa murata fuerit circum circa.’) Friedman 1988, p.345, doc.20
247 In his reconstruction of the plan, Friedman has drawn a wall street only on the right end of the town. I have made a small adaptation to the plan on the left end by making the wall street go all the way around the town.
248 Apparently, it was considered a matter of course that all lines were to be straight and that the angles were to be right. (see also par.8.6.3)
249 In his reconstruction of the plan, Friedman indicated that the lots on the left of the main cross street would only be 8 b. wide. In this way he solved the problem of the piazza being 70 b. wide and the cross street being ‘similar’ to the main street, which would mean that it would also be 14 b. wide. On the right side he has drawn an alternative possibility, the lots being 18 b. wide. This seems more logical for lots on a relatively important street: particularly in the outer rows they would be more naturally oriented towards this street. In analogy to the other terre (except for Firenzuola) it is more likely, however, that the cross street was meant to be less wide than the main street, most probably measuring only 10 b. instead of 14.
250 Most probably the castle of Montozi is meant.
In the piazza a well was to be made. A ‘chasa del comune’, a sort of town hall, had to be built facing the piazza. A loggia was planned in front of it, in which the representative of the government was to reside during public ceremonies. Opposite this building the parish church was to be built. The dedication to San Piero was probably taken over from the village of Pieve a Presciano, the inhabitants of which were to be among the settlers of the new town.251 In the margins of the document with the description of the project it is written that the houses fronting the main streets must have at least one enclosed storey of which the roof is covered with tiles, and that the facade must be at least 10 braccia high, built of stone or brick. The document does not say so, but it is likely that the reason for this prescription for the facades was to give the main streets a beautiful, wealthy and uniform appearance.

It was stipulated that the houses in the settlers’ former villages were to be dismantled. Hence, it was obvious that materials of these houses, like beams, tiles and stones, would be reused if they were still in good condition. The fact that it is stipulated that the facades were required to be built in stone or brick implies that the other walls were mostly built in other materials.

The project for the new town was soon aborted. If construction work was ever actually started, nothing is known of it, and probably it did not get far. For the study of history, however, the remaining documents are quite important, since they give a rare insight into the way a new town was planned. The document of January 25 is the only clear source giving concrete and detailed information about the way the spatial layout of a new town was conceived. No comparable document is known from anywhere in Europe in the whole period in which so many new towns were created. The documents also provide much information on other aspects of the planning of the new town, such as the forced resettlement of the population, the ritual of invoking the proper saints and the apparent importance of the proper denomination of the gates.252

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251 Friedman 1988, p.240, n.22; see also appendix A.
252 ‘And at the said place [are] invoked the name of God and of the Blessed Virgin Mary and the glorious apostles Saint Peter and Saint Paul, the blessed Saint John, Saint Zenobius, Santa Reparata and the other saints of paradise.’ (Friedman 1988, p.338, doc.19; see appendix A) For the denomination of the gates, see par.3.6.3.1.
3.9 General spatial aspects of the terre nuove

In the following paragraphs, various aspects of the spatial layout of the terre nuove will be considered for the six towns, taken as a group. Similarities and differences will be discussed as far as they are relevant.

3.9.1 The locations

All six terre nuove fiorentine were founded in the province of the city-state of Florence, in areas where the rebelling Ghibelline families traditionally had held power. These areas all lay on the margins of the Florentine territory. The towns were mainly sited on major roads that connected Florence and its countryside to neighbouring cities and their territories. Of Giglio Fiorentino this is likely, but not certain. Only Terranuova seems to have been sited on a road of lesser importance for interregional traffic.

All six towns were built in the plains of mountain valleys, near rivers. The surroundings of the towns were all fertile areas with relatively intensive agriculture, and were therefore important to the city of Florence, especially for its food supply.253 From the relevant documents it can be assumed that the terre were explicitly meant to be located in the plains.254

253 According to Hermann Bauer the terre nuove were explicitly built in valley plains so that they would look like the mother city, which was also sited on a low-lying plain. (Bauer 1965, p.21) It is quite likely, indeed, that the terre were meant to look like Florence in certain respects (see par.3.9.3.1 and 8.5.2), but it is most unlikely that the locations were chosen specifically for that reason, as other motives most probably were much more important. (see par.3.5) The fact that settlements were transplanted from high- to low-lying locations in many other places in Europe in the same period (see par.5.2), also suggests that Bauer’s view on the subject is far too narrow.

254 In the documents recording the deliberations upon the foundation of one or two new towns in the Valdarno di Sopra in 1285, it is specified that they must be founded ‘in piano’. (Friedman 1988, pp.306-307, doc.1) The foundation document concerning three towns in the same area of 1299, mentions that two of these are to be built ‘in planitie et partibus de Casuberti’. (idem, p.308, doc.2) For the town of Scarperia the patent of authority granted to the official in charge of 1306 mentions that he is to level (splanare) the site in a fashion which he thinks right. (Richter 1940, pp.380-381, nr.3; Friedman 1988, p.313, doc.4) The new town on the Consuma pass founded in 1329 is, according to its foundation document, to be built ‘in Plano dell’Asentio’ among other reasons because this site is ‘tam ratione planitiei’. (Richter 1940, p.381, nr.4; Friedman 1988, p.327, doc.12) The foundation document of Firenzuola of 1332 states that the town is to be built ‘in lice qui dictus Piano dell’Arca’. (Richter 1940, p.381, nr.5; Friedman 1988, p.329, doc.11) For Giglio Fiorentino, finally, both the description of the plan and the foundation document (both of 1350) mention that it is to be built ‘in loco dicto Selvapiana’.

(1) Friedman 1988, pp.338, 344, docs.19, 20)

It is unlikely, however, that there was an explicit policy to site the new towns on level sites; these sites rather came about as the result of the functions for which the terre
With these low-lying sites, the terre nuove were representatives of a fairly new kind of settlement in Tuscany. Older settlements in the countryside - except for those of the Roman era - had mostly been sited on hilltops or ridges, where they enjoyed better natural protection against the intrusion of bandits and enemy armies, as well as against natural dangers such as floods and malaria. The older villages, from which the settlers of the terre were drawn, were mostly sited on such higher locations. The transplantation of settlement from high to low sites was not unique for the terre nuove. In paragraphs 5.2 and 5.3 the subject will be discussed more generally for the high-period of town foundation.

3.9.2 Urban layout

The six towns that are known as the terre nuove fiorentine, are not just recognisable as a group since they were all founded roughly in the first half of the 14th century by the government of the city-state of Florence, but also because they share a number of characteristic elements in their layout, by which they are distinguished from most other towns, newly founded or not.

3.9.2.1 General plan form of the original plantations (figs. 3.6-3.27)

All six towns were planned to have a rectangular form surrounded by stone town walls. In the walls there were gates in the centres of all four sides, which connected to straight streets that crossed at right angles in the heart of town. In the centre, at the crossing of the main streets, there was a rectangular piazza. The house lots were arranged in parallel rows in the long direction of the town plan. The lots had a standard width, but there were groups of different length, according to the width of the rows in which they lay. The streets were all straight and arranged in an orthogonal pattern, with the residential streets in the long direction of the town and the cross streets perpendicular to them. The plans were basically symmetrical along the two central intersecting axes.

3.9.2.2 Outline forms and size

The dimensions of the outline forms of the six terre varied considerably. At Castelfranco the outline was almost square: 235 x 263 m. This is also the case at Firenzuela (188 x 213 m.), but the original plan must have measured 342 x 633 braccia (c. 200 x 369 m.), probably at least until the late 14th and possibly until the late 15th century. Like the originally planned form of Firenzuela, the other three terre have elongated outlines, with a ratio of the sides of around 2 : 1. San Giovanni originally measured about 190 x 462 m., Scarperia c. 128 x 303 m., Terranuova c. 159 x 333 m. and Giglio c. 144 x 274 m.

So, San Giovanni was by far the largest town and Firenzuela the smallest in its eventual layout, although it was initially meant almost just as large. San Giovanni was probably intended for about 540 house lots, or actually somewhat less because buildings for clerical institutions would also take up space. Castelfranco was smaller, but since many house lots appear to have been planned considerably smaller than in San Giovanni, their planned number amounted to 688. Scarperia was planned for about 350 house lots, Terranuova for about 436, and Giglio for 340 house lots (although space of some of these house lots would be occupied by institutional buildings). The great majority of the settlers of the new towns came from villages with roughly between ten and eighty households.

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255 In this context, the word ‘low’ must be considered relative, however, as Castelfranco and Scarperia are located down in the valley, but not at the lowest possible sites.

256 Repetti was probably the first, in 1830, to describe the corresponding features of the five terre nuove that were actually built. It seems that he was also the first to regard the terre nuove as a group at all. (Repetti 1830, vol. 5, p. 513)

257 For Firenzuela, however, much is unknown of its original planned form. It is not known whether it was planned to have a central piazza and residential streets in the long direction, but this seems most likely, since the rectangular outline and the two intersecting main streets are analogous to those found in the other terre, and thus it seems that these elements were also planned in similar fashion.
3.9.2.3 Relief

As discussed above, the terre nuove were all built (or at least planned, in the case of Giglio) on plains. This meant that the natural terrain was already more or less flat, but it seems that in the five towns that actually were built the terrain was made even more flat to enable the layout to be made more regular. This is quite visible when one looks along the main streets of the towns. These flattened plains were not completely level, but rather sloped gently with the inclination of the natural terrain, so that rainwater would be drained away. The flatness of the ground on which the towns were built is quite rare among new towns of the period: even when towns were built on a natural plain, there is usually more relief visible in the streets and open spaces. It seems that for the terre nuove the terrain was flattened more meticulously.\textsuperscript{259}

3.9.2.4 Streets

The streets in the terre nuove originally were all straight, and there is a clear hierarchy among them. The most important street is the main street, which traverses the town right through the middle in the longitudinal direction. This street connects two of the four town gates. It is wider than all other streets and it is flanked by the house lots with the greatest length.\textsuperscript{260} (figs. 3.9, 3.28) Parallel to this main street there are secondary streets with a residential function.

The number of secondary parallel streets varied. San Giovanni and Scarperia originally had four streets parallel to the main street. At San Giovanni, two of these were the outer wall streets. At Scarperia the eastern-most probably also was planned as a wall street; on its west side the irregular stretch of town wall lay more or less parallel to the street, but was largely somewhat further out. In the original layout of Terranuova there were four parallel streets that served as main access streets to the house lots and as wall streets with a military function. At the back of the original house lots there were also four back streets, of lesser width, that served to provide secondary access to the house lots and to drain rainwater. The original structure is presently hard to recognise, since the space of the wall streets has been annexed and the back streets have been promoted to main access streets. The design for Giglio Fiorentino also contained four secondary parallel streets (of which two were wall streets) and four parallel back streets. In all these cases the number of rows of house lots was eight.

Castelfranco is exceptional, since it had sixteen parallel rows of house lots and eight secondary streets parallel to the main street. Firenzuola is also exceptional in its present form, with just two secondary parallel streets. It is clear, however, that this was not the originally planned layout, whose street structure is not known beyond than that there were two major intersecting streets. It seems most likely, however, that its structure was intended to be similar to San Giovanni or Terranuova.

\textsuperscript{259} See n. 254 and par. 9.7.
\textsuperscript{260} The widths of the longitudinal streets and alleys are given in table XIII in appendix B.
In our own day, some (or parts) of the more peripheral secondary streets have vanished, due to depopulation (Castelfranco, Terranuova), landslides (Castelfranco), the creation of large (mainly monastic) complexes (San Giovanni, Terranuova, Scarperia) or the suppression of the wall streets when they no longer served a military function (Terranuova).

Perpendicular to the main street and its parallels there are cross streets. These streets mainly had a traffic function. Through the middle of the towns there was a main cross street, connecting the two lateral town gates. In San Giovanni this connection can barely be called a street, since the piazza takes up a major part of its length. In Firenzuola this street is no longer present, but it is a fact that it was originally planned. The towns had secondary cross streets along the short sides of the wall circuits and halfway in between the central cross street and these wall streets. These secondary cross streets were generally relatively narrow. (see fig. 3.29)

Most probably, the towns originally all had wall streets all along the inside of their town walls. These streets had a traffic function, particularly for military logistics in the case of sieges or attacks. But, in addition to that, they also functioned to provide main access to the houses along the longitudinal wall streets.

In Castelfranco, San Giovanni and Scarperia there originally were alleys in between the rows of house lots, which were arranged back to back. Only in San Giovanni are they still largely recognisable. These alleys functioned as drains for rainwater and as light shafts. Particularly in San Giovanni, where they were somewhat wider than in the other two towns, they probably were also intended to provide rear access to the house lots. As mentioned above, back streets were planned in Terranuova and Giglio, instead of the narrow alleys. These back streets were wide enough for a cart to reach the back of the lots.

3.9.2.5 Piazzas

The towns were planned to have piazzas in their very centres at the intersection of the main streets. Only for the original layout of Firenzuola this is not known for sure, but it seems most likely, in analogy to the other terre. The piazzas were rectangular, but they had quite different dimensions. At San Giovanni it had an elongated form, perpendicular to the main axis of the town, almost reaching all the way to the two lateral town gates. Scarperia has a piazza that is sited asymmetrically, to one side of the main street and the major cross street. Originally, however, it may well have been intended to be larger and more symmetrical, since it is likely that the space was intruded on by the Palazzo dei Vitari and possibly also by the two churches and some houses. In Firenzuola the basic form of the present piazza is not unlike that of San Giovanni, but it is irregular because it has been intruded on by the later construction of a church and various galleries. At Castelfranco the piazza is almost square, slightly elongated in the longitudinal direction of the town plan.

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261 At Giglio the ‘halfway cross streets’ may not have been planned, but it is also possible that they were simply forgotten in the description of the plan, just as the cross streets along the town walls were. (see par. 3.8.6) In Firenzuola only the southern wall street is still present, but in the 19th-century plan (fig. 3.22) remnants of the northern one can be recognised. It seems, however, that there was only one ‘halfway cross street’ in this town. It may be assumed that in the original plan, which was much larger, there were two.

262 The irregular western face of the outline of Scarperia may have been an exception, however. Of Firenzuola the details of the original plan are not known, but it seems most likely that it also had a wall street all around its perimeter.
and slightly asymmetrical. Unlike the piazzas in the other terre, it has closed corners, which make it appear as though it has been cut out of the four adjoining street blocks. The piazzas of Terranuova and Giglio were both designed as rectangles slightly elongated in the direction perpendicular to the main axis of the towns, with the corners opening up to back streets. In paragraph B.4 the subject of how the piazzas may have been designed is discussed. The dimensions of the piazzas are also given there.

The piazzas were originally meant to function as market places, as well as communal ceremonial and social spaces. In fact, it seems that the second function became more important during the 14th and 15th centuries, for in the description of the project of Giglio it is mentioned that ‘outside the town the market shall be held on the Saturday of every week’ and in some of the other terre by the 15th century the market was moved to a market field outside the towns.263

3.9.2.6 House lots

The house lots in the terre nuove were originally designated in Latin as *casolare*.264 They were oriented with their main accesses on the main street and its secondary parallels.265 The lots had predetermined dimensions, but they were not uniform. Their width originally seems to have been equal in every town, either 10 or 12 braccia (5.84 of 7.00 m.), but the length varied almost by row of house lots, in such a way that the lots grew shorter the further away from the central main street they were. This diminution of the lot length is quite different in each town: in Castelfranco the lot length in the six outer rows of house lots diminished just slightly per double row; and in Scarperia only the lots facing the main street are clearly longer than the ones further outward. Only for the originally planned layout of Firenzuola is it, once again, not known whether a diminution of the lot length was intended. In the present plan of the town the allotment is too irregular to reconstruct an original regular layout.

The (reconstructed) lengths of the different house lots in the terre are given in appendix B in table XII, and the method by which these dimensions presumably were generated is amply treated in paragraph 6.4 and appendix B. In paragraph 8.5.2.1 the reason for the variation in lot sizes is discussed.

The diminution of the lot length in such a structural way as we find it in the terre nuove (apart from Firenzuola) is unique among new towns of the high-period of town foundation. It is also rare, in fact, for earlier and later periods.266

3.9.2.7 Gardens

Many of the inhabitants of the terre nuove must have had gardens where vegetables were grown, for domestic use as well as for sale in the market. In the larger house lots the space at the back of the houses may have been used for such gardens. For Scarperia it is known that garden plots were distributed just outside the town in 1308, two years after the beginning of the project.267 In both Castelfranco and Scarperia the statuti of the late 14th and 15th centuries even decreed that every household should be able to dispose of a garden.268 The documents regarding the foundation of the towns do not mention gardens, but it is not unlikely that the distribution of garden plots just outside the towns formed part of the original projects. Remnants of systematic allotments of garden plots, however, can not be recognised in plans. From the situation in later plans it appears that vacant plots were also used as gardens. (see figs. 3.6-3.25)

Most households must also have possessed or leased agricultural land in the surrounding area, which they generally had already worked before they moved to the new towns.269

263 Friedman 1988, pp.77-78, 339, doc.19; see appendix A.
264 This term is used in various documents. See for instance Richter 1940, p.382, nr.50; Friedman 1988, pp.314-315, doc.5, p.317, doc.7, pp.330-331, doc.14. The houses were generally designated as *domus*.
265 This probably does not hold for the house lots flanking the piazza. It is most likely that the buildings on these lots turned their (main) facades towards the piazza.
266 Some of the rare other cases are mentioned in ch.8, n.165.
267 Friedman 1988, pp.316-317, doc.6. The foundation of the Florentine new town of Pietrasanta (presently Casaglia), in 1284, was different in this respect. Here the settlers received three pieces of ground: a house lot, a garden plot right outside the town and a larger piece of farmland. The plots had standard dimensions and were allotted in a regular layout. (Pirillo 1981, p.186)
268 Romby & Diana 1985, p.78, n.50.
269 Early tax registers from Scarperia demonstrate that most households lived from agriculture. (Romby & Diana 1985, p.77) Most likely, the situation was similar in the other terre.
3.9.3 Architectural elements

Apart from Giglio, which was probably never actually built, and Firenzuola, the layout of which was largely re-structured in the 14th and/or 15th century, the terre nuove fiorentine are relatively well preserved. Compared to the bastides of southwest France, and particularly in comparison to the new towns of Wales treated in chapter 1, they retain relatively much of their old defences and relatively many old houses and clerical buildings from about the first two centuries of their existence. This is due to various factors: apart from Giglio and Firenzuola the towns were fairly successful in attracting settlers, which meant that many houses and other buildings were, in fact, built; the buildings were fairly substantial; there have not been disasters severe enough to destroy all of them; and there have not been large-scale redevelopments in the course of the past one and a half century or so. Apparently, the buildings and the urban structures of the terre nuove still function quite well in modern times.

3.9.3.1 Town defences

The towns originally were meant to be surrounded by ditches and stone walls. This appears most clearly from the description of the Giglio Fiorentino project and documents regarding the building of gates and walls at Firenzuola and, to a lesser extent, from the other legislative documents. Remains of 14th century town walls with gates and towers are still to be found in Castelfranco, San Giovanni, Scarperia and Terranuova. After the foundation of the towns, it usually took some decades before stone fortifications were actually finished, due to a lack of finances or professional manpower. It seems that in most towns timber palisades preceded the stone walls.

The rectangular and regular layout of the defensive circuits was determined by the regular all-over structure of the towns. One important element of regularity that was a precondition for effective flank defence of the walls, however, was that the wall stretches between the towers were straight, and this was clearly the case with the terre nuove.

Once the defences were finished, the towns must have made a strong impression on contemporaries, with their ditches, walls and towers. The fortifications generally appear to have been modelled on the new defences of the mother-city, the so-called ‘third wall’ of Florence, in structure as well as in appearance. Many Italian city-states had their own typical form of city gates. For instance, Siena had low gate towers made of brick; Lucca had double towers flanking the gates with alternating layers of stone; and Florence had high and thin towers above the gates, which had a rectangular plan and a largely open backside and which were crowned with protruding battlements with rectangular merlons. By using this type of towered gate, the terre nuove were easy to recognise as Florentine satellite towns.

The construction of the gates, towers and the residence of the capitano were paid for by the government of the city-state; the building of the houses was undertaken by the new inhabitants themselves. It seems that in most cases the inhabitants were also responsible for the construction of the ditches and a large part of the walls. In this duty they were to be aided by the inhabitants of the directly surrounding area, who were allowed to seek protection in the towns in times of peril. The form, dimensions and materials of the town walls were prescribed by special government committees. The walls were largely built of rounded rocks taken from riverbeds, while brick was also used for the parts higher up.

270 Richter 1940, pp. 382-386, nrs. 5b-5m.
271 At San Giovanni it took at least until 1311 (and probably some decades longer) before the stone defences were finished; in Scarperia it took even longer; in Firenzuola it took at least 20 years; and in Terranuova it seems to have taken at least 30 years. (Richter 1940, p. 364, n. 62; Baldari 1980, pp. 142-143; Friedman 1988, pp. 236-237, n. 3-6; Santi, Romby, Brunori and others 1990, p. 11) No dates are known for Castelfranco.
274 Ante-gates with a more or less square plan and crenellated walls, like those in front of Florence’s gate towers, seem to have only been built at San Giovanni in the late 14th century (Baldini & De Luca 2004, p. 265) and at Scarperia (at least in front of the northwestern gate, which was incorporated into the keep in the mid-14th century) (see figs. 3.30, 3.19) Such an ante-gate has only been preserved in the Oratoire delle Grazie, on the southwest side of San Giovanni. (see Bianchini 2003, pp. 101-104; and figs. 3.13, 3.14)
275 Richter 1940, pp. 262, 273; Friedman 1988, p. 63. Similar arrangements, with the lord of the town paying for the gates (usually four of them) and the inhabitants paying for the ditches and walls, can also be found elsewhere in Europe. (see par. 2.10.5.1)
276 Pirillo 1984, p. 281; Friedman 1988, p. 63. Documents survive in which prescriptions are given for the fortifications of Firenzuola and San Casciano (1350). (Richter 1940, pp. 381-386, nrs. 5b-5m) There is also a document in which the Florentine government prescribes that the towers at Terranuova must be built to a height of 15 braccia above the height of the walls. (Friedman 1988, p. 236, n. 3)
277 Bianchini 2003.
Rectangular towers protruded from the face of the walls in order to provide flank defence for the stretches of wall in between. There were towers above the four gates and four more were built at the corners of the towns. And at least in San Giovanni and Terranuova there were also several towers in between. It seems likely that a similar layout was foreseen for Firenzuola’s original plan and possibly also for Scarperia. The number of wall towers varied by town. It is not always clear what the original intention may have been and in some cases it is not even clear how many towers were actually built. At Giglio only eight towers seem to have been planned; at Castelfranco the number may have been eight or sixteen; for Firenzuola the original intentions were to build sixteen towers; and at San Giovanni and Terranuova 24 towers were planned (and probably built). (see figs.3.14, 3.8, 3.25, 3.27) Half of the planned towers in these two towns were to be located at the end of streets, four more at the corners of the wall circuit, and eight were planned halfway down the relatively long stretches in between, along the longitudinal sides of the towns. For Scarperia it is not clear how many towers were planned originally.

Three towns were (to be) provided with military strongholds. The castle-like Palazzo dei Vicari at Scarperia was created shortly after the middle of the 14th century. (fig.3.21) It seems unlikely, however, that it was planned right from the outset, since it blocks one (and originally probably two) of the secondary streets. At Giglio Fiorentino a small military stronghold in the form of a large tower was planned initially at one of the corners of the town. (fig.3.27) Apart from its form, a major difference with the stronghold in Scarperia was that this building only had a military function and was not meant to function as a seat of government.278 In 1362, Firenzuola was also supplied with a keep, which does not seem to have been part of the original plans.

From this course of events it appears that keeps were not planned as constituting elements of the defences of the Florentine new towns until about halfway through the 14th century. By this time, keeps were added to the towns that (still) had strategic significance.

From the early documents regarding the foundation and planning of Firenzuola and Giglio it appears that it was regarded of significant importance that the town gates were properly denominated. They were named after the cities to which the roads through them went and after saints who had a specific meaning to Florence or in the areas the gates opened towards.279 These denominations must have had a symbolic function. In all probability, the ‘right’ designations were also believed to provide heavenly protection.

278 See appendix A.
279 Gates were named after Florence and Bologna and, among others, after San Giovanni, the patron of Florence, and San Quirico, a locally popular saint in the eastern part of the Sienese territory, towards which the southwest gate of Giglio was directed. See Richter 1940, p.382, nr.54; Friedman 1988, pp. 329, 338, docs.13, 19; see also appendix A.
3.9.3.2 Ecclesiastical houses

Together with the town gates and town halls, churches and chapels were probably among the first stone buildings in the new towns. Every town had one or more parish churches, which generally were institutions transplanted from villages where the settlers had come from. The mendicant orders were also quick to settle in the new towns, building monasteries and churches.\footnote{Friedman 1988, pp.173-175, 240, n.22; see also par.9.18.} The churches were mostly sited on the central piazza. This was not the case, however, in Terranuova, where every quarter had a chapel in its centre.\footnote{In Castelfranco the church at the piazza has been replaced by houses. In Terranuova there is a church facing the piazza, but it was only built in 1443. (Friedman 1974, n.30)} The original churches and chapels were modest, single-aisled, unvaulted buildings.

It is remarkable that the church buildings all conformed to the grid-layout of the towns. They were not oriented strictly towards the east, as church buildings ought to be according to liturgy; they followed the basic axes of the urban layout, although in most cases the most eastward direction was chosen for their orientation. The churches are therefore mostly to be found on the northeast or southeast side of the piazza.

3.9.3.3 Town halls

The buildings where the governors of the Florentine commune, the capitani, were housed can be regarded as the town halls. Most of these buildings actually became real town halls later on. They were sited on the central town squares. In Castelfranco, Terranuova and Giglio Fiorentino the town hall was on one of the sides of the piazza, which meant that it did not assume a special position among the other buildings around the market place.\footnote{See Cardinale & Serafini 1990; Boldrini & De Luca, 1988, pp.33-66.} In San Giovanni and Scarperia the town halls were much more prominent, however. In San Giovanni it was built in the middle of the piazza in the early 14th century.\footnote{Friedman 1988, pp.65, 198, 275, n.76.} The stronghold that was built on the west side of the piazza in Scarperia around 1355 also served as town hall and as the residence of the Florentine governor of the region.\footnote{Friedman 1988, pp.65, 198, 275, n.76.} The similarities are, however, rather shallow. The town halls of San Giovanni and Scarperia have machicolated bell towers with rectangular crenellations, which are more or less similar to the tower of the Bargello. The rest of the palazzo of San Giovanni is (and originally was) very different, however. At Scarperia the similarity

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\footnote{Friedman 1988, pp.173-175, 240, n.22; see also par.9.18.}
\footnote{In Castelfranco the church at the piazza has been replaced by houses. In Terranuova there is a church facing the piazza, but it was only built in 1443. (Friedman 1974, n.30)}
\footnote{See Cardinale & Serafini 1990; Boldrini & De Luca, 1988, pp.33-66.}
\footnote{Friedman 1988, pp.65, 198, 275, n.76. This building was probably not part of the initial plan for the town. (see par.3.8.3) It is not known whether and where a town hall was planned originally.}
to the Bargello goes further, because of the rough form of the masses of the building and the machicolations, yet not so far as to make the building a copy of the Bargello or even to allow us to say that it explicitly referred to it.\textsuperscript{286} It might well be that the similarities were not wilfully designed as such, since they seem largely to have followed the function of the building, and the rectangular crenellations were typical of Florentine fortified architecture in general.\textsuperscript{287}

### 3.9.3.4 Public loggias

Apart from the town halls and churches, there was usually also a public gallery or loggia in the piazzas of the terre nuove.\textsuperscript{288} Such loggias were more or less common in market places of Tuscan towns and cities. They had various functions. They served as ceremonial spaces where the representative of the city-state was seated during festivities and official ceremonies, such as the administration of justice.\textsuperscript{289} Another function was to provide a covered market space, as in Castelfranco, San Giovanni and possibly Firenzuola; in Scarperia the loggia was primarily used for oratory.

In Giglio Fiorentino a loggia was planned right in front of the ‘chasa del comune’, and in Firenzuola it was actually built in that position. (see fig. 3.22) The loggia at Scarperia was accommodated in the southeast side of the piazza. In San Giovanni it originally occupied most of the ground floor of the town hall. Only in Castelfranco was the loggia built as a free-standing structure in the piazza itself. (see fig. 3.6)

### 3.9.3.5 Houses

The houses were to cover the whole width of the relatively narrow plots 10 or 12 braccia wide along the street front. This width generally was taken up by one room and possibly a passage alongside it. The houses were built side by side, mainly with common walls shared between them, so that they formed continuous rows.

The settlers themselves had to take responsibility for the construction of their own houses.\textsuperscript{290} To the modern eye the uniformity of the house lots might give the impression that whole rows of houses were built as single projects, but this seems not to have been the case. The settlers were obliged to build a house on the lot that was assigned to them within a limited period of time, for instance four months. If they failed to do so, they would be fined or the lot would be assigned to someone else.\textsuperscript{291}

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\textsuperscript{286} It should be noted that the machicolations and crenellations of the Palazzo Vicarile of Scarperia were largely added - apart from those of the tower - with the reconstructions of the second quarter of the 20th century. It is not known whether this reconstruction was based on the presence of traces of original machicolations. (see Romby, Taddei and others 1995, pp.8-9)

\textsuperscript{287} It should also be noted that by the time the keep of Scarperia was built, the Palazzo Vecchio had replaced the Bargello as the main communal palace of Florence, which makes it seem less likely that the Bargello was the prototype for it.

\textsuperscript{288} Friedman 1988, p.189.

\textsuperscript{289} Friedman 1988, pp.180-195, 341, doc.19; see also appendix A.

\textsuperscript{290} This was normal for houses in new towns across Europe. See par.9.12.

\textsuperscript{291} A document of 1308 described how a house lot in Scarperia was assigned to another settler after the first one failed to build a house within the given period of time. The new settler was to build his house within less than three months. (see Friedman 1988, p.315, doc.5) The first group of settlers of Giglio Fiorentino was to move to the new town ‘with their houses’ within four months of the drawing up of the relevant document. (see Friedman 1988, p.339, doc.19; also appendix A).
As far as is known and visible from the outside, not much is left of the original houses nor of possible original outbuildings at the rear of the larger plots. There still are quite some old buildings that originally date from the 16th, 15th and sometimes even the 14th centuries, but it seems that ordinary houses are rare among these. However, behind more recent facades older structures may be found, like that on the Corso Italia 105 in San Giovanni.\(^{292}\) (fig.3.34) In view of the lack of other recognisable old houses, De Luca’s reconstruction of this building may be regarded as an example of the average 14th-century town house in the terre nuove.

It is likely that in the first decades after the town foundations the houses were largely built of cheap and easily available materials like wood, stones from riverbeds, rammed earth or sun-dried bricks, just as were those in the new towns of Wales and southwestern France. In Giglio the houses facing the main street had to have facades of hewn stone up to a certain height. Early documents from Scarperia indicate that the roofs, which all lay parallel to the front streets, had to be covered with tiles. The reason most probably was to insure that the houses were more fireproof. The same may have been the case in the other terre.

The larger house lots were probably not completely built-on originally. (fig.3.34) It is likely that the backsides of these lots were left as open spaces, for yards and gardens. In the course of time more buildings came to cover this area: separate sheds, stables and workshops and extensions to the house. Eventually, the houses were extended so far back that practically all lots were almost completely built on.\(^{293}\) Some of the older houses on the larger lots in San Giovanni, Scarperia and Firenzuola still have courtyards and backyards. (see figs.3.12, 3.20, 3.22)

The present houses on the original lots are quite large. In San Giovanni, for instance, the lots were all 5.84 m. (10 braccia) wide, and their length was c. 23 m., 16.7 m., 14.3 m. and 11.3 m. Most houses now have three floors, but originally the number of storeys was generally lower.

Some house lots have been divided in the course of the centuries. But more lots were amalgamated in order to create, for instance, monasteries, large palazzi (mostly only along the main streets), schools or large spaces for businesses. The width of the house lots (10 or 12 braccia = 5.84 or 7.00 m.) was probably partly chosen so that it was easy to span the houses with single wooden beams connecting the lateral walls, without having to support them by pillars or walls in between.

The ground floors of the houses originally were largely used for business. The living quarters were on the second (and third) floor. The second floor often appears to have been divided into two main rooms, the camera and the sala, which were sometimes subdivided by thin walls. More small rooms could be located on the third floor. In the 15th century many houses had a loggia or a kind of pergola on the roof.\(^{294}\)

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293 Cerudelli, Leonati & Ventura 1979/8, pp.53, 56; Cardinale & Serafini 1990 (both regarding San Giovanni); Santi, Romby, Brunori and others 1990, p.11 (regarding Scarperia). The 16th-century town plan of San Giovanni by Piero della Zucca contains a section through the rows of houses at the bottom, which suggests that by then most houses already covered the whole of the lots. Apart from their surface area, the height of the houses also appears to have been greater when they stood nearer to the main street. (see fig.3.13)
294 Romby & Diana 1985, pp.79-85. Such a loggia on the roof is possibly depicted in the plan by Della Zucca (fig.3.13) in the section at the bottom, on the roof of the house to the right of the main street.
In San Giovanni and Firenzuola shallow galleries below projecting upper storeys were made in front of many houses along the main streets and the piazzas. (see figs. 3.12, 3.22) Most probably, however, these galleries were not planned initially, although the upper stories of early houses may have projected forward into the street. (see fig. 3.34)

3.10 Conclusion

It can be concluded that the Florentine new towns discussed in this chapter were fairly successful projects. Giglio Fiorentino was never actually built, but the other towns we have discussed have survived into our own time. It should be noted, however, that in roughly the same period there were at least three more Florentine efforts at town foundations that failed. Since very little is known about these projects they have barely been discussed above.295

Of the towns that were realised, only San Giovanni is of economic significance; the others have remained small. The towns at least partly succeeded in fulfilling the functions for which they were built: protecting the Florentine countryside, the settlers, the harvests, the markets and the roads from the threat of enemy forces and marauders. The towns also made an important contribution to the incorporation of the countryside and its inhabitants into the Florentine city-state at the cost of the old feudal lords, which was the main goal of their foundation. The terre nuove must be regarded as satellite towns of Florence. Three of the towns even became the centres of administrative regions of the city-state in the 14th century. Despite that, their autonomy was limited, however.

In the early period of the towns the populations, which were gathered from the villages of the surrounding areas, mainly lived from agriculture, but in the course of the centuries the towns clearly developed more urban economies. By the 15th century, for instance, San Giovanni and Scarperia were well known

295 See par. 3.3.
for their ironwork. All towns had inns, but relatively many were to be found in Scarperia, being a popular place to stay overnight on the journey between Florence and Bologna. At present, agricultural and industrial activity has vanished from the historic town centres, though it is still to be found in the (mainly) 20th-century extensions to the towns and their nearby surroundings.

Fortunately, the historic centres still contain many of their original structures and quite a few of the old buildings from the 14th to the 19th centuries. The plans of the terre nuove still show significant similarities. They have a strictly orthogonal and very regular street layout, based on a main street, serving as a thoroughfare, with parallel residential streets and a central rectangular piazza with a cross street extending from it. Originally, the outlines of the towns were rectangular, with wide ditches, stone walls with four gates and a wall street all along the inner side of the town walls. A very peculiar feature of the towns are the house lots, which were originally all of the same width, but which became shorter the further they are from the central main street. Despite the fact that there are also considerable differences in plan form, such as the dimensions and number of streets, alleys and house lots, the similarities in urban structure mark the terre nuove as a group which is clearly different from other new towns of the period, even including other Florentine foundations.

The fact that the plans of the terre nuove are considerably more regular than the average new town of the period, along with similarities in the forms of the piazzas to new towns elsewhere in Europe, led Friedman to conclude that the planners ‘had access to a wide spectrum of medieval new-town design and they borrowed from it eclectically.’ I doubt whether that is correct to the extent that Friedman suggests, since it is likely that similar forms were ‘invented’ autonomously in different places as solutions to similar problems. It is beyond doubt, however, that the planners were, at least to some extent, inspired by the examples of other towns. (cf. figs. 3.4, 3.11)

In the following chapter, the first part of this study will be concluded with a comparison between the terre nuove and the new towns of Wales and southwest France. In the second part of this dissertation, certain aspects of the terre nuove, such as their siting in valleys, the planners, the method of design of the plans and the idea behind the feature of the variation of the lot length will be dealt with in the thematic chapters 5 to 8, where they are also compared with other newly founded towns of the high-period of town foundation elsewhere in Europe.

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296 Fierenzuola, however, does not share all these characteristics, but it appears that its structure was considerably changed in the late 14th or 15th century. Its original form must have been much more similar to the other terre. (see par. 3.8.4)

297 Friedman 1988, p. 116; see also pp. 81-116.
4 COMPARISON OF THE THREE GROUPS OF NEW TOWNS

We conclude the first part of this study with a short comparison of the groups of newly planned towns that have been dealt with in the first three chapters. The three groups of towns will be compared here with regard to the aspects of the founders and their motives, the settlers, the locations and the original spatial layouts.

In this comparison it must, however, be kept in mind that the three groups are each of a different character. In the chapter on the new towns in Wales we focused on the 11 boroughs founded by King Edward I in the period 1277-1302; in the chapter on the new towns of southwest France, however, we chose to focus on the so-called bastides from the period of c.1220 to c.1370, and not to focus attention solely on one specific group of towns created by one founder; while with the so-called terre nuove fiorentine we have taken just six towns founded by the city-state of Florence between 1299 and 1350, leaving aside earlier foundations by Florence and other regional powers in Tuscany. These choices have been inspired by the availability of useful material and by the desire to show different aspects that we believe are interesting and relevant for a general overview of European new town foundations in the 13th and 14th centuries.1

With this, there is not only a considerable difference in the number of towns within the groups, but also in the number of founders. The groups of the Edwardian towns and the terre nuove fiorentine were both founded under one founding lordship, while the much larger group of the bastides had many different founding lords. Consequently, the group of the bastides is more diverse than are the two other groups.

4.1 Founders

Comparing the terre nuove to the bastides and the Edwardian new towns of Wales, one can mark some considerable differences, even though they were all planned and built roughly in the same period of about the second half of the 13th and the first half of the 14th century. Most remarkable among the differences is the variety in the sorts of founders. The Welsh towns studied in the first chapter were founded by the English king, Edward I.2 The bastides in southwest France were founded by a greater variety of lords, each with their own territories. Most important among these were: the counts of Toulouse, the English kings (foremost among whom was Edward I) in their capacity as dukes of Aquitaine (or Gascony), and their great adversaries, the kings of France, mainly as successors to the counts of Toulouse. Their officers (sénéchaux) also founded new towns more or less independently. Princes of smaller lordships that were more or less independent, such as the counts of Foix and the viscounts of Béarn, also founded new towns on their lands. Lords of lower status, such as knights and abbots, engaged in the venture of bastide foundation as well. Most of the bastides however, were founded by two or more different lords acting in partnership, most often a greater and a lesser lord, in a so-called paréage. At times, one may also find such co-operative town foundations by the lord of the local area in partnership with a more powerful lord of higher status in other regions in Europe3, but nevertheless these paréages are rather characteristic of the new town foundations of the 12th to 14th centuries in southwest France.4

The six terre nuove treated in chapter 3 were founded by the administration of the city-state of Florence. Such town foundations by city-states were not uncommon in northern and central Italy in the 12th to 14th centuries. Only in this part of Europe had many city administrations gained so much independence and so much authority over the surrounding countryside that they could found colonies there. Like these other foundations by city-states, the terre nuove were a sort of satellite towns with limited autonomy, subordinate to the Florentine government.

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1 See par.0.2.2.
2 That is not to say that there were no town foundations in Wales by other lords. These lords generally were of lower status, however, be they of Norman, English or Welsh origin. (see par.1.2)
3 See par.2.4, n.71.
4 It is most likely that, even if the principle of paréage had been common in Wales or Tuscany, King Edward or the Florentine administration would not have wanted to partner up with any local lords, since the whole idea was to plant their authority firmly and to displace the local lords.
4.2 Motives

The town foundations of all three groups were motivated by political and military, as well as economic, objectives. In general, the towns were created in order to enlarge the power of the founding authorities and to increase their financial returns through the stimulation of more intensive exploitation of the land and more intensive trade. The balance between these objectives, however, was probably different for almost every individual case, but there clearly are general differences between the three groups. While the Edwardian boroughs of Wales were mainly founded to pacify and colonise a newly conquered country, the bastides in southwest France were primarily founded with economic motives, to re-organise the economy and to exploit the land more intensively. Regarding the terre nuove, it is clear that military and economic motives went hand in hand: the administration of the city-state meant to create satellite towns in order to enlarge its political, military and economic power over the countryside and its inhabitants, partly also in defence of the city itself.

The Edwardian towns of Wales are most clearly recognisable as colonial towns, in the sense that they were largely settled with Englishmen, as centres serving the subjection of northern Wales by the English crown. But the other two groups of towns were colonial as well, although in somewhat different ways. The terre nuove were colonies of Florence within its own province, although they were not populated with inhabitants of the mother city. And most of the bastides can be regarded as colonial towns in another sense, since they ‘opened up’ the areas of which they formed the principal nodes to reclamation, more intensive cultivation and interregional trade, and thereby to more intensive exploitation.

4.3 Settlers

For every town foundation settlers had to be attracted in order to actually create a living community. Like anywhere else in Europe, settlers of the new towns would be lured by the promise of freedom and privileges, several years of exemption of rents and taxes and often also an abundance of land to be had at low rents. For the Edwardian towns in Wales the settlers appear to have been mainly drawn from England and, to a lesser extent, from Gascony and Ireland. In most of the towns there only lived a few Welshmen, if there were any at all. Particularly in the tumultuous times of Welsh rebellions the natives were explicitly excluded. Caerwys and Newborough, however, were exceptions, where the majority of the population was indeed Welsh, probably mainly consisting of freemen. In the case of Newborough they were forcibly settled in the new town, being deported from the area where the new town of Beaumaris was built, principally for English settlers.

The new inhabitants of the bastides and the terre nuove generally appear to have come from the surrounding areas, where they had lived in villages and hamlets. They largely came from the territories of the founders which, in the case of the terre nuove, was largely recently won from the nobility of the countryside. For the terre, the government of the city-state determined which communities from the countryside were to be re-settled, and simply ordered the people to move to the new towns with their houses and possessions. It appears that in some cases they actually had to be forced to move. Some bastides also seem to have been settled by coercion. Complaints of neighbouring lords suggest that bastides also attracted people from adjacent territories, in search of more freedom and better prospects. Apart from the territory of the founding lord and neighbouring lordships, a small percentage of the settlers in the bastides and the terre nuove may have come from further away. It seems, however, that this was rather exceptional.

For all three groups of new towns, the founders would certainly have welcomed merchants and craftsmen, but the greatest part of the settlers appear to have been farmers initially. Noblemen – except for the founders themselves - and clerics generally were not allowed to own houses in the new towns. The settlers usually were obliged to build a house within a limited period of time from taking up a house lot. In most instances, the term was one year, but for the terre nuove it was shorter.

In the Welsh towns and the bastides the settlers had to pay rent for their house lots, often a shilling (or sol) per year. In the terre nuove the settlers do not seem to have paid rent. Only for Giglio Fiorentino it is known that every household was obligated to pay a recognition rent of one chicken.
4.4 Locations

It is possible to discern a difference between the three groups in the types of locations for the new towns. The towns were not just laid out on whatever piece of land the founder disposed of, but the sites were selected in accordance with the main function the founder had in mind for them.5 Thus, the terre nuove were all laid out on flat sites in fertile valleys on the main access routes in the periphery of the Florentine territory, in order to serve the production of the countryside, to control the trade routes and to defend the main entrances to the territory. Bastides were founded in a variety of locations. Some of them were clearly sited strategically on locations that were easy to defend, which was mostly on a hilltop or the end of a hillcrest, largely surrounded by steep slopes. But most of them were laid out where economic goals would be served best: on trade routes or in areas where new agricultural ground could be reclaimed. This commonly was in valleys, preferably where roads and waterways crossed, or on the slopes of hills. The Edwardian towns of Wales were mostly sited on locations of militarily strategic importance, largely following the choices for the sites of castles. These were mainly built at coastal locations with harbours, so that they could be supplied by ship, on rocky outcrops or sheltered by rivers and ditches. Three of the eleven towns lie further inland: the ill-fated town of Bere next to an older castle, and Newborough and Caerwys on gentle sloping grounds among the fields. The different character of these last two locations is due to the fact that these towns were meant as market towns, without motives of military strategy.

4.5 Urban form

Considering the form of the newly founded towns, it is clear that there is a great variation. Only the terre nuove fiorentine are distinguishable by the same basic morphological traits. However, it must be kept in mind here that, taken together, the terre form a comparatively small group, following one and the same consistent policy, and being located on similar flat valley sites, all of which helps in realising forms that follow a more or less consistent model. However, the terre must not be taken as representative, in this respect, of all new towns in Tuscany in the period under consideration.6

4.5.1 Differences in regularity

In general, some relevant differences can be noted between the three groups of new towns. The terre nuove, limited as this group is, clearly are the most regular in layout, with a basic set of features as noted in paragraph 3.9. (figs.3.6-3.27) Amongst the bastides there is a great variety of forms, regular as well as irregular.7 (figs.2.11-2.54) Plans as regular as the terre nuove or some of the bastides, cannot be found in the Edwardian towns of northern Wales. (figs.1.11-1.41) In part, this may be the result of a greater amount of changes made to the original structures in the course of the centuries; but foremost it is the result of the original forms having been less regular right from the outset. Apart from Flint the outlines of the Welsh towns are irregular, which means that their internal structures of streets and plots are at least partly irregular as well. Often this was due to a greater influence of the topography of the land at the specific sites. As described above, the terrain was generally more rugged at the sites of the Edwardian towns than at the locations of the bastides or the terre nuove, and this was directly related to the motives for plantation. Another possible reason for the general difference in regularity is a diversity in the stability of the urban structures through time. In general, it appears that the actual substance and structure of the towns in Wales have changed more than in the bastides and the terre nuove. This has to do with the durability of building materials and, more importantly, with the historical circumstances, which have been relatively unfriendly to the towns in Wales. The wars and rebellions that the Welsh waged on their conquerors were particularly aimed, for the most part at the towns the Anglo-Normans had founded, and did much damage to them. This factor,

5 In chapter 5 the choice for certain sites or types of sites for new towns will be considered more closely, not only regarding the groups of towns treated in chapters 1 to 3, but also other cases elsewhere in Europe.
6 New towns in Tuscany with rather different forms are, for instance, Albiano and Monteriggioni, both founded in the 13th century on hilltops, at least partly for reasons of military tactic. In both cases the natural form of the hilltop largely determined the plan structure. (see Cortese 2004)
7 As described in par.2.10.3.2, different scholars have tried to draw up typological schemes to classify these different forms of the plans of the bastides, seeking to find a morphological logic in ascribing the similarities to founders, planners, regions or periods of conception. In my opinion, however, there has been far too much generalisation in these typologies, and they are not really helpful in our understanding of the true historical relationships or developments.
combined with the economic and demographic depressions after the prosperous period of the 13th and early 14th centuries, led to a relatively strong depopulation in many of the towns in Wales, doing severe damage to the continuity of their urban form. Consequently, there is relatively very little architecture from before the 15th, or even the 18th, century preserved in the old towns of Wales, apart from parts of castles and town walls. This is not the case with the new towns of the other two groups which, in general, have preserved considerably more of their old structure and material.

Possibly, there was also a difference in the regulation of the maintenance of boundaries of urban property, for which there might have been more change in one region than in another. It is known, for instance, that in Florence and the terre nuove street lines were carefully maintained. How this was done in Wales or southwest France is less clear.

There is one more aspect that seems to have influenced the difference in regularity in the urban structure in the three groups of towns. It is likely that one of the main causes for the difference in regularity in the urban layout was the effort that was taken to make a structure regular. Apparently, with the terre nuove and many of the bastides (such as Monpazier and Grenade-sur-Garonne) a much greater effort was taken to give the towns a regular layout than with other bastides and the new towns in Wales. It seems that in the one case it was found much more important to realise a highly regular urban form than in the other. As the great variation in the form of the bastides shows, this cannot be ascribed, for the most part, to the specificity of the region or the founder, as many scholars would have it. For the case of the terre nuove fiorentine, however, it is most likely that their relatively great regularity has to do with aesthetic preferences concerning urban form that were current in Florence at the time. As will be discussed in paragraph 8.6, many people who took a share in the Florentine administration must have had a clear preference for straight streets and the orderly arrangement of buildings. This even led to projects in which existing streets in Florence were straightened and facades were regularised. These preferences were not exclusive to Florence but could also be found in many of the cities of central and northern Italy. Therefore, it is probably no coincidence that the new extensions of the cities in central and northern Italy, as well as the new towns that were founded by the city-states there, were generally relatively regular in their layout as well.

4.5.2 Defences

A clear difference in urban form between the three groups is that the terre nuove were all meant to be walled right from the outset of the projects, whereas only six of the eleven Edwardian towns in northern Wales were planned to be walled and few bastides seem to have been intended to be walled in the first instance.

At least some of the terre nuove were temporarily provided with ditches and palisades before the stone walls were completed, some decades later. The rectangular and regular layout of their defensive circuits was determined by the regular overall structure of the towns, rather than the other way around.

As mentioned above, nine out of the eleven Edwardian towns in Wales were built below the walls of royal castles. These towns all played some role in the military organisation of the royal territory, even if, in some cases it was just a question of the provisioning of the castle. Six of these towns most probably were originally meant to be walled; the other three (Harlech, Crickieth and Bere) were probably not deemed important enough, largely because of their small size, to spend much money and effort on the construction of defences. The first two of the defended towns, Flint and Rhuddlan, were provided with large ditches and earthen walls; and the other four with ditches and stone walls. At Beaumaris, however, it took a long time before a town wall was actually built. The defensive circuit of Flint, and thereby the outline of the town, had a more or less regular rectangular form, but the other towns were provided with more irregular wall circuits, largely following the form of the existing landscape.
tion of defences at the time of their foundation, but unlike what is almost generally thought, bastides were only very rarely meant to be real fort towns. Most bastides that were eventually walled only received their defences in the 14th century, in the years preceding or during the Hundred Years War. As was the case with other aspects of the bastide plans, the form of the wall circuits that were built varies from very regular (figs. 2.23, 2.33) to quite irregular (figs. 2.11, 2.31).16

4.5.3 House lots

In general the house lots in all three groups of towns had a (more or less) rectangular elongated form. The houses stood at the front of the lots and at the back there usually was open space for a yard or a garden. A rather important difference among the three groups, however, regards the size of the house lots.

Of the Edwardian towns of northern Wales, three are documented to have had house lots of standard sizes. The official standard originally was 60 x 80 ft. (18.29 x 24.38 m.) at Caernarfon and Criccieth and 40 x 80 ft. (12.19 x 24.38 m.) at Beaumaris. It is unlikely that the lots were actually all set out with these dimensions, but it seems that the size, or at least the area, corresponded quite well to many burgages that were actually laid out in these and the other Edwardian towns. In Newborough, the allotment was irregular right from the outset, as it was based on the pre-urban agricultural field structure.17

In the bastides there often were standard house lots, according to the earliest documents, measuring about 6 to 10 m. in width and 18 to 30 m. in length, with proportions of width and length varying from 2:3 to 1:4. From bastide to bastide there could be quite a difference in the standard lot size, and in towns where no such standard was set or maintained there also could be a considerable difference between the individual lots.18 It is clear, however, that the initial lots generally were smaller than those in the Welsh new towns, particularly in their being less wide.

A characteristic feature of the terre nuove is that the house lots all had the same width per town, either 10 or 12 braccia (5.84 or 7.00 m.), but that there was a systematic variation in length: the house lots grew shorter as they were sited further away from the central main streets. (from a longest length of 39 b. (22.76 m.) at San Giovanni, to a minimum of 10 b. (5.84 m.) at Giglio. With these dimensions most of the house lots of the terre nuove were considerably smaller than the lots in the bastides and the new towns of Wales.19

It seems that the original house lots in Wales were so wide that the house frontages along the streets were not intended to be continuous. The burgages were wide enough to leave space at the side of the house for access to the backyard. In many bastides and the terre nuove there would not be such open spaces along the streets.20

4.5.4 Market places

A clear and important difference in town layout between the Edwardian new towns of Wales and the other two groups is the role of the market place. In many a bastide in southwest France one may find large market places, often square or rectangular and of relatively large dimensions, which are important elements in the urban plans. (figs. 2.39-2.41) In the terre nuove the importance of the piazzas, in the very centre of the urban layouts, is also evident. (figs. 3.10-3.11) In Wales, on the other hand, it seems that the market places were of lesser significance as an element within the urban layout. Most commonly, the markets were held in the main street; and even in the Welsh towns with real market places it is clear that they did not take on an important or central role within the preconceived urban layout.21 (figs. 1.12, 1.26)

Despite this obvious difference, some authors tend to disregard the morphological dissimilarities between King Edward I’s new towns in Wales and his in Gascony. Metternich, for instance, stated “The Edwardian bastides in south-west France at least in their plan-forms are very like the new boroughs in Wales.”22

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16 See pars.2.5.3, 2.10.4.2 and 2.10.5.1.
17 See pars.1.7.5, 1.7.7, 1.7.10, 1.7.11 and 1.8.2.2.
18 See par.2.10.4.4 and appendix C.
19 See par.3.9.2.6 and appendix C.
20 See also par.2.11.
21 Lavedan and Hugueney (1974, p.114) believe that this proves the superiority of French planners over English planners in that period. In my opinion, however, this conclusion is much too bold because, among other reasons, it is quite possible that some of the Welsh towns may have been planned by the Savoyard James of St. George. (see pars.1.6, 7.4) In fact, it is anachronistic to make this issue a question of nationality.
22 Metternich 1984, p.47. See also Walker 1990, p.134.
This is not correct, however. The Edwardian new towns of Wales are not significantly more similar to the Edwardian new towns in southwest France, than to new towns in, say, Flanders, Switzerland or Bohemia. In fact, Edward’s bastides in southwest France are more similar to other bastides in that region than to his new towns in England or Wales.23

4.6 Similarities

In the preceding paragraphs various differences between the three groups of towns are highlighted. There are, however, also many relevant similarities that deserve attention.

In all three countries - as in most other regions of contemporary Europe - towns were newly founded by the ruling authorities, be they lords from the high or low nobility, abbots, bishops or the government of a city republic. People were attracted to these places and made living settlements of them. Both founders and settlers had to invest capital and goodwill in these towns, and mostly they would gain by their investments, in an economic as well as in a social sense.

The basic legal principle of town plantation was always more or less the same: the people who take up residence in the specific area of the town and who agree to the conditions specified in the contract of settlement, are exempted by the landlord from the normal legal situation. The lord rents out plots of land in a specific area for which he gives up part of his rights in favour of the settlers of the new town. He allows the settlement a market and gives the ‘burgesses’ personal freedom and the right to freely dispose of their possessions and their rented plots of land. The ‘burgesses’ are bound by their common rights, which set them off against the surrounding area and other towns, and by these means they become a community.

The rights bestowed on the new towns were in many aspects quite similar, as they were in most regions of Europe. But the specific formulations and the form of the charters were of different types in the three regions, since they were based on types that were already more or less current in the regions or on specific examples of other towns in the same dominion. The terre nuove were different, however, in the sense that they did not receive separate charters: the inhabitants became subjects of Florence and the towns had only limited autonomy.

Regarding the spatial form, it is clear that there are considerable differences. Nonetheless, there are important common elements as well. The house lots commonly have an elongated, more or less rectangular form and are set out side by side, with their short sides along more or less straight streets. The market space is located centrally, often together with the town hall (if there was one initially) and a church or chapel on it or next to it. Defences, to the extent the towns were provided with them, generally consisted of ditches and earthen banks that could be topped by thorny hedges and timber palisades. Only the more ambitious town foundations were initially provided with stone walls with dry or water-filled ditches in front of them. For the most part these defences were laid out along straight stretches, with towers at the corners and over the gates that opened up to the main streets.

The boundary lines between plots of ground that were destined for different functions or possessions could be set out along existing lines in the landscape, whether of natural or human origin, or they could be planned from scratch, following an abstract idea rather than the topographical situation as it existed. In those cases where such an abstract idea was followed, the structure was most often meant to be orthogonal, and would eventually look much more regular than in instances where the urban form was determined by existing features.

In any case, the complete plan commonly was not entirely regular in the newly planned towns in their eventual form. But there always was a certain amount of regularity, be it in the straightness of the streets, the general form of the house lots or just their coordination.

These are the general similarities between the new Edwardian towns of northern Wales, the bastides of southwest France and the Florentine terre nuove. These similarities show that there were common principles in new town creation in the different regions. There even seems to have been some sort of basic ‘concept’ for town creation, which was known in these three regions as well as elsewhere in Europe. Unfortunately, nothing is

23 It is quite clear, though, that Metternich is not very interested in town planning, but rather in castle building. And it is in order to emphasise the importance of Master James for Edward’s castle building campaigns that he stresses this supposed similarity in town plans, stating that Master James surely designed the new towns, and that he also designed a number of towns in Gascony when he was there in Edward’s entourage in 1287–89. There is, however, no evidence to support this view.
known directly of such a ‘concept’, and it can only be inferred from the towns that were created and from the efforts at urban creation.\textsuperscript{24}

However, these aspects are not limited to these groups, nor even these regions and period. In fact, from the time of the ancient Greeks up to the present day, many of these aspects were more or less common to urban creation throughout the ‘western world’. Although the nature of the administration and the legal aspects of land holding have changed, the basic principles of the foundation and planning of new towns - or, for that matter, new large-scale additions to existing towns - have remained much the same.\textsuperscript{25}

\textsuperscript{24} See par. 12.2.6.
\textsuperscript{25} See ch. 10. Concerning the urban form, though, there have been revolutionary new impulses of radial planning from the 15\textsuperscript{th} century on and irregular ‘organic’ planning from the 18\textsuperscript{th} century on. But these have never succeeded in completely casting out the two contrasting principles of the orthogonal ideal and the practice of adaptation to the existing situation in the landscape.

It should also be noted, that even outside the confines of the ‘western world’ one can sometimes recognise more or less similar principles in the planning of new settlements. (see Boerefijn 1997; Boerefijn 1999 (2))
PART II: ASPECTS OF NEW TOWN CREATION

In the following four chapters important aspects of the planning of new towns in the high-period of town foundation will be examined from a thematic point of view. The choice of sites for new towns will be investigated in chapter 5; the methods of design, specifically the use of geometry, will be closely studied in chapter 6; in chapter 7 the subject of the persons involved in the planning of the towns and their professions will be scrutinised; and in chapter 8 the contemporary ideologies concerning the phenomenon of the town and its society will be studied for as far as they had consequences for the creation of new towns. These subjects are particularly relevant because until now they have hardly been studied in any context wider than a regional one, and especially with regard to the subjects of the use of geometry in plan design and the professional status of the planners there appear to exist notable misinterpretations which are, nonetheless, widely accepted among scholars.

In chapter 9, then, a reconstruction is made of the process of new town creation as it would generally have taken place, and the various elements that generally formed part of the physical form of a new town will be discussed.

For the study of these themes, the material from the three clusters of towns treated in chapters 1 to 3 plays an important role, but will be used together with specific material regarding other newly founded towns elsewhere in Europe. In this way a more inclusive general picture can be presented of the phenomenon of new town foundation in the period.

5 THE SITING OF NEWLY FOUNDED AND TRANSPPLANTED TOWNS

For the success of a town, it is of crucial importance that it be located on an auspicious site. Many newly founded towns were never successful, no matter how much their lords may have stimulated them, simply because they were founded on badly chosen sites. The place where a town was created had to offer favourable conditions. For instance, the site preferably had to offer its residents the possibility of living healthily, safely and comfortably. Moreover, for its economic success a town preferably had to be well sited within the larger pattern of settlement, so that it would profit from its location within the transportation network.

In this chapter some specific aspects of the siting of the new towns from the high-period of town foundation will be discussed. The first paragraph will concern aspects of general importance for the choice of location. Then the movement of settlements from high- to low-lying sites will be studied in par. 5.2. Finally, par. 5.3 will treat the general subject of town-transplantations in the 12th to 14th centuries in Europe.

5.1 Aspects of general importance in the siting of new towns

Of course, new towns were preferably created at the most favourable locations. If possible, such a location would have been favourable to the founder as well as to the settlers, but this was not always actually the case. Settlers generally sought a dwelling place that was advantageous in terms of economy, health, comfort, protection against human and natural dangers, and legal status. But the founding lords may have had different economic interests and they also had (concealed) political interests’, which may have suggested other (sorts of) locations.

At the root of plans to create new towns generally lay the desire of the founding lords to generate extra income or to enlarge or consolidate their power and authority. In many cases, however, the idea to found a new town would have been prompted by a specific situation at a specific place or within a specific geographical area. It could happen, for instance, that foundation plans were prompted by an abundance of uncultivated or extensively used land in a specific area, as was the case with many bastides, or by the desire to provide a specific area with an administrative or economic centre under the direct control of the lord, as with many of the Edwardian new towns in Wales and the terre nuove fiorentine. Other stimuli that were specific to particular

1 See pars. 1.4, 2.5, 3.5, 9.1.
areas could be: damage done by war, brigandage or flooding; requests for protection or re-settlement from a local population; or a threat that part of the population was about to move away to a new settlement in a neighbouring lordship. These motivations also played a role in the foundation of the terre nuove and the bastides.\(^2\) Even more site-specific was the wish to provide a castle with a settlement in order to secure the supply of victuals to the castle, as was the case with some of the new towns in northern Wales.\(^3\) Apart from these examples, various other specific situations are imaginable with regard to the ‘management’ of a specific piece of land or a specific part of the population, which could work as stimuli for new town creation in specific places.

Thus, the area that was considered for the creation of a new town was often, at least to a certain extent, already determined by the circumstances that prompted the idea of town foundation. Some places more or less ‘asked for it’. This being said, while it may have been largely clear which area would serve as the territory of the new town, a new spatial organisation still remained to be created. Often, this organisation would largely be determined by the pre-existent situation: existing settlements, agricultural fields, road networks and existing boundaries with neighbouring lordships or parishes would determine the new plans for the spatial structure. And, of course, this was even more the case for the natural geographical circumstances: relief, hydrological regime, soil and vegetation had a strong influence on the pre-existent spatial structure as well as on the new plans.\(^4\)

Considering the requirements for the siting of a new settlement, it was of course of utmost importance that the location was well-suited to human existence. Essential conditions were the availability of drinking water and fertile ground or the possibility to produce food by cattle breeding, hunting or fishing, the absence of natural hazards (as for instance floods, avalanches or malaria), shelter against strong winds, etcetera. It was also of importance that the ground was flat and firm enough to build on, and that building materials could be obtained in the surrounding area. Vitruvius had already described similar conditions in his famous treatise of the first century B.C. and, thirteen centuries later, Thomas Aquinas echoed him in his advice to the king with regard to the foundation of new towns.\(^5\) For the new towns of the high-period of town foundation it was also essential that they be well connected to the inter-regional transportation network and that they be defendable. These two aspects will be discussed in the following paragraphs.

### 5.1.1 Defence

For the sake of defence, the locations for new towns were often chosen so that the topography of the terrain would hinder enemy attack. Therefore, natural relief, water and swamp were, within certain limits, seen as welcome obstacles if they surrounded a town’s site. This was the norm in Europe, as it was almost anywhere else in the pre-industrial world, when towns were sometimes at risk of being plundered by enemy forces or marauding bands and when they were often used as strategic strong points in the control and defence of a region.

One of the very few contemporary sources that explicitly comments on the strategic importance of a specific site for a new town concerns Flagella in southern Italy, founded by Emperor Fredrick II. A letter from the emperor to his subjects in the region, dated 1242, not long after the foundation of the town, mentions that ‘We have made provisions to found our city Flagelle to chastise our enemies in that location where an unreliable easier passage was seen.’ Apparently, the town was founded specifically in this place in order to secure a passage into Fredrick’s southern-Italian territory against the papal state, which had an important strongpoint in the nearby city of Ceperano.\(^6\)

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2 See pars. 3.5, 3.6.
3 See pars. 1.4, 1.7.6-1.7.8.
4 In a relatively large and empty newly conquered territory of one lordship, such as Prussia under the Teutonic Order, it can clearly be observed that the locations of the new towns founded between the 13th and 15th centuries were determined by the existing structure of the natural and cultural landscape as well as by its political structure. (Voellner 1960, p.535)
5 Vitruvius ed. 1962, book I, h. IV - VII; Aquino ed. 1997, II, 6-8, pp.138-147. In the De Regimine Principum Thomas also copied elements of advice on siting from Aristoteles’ Politica and from the late Roman tractate on military strategy by Vegetius. In their turn, Thomas’ rules for the siting of new towns seem to have been partly copied in the Ordinanzes of 1573, in which regulations were laid down for the creation of Spanish colonial towns in the West Indies, the so-called Leyes des Indias. (Guarda 1965)
6 ‘Citatum nostrum Flagelle ad flagellam hostium in eo sito fundari providimus quo infidelus transitus habilior cernebatur.’ (Wipfler 2005, pp.193-194)
But it was very rare that military tactics were the one and single reason for the foundation of a town; in most cases it was not even a main motive. Therefore, defence was mostly not of prime importance in the choice of site for a new town. In fact, the demands of accessibility and centrality, which are quite opposite to the requisite of defendability, were most often of greater significance.

5.1.2 Water

The presence of water was of preeminent importance for the success of a town. Of course, water was necessary for consumption, for which purpose it was preferably taken from springs, wells or cisterns. But water was also needed in all kinds of production stages in crafts and agriculture. In a different sense, water was of great importance for transportation, especially of bulk goods and for long distance trade. In a time when roads were still, to a large extent, impassable for carts, waterways were the main routes of transport. Water was also used for defence. For instance, towns were often surrounded by artificial ditches filled with water or were sited in river bends, in order to make use of the water as a natural defensive barrier. Water was also essential for food production in the form of fish, which formed an important part of the human diet. Finally, running water served as a major source of motive power, by way of mills. Many towns had a water mill located in the immediate area, right from the time of the town’s foundation. Like the fishing rights, the rights over the mills were usually a lordly prerogative, which were often farmed out to towns or to individual entrepreneurs.

For the sake of trade and transportation, towns were preferably sited near a navigable river or, better still, at the confluence of two navigable rivers, near a coastal harbour, or at the mouth of a navigable river. This last type of location, either on the coast or at the highest point to which the tide reached, was generally the most advantageous for trade, transportation and fishing. Natural waters were, however, not always reliable as routes of transport. Quite a number of towns experienced significant difficulties from the change of water courses, the sea level that fell or rose or the silting up of rivers and harbours. Therefore, canals were sometimes dug to provide navigable access to towns.

Not all towns could be sited on navigable water, however. But, at the very least, a town had to be sited near to a stream to provide for its need of water for use in crafts, agriculture and fish-breeding and as a source of energy.

5.1.3 Roads

Every settlement needs roads or paths to connect it to its surroundings. Towns, however, need something more to be successful: they need not only roads that connect it to the surroundings, but also to other markets and to centres of higher rank. So new towns with economic ambitions would preferably be sited on a trade route of importance. Such a trade route could also be a navigable river or the sea, as already described in the chapters on new towns in Wales and southwest France. But in those regions land routes were of great importance as well: in Wales primarily the coastal route, and in Aquitaine the pilgrim routes to Santiago de Compostela. The Florentine terre nuove were all planted on roads of super-regional importance that linked Florence to the neighbouring provinces and beyond. No waterways existed in the region where they were built.

From a number of documents concerning the plantation of new borghi franchi in northern and central Italy, it appears that the location for plantation was already established when the project was initiated, but only in general terms like ‘on the road to Reggio’. Subsequently, a special committee would be sent out to establish which specific site was best suited for the foundation.

Sometimes the founding lords were not happy to just adapt their actions to the existing topographic situation. So, in order to create a new well-suited site for town foundation, they would build new roads and

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7 See par.9.1.
8 See pars.1.5, 2.5.4.2, 9.1.3, 9.20.
9 As, for instance New Wichelsea in southeast England, Aigues-Mortes in southern France and ’s-Gravenzande in Holland. In the decades following their foundation these were all places of considerable importance, but after their harbours became largely inaccessible they declined to relative insignificance.
11 Bersford 1967, pp.105-141.
12 Fasoli 1943, p.201; Friedman 1988, pp.335-337, doc.18.
bridges themselves. Sometimes this was only done some years after the town’s foundation, in which case the inhabitants would usually contribute to the effort. Thus, new towns with more or less illustrative names like Chelmsford, Bridgnorth and Boroughbridge in England, Puente la Reina on the pilgrim route to Santiago in Navarre, as well as its later namesake Pons Regine in southwest France, were all founded at new bridgeheads. The most famous example, however, is Munich (München) in Bavaria. In 1157/58 Duke Henry the Lion destroyed the bridge over the river Isar at Föhring, in the territory of his adversary the bishop of Freising, where the important trade route of the Salzstraße crossed the river. Subsequently he ordered a bridge to be built about 5 km. to the south, in his own territory near a monastery with a village. Right next to the bridge he founded the town of Munich. In this way he not only gained control over a new strategic site, he also gained control over the toll on an important trade route and he created the right conditions for a very successful new town. In many similar cases, roads were diverted in order to lead the traffic through newly planted towns. In some cases, as at Bawtry and Chipping Sodbury in England, the diversion of the road can clearly be seen in the town plan. In paragraphs 3.8.3 and 3.8.4 we have already described how the Florentine new towns of Scarperia and Firenzuola were explicitly sited so that they would lie on a new pass-road which was under construction at the time. (see fig.3.18) The best location, in terms of access to the interregional transport routes, was at the place where two important routes crossed each other. Preferably, a point was chosen where a road crossed a river, so that the town would also serve as a place of transfer, as a safeguard of the strategic site, and as a toll-point for the ford, bridge or ferry.

Most clearly, the importance of a through-going road for a town can be seen in northern Spain. From the late 11th century, after the pilgrimage to Santiago de Compostela had become popular, a considerable number of new towns were founded along the different sub-routes of the pilgrim route. Mostly, the importance of the road is clearly visible in the longitudinal layout of these towns, which is focused on a central street, and is sometimes also clear from their names, by the suffix del Camino or de la Calzada (‘of the [pilgrim] route’ or ‘of the road’).

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13 Beresford 1967, pp.116-118; Torres-Balbas 1954, p.55; Lauret, Malebranche & Séraphin 1988, p.289. (Other names for Pons Regine were or are La bastide-de-Pont-la Reine or Labastide-Chalosse.)
14 Rutte 2002, pp.35-36.
15 See Beresford 1967, plate 6 (Chipping Sodbury); Aston & Bond 1976, p.91.
16 Other examples of new towns to which roads were diverted are Radstadt in Austria (founded 1280) and Hradisch in Bohemia (founded 1257). In both cases the founders had a new road laid out to the new towns and promulgated a regulation that forbade travellers from taking another route. (Fischer 1952, p.56)
18 Torres Balbas 1954, pp.43-50. The most well known of the new towns on the pilgrim route is probably Pamplona. More typical of the group, however, is Santo Domingo de la Calzada (founded before 1125).
5.1.4 Mutual distance and centrality

Regarding the distribution of towns over the land, one must also consider the mutual distance between them. In England and Wales a distance of 8 to 16 kilometres generally seems to have been the rule. In the German lands the minimum distance between one market and the other was set at one Meile (c. 8 km.) according to the standard laws of the Sachsenspiegel (Saxony), whereas the distance had to be at least three Meile according to the Schwabenspiegel (southern Germany). In the well-populated areas of western, central and southern Europe, the mutual distance generally seems to have been around 10 to 15 km. But, of course, there would be variation in the mutual distance following the geographical situation: in areas of great importance for transport, on rivers or on the coast, or in areas of great fertility or a wealth of minerals, towns could be set much closer to one another. If towns were spaced too closely, though, the general result would be that the ones with the less favourable geographical position and the fewer tenurial privileges would not develop well.

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19 Bond 1990, p.86.
20 Fischer 1952, p.220. It is not clear what the exact length of the Meilen in these sources were, but in the German lands it generally measured between about 5,530 and 10,050 m.
Sometimes, towns received a market monopoly for a certain region or within a certain radius. There even are cases where the inhabitants of a certain area were obliged by regulation to visit a specific market once in a while. Aberystwyth in Wales, for instance, was granted a market monopoly within a 15 mile (c. 24 km.) radius. In this way, a hinterland could be artificially created for a town. But, in general, new towns would be located so that they would lie in a central position in relation to a hinterland with boundaries that would be more or less ‘topographically logical’.

In some cases, however, towns appear to have purposely been created close to existing towns. In central-eastern Europe, for instance, independent Neustädte (‘Newtowns’) were sometimes added to successful older towns, under the control of the same lord. Sometimes there may have been enough room for both towns to flourish, possibly even in mutual stimulation by complementarity of functions, as was the case at Gdansk and Cracow. This appears not to have been the case, however, with the towns of Stralsund (founded shortly before 1234) and nearby Schadegard (date of foundation and exact location unknown). Almost nothing is known of Schadegard, but in a charter of 1269 it can be read how Prince Vizlaw II decided to ‘completely annihilate’ his new town of Schadegard and to rebuild it some time later on another location, so that ‘his beloved burgesses of Stralsund’ would thrive and profit from it in the future.

In various other cases, new towns were founded close to older towns of other lords, which may also have been newly founded, in order to compete, or often rather to prevent the draining off of subjects, capital and economic activity. Normally, this would decrease the chance of great success for both places. Various cases are known where such a new town was destroyed by the inhabitants of the older town, for fear of economic competition. This was the case with the Hildesheim Dammstadt in Germany, which was founded in 1196 and destroyed in 1332 by the inhabitants of the Hildesheim Altstadt. Something similar happened at Hagestein in The Netherlands. It was founded in 1382, probably explicitly to act as a competitor to nearby Vianen, which had been founded about half a century before. In 1406, however, the lord of Vianen and his subjects destroyed Hagestein, leaving its remnants only visible today in the allotment of the fields.

5.1.5 Possession of the ground

A very important limitation to the choice of site was, of course, that the founder of a new town could only found it on land that he had in his own possession. Sometimes, this could be a shared possession, as with the paréages, by which two or more lords pooled their efforts in order to found a new town. In any case, the site for a new town had to be found within the territory of the lord(s). Many newly founded towns were not located in very favourable places. The reason for such cases may have been that better sites were simply not available to the founder. When the founder only had a small territory in which he wanted to create a town, it could even happen that this territory was hardly (or not at all) large enough to support an urban centre.

If the founder did not dispose of a good site to found a town, he could also try to buy or trade land. This happened, for instance, with the foundation of Conwy in Wales and Montecurliano in Tuscany.

Because new towns were preferably sited on important traffic routes, they often came to be located on the margins of lordships and parishes, since seas, lakes, rivers and important roads often formed the boundaries of the districts. Hence, new towns that extended on two sides of a road or river may have formed part of more than one lordship or parish. Another common reason for the proximity of new towns to bound-

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22 Dyer 2000, pp.517-518.
23 Czacharowski 1990.
25 Schich 1993, pp.84-85.
27 See par.2.4.2.
28 For Conwy, see par.1.7.4. For the foundation of Montecurliano in Tuscany, around 1179, the Aldobrandeschi counts traded land with the bishop of Grosseto, who also reserved the right to build his palace, a cathedral and houses for canons there. (Cortese 2004, p.301) For the re-foundation of Fontanetto Po in northern Italy the abbey of San Genuario traded land with various members of the existing community in order to come into possession of the whole area of the new town. (Panero 1979, p.106) See also Beresford 1967, pp.14-15, 102-104.
29 Beresford 1967, pp.116, 134. For rivers this may seem more logical than for roads, but sometimes old Roman roads that remained important routes could become the boundaries of parishes and lordships. (Beresford 1967, pp.112-113; see fig.5.1)
30 Beresford 1967, pp.134-137.
aries was that they were often planted on marginal, mostly common, land. This was done so that no valuable arable land, which usually lay closer to the centre of the parish or district, had to be given up.31

5.1.6 Pre-urban settlement nuclei

Many, or possibly most, new towns were founded on sites with some sort of existing settlement, such as a village, hamlet, farm, castle or abbey.32 New towns were preferably sited in locations that were favourable to human settlement, and it appears that these locations often already had been recognised as such in earlier times, so that people were already living there.33 Many new towns were founded by lords next to their castles or by abbeys right outside their gates.34

Castles and abbeys could form successful ‘partnerships’ with towns, because their demand for victuals and other goods and services might form the initial basis of the local economy. Local businesses might also profit from visitors to the castle or abbey, which traffic could be substantial at the time of rallies or feasts.35 An additional advantage could be that the inhabitants of a town could seek refuge in a castle or a walled monastery in times of unrest.

Older hamlets or villages may have stayed more or less intact in or next to a new town, as seems to have been the case in Newborough in Wales (fig.1.41) and in the bastides of Septfonds and Villeréal (fig.2.44); or may have been demolished to make way for a new spatial structure, as may have happened at the Florentine new town of San Giovanni. Sometimes, only the church of an older settlement was left in place, as happened in the bastides of Vianne (fig.6.3) and Lisle-sur-Tarn and in Fontanetto Po in Lombardy (fig.8.8).

5.2 High and low sites

As described in chapter 3, the Florentine terre nuove were all built on relatively low sites in mountain valleys and most of the bastides of southwestern France were also sited on low locations in valleys. The preference for these sorts of sites for towns was something relatively new. Older settlements often lay on hills or mountainsides. This also holds true for many other regions in Europe with rugged landscapes.

These low-lying sites were chosen not only because the valleys offered fertile land to be reclaimed, but also, and often probably more so, because here lay the interregional traffic routes. Roads often lay in the valleys, as they generally were much easier to traverse than the hills or mountains, where many more meters of altitude had to be conquered. And, of course, waterways were also sited in the valleys.36

For the terre nuove, it is largely known from the foundation documents where the settlers came from. It appears that most of the communities and villages that were re-settled in the new towns lay on higher locations at short distances from the terre. The old villages were often sited on hilltops, whereas the new towns were built in the valleys. For instance, at least five of the six villages that were re-settled in San Giovanni Valdarno, were hilltop villages, while the new town was built on the valley floor, possibly on the location of the sixth village.37 (see fig.3.5) This situation is more or less similar to that of the other terre nuove.38

31 Bersford 1967, pp.135-140. This was still explicitly advised in a 19th-century Dutch treatise on the building of dykes and the organisation of polders, which suggests that houses and other buildings should be built on the least fertile parts of the polder. (Andries Vierlingh: Tractaat van Dijkage, eds. Hallu & Verhoeven 1920, p.284)
32 Regarding Wales, see par.1.7, and regarding the terre nuove, par.3.8. In the literature on urban creation in the period under consideration, the aspect of previous settlement is often either strongly exaggerated, which means that purposeful interventions are largely veiled, or are passed over entirely, which means that the newness is overemphasized (this is often the case, for instance, with the bastides).
33 See paras.1.7.2, 1.7.4, 1.7.9-1.7.11, 2.10.1, 3.8.1-3.8.3, 3.8.6.
34 See paras.1.7.2, 1.7.5-1.7.8, 2.3.1, 2.3.2.
36 In the Roman period, many roads and settlements had been built in valleys in southern and central Europe. But after the relatively quiet period of the Roman empire, particularly in the 7th to 11th century, many valley settlements were pillaged repeatedly, after which experiences they were moved to safer places in less open and better defendable locations, commonly higher up in the hills or mountains. Particularly for the region of Latium in Italy, this process is known as incastellamento. (Toubert 1973 (Latium); Barcelő & Toubert 1998, passim and esp. pp.17, 287; Fischer 1952, p.103) Fields on valley floors became uncultivated again and drainage systems and roads fell into disrepair. Many valley floors became swampy and malarial terrain again, as were valleys that had not been colonised.
37 See par.3.8.2. This sixth village, which was probably called ‘Borgo di Pianallerti’, seems to have been a relatively young creation itself.
38 From the 26 communities from which Scarperia was to be put together, 8 out of the 20 I have been able to locate (up to c. 5 km. away from the new town) from toponyms in a present-day map, lay higher up in the hills, the other ones being located in the plain on locations similar to Scarperia. (1: 25,000 map of the Appenino Toscoemiliano, Edizione Multigraphic Firenze, 1991) Concerning Firenzuola, 7 out of the 8 communities mentioned in the foundation document lay higher up in the mountains, up to c.6 km. from the new town. (1: 100,000 map Firenze-Prato, Edizione Multigraphic Firenze, 1993) Regarding Terranuova, I have only been able to locate 4 out of the 12 communities mentioned in the foundation document, all of which were sited on hills up to about 2.5 km. away from the new town. (1: 25,000 map Massiccio del Pratamagno, Edizione Multigraphic Firenze, 1989) From the eight settlements that were to constitute Giglio I have located seven, six of which lie higher up in the hills. (1: 100,000 map Istituto Geografico Militare 1909, Foglio 114)
Gian Franco di Pietro described how similar settlements transplantations from hilltops to valleys also took place elsewhere in Tuscany in the 12th to 14th centuries.\(^{39}\) It is not unlikely that the earlier hilltop settlements had been connected with interregional roads through the valleys by secondary roads. As long as defence remained a more important consideration to the settlements than trade, they probably were better off located on the hilltops. It was particularly the protection offered by the mighty territorial powers of Florence and other city states that offered some level of guarantee that people could safely live on unsheltered locations in the valleys.\(^{40}\) In Tuscany the city-states could only offer such protection up to a satisfactory extent to settlements in the countryside from about the 12th to 14th centuries onward, depending on, among other things, the power of the administration and the location. It should be considered, in this context, that the areas along the interregional roads in the valleys were more closely controlled by the city-states, since the old settlements in the hills had generally been the bases of power of the old feudal lords, who were often the adversaries of the civic administrations. It is also of importance that the locations along the through-routes were generally easier to reach from the cities or from secondary strongpoints of the city-states, than were the higher locations.

As already mentioned above, the movement of settlement from high to low locations was not exclusive to Tuscany: in the high-period of town foundation the same phenomenon can be found almost anywhere in Europe where towns were created and where the landscape contained valleys that were wide enough to travel along and to live in. The specific process was not the same everywhere, but in general it can be observed that concerns of an economic nature came to prevail more and more over defensive considerations in the siting of settlements.\(^{41}\) In paragraph 5.3, which deals exclusively with settlements that were transplanted from one place to another, the phenomenon will be encountered again in various other European regions.

Not all new towns were created on low-lying, level sites, however. In chapter 2 it was seen that various bastides were built on hilltops or hillcrests. These locations were at least partly chosen for reasons of defence.\(^{42}\) The same also happened elsewhere in Europe. For instance, Carl Haase has described the odd situation in Westfalia in Germany, where relatively many new towns were founded on high-lying sites in the period of c. 1240-1290, compared to the 12th century and the earlier decades of the 13th. The towns founded in this specific period were also smaller in size and received reduced privileges. The reason was that, due to an increase in hostilities among the different territorial lords, these towns were often built for the protection of lordly territories rather than for motives of an economic nature, as had been the case with the earlier town foundations. Therefore, these towns were built on defendable sites rather than at traffic junctions, which generally meant that they were sited on higher locations.\(^{43}\)

### 5.2.1 Prevention of flooding

On low-lying locations, there was, of course, often a danger of flooding. In lowland areas, such as The Netherlands, towns were generally built on sites that were somewhat higher than the surrounding terrain, in order to prevent flooding. The difference in altitude may sometimes be almost invisibly small, but a difference of, say, half a metre may have been just enough to withstand a flood as a result of high rainfall or a broken dyke.\(^{44}\) On valley floors surrounded by hills or mountains, the locations chosen for new towns were generally also not at the lowest point. Often a low spur or mound was chosen, largely surrounded by lower ground.\(^{45}\) But in some cases a very low location was chosen. The reason for that was primarily that at such a site the water, in the form of a river bend, an artificial moat or a swamp, could easily offer protection from invaders.\(^{46}\)

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39 Detti, Di Pietro & Fanelli 1968, pp.33-35. Di Pietro specifically writes about Tuscany, but suggests that the principle was also common to other hilly or mountainous regions in the period of about the 12th to 14th centuries.


41 Fischer 1952, p.142.

42 See par.2.10.1.

43 Haase 1960, pp.75-76.

44 For instance, the new town of Hagestein in The Netherlands was built on a fossil riverbed that was somewhat higher than the surrounding land. (see fig.5.2) The nearby new town of Vianen had a higher ‘core’ in the dyke along the river Lek on the north side of the town, perpendicular to its main axis. The town of Aigues-Mortes in southern France was also built on a slightly higher site in the marshy estuary of the Rhône. (see fig.2.15)

45 This was the case, for instance, with Rhuddlan and Aberystwyth in Wales (figs.1.15, 1.19), the bastides of Grenade-sur-Garonne and Montaut (figs.2.22, 2.53, 2.24) and the Florentine new towns of San Giovanni, Firenzuela and Terranuova (figs.3.11, 3.22, 3.23).

46 This was the case with, among others, the battle of Fourcès (fig.2.10) and Leoben in Austria (fig.5.4).
Sometimes, the terrain at such low-lying sites was artificially raised or surrounded by a dyke. For instance, with the building of the new town of Hagen, which was added to the older town of Braunschweig in northern Germany around 1166, the ground level was raised with sand and logs. In the small town of Goor in The Netherlands, which received urban privileges from the bishop of Utrecht in 1263, archaeological excavation has shown that the ground of the town was artificially raised somewhere around that time. Near the bed of the river Regge a small natural mound was enlarged with over 26,000 cubic metres of earth. This earth partly came from the digging of a moat around the site, but a large part of it must have come from elsewhere. It is calculated that this work must have taken about a hundred man-years. Le Landeron in Switzerland was also founded on the bottom of a valley, in a former meadow, in 1325. In order to keep the water away, a dyke was built of stone walls as a container for an area in which the ground level was raised about one metre. The stone walls also served as a foundation for the actual town wall.

A very special case is the new town of Stockbridge in Hampshire, England. The small settlement was built on an artificial raised causeway. The main street and the plots on both sides of it lie on a strip of raised ground which crosses the valley of the river Test. The river was divided into a number of smaller streams that act as boundaries between the different plots, crossing underneath the main street and flowing together again after passing through the town.

In various other towns that were built on low-lying land, the ground level was raised later on in their history, as regular flooding made it difficult to live there. This was the case, for example, in Le Landeron and in 's-Hertogenbosch in The Netherlands, where archaeological research has shown that the ground level was raised considerably some decades after the foundation of the towns. Sometimes, urban regulations were established in low-lying towns determining that individual occupants were not allowed to raise the ground surface of their plot above a certain level. In a newly laid out street in Amsterdam, this level was set by poles; but more often it was stated that the level of the plot outside the house was not to be raised above the level of the neighbouring plots.

5.3 Settlement transplantations

New settlements were, for the most part, not just created out of nothing: their initial settlers may already have been living at the site, but most settlers came from elsewhere. Quite often, new settlers moved in from specific older settlements in the region, whether willingly or not. Sometimes, however, the initial population was completely transplanted from an existing settlement elsewhere.

Such settlement transplantations often had to do with considerations regarding trade and traffic routes. Inter-regional Roman roads, or rather their other routes, generally remained in use for many centuries, often even up to the present. Apart from those, many new roads were built during the period of about the 11th to 14th centuries, in order to facilitate the regional and super-regional traffic, which increased strongly due to the intensification and expansion of economic structures. Waterways were also newly exploited and improved. Almost everywhere in Europe, these new transportation networks had a significant influence on the pattern of settlement.

There were also various other reasons for settlement transplantations, as will be discussed below. But the nature of the site - or the mutation of its nature - always had a significant influence on the act of transplantation.

In chapter 1 it was described how the new town of Newborough was created in order to house the Welsh people who had previously lived in the borough of Llanfaes and the village of Cerrig-y-gwyddwl, which had lain near and, respectively, at the site of the other new town of Beaumaris. These people had to be resettled, as they were no longer allowed to live near the place where Beaumaris was built. The village

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47 Röting 2001, p.418.
50 Beresford 1967, p.176.
51 Archaeological research has shown that in Le Landeron the ground level was raised about 1.5 m., which meant that the floors of the houses also had to be raised. (Bujard & Boschung 2001, p.33) In 's-Hertogenbosch a layer of 1.5 to 2 m. of sand and rubbish were carted in at the end of the 13th century. Houses appear to have been taken down and rebuilt on the raised level, which accounts for the fact that at least some of the timber frame walls were replaced by brick. (Janssen 1983, pp.58-59; Janssen 1990 (2), pp.161-165)
52 Meischke 1988, p.239.
53 See par.9.9.
simply had to be cleared in order to make room for the new town, whereas the borough of Llanfaes was considered an undesired economic competitor to the new town. Beaumaris was not meant for Welshmen, and therefore they were forced to move to the new town of Newborough, which lay at a distance of about 20 km. from Beaumaris. The new town of Aberystwyth also appears to have replaced earlier settlements. There it was a matter of Norman villages and castles that were located further inland. Most settlers of the new town, however, seem to have been attracted from elsewhere.

Many bastides also replaced older settlements. As with the Florentine terre neuve, the new towns were often built in the valleys, replacing older settlements that were sited on higher ground. Thus, Toulouse replaced Nerbis, Aire-sur-l’Adour replaced St. Quitterie, Villeneuve-sur-Lot replaced Pujols, and Réalmont - unlike its name suggests sited not on, but at the foot of a mountain - replaced Gardemont. The ville-basse of Carcassonne was founded for people who had lived higher up in the old cité, which remained in existence as a fort and town for the clerical and administrative elite.

A more or less similar case is (New) Salisbury in England. The old town was sited on a hilltop at Old Sarum, cramped within the fortifications of an Iron Age hillfort, together with a cathedral close and a castle. In 1219, however, the bishop decided to move his cathedral and town down the hill to a site on the bank of the navigable river Avon. The poet Henry d’Avranches recorded the reasons for the transplantation to the new site, which was actually effected between 1217 and 1227. Primarily, it was the hostility from the officers of the lord of the castle that caused the transplantation, but he also mentioned various disadvantages of the nature of the old site, ranging from being too much exposed to the wind, to the abundance of chalk, which blinded the eyes of the inhabitants. He also wrote that the old site on ‘mons maledictus’ was poorly accessible and that the new site was much easier to reach. As mentioned in the previous paragraph, this last motive was common to many settlement transplantations in the period.

Both Carcassonne and Salisbury show that the lack of room for expansion could also be an important motive for the movement from the hilltop to the plain. Innsbruck in Austria was not sited on a hill originally, but on the left bank of the river Inn. In this location, however, it was also difficult to find space to enlarge the settlement for its lord, the duke of Austria. Therefore, so it appears, Duke Berchtold III had the market settlement transplanted to the other side of the river around the year 1180.

54 See par. 1.7.11.
55 Beresford 1967, p.41; Griffiths 1983, pp.69-70. See par. 1.7.3.
56 Beresford 1967, pp.87-88; Lavedan & Hugueney 1974, p.83; Dubourg 1997, pp.87-89. Further examples are Montsegur and Roquefixade, which kept being called by their old names. (Lauret, Malebranche & Séraphin 1988, pp.23-34)
57 Mot 1963; Lavedan & Hugueney 1974, p.81.
58 Beresford 1967, pp.188-189; Ancient and Historical Monuments in the City of Salisbury 1980, p.XXXII.
59 Fischer 1952, p.112. A similar case is Neuburg. When the original settlement outgrew its space in the 12th century, it was partly transplanted to an island in the Donau, and
Herbert Fischer published an interesting study on the phenomenon of historical settlement transplantations, mainly regarding the area of Austria and surrounding regions. From this study it appears that quite a few settlements there were moved from one place to the other in the 12th to 14th centuries. As elsewhere, these transplantations were mostly in a downward direction: settlements were often moved from hilltops and mountain-sides down to the valleys and plains, in order to find level building land and transport routes there.\(^\text{60}\)

Particularly, the presence of better transport routes, or rather the closer proximity to them, seems to have been a prime consideration for the transplantation of settlements. Examples of this are the towns of Bruck an der Mur and Leoben in Austria, which were transplanted under the rule of the great town founder Přemysl Ottokar II (duke of Austria and margrave of Moravia 1251-1278, king of Bohemia 1253-1278). Around 1262, the village of Bruck an der Mur was moved down to the river Mur, where it was sited at a bridgeable point and made into a town. Leoben, which lies only about 10 km. to the west, had been a market settlement next to a castle on a hill since about the 9th century. In 1268, it was relocated at the bridge-head on the river, about 400 m. to the north of the old site. In this last case, the new site had an additional attractive aspect because a loop in the river offered easy and cheap defence to the town.\(^\text{61}\) (fig. 5.4)

A decade earlier, in 1257, Přemysl Ottokar II had already transplanted the small market towns of Kunovice and Velehrad in his margravate of Moravia, on the Hungarian border. They had been on both sides of the river Morava and were moved to an island in the river, where they were much easier to defend.

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\(^\text{61}\) Fischer 1952, pp.118-119, 136. Possibly, the immediate occasion for the transplantation had been a fire in the old town, but a chronicle mentions that Leoben was relocated ‘because of a mountain that blocked her towards the south, the city could not be fortified’. (‘propter montem qui versus meridiem eam tangebat, civitatum ex quo muniri non poterat’, Egli 1962 (Bd.2), p.143) The relatively flat site in the river bend was easy to fortify by walls and ditches, since two sides were directly protected by the river. Similar cases are the oppidum Markstatt in present-day Slovenia, which was transplanted to an island in the river Kupa by Rudolf IV in 1155, after whom it was called Rudolfswerf (presently Nova Mesto; Fischer 1952, p.124), and Radkersburg in Austria, which was transplanted to an island in the Mur from the suburbium of the duke’s castle. (Fischer 1952, p.135).
According to a surviving document, the new fortified town was created ‘for the protection of our country’. The new town was called Nový Veligrad (presently Uherské Hradiště). Another town transplantation for which Fischer has found a documented motivation was that of Bösig (Bezděz) in Bohemia. In 1337, this town was moved by its lord ‘from certain experience and many legitimate reasons’. The old location, next to a castle, was ‘neither appropriate nor apt’. Therefore, the town was transplanted to another site, in the woods on the bank of a stream, ‘due to improvement of the conditions of this town and its inhabitants’. The new town was called Weißenwasser, although its founder wanted it to bear the name Neu-Bösig. Apparently, this transplantation was arranged in order to find a more suitable site to provide a comfortable life for the inhabitants.

Similar cases can be found elsewhere. At San Miniatone in Tuscany, for instance, the inhabitants wanted to move from the site on the hillcrest down to the plain below, in order ‘[…] to profit more from the convenience of the plain and the water […]’, according to the chronicler Giovanni Villani. Apparently, the transfer was not effectively realised, or was only to a very small extent, since the core of the settlement has remained up on the hillcrest. But in the 19th and particularly the 20th centuries, the settlement in the plain developed quickly, and presently the lower town, called San Miniato Basso, probably has more inhabitants and economic activity than the old town does. It is clearly visible here that the transfer from high- to low-lying sites was not a phenomenon exclusive to the 12th to 14th centuries: it continued up to the present day. The building of new, wider and better roads, canals and, eventually, railways from, say, the 18th century on, encouraged development in the valleys and plains. Turnpikes, docks and stations were often built right underneath the towns that lay higher up the hills, after which the centre of economic activity and settlement often gradually moved down from the upper town. This process can be observed at many places where old settlements were sited on hilltops or mountainsides. The settlement transplantsations in the period under consideration formed an early and important stage in this process.

Sometimes the location in the plain was expressed in the name of the new towns, as in Castellón de la Plana in Castille and Le Plan and Plagne in southwest France. Strange enough, however, town names with mont, berg or a similar reference to the height of the location, are far more common. This is peculiar since locations in valleys and plains are more frequent. Apparently, such locations were less compulsive in the toponymy. In fact, in some cases one can even find towns that lie in valleys or on flat sites, with names that suggest the opposite, such as Montevarchi (Tuscany), Montaum (southwestern France) or Hardenberg (The Netherlands). The first of these, however, was named after the earlier settlement that actually lay on a nearby hill. The same is possibly true for Montaum, whereas Hardenberg was named after the slight elevation on which it was built in an otherwise rather flat landscape.

There were also towns that were moved as a result of a natural disaster or because of particular political circumstances. The town of Friesach in Austria, for example, was moved from one bank of the river Metnitz to the other in 1121 because the old town was destroyed in order to punish the inhabitants for an insurrection against their lord. Fires and avalanches or landslides could also provide a reason to move a settlement to another place. Ljubelj in Slovenia, for instance, was destroyed by an avalanche some years before 1320, after which it was replaced by a novum oppidum on a site nearby.
In cases of the devastation of settlements by flood or enemy attack, they would, contrary to the general trend, quite often be transferred to higher locations in order to find better protection there. In Austria this happened to the towns Fürstenfeld, Markt Enn and Neulengbach. Winchelsea in southeast England is a well-studied example of a town that was transferred in an upward direction because of an increase in floods from the sea. (fig. 7.1) The port town was transplanted by King Edward I in the years around 1292, from the estuary of the river Brede to a nearby hilltop with a harbour at its foot. In the north of England there even was a triple attempt at town foundation, of a town which was transplanted twice because of flooding by the sea. Wavermouth was founded in 1300 as a port town for the victualling of Edward I’s fleet during his Scottish expeditions. Already in the next year the foundation was aborted and retried at Skinburgh; but, after this attempt was also largely washed away, Newton Arlosh was founded on higher ground in 1305. This re-foundation eventually resulted in a quiet village, and not in the flourishing port town that the founder of the three towns, the Cistercian abbey of Holm Cultram, probably had hoped for.

Finally, it must be remarked that the transplantation of a settlement from one site to the other usually also involved a shift in status. In the sense of altitude the settlements may usually have gone down, but in the sense of status it commonly was just the other way around: mostly it meant a promotion in size, in privileges and often also, indirectly, in independence from the lord of the town. For instance, many towns were moved away from the castle in whose shadow they were previously located, so that they were able to assume a higher level of independence, with more independent facilities, such as a church or chapel, a court and, not least, their own defences.

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70 In this sense they were much alike the many settlements in the formerly Roman parts of Europe that were incastellated in the period of about the 7th to 11th centuries. (Toubert 1973 (Latium); Barceló & Toubert 1998, esp. pp.17, 287; Fischer 1952, p.103)
72 Homan 1949; Beresford 1967, pp.14-28. In 1280, King Edward called upon his steward Ralph de Sandwyco, and commissioned him to “[...] extend and buy or obtain by exchange certain lands [...] which are suitable for the new town of Winchelsea which is to be built on a hill called Yhamme” (Lilley 2005, p.225)
73 Beresford 1967, pp.415-416. The town of Kenfig in Wales had to be moved further inland because it was encroached by sand, rather than water. The town was first founded in the early 12th century, and was transferred in the late 15th century, by which time life had become very difficult because of the invading sand. (Soulsby 1983, pp.149-151)
74 Fischer 1952, p.143. There are exceptions, however: some towns were actually transferred to sites next to existing forts or castles, usually on higher locations. (see Fischer 1952, pp.103, 133)
6 THE USE OF GEOMETRY IN THE DESIGN OF NEW TOWN PLANS IN THE HIGH-PERIOD OF TOWN FOUNDATION

As became clear in the previous chapters, the layout of newly founded towns of the 12th to 14th centuries was largely planned. A crucial question is, of course, how these towns were planned, or more particularly, how they were designed. Unfortunately, there are barely sources from the time of the creation of the towns that inform us on the process of their planning. From the few written sources we know a little about the organisation and execution, but almost nothing about the design stage: how and why specific forms and dimensions were chosen.

Since the middle of the mid-20th century, however, various hypothetical theories concerning the design of the town plans have been forwarded in the scholarly literature. Some of these theories clearly contradict one another, so the subject remains very much open to debate. Therefore, a number of the proposed theories will be discussed in this chapter in order to present an overview of the proposed methods of design and to analyse whether or not they are likely to really have been used in the planning of towns. In particular, it regards theories of geometric and arithmetic methods of design for regular town plans.

Relatively close attention will be given to theories on the design of the plans of the bastide of Grenade-sur-Garonne and the terre nuove fiorentine, since these towns form part of the groups of towns that were studied in the first three chapters, and because they are interesting examples of different hypothesised methods of plan design that have been given relatively much attention in the scholarly literature of the past decades. These cases are also interesting because they serve very well to contrast the two different basic methods of design: complex geometric design and arithmetic (or ‘simple geometric’) design. In particular the terre nuove have come to stand in the spotlights as subject of debate over these methods in urban planning, as many different theories have been proposed for their design. These towns will therefore be treated extensively, in order to create some clarity in the confusion of the various theories on this particular subject. (par.6.4)

This chapter is particularly concerned with regular town plans. As already pointed out in chapters 1 and 2, there were also newly founded towns with plans that can hardly or not be characterised as ‘regular’. The irregularities in these plans were generally caused by convenient adaptation to the specific circumstances of the landscape. These towns will barely be considered here, since this chapter is specifically concerned with the more abstract sort of design that took place in the mind of the planner and the subsequent translation of this design into reality. Such abstract design may also have been part of the planning of irregular layouts, but unfortunately that is very hard or even impossible to reconstruct from those layouts with the current methods.2

The chapter will open with short introductions of the two basic possible methods of design, the one using arithmetical proportions and the other one using complex geometric constructions. (pars.6.1 and 6.2) After that a number of different hypotheses concerning specific town plans will be critically discussed (par.6.3). Then, a relatively large part of the chapter will treat different hypotheses that have been proposed by different authors for the design of the terre nuove plans (par.6.4.1) and the analysis on which of these is most likely (6.4.2). Subsequently it will be discussed how this design method possibly worked, what it was inspired by, and why it was used. (pars.6.4.3-6.4.4) The chapter ends with an analysis of how many misunderstandings on the subject could have come about and a short general conclusion. (pars.6.5, 6.6)

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1 According to Fernie, such a comparative study of different proposed design methods for the same structure is what is presently needed in order to bring the discussion on the application of geometry in ‘medieval’ architectural design to a next level. (Fernie 2002, p.9) Fernie explicitly refers to buildings; the discussion is, however, equally relevant to urban design.

2 Only in par.6.3.4 irregular plans will be considered. Critics might oppose that irregularity was a crucial element in ‘medieval’ aesthetics, and that therefore these plans particularly ought to be examined with respect to design principles. In pars.8.6 and 11.1 however, it will be demonstrated that the theory of irregularity as an aesthetic principle in ‘the middle ages’ is a romantic misconception dating from the 19th century.

3 In appendix B the analysis is described in more detail, with all the relevant dimensions given in tables, as well as the calculated percentile differences between measurements and theoretical dimensions.
6.1 Arithmetic design of urban plans by use of rational dimensions, and reconstruction of original town plans by metrological analysis

In most of the plans of towns that were newly founded in the 12th to 14th centuries, one can recognise an inclination towards regularity and orthogonality. It is obvious that there must have been a very basic idea of geometric order behind this, involving straight lines, right angles, equality of distances and, quite often, even symmetry. In many cases, it is clear that these straight lines, right angles and equal distances were not very precisely set out as such, but that in the basic idea of the plan structure in the minds of the planners these elements must have been present.

Ever since the late 19th century, scholars have tried to reconstruct the original designs of new town plans from the high-period of town foundation. Various scholars claim that plans which are more or less regular have been laid out by use of very simple geometry, by setting out straight boundaries at right angles with regular dimensions that were determined as rational, mostly rounded, numbers of the then current units of measurement. Below, this will be designated as ‘arithmetic design’ or ‘simple geometric design’.

In order to reconstruct the original plans that were set out in this way, scholars have used the method of ‘metrological analysis’. This method involves taking measurements of the relevant dimensions in the plans, either from maps or from the actual built form, in order to identify the dimensions as they were originally set out. If it appears that the dimensions can be consistently identified as rational numbers of the unit of measurement that was used in the region of the town and its time of origin, they are taken for the dimensions that were actually set out as such originally. By use of this method, reconstructions have been drawn up of supposed original plans of various new towns from the 12th to 15th centuries.\(^4\) (fig.6.1) The method of

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metrological analysis is, however, not infallible. The reliability of the results varies with the accuracy of the analysis, depending among others on the accuracy of measuring of the relevant dimensions and on whether or not there are clear indications about the dimensions of the then current units of measurement. Below, the method of ‘metrological analysis’ is used for the reconstruction of the method of design for the original plans of Grenade-sur-Garonne and the terre nuove.

With the reconstruction of the supposed original dimensions from measured dimensions, there mostly is a difference between the measured dimensions and the ‘theoretical dimensions’ that is tolerated as deviation. Different scholars who made such reconstructions, have tolerated different amounts of deviation. It is obvious that the larger the relative deviation (the percentile difference between measured and reconstructed values) that is tolerated for a reconstruction, the less likely it generally is to be correct. With this, one should take in account, however, that there always was a difference between the dimensions as they were meant (the design) and as they were set out (the layout). And this difference would probably only increase in the course of time, as streets, buildings, fences or ditches were changed or renewed. Consequently, there necessarily is a difference between what was originally intended, what was originally realised and what is measured at present. Hence, there always is a grey area of deviation that has to be accepted: the tolerance. The point is, however, that it is impossible to draw a solid fact-based limit of what is acceptable in this respect, wherefore it remains debatable whether reconstructed dimensions are plausible or not. This is even more so when it is not factually known what the original unit of measurement exactly was. This is often the case, as even standard units of measurement, such as the foot, varied with place and time, and sometimes even with the use it was employed for.

6.2 Design of urban plans by complex geometry

There is also another general theory, which is largely conflicting with the theory of arithmetic design. This alternative theory is based on the idea that urban plans were designed by use of more or less complex geometric methods. The use of this complex geometry for the design is not directly visible in the form of the plan structures, but mostly it is supposed to have been the basis of their dimensions.

It is almost generally accepted that in ‘the middle ages’, geometry was one of the basic instruments in architectural design in general. At least since the 19th century, scholars have suggested that regular geometric figures or geometric adaptations were used to create specific forms and to determine proportions in the design of ‘medieval’ architecture.

There are contemporary documents that support this idea. (fig.6.2) But there is still no consensus about how, to what extent and, more importantly for the general history of culture, for what reason geometry would have ruled architectural design. Since the 19th century, scholars have made reconstructions of hypothetical geometric design systems of nearly all the major architectural monuments of the past, overlaying drawings of plans and elevations with complex geometric figures and systems which are believed to have determined the form, place and dimensions of the main elements of the designs.

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5 It can make a big difference, for instance, whether the measurements are taken in reality or from a plan drawing. In the latter case the accuracy of the plan is, of course, crucial. The reliability of the method may also vary with the amount of measurements taken: the width of a street, for instance, often varies along its course, for which reason it is preferable to measure it at a number of different places and to take the average as presumable original dimension.

6 Cf. Schich 1993, p.188.

7 See pars.6.3.3, 6.4.2 and app.B.

8 The length of the foot could vary from c. 27.5 to 34.5 cm. (Hecht 1971/2, pp.9-91)

9 A positive exception in this respect is England, where specific units of measurement were already sanctioned by royal authority in the early 13th century, with the king’s foot or statute foot set at a length which we now express as 30.48 cm. and the king’s or statute perch at 16.5 ft. (5.03 m.). Still, other units of measurements were sometimes used locally in England. (www-groups.dcs.st-and.ac.uk/~history/histtopics/measurement; Slater 1988, pp.97-98; 1990, p.71)

10 It remains debatable whether reconstructed dimensions are plausible or not. This is even more so when it is not factually known what the original unit of measurement exactly was. This is often the case, as even standard units of measurement, such as the foot, varied with place and time, and sometimes even with the use it was employed for.

11 See pars.6.3.3, 6.4.2 and app.B.


13 One of these sources, for instance, is the 15th-century tractate Geometria Deutsch by Mathias Roriczer, master mason of Regensburg. (Shelby 1983) (see fig.6.2)
discussed, particularly concerning town plans of bastides and the Florentine terre nuove centuries are less unlikely to be correct. In the following paragraphs a number of theories will be critically plans.17 In other cases the supposed process of design is highly unlikely for its great complexity cases the dimensions of the geometric hypotheses clearly do not correspond to the actual dimensions of the town plans.16 Some of these hardly need to be considered seriously, because of their implausibility. In some (fig.6.10) once, only taking shape in different stages over a long period of time.

However, various other theories of complex geometric design methods for town plans of the 13th and 14th centuries are less unlikely to be correct. In the following paragraphs a number of theories will be critically discussed, particularly concerning town plans of bastides and the Florentine terre nuove.

6.3 Various theories of complex design geometry in the plans of newly created towns

In the following paragraphs the more interesting theories of design by way of complex geometric methods, and especially those that regard towns discussed in the first three chapters of this study, will be examined.18 The first examples of such theories will be treated only briefly. Since I could not get hold of accurate plans of the towns in question, I have not been able to thoroughly check the hypothesised design systems. However, despite this lack of exhaustive examination, more superficial analysis has led to a number of relevant comments.

14 Nonsense theories concerning the meaning of architectural design by way of geometry can be found, for instance, in Boer 1948; Burgers 1956; Charpentier 1966; Van der Eerden 1977; Freckmann 1985; Kottmann 1771; Lesser 1957; Mössel 1928; Schneider Benrerenberg 1988. See also Hecht 1969; Kruft 1985, p.40; Naredi-Rainer 1982, p.216, n.239.
15 See par.11.1. For instance, Zagrodzki (s.d.), discussing Polish towns, but claiming general relevance; Buselli 1970, on Pietrasanta in Tuscany; Spagnesi & Properzi 1972 and Fiore 1975, on Cittaducale in Abruzzo; Bucher 1972, on the bastide of Grenade-sur-Garonne; Higounet 1984, on the bastide of Vianne; Guidoni 1992 (II), extending Zagrodzki’s theories to several bastides; Morelli 1994, on Pontedera in Tuscany; Schütte (see Nitz 1996, pp. 65, 88) on Göttingen in Germany; Fernie and Gauthiez (both in Gransden 1998) on Bury St. Edmunds and a number of towns in Normandy. An especially interesting case regards the Florentine terre nuove, because on these towns no less than nine different authors have launched different theories on the ground plan design (Baldari 1980; Bartoli 2003; Bertocci 2005; Buselli 1970; Carl 1981; Friedman 1988; Guidoni 1970; Van den Heuvel 1981; Higounet 1982). Humpert and Schenk (2001) published a book on design geometry in ‘mittelalterliche Städtebau’ which regards towns, mainly newly founded ones in different parts of Europe, foremost southern Germany.
16 It is, however, obvious that many of the hundreds of design methods that have been hypothesised, are incorrect since they do not correspond well with the actual dimensions (the deviation between theoretical and measured values is too large), since they are anachronistically complicated, or because they contradict the inherent logic of the process of design. This is clearly shown by Konrad Hecht, who, as a case study, has compared fourteen different proposed design systems of the 13th-century Münster tower in Freiburg-im-Breisgau. From Hecht’s research it is clear that the large majority of these reconstructions are very inaccurate and do not fit the real proportions.15 More nonsense regarding ‘medieval design geometry’ is contained in romantic notions according to which this geometry was ‘secret’, ‘sacred’, or riddled with ‘pagan symbolism’ that supposedly would have been passed on from druids to freemasons.14
17 Research on architectural design geometry has relatively rarely been applied to the field of urban planning in the 12th to 14th centuries. This is probably because many art historians still live by the idea that ‘medieval town building’ was ruled by the principle of ‘spontaneous’ or ‘natural’ growth rather than planning.15 Since the mid-20th century, however, a number of theories have been put forward, proposing complex geometric figures underlying the designs of town plans.14 Some of these hardly need to be considered seriously, because of their implausibility. In some cases the dimensions of the geometric hypotheses clearly do not correspond to the actual dimensions of the plans.17 In other cases the supposed process of design is highly unlikely for its great complexity (figs.6.9, 6.10, b.1), or the theories can be easily falsified, as it is clear that specific urban plans were not designed at once, only taking shape in different stages over a long period of time. (fig.6.10)

6.4.1.4. The concept of ‘spontaneous’ growth is too large), since they are anachronistically complicated, or because they contradict the inherent logic of the process of design. This is clearly shown by Konrad Hecht, who, as a case study, has compared fourteen different proposed design systems of the 13th-century Münster tower in Freiburg-im-Breisgau. From Hecht’s research it is clear that the large majority of these reconstructions are very inaccurate and do not fit the real proportions.15 Since the mid-20th century, however, a number of theories have been put forward, proposing complex geometric figures underlying the designs of town plans.14 Some of these hardly need to be considered seriously, because of their implausibility. In some cases the dimensions of the geometric hypotheses clearly do not correspond to the actual dimensions of the plans.17 In other cases the supposed process of design is highly unlikely for its great complexity (figs.6.9, 6.10, b.1), or the theories can be easily falsified, as it is clear that specific urban plans were not designed at once, only taking shape in different stages over a long period of time. (fig.6.10)

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17 Meckseper 1991, p.68. See for instance the theory of Higounet in par.6.4.1.4. 18 I will not consider more complex, and in my opinion more fantastical and unlikely, theories of new town planning on the basis of geometric design systems, which are in their place derived by complex geometric manipulation of figural representations (as for instance, of an eagle; see Boerefijn 1999, pp.75-78). Nor will I go into Guidoni’s theory according to which important buildings such as gates, towers, churches, monasteries and town halls were arranged according to geometric schemes. (see Guidoni 1970, pp.175-177; 1973, pp.133-144; 1992 (I), pp.79, 86, 120.)
6.3.1 Pythagorean triangles in the design of bastide plans

Charles Higounet proposed a theory on the way certain elements of the town plan of the bastide of Vianne (1284) were designed. According to this theory the right angles in the plan were created by use of the geometric ‘tool’ of the so-called ‘pythagorean triangle’. This triangle has sides of which the proportions are \(3 : 4 : 5\), which implies that the angle between the two shorter sides is 90°. This construction is very easy to create with a rope that is divided into 12 equal parts by markings. It is known that surveyors and architectural planners used such ropes, divided by knots, from antiquity until the 16th century at least.20 According to Higounet the use of such a rope for setting out the plan of Vianne is proven by the fact that one can still find this triangle in the dimensions of the market place and of the wall circuit. (fig.6.3)

In my opinion, it is not unlikely that the 12-parted rope was indeed used in setting out the right angles in the plan. Higounet’s argumentation, however, does not prove this, since the use of the 12-parted rope

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19 Higounet 1984, pp.11, 14-15. This is part of a booklet on the creation of Vianne.

20 Binding 1993, p.347; 2002, pp.139-142. The pythagorean triangle was called norma. It could also be constructed with different ropes or sticks (two at least), as long as the relation \(3 : 4 : 5\) of the sides would be secured.
in creating right angles does not logically lead to large scale pythagorean triangles being part of the resulting design. It is likely that many architectural creations were set out by use of such a rope, but these creations rarely, and only by coincidence, had the dimensional relation of the rectangle sides of 3 : 4. In the case of Vianne, it is unlikely that the rope actually determined the absolute dimensions of the market place. In fact, the market place is square, and it is likely that the sides of the rectangle, made up out of the inner square together with the enclosing roads on two of its four sides, approximate the dimensional relation of 3 : 4 only by coincidence. If this relation was actually created with the 12-parted rope, it must have been circa 105 m. long, which is most unlikely since this is much longer than are the lengths of the ropes that are known to have been used for measuring and setting out specific distances.\footnote{For a discussion on the possible length of the surveying ropes of the period, see par.6.4.3.2.} For the larger triangles which, according to Higounet, would determine the dimensions of the wall circuit in relation to the market square, it is even more unlikely, since it would imply the use of a rope of c. 510 m., or two ropes, divided into five parts, of c. 212 m. each.

Higounet’s theory becomes all the more unlikely when his plans are analysed more closely. It appears that the pythagorean triangle fits the market place of the cadastral plan of 1837 quite well indeed. But from Higounet’s diagrammatic reconstructed plans, it appears much more likely that the 3 : 4 relation has another cause than the use of the pythagorean triangle. The plans suggest that there originally were six house lots facing the market place on every side. Just like the streets bordering the place, they would have been 16 rases (c.7.8 m.) wide. This would make 96 rases for the width of the six house lots and 128 rases for the six house lots and the two street: this relates as 3 : 4. Hence, it seems more likely that the choice for six standard house lots along the sides of the square and the choice for streets of the same width as the house lots were the reason for the 3 : 4 proportion, rather than the use of the 3 : 4 : 5 triangle.\footnote{According to Higounet the lots facing the market place measured 16 x 48 rases (c.7.8 x 23.4 m.), while other lots could also be 24 rases wide; main streets were 16 rases wide and back streets 8 rases. (Higounet 1984, p.15) Analysing the plan depicted by Higounet (see fig.6.3), which is based on the 1837 cadastral plan, it seems well possible that there originally were six house lots on every side of the square. It should be considered, however, that this does not correspond to the supposed original width of the house lots of 24 rases given in the coutumes of 1287. (see Higounet 1984, p.11)} Apart from that, the corners of the wall circuit are not accurately determined by the angles of the supposed pythagorean triangles: only the southwestern corner fits well within the hypothetical scheme, while the two on the long northern side of the town are both situated circa 10 m. away from the angles of the triangles.

Despite these flaws, Higounet’s theory has had its believers. A very similar scheme can be found in the book on bastides by Lauret, Malebranche and Séraphin, but now relating to the north-bank town of Ville-neuve-sur-Lot.\footnote{Laur et, Malebranche & Séraphin 1988, p.81.} Comparing the diagrammatic figure with a 20th-century plan\footnote{The best plan I could find is depicted in Calmettes 1986, p.53.}, it appears that the
pythagorean triangles can be fitted in the plan quite accurately indeed. But it seems unlikely that they were actually used for the design or the laying out of the plan, largely for the same reasons as with regard to Vianne.

Hence, it may be concluded that the theory of the dimensioning of urban plans by way of the pythagorean triangle is highly unlikely to be right, even though this triangle may actually have been used for determining right angles.25

6.3.2 Rotated squares in the design of bastide plans

According to Enrico Guidoni, the planning of the bastides is directly related to the creation of the gothic cathedrals; the methods of ‘the great tradition of gothic design’ would also have been used in the design of many bastides.26 In Guidoni’s opinion, the orthogonal structures of bastides would have been dimensioned in the proportion 1:√2 and structured by a grid of squares that lies in diagonal direction with respect to the urban grid. According to Guidoni this would have been a common method in the gothic design tradition.27 It is not explained how this exactly worked or why this rather complex design method would have been used, but there are accompanying figures that illustrate the idea. (figs. 6.5, 6.6, see also figs. 2.40, 2.39)

From these, it appears that Guidoni thinks that the proportioning method of the so-called ‘rotating square schema’ was used. This geometric method works by constructing a square and taking its diagonal, which relates to the sides of the square as √2:1, as the side of a larger square of which the diagonal may be taken as the side of a larger square, and so on. This method has been taken for a commonplace principle of design in ‘the middle ages’ by many scholars, designated as ‘rotating square schema’, ‘Vierung über Ort’ or with the quasi medieval term ‘ad quadratum’.28 The idea is largely based on the evidence of techniques used in three architectural treatises, so-called Musterbücher, by three authors from southern Germany of the late 15th and early 16th century.29 These treatises, however, discuss the design and execution of buildings, and more particularly ecclesiastic architecture and specific elements such as pinnacles. (see fig. 6.2) They do not regard the planning of urban structures.

In my opinion, however, the use of this ‘rotated square method’ has been accepted far too easily as a more or less generally adopted technique in architectural design ‘in the middle ages’. Quite a number of scholars in the past century have drawn up hypotheses claiming the use of this method, but too often they could only demonstrate it by distorting the actual dimensions or by postulating more complex rather than simpler methods of design.30 This is also true for hypotheses on the design of town plans. 31 Since there is no historical evidence of the use of this method in town plan design at all, it ought to be demonstrated to be logical and to correspond well to actual dimensions in town plans, in order to allow the theory to be acceptable. Guidoni fails to do this.

The diagonal squares of the theoretical design method that are drawn in Guidoni’s illustrations, only have a limited correspondence to the plans. In the figure of Damazan (fig. 6.5), the inner diagonal square is drawn so that it exactly contains the square market hall, which stands in the middle of the market place. The side of this diagonal square relates to the side of the market hall as √2:1. The meaning of this square is, however, unclear since it does not relate logically to any other part of the plan. Presumably, the four diagonal squares are intended to form a geometrical series with every larger square having sides twice as long as those of the smaller one.32 Close inspection of the figure, however, shows that this is only approximately the case. The second smallest diagonal square has its corners near the points where the two central axes of the town cross the back boundaries of the street blocks that front on the market place. The intention probably is to show that the place of these boundaries was marked by the diagonal square. This is not truly the case, how-

25 See also par. 6.3.4.
29 It regards the Buchlein der Fialen Gerechtigkeit (1480) and the Geometria Deutsch (1487/88) by Mathias Roriczer, a short treatise on the design of pinnacles by Hans Schmuttermayer (shortly after 1488), and a treatise by Lorenz Lechler (or Lacher, 1516). (see Hecht 1970, vol. 22, pp. 163-188)
31 Zagrodzki proposed that this method was used for the design of various plans of new towns from the 13th to 15th centuries in Poland and Czechia. (Zagrodzki S.D.; Zagrodzki 1966) This clearly inspired Guidoni in the ideas and figures described here. When Zagrodzki’s illustrations are studied closely, it appears that the dimensions of the various squares of the theoretical design method often do not relate geometrically exact to one another, and that some squares are not even truly square. In my opinion, many lines of the theoretical grid are too far from the actual building lines in the plans to be rightly identified with them. Moreover, some of the various squares have no actual relevance in the town plans at all.
32 This was at least the idea of Zagrodzki’s theoretic design method (Zagrodzki S.D.; Zagrodzki 1966), which most probably formed Guidoni’s main inspiration, and various other theories on gothic architectural design that were inspired for a great deal by the sources mentioned in n. 19 (see also fig. 6.2).
ever, as the distance between the two opposite boundaries is circa 5% greater in the one direction than in the other, which is also visible at the upper corner of the diagonal square. The next larger diagonal square does not appear to mark any relevant place or proportion in the plan, and neither does the largest one. The same holds true for the largest non-diagonal square – which actually is a deformed square. It is probably intended to define the limits of the town plan, but it does not mark any actual boundaries in the plan with precision; on the northern end a substantial part of the town is even ‘cut off’. Guidoni’s figure suggests that the plan formed a somewhat deformed square, while actually the outline was elongated, with angles that were only approximately right. All in all, the whole figure appears to be quite senseless.

This is even more so with the figure concerning Tournay. It is probably intended

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33 I have tried to check this with the redrafted cadastral plan that is depicted on a small scale in Lauret, Malebranche & Séraphin 1988, p.67. It appeared that the street blocks are not exactly arranged in the form of a square since there is circa 5% difference between the two directions of the rectangle.

34 In the same book, Guidoni also depicts schematised plans of the bastides of Marciac and Cologne, which suggest geometric schemes underlying their design. (Guidoni 1992 (II), pp.126-128) Both these figures suffer from the same flaws as the ones regarding Damazan and Tournay, which is that the schematic (quasi-) geometric figures do not fit well onto the plans, and that they follow no clear logic, as one would expect from a geometric method of design. (cf. plans in Lauret, Malebranche and Séraphin 1988, p.73 and Lavedan & Hugueney 1974, p.284)
that the smallest non-diagonal square has a diagonal which is just as long as the sides of the market square (hence, the sides relate as \(1 : \sqrt{2}\)). That may be, but it is irrelevant, since this non-diagonal square appears to have no logical relation to any other part in the plan.36 The largest diagonal square is probably intended to have sides as long as the streets that are laid out in a square along the backsides of the street blocks surrounding the market square. Again, it appears that this diagonal square has no logical relation to any other part in the plan, and therefore it makes no sense at all.

6.3.3 Complex geometry in the design of the bastide of Grenade-sur-Garonne

In an article about ‘medieval architectural design methods’ Francois Bucher proposed a hypothetical geometric method of design for the plan of Grenade-sur-Garonne.37 (fig.6.7, cf. fig.2.22) The regular grid plan of the town’s historical core contains street blocks of three different sizes. In the one direction the streets are laid out at equal distances, but in the other direction they are not equally spaced. According to Bucher, the spacing of these latter streets was fixed by geometrically determined distances. In the centre of the town there is a row of square blocks, which is interrupted by the market square. The length of the ‘larger blocks’, lying in the rows to the northwest and southeast of the squares, would have been given by the length of the diagonal of the square, so that the length relates to the width as \(\sqrt{2}:1\).38 The length of the ‘largest blocks’ (lying in rows northwest and southeast of the ‘larger blocks’) would have been generated by the auron. The auron, or golden-section rectangle, is dimensioned by rotating the diagonal of the half-square.39 (see fig.6.7) According to Bucher, this would be analogous to the geometric techniques that were often used in ‘medieval architectural planning’ (especially for churches). Bucher refers to the Grenade plan as a clear example of this design method, but he does not explain it exactly, nor does he try to prove his theory by giving actual measurements. He does mention, however, that the same principle can be found in the plans of Sainte-Foy-la-Grande (fig.2.21) and the new towns founded by the Zähringer dynasty in northwest Switzerland and southwest Germany.40

David Friedman has tried to check whether Bucher’s theory actually fits Grenade’s town plan. After taking measurements, Friedman found that the first part of the theory seems to be correct, as the length of the ‘larger blocks’ is almost equal to the diagonal of the square blocks.41 Although Friedman seems to have misunderstood the second part of Bucher’s theory, he is right in finding that the length of the ‘largest blocks’ does not correspond with Bucher’s theory.42 Hence, Friedman concluded that Bucher’s theory is substantiated only as far as the relation of the square blocks to the ‘larger blocks’ is concerned.

It seems that Kostof has, in his turn, misunderstood Friedman. He depicts the geometric scheme as if five different sizes of blocks in Grenade were all related as follows: the diagonal of the square block is equal to the long side of the larger block, whose diagonal, in its turn, is equal to the long side of the next larger block, and so on.43 Kostof’s illustration of this system is very schematic (fig.6.8) and has not much to do with the actual plan of Grenade, since there are not five regular rows of blocks of progressively greater length, but only three.

Randolph understood Bucher in still another way, when he wrote that the street blocks east and west of the square have long sides that equal the diagonal of the square. Randolph probably means the blocks to the southeast and northwest of the square. This is in agreement with Friedman’s findings and probably is what

35 The non-diagonal square actually has a logical geometric relation to the smallest diagonal square, but this square has no logical function in (or relation to) the plan, and therefore it is senseless.
36 Bucher 1972, p.43.
37 Cf. par.6.3.2.
38 Bucher does not explain the dimensions in detail, but he is probably hinting at the rectangle of which the proportions are \(1 : 0.618\) (which is the ‘golden section’). This proportion has the special quality that the small part (the minor) relates to the greater part (the major) as the greater part to the whole of the two. Many scholars regard this ‘golden section’ as a mathematical tool that has been a general principle in (architectural) design ever since antiquity. As far as I know, however, knowledge of the ‘golden section’, its geometric construction and arithmetical relation, can only first be unambiguously detected in Luca Pacioli’s De divina proportione of 1479. For the period between this work and antiquity, knowledge of the ‘golden section’, let alone its use in architectural design, is still conjectural.
39 Since Bucher is unclear about what he exactly intends, there is no point in trying to verify his ideas concerning Sainte-Foy-la-Grande and the Zähringer new towns. These Zähringer new towns were founded between the early 12th and 13th centuries. Most famous among them are Bern and Freiburg-im-Breisgau (Divonne, 1993; Schweinkopfer, 1980).
40 When measurements are taken from the centre line of the streets, the square blocks have sides of 64 m. and diagonals of 90.5 m., which comes very close to the long side of the ‘larger blocks’, being 90.4 m. according to Friedman. (Friedman 1988, pp.132, 235, n.39)
41 Friedman 1988, pp.132, 235, n.39. It does not make much difference that, in my opinion, Friedman did not understand correctly what Bucher exactly meant (instead of the auron he takes the diagonal of the ‘larger block’ as the side of the ‘largest block’), because either way the theories do not correspond to the real measurements (116.6 - 119.4 m. measured by Friedman; 110.8 m. calculated by Friedman; 103.55 m. calculated for the auron based on the square with 64 m. sides). It appears that Friedman’s measurements do correspond fairly well to the ones I measured in the cadastral plan of Grenade (see below), which are in general circa 0.5% larger, however.
Bucher intended. However, Randolph considered the blocks north and south of the square to be aurons. Here he seems to have been referring to the square blocks in the central NE-SW row, not the ‘largest’ blocks to which Bucher was referring. It is obvious, however, that these blocks are not aurons but squares.

All in all, this is a curious case of uncritical acceptance (Friedman’s contribution excepted) and misunderstandings piled one on top of the other, based on an unsubstantiated, almost casual, remark by Bucher. Many other scholars also seem to have accepted Bucher’s theory without reservation. Therefore, it is appropriate to examine the plan of Grenade thoroughly in order to check whether, or to what extent, Bucher’s theory really fits with the actual dimensions in the plan.

6.3.3.1 Metrological analysis of the plan of Grenade-sur-Garonne

When the plan of Grenade is closely studied, it appears that it is not as regular as might seem at first sight. The streets from northwest to southeast, for instance, are slightly curved, and the streets in the other direction (SW-NE) converge slightly towards the southwest. Consequently, the dimensions of the street blocks show some variety; therefore the averages have been calculated. Thus, the average lengths of the three types of blocks appeared to be 55.05 m., 82.44 m., and 110.11 m. From these dimensions it appears the ‘larger blocks’ were planned to be one and a half times as long as the square blocks, and the ‘largest blocks’ twice as long. Compared to Bucher’s theory this seems almost disappointingly simple.

43 Randolph 1994, p.200. In referring to the blocks ‘to the east and west’ of the square Randolph probably means the ‘larger blocks’ (actually NNW and SSE, to be exact), which is apparent from the non-oriented illustration he took from Friedman.
44 Recently, Lilley, Slater and Scrase contributed to a discussion in the journal Urban Morphology (1998, nr.2, pp.82-93; 1999, nr.2, pp.107-111; 2000, nr.2, pp.104-106) on the use and function of geometry in town plan design. Although they had conflicting standpoints on several aspects, they all agreed that Grenade was designed by use of complex geometry in the way that Bucher suggested. See also Lilley 2002, pp.161–162.
45 I have used the cadastral plan on the scale 1:1250, which is kept in the office of the regional cadastre in Toulouse Colomiers, entitled Grenade-sur-Garonne, section C, feuille 3. 1826, rev. 1938. Édition à jour 1989.
46 The extremes of the NW-SE-streets lie circa 1-1.7 m. farther southwest from a straight tangent line along their centre. This can also be easily observed when looking along the streets. On the southwest side of town the SW-NE-streets that separate ‘larger’ from ‘largest blocks’ are circa 5.2 m. closer to each other than on the northeast side. Hence, the blocks on the northeastern side of town are slightly longer than the ones on the southwestern side.
47 The first dimension is calculated from 12 measurements for the length of the square blocks from northwest to southeast, averaging 55.08 m., and 37 measurements of the width of all the blocks from northeast to southwest, averaging 55.02 m., ranging from 53.87 m. to 56.37 m.; the second dimension is calculated from 22 measurements, ranging from 80.12 m. to 84.37 m.; and the third from 21 measurements, ranging from 108.25 m. to 112.25 m. By comparison Friedman found dimensions of 55.4 m., with variations of only 20 cm., 82.4 m. and 109.2 m. (probably on the southeast side); 112 m. (probably on the northwest side). (Friedman 1998, p.259, n.39) Lavigne mentions measurements of 56 m., 85 m. and 110 m. (Lavigne 1996, p.192) In both cases it is not explained what exactly they have measured, so it is unclear how the differences arise.
48 Taking 55.05 m. as the basis, the ‘larger block’ would theoretically measure 1.5 x 55.05 m. = 82.57 m., and the ‘largest block’ 2 x 55.05 m. = 110.10 m. Thus the differences...
In the charte du parâge it is stated that the bastide’s foundation provided for 3000 households, which required 3000 house lots, 3000 garden plots and 2000 fields of arable land. The house lots were to measure 5 x 15 brasses, costing 5 denier rent a year. According to Cédric Lavigne these dimensions would be circa 8 x 24 m. However, given the calculated sizes of the street blocks in the cadastral plan, it seems more likely that they measured circa 9.175 x 27.525 m., so that the different types of blocks would have contained 12, 18 and 24 lots, lying back to back. The brasse would measure 1.835 m. in that case. Trying to verify this from the actual lots in the plan, one is confronted with the fact that the plan does not immediately suggest an initial division into house lots of equal size. One should consider, however, that 700 years have passed, and while the boundaries between public and private space seem to have remained much the same, the structure of ownership of private land and private buildings has changed considerably over this period. However, there still are many lots that approximately have the dimensions of 9.175 x 27.525 m. In length they extend to half the width of the blocks, and in width they are one-sixth of the side of the square blocks, one-ninth of the length of the ‘larger blocks’ and one-twelfth of the ‘largest’ ones. Most of the present-day lots, however, are smaller, probably owing to subdivision of the original standard lots. There are also some larger ones, which probably were amalgamated. The church with its yard occupies the space of twelve standard lots of one of the ‘largest blocks’, taking up a square plot that covers half the block.

The streets of Grenade’s town centre, measured from the cadastral plan, are for the most part 8.55 m. wide on average. The only regular exceptions in this respect are the two streets that separate the ‘larger blocks’ from the ‘largest’ ones. These streets are only c. 7.02 m. wide on average. This is probably because they were not intended as residential streets, since the house frontages were oriented to the streets transverse to these two.

In conclusion, the evidence seems to contradict Bucher’s theory of complicated geometric design. Instead, the dimensions in the present-day plan show simple arithmetic proportions, which were most probably generated by the choice for particular numbers of theoretically identical lots within the different street blocks. Alternatively, it may not have been the choice for particular numbers of lots, but rather the choice for particular proportions that determined the dimensions of the blocks. It seems likely that there was some significance in the use of the simple arithmetic proportions of 1:3 (the house lots) and 1:1, 2:3 and 1:2 (the street blocks). Apparently, these simple proportions were for some reason preferred above random proportions or less bold proportions such as 4:5 or 8:13.

So, the layout of the town of Grenade-sur-Garonne was probably not designed by way of complex geometric constructions. Instead, the number of desired households for the new town was determined, and a standard lot size was chosen with dimensions in rational numbers of the traditional local unit of measurement, in such a way that the dimensions of length and width would have a clear and simple relationship and the lot would have a useful size for a normal urban household. Subsequently, these lots were arranged in three different sizes of street blocks, so that the smallest ones would be square, the larger ones would have the dimensional relation 2:3 and the largest ones 1:2. One of the square blocks in the centre of the layout was left open to create space for the market place. The streets were given widths as required by their intended functions, presumably four and five brasses wide, and a square piece of land with the size of twelve house lots was reserved for the town church.

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Footnotes:
49 This document is in the archives of the Haute-Garonne district, no. 108 H 15 (expédition), and is published in French in Rivals 1986, pp.78-88.
50 1 brasse means arm, but in southern France the brasse or brisure had the length of a man with both arms outstretched, from fingertip to fingertip. Often, this was taken as 5 or 6 feet, or an intermediary value. Since the 18th century, the standard was 5 feet / 1.624 m. (Zupko 1978, p.30)
51 Lavigne 1996, p.192. It is not mentioned on what source this is based.
52 One must always be careful not automatically to suppose that the intended lots, as described in the foundation document, were indeed laid out and distributed correspondingly. Research elsewhere in Europe has shown the probability of those standard lots being also issued in halves, one a halves, or multiples. (see p.9.11) Hence, it is possible that the many lots in Grenade that cover fractions or multiples of the original standard lot size were originally created in these dimensions. (see also Slater 2001, pp.30-51)
53 Slater 2001, p.50. The width of the widest streets is the average of 45 measurements, ranging from 7.5 m. to 9.25 m.; the width of the two narrower streets is calculated from 13 measurements ranging from 6.60 m. to 7.75 m. The widths may originally have been intended to be five and four brasses (9.175 m. and 7.34 m.). The differences may reflect inaccuracies in the plan or in my measurements; for an accurate analysis it would be better to measure the width of the streets in reality. It is also possible that the differences are partly caused by the rebuilding of the houses, over and over again during seven centuries, by which there would be a tendency for public space to be encroached upon.
54 This was quite common in the bastides of southwest France, where the market place preferably seems to have been made square or nearly square.
The basic problem with which this paragraph began, was the question as to whether it is true that the town plan of Grenade was designed by use of complex geometry, as has been claimed by several scholars. After comparing this geometric hypothesis with measurements in the modern town plan, it appears that this is unlikely. Instead, there is a much simpler interpretation that explains the measured dimensions much better and which fits with the standard lot size mentioned in the paréage document. Apparently, though, this simple and obvious 'arithmetic' explanation has been less attractive to students of the design of Grenade’s plan up to now.

Apparently the idea of a complex geometry lying at the basis of ‘medieval architectural design’ is so dear to many people, or is found so natural, that Bucher’s hypothesis, with its defects and unsubstantiated statements, is taken for the obvious truth. As discussed above, this case is far from unique in that respect: many theories have been put forward over the last 150 years or so that suggest complex geometric figures underlying ‘medieval architectural design’, which are based on very poor and often far-fetched sources, and which mostly are attested inadequately.

6.3.4 Complex geometry in the design of various town plans according to Humpert and Schenk

It is necessary nor useful to treat all the theories of complex geometric town plan design in the period under consideration that are proposed in the literature of the past hundred years or so. One of the most recent, however, may not be omitted here. It regards the book with the pretentious title Entdeckung der mittelalterlichen Stadtplanung. Das Ende vom Mythos der ‘gewachsenen Stadt’ (‘Discovery of medieval town planning. The end of the myth of the ‘grown town’’) by Klaus Humpert and Martin Schenk, which treats the plan design of many different towns from between the 11th and the 15th century, mainly newly founded ones from southern Germany.55

In this book, recent plans of the various towns are dissected in order to analyse the way their components can be made to fit in theoretical geometric schemes by which the plans would have been designed and set out according to Humpert and Schenk. The schemes particularly concentrate on the irregularities in the plans, such as winding streets and curved sections of wall circuits, oblique angles and asymmetries, in order to ‘rationalise’ these elements. The various geometric constructions add up to highly complex networks of points, lines and arcs that would have been the underlying basis of the plan design, more or less like a sowing pattern of a garment.56 (figs. 6.9, 6.10) The difference is, however, that the complexity of a sowing pattern usually has a clear goal, which is to create a garment that fits well, whereas the goal of the theoretical schemes of Humpert and Schenk, and the ‘resulting’ irregular forms, is not explained by them.

In fact, it is difficult to conceive of an explanation for such methods of town plan design, as there is no systematic logic in the schemes: in one and the same plan dimensions for construction lines appear to have been chosen without logical reason - mostly in numbers of feet rounded off at decimals -, for example 1300 here, 180 there and 40 at another place. Hardly any of the separate stages within the ‘reconstructed design processes’ follow logically from earlier ones. In this way Humpert and Schenk succeed in describing the form of the plans more or less accurately by use of dimensions and geometric manipulations, but due to a lack of logical coherence between the various dimensions and manipulations this is most unlikely to have been the actual method of design.

Another problem is that the authors claim that the dimensions and arcs were set out on the land by ropes with lengths up to no less than 2200 metres. This is, however, highly unlikely. Even with the strong, thin and light ropes that exist at present, it would be almost impossible to manage this, but in the early 15th century a rope of more than circa 45 m. long was already thought of as difficult to handle because of its elasticity and the variability of the length, which depended on the temperature and the moisture of the air.57 It is clear that Humpert and Schenk have hardly studied the techniques, methods, knowledge or ideology of the concerned period. They argue that this would be the function of historians, which they themselves are not; their ambi-

55 Humpert & Schenk 2001. Also, a number of towns from antiquity and some highlights from the history of architecture, such as temples and cathedrals, are superficially discussed. (Humpert & Schenk 2001, pp.258-243)
56 Eight towns are treated laboriously by Humpert and Schenk, dealing with various details of their plans. They use many figures to illustrate the component geometric schemes, but they never depict a figure that contains all the points, lines and arcs which would have been the components of the theoretical design scheme of the whole plan. Such an illustration would make a very complicated figure with an intricate tracery of straight lines and circle segments, of which hardly any lines or points clearly agree with the actual town plan.
57 Guerreau 1995, p.90; see also below par.6.4.3.2.
Humpert and Schenk try to demonstrate that the concerned towns and cities are purposefully planned by use of complicated geometric schemes, by describing the irregularities in the plan forms in terms of geometry. This ‘demonstration’, however, does not give insight into the way new towns were actually shaped. In fact, regularity, and not irregularity, is the clearest characteristic of spatial planning. Of course it is true, as shown in chapters 1 to 3, that many newly planned towns contain forms that are not regular: streets are not entirely straight, angles are not wholly right, distances often are not rationally related, lots are not equal, and the outline form has no geometrically regular shape. One can be quite certain, however, that these irregularities normally have other causes than complicated methods of geometric design. They may have been caused by adaption to specific circumstances, such as the shape of the natural and cultural landscape. It is also well possible that they were not planned at once, being created in various phases in the course of time.

It is illustrating how little attention Humpert and Schenk give to the form of the preexisting landscape as a contributor to the creation of specific plan forms. In a number of cases they even reverse the influence that the landscape logically exerts on urban form. In the town of Weiden, for instance, the curved line of part of the town wall parallel to the shore of a river, would not have been determined by the course of the river, but according to Humpert and Schenk the river and the town wall would have been laid out according to a geometric design. Likewise, the Canal Grande in Venice would have been laid out in large geometric arcs.

fig. 6.9: Figurative depiction of a hypothetical method of determining part of the curved street front of the Merianstraße-Universitätsstraße in Freiburg im Breisgau (southwestern Germany) according to Humpert and Schenk (2001). The idea is that the western frontage of the winding street was largely determined by two large circular segments that were set out by use of two ropes 1,000 and 2,000 ft. in length. It is too complicated to explain here, but the base points of the ropes (the centres of the circles) were determined by use of the other lines in the figure. The numbers in the figure indicate distances in the local foot of 0.324 m.

This figure is part of a series of 14 figures with more or less similar geometric schemes that are meant to explain how parts of the town plan of Freiburg were designed, according to Humpert and Schenk. The fact that the geometric methods are very complex, meaningless, not very logical and not known to have been used in the period under consideration (particularly with ropes of such great length), in addition to the problem that they do not determine the lines to be found in the actual plan as it exists very accurately, makes it highly unlikely that this hypothetical design method was actually used.

58 Humpert & Schenk 2001, p. 379. The professional background of the authors is in architectural design and town planning.
59 For reactions on the bold ideas of Humpert and Schenk regarding this aspect with respect to the towns of Speyer and Lübeck (Humpert & Schenk 2001, pp. 150-171, 20, 46), see Untermann 2004, pp. 12-13 and Gläser 2004. See also para. 9.6.2.
because that was how the designer wanted it to be.\textsuperscript{60} I believe that this case does not need to be commented on in more detail in order to disqualify it.

Humpert and Schenk also believe that they can prove the use of the pythagorean triangle in the setting out of town plans.\textsuperscript{61} This triangle would have formed half of a rectangle with sides of which the proportions are 3 : 4. According to the authors, this rectangle underlies most historical architectural designs. This does not necessarily mean that the rectangle can be seen in the final design: it would only have been the basis of different sorts of geometric manipulations that result in the final design. The authors even believe that with this rectangle they have found a universal principle of design, which was followed all through the ages.\textsuperscript{62} However, the theory does not hold under critical examination. In the main part of the presented examples, regarding buildings rather than urban plans, the rectangle is only part of a larger modular grid of squares from which it is highlighted more or less arbitrarily. In the cases where Humpert and Schenk claim the use of the pythagorean rectangle in urban design, it appears to have hardly any coincidence with the actual town plan at all.\textsuperscript{63}

As with the other proposed theories of complex geometric town plan design treated in the paragraphs above, the authors silently pass over the question why these complicated geometric methods would have been used. Apparently, they do not find this a very important matter. In my opinion, however, this question is of prime importance. In paragraph 6.4.4, this matter will be attended to.

\section*{6.4 Complex geometry in the town plan design of the terre nuove fiorentine}

In the previous paragraph a number of theories regarding town plan design by use of complex geometry have been disproved. This does not mean, however, that complicated methods of design were not used at all in
the planning of urban ground plans in the high-period of town foundation. A rather crucial case is the one of the terre nuove fiorentine. Although the plans of these towns are as boldly orthogonal as that of Grenade-sur-Garonne, the proportioning of some of the dimensions seems to have been designed by use of a geometric method that is even more complicated than are some of the theories discussed above.

In chapter 3 it is already considered that the terre nuove fiorentine have highly regular orthogonal plans and that those of Castelfranco di Sopra, San Giovanni Valdarno, Scarperia, Terranuova Braccioliini and Giglio Fiorentino have in common the otherwise very rare aspect of diminution of lot length: the length of the house lots (or the width of the rows) decreases in stages from the central main street outward. The number of different stages and number of parallel house rows within one stage varies between the towns, but the basic principle is present in all five of them. This diminution of the lot length, together with the remarkable regularity and the strong correspondences in the plans of the five new towns, have led several scholars to suppose that - despite the various differences between the plans - there is a common geometric principle in the method of design used for the distinct plans. Nine different authors have proposed nine methods of determining relevant dimensions for one or more of the concerned town plans. One of these proposals is that the plans were not designed by complex geometric methods, but arithmetically, by simply taking rational numbers of the local unit of measurement for the crucial dimensions, much like my proposal for Grenade-sur-Garonne discussed above.

With this, the terre nuove are a very important case in the discussion on the methods of town plan design in the concerned period, and therefore they deserve full attention in this context. Hence, their plans and the various theories proposed for their design will be elaborately discussed in the following pages. In addition, a theory of design will be proposed which is adjusted from some of the existing theories and which fits best with the evidence.

6.4.1 Theories regarding the method of design of the terre nuove-plans

On the following pages, the various hypotheses of design methods will be discussed. For the sake of brevity, only the more plausible theories will be treated in detail: the theories that are unlikely to be correct are only briefly outlined in paragraph 6.4.1.4 and are more accurately analysed in appendix B, paragraph 2. Further below, in paragraph 6.4.2, the three more plausible theories will be compared with the modern town plans and will be analysed in detail, in order to check their probability. For the sake of brevity and clarity direct reference will be made to the illustrations, since they play an important role in the analysis of the various theories.

6.4.1.1 Guidoni

Enrico Guidoni proposed a theory on the design method of the terre nuove-plans in his book Arte e urbanistica in Toscana 1000 -1315 of 1970. In this book many hypotheses are propounded concerning architectural design geometry in this period, many of which do not seem very convincing at first sight. With regard to the Florentine new towns, however, he propounded a theory that would have great influence on the ideas of other scholars.

Guidoni proposes a compound design method that partly works on the principle of regular polygons that govern the outline proportions and inner structure of the town plans, and partly with squares that determine the proportions of the piazzas, as well as the inner street blocks at Castelfranco. This system is applied, in different forms and different degree of complexity, to the plans of Castelfranco, San Giovanni and Terranuova. (figs. 6.11–6.13)

The more important part of Guidoni’s hypothesis is formed by the proportioning of the perimeters and
the inner structures by means of regular polygons. In Guidoni’s reconstruction of the plan of Castelfranco a hexagon describes the relation between width and length of the perimeter of the town. (fig. 6.11) In the plan of San Giovanni the proportions of the perimeter would have been determined by two hexagons and the spacing of streets and lots in lateral direction would have been determined by the regular geometric figure of a dodecagon, which is formed by two hexagons that are rotated by 30 degrees in regard to one another. (fig. 6.12) The outer corners of these hexagons determine the place of the axis of the main street and six building lines in the longitudinal direction of the town. But there are more striking agreements between this geometric figure and the plan to be remarked. When it is studied closely, eight of the twelve points that fix the intersections of the radiating lines and the sides of the two rotated hexagons, appear to mark four more relevant lines in the town structure: these are the inner alignments of the primary longitudinal parallel streets (to both sides of the main street), and the outer parallel streets (the original longitudinal wall streets). It is unclear if Guidoni meant these points to be relevant in his theory, since he does not spend many words to explain his rather schematic figures. This also counts for the four points at the intersections of the sides of the two hexagons, that mark the backside of the third row of houses (counted from the main street). All in all this rotated double hexagon seems to determine the positions of eleven lines that play a relevant role in San Giovanni’s plan structure.

Guidoni’s theory regarding Terranuova contains a similar geometric system, but instead of the central rotated double hexagon of San Giovanni, there is a rotated double dodecagon, which gives 24 points regularly spaced along the circumference of a circle. (fig. 6.13) As with the hypothetical system of San Giovanni, two connected hexagons determine the perimeter dimensions. The eleven parallel lines that go through the angle points of the polygon, mark the middle axis of the town, the inner alignments of the six parallel streets, the inner alignment of the original wall streets and the position of the longitudinal stretches of the town wall. It remains unclear, however, why Guidoni has illustrated the central polygon in the form of two rotated dodecahrons, instead of a polygon with 24 sides or four rotated hexagons (which would seem more coherent with the rest of his theories).

These different hypothetical design systems proposed by Guidoni, fit very well onto the town plans in his illustrations, and therefore seem quite convincing. (figs. 6.11–6.13) But these town plans are no more than schematic reconstructions of the supposed original design, made by Guidoni himself. So, in order to check if the theoretical geometric figures really correspond to the actual plans of the towns, they need to be compared. This will be described below in paragraphs 6.4.2 and more detailed in appendix B, but here it can already be unveiled that the comparison will show that the idea of the use of hexagons and dodecagons will

68 The only angle points of the dodecagon that do not seem to mark relevant points in the urban structure are the outer two, but from Guidoni’s figure it might be understood that these points would have determined the outside of the ditch that surrounded the town. It is impossible to tell if this is right, since no traces are left of this ditch.

69 The longitudinal wall streets originally were very wide, 18 braccio (10.51 m.) according to the 16th-century plan of San Giovanni by Piero della Zucca. (fig. 3.13) Later these streets were largely occupied, until the 19th century mainly by gardens and later on by rows of houses, sheds and barns, which used the town wall as rear wall.

70 Guidoni does not mention where these schematic reconstructions come from or what they are based on.
appear to be quite likely. Firstly, however, a number of other theories by other authors will be introduced, since they are related to Guidoni’s theories.71

6.4.1.2 Friedman

In an article from 1974 David Friedman first unfolded his theory on the design method of the town plans, which was largely based on Guidoni’s. In his book on the *terre nuove* from 1988 he made some adjustments to his theory and described further specifications. With respect to Terranuova Friedman proposes almost the same geometric system as Guidoni does, only Friedman describes it as a circle of which the circumference is divided into 24 equal parts with arcs of 15°, instead of a double rotated dodecagon.72 (fig. 6.14) The 15° division points, however, mark the same relevant lines in the plan structure as the angular points of Guidoni’s dodecagons. According to Friedman this circle has a radius of 83.4 m., with which it would also determine the inner alignments of the two secondary cross streets. By doubling this radius, the position of the short sides of the town wall would be determined. Basically, this comes to the same relevant value as Guidoni’s theory of the two hexagons. (fig. 6.13) But while Guidoni thought that it would determine the distance between the inner alignments of the perpendicular wall streets, Friedman would have it that it marks the outer alignments.

Regarding San Giovanni, Friedman’s theory is a strongly reduced version of Guidoni’s. (compare figs. 6.12 and 6.15). Friedman does not explain why he reduced it, but it is likely that he assumed that the rest of Guidoni’s theory did not correspond with the plan very well. Friedman has calculated a relationship between the distances from the central axis of the town to the inner alignments of the parallel streets and the longitudinal wall streets.73 He describes the mutual distances between these relevant lines as the sine-values of angles of

71 The very sketchy theory regarding Firenzuola, published by Carli in 1981 (Carli 1981), is also partly based on Guidoni’s ideas. This hypothesis will not be considered here, since it is obvious that the plan of Firenzuola, as we know it, is not the originally intended plan. (see par.3.8.4)

Guidoni’s theories on the three terre nuove have also inspired a theory of a similar geometric design method for the plan of Cittaducale (founded 1308 in central Italy) by Spagnesi & Properzi (1972). Since the street blocks and the streets of this town seem to be all of equal dimensions, this theory appears quite senseless, however: this is also Guidoni’s opinion: Guidoni 1992, p.95). According to Fiore (1975, p.487) Spagnesi and Properzi misunderstood Guidoni’s theory. In his opinion the plan of Cittaducale was dimensioned with a modular method, but inspired by Guidoni’s polygons he argues that the directions would have been determined with a compass rose. (Fiore 1975, pp.479-489) Guidoni’s reaction to this idea is that his theory has been completely misunderstood (Guidoni 1992 (I), p.78). This may serve to demonstrate how hard it is to understand Guidoni’s theories correctly.


73 The original longitudinal wall street has the same inner alignment as the present second parallel street, because it is essentially the same street, but partly built on at the side of the town wall in the past centuries.
30 and 60 degrees, given that the radius of the imaginary circle is 96.68 m. and that the zero-degree-line is the central axis of the town. This may seem rather complicated, but in fact this comes to the angular points of a dodecagon of which the radius is 96.68 m. and the centre is in the is the very midpoint of the town plan, much like Guidoni’s theory. The difference, however, is that in this way there are only five relevant lines in the urban structure marked by the geometric system, whereas in Guidoni’s system there seem to be eleven points that would mark relevant lines in the plan. In order to decide which of these theories is most likely, they will both be compared with the dimensions of the present-day town plan in paragraph 6.4.2 and, more elaborately, in appendix B.

6.4.1.3 Pirillo

In 1989 Paolo Pirillo proposed a new hypothesis, with which he reacted to the earlier theories. Instead of a geometric method of dimensioning, Pirillo wrote that the plans of Terranuova and San Giovanni were designed on the basis of simple numerical dimensions made up of units of the then prevailing unit of length measurement, the Florentine braccio da panna (0.5835 m.). The situation bears likeness to the case described above in paragraph 6.3.3, where an arithmetic method of design was proposed for Grenade-sur-Garonne instead of Bucher’s theory of complicated geometric design.

According to Pirillo, the house lots originally were 10 braccia wide, and all other relevant dimensions were, similarly, determined by simply taking round numbers of braccia. Thus, at Terranuova the piazza would measure 70 x 90 b., the main street would be 15 b. wide and the lots would be 30, 25 and 20 b. long. Pirillo does not mention a fourth row of house lots. The back streets would be 7.5 b. wide, and the cross streets 10. He also writes that the total circumference of the town was not directly dimensioned in this way, but was only a result of the internal dimensioning, since it measures the non-rounded numbers and the non-rational relation of 274 x 565 b. In paragraph 6.4.2 it will be checked to what degree these dimensions

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74 According to Pirillo, the Florentine braccio da panna was 0.5835 m. (Pirillo 1989, p.13) According to Finiello Zervas it was on average 0.583797 m. (Finiello Zervas 1979, pp.6-10) I take the ancient braccio for 0.5836 m., as has commonly been done since the 19th century, and Friedman takes it as 0.584 m. (Friedman 1988, p.236, n.2)
75 Pirillo 1989.
76 The width of 10 b. for the original lots is generally accepted (see Friedman 1988, pp.74-75), and is also mentioned in Piero della Zucca’s plan of San Giovanni from 1553.
78 Pirillo 1989, p.20.
fig. 6.14: Figurative depiction of the geometric proportioning method of the plan of Terranuova according to Friedman (1974), on the basis of a schematic modern plan. The internal structure of the plan is dimensioned by way of a circle, the circumference of which is divided into 24 equal parts. The relevant points on the circumference determine the positions of parallel lines that mark the centre of the main street and the central cross street, as well as the inner alignments of the streets parallel to the main street (the outer ones along the town walls have since been built over) and the longitudinal town walls. The circle also gives the inner alignments of the lateral cross streets. This geometric system is largely taken over from Guidoni (Guidoni 1970, see fig. 6.13).

fig. 6.15: Figurative depiction of the geometric proportioning method of the plan of San Giovanni according to Friedman (1988). This figure shows the sine-triangles with angles of 30 and 60 degrees and how they fit the plan. These triangles implicitly give the same proportions as can be found in the two rotated hexagons of Guidoni’s scheme (fig. 6.12), but Guidoni’s scheme also comprises other relevant proportions.
correspond to the actual dimensions measured in the plan of Terranuova. Regarding San Giovanni, Pirillo claims that the lots are 40, 30 (including the width of the back alley), 25, en 20 braccia (including back alley) long, while the main street and the cross street are 20 b. wide and the piazza is 160 b. long, just like the rows of house lots.79 This will also be checked with the present-day plan in paragraph 6.4.2.

6.4.1.4 Other theories on the design of the terre nuove plans

Six more authors have proposed theories of geometric design of more or less complex nature for the terre nuove. These theories largely appear to be less plausible than the ones presented above. Therefore, they will only be discussed briefly here. In appendix B, however, most of them are analysed more thoroughly. The reader who is particularly interested in this subject should read that appendix for additional information.

Charles Higounet proposed that the dimensions of the outline forms of the terre nuove plans are simply made up of large squares with sides of 100 or 150 brachiata (162.5 or 243.75 m.) length.80 San Giovanni originally would have measured 100 x 300 brachiata, for Scarperia and Terranuova it would have been 100 x 200, and Castelfranco would have measured 150 x 150 brachiata. Analysis of the present-day plans, however, shows that these dimensions are largely incorrect, with deviations from the actual dimensions of up to 20%.81 Besides this considerable flaw, Higounet’s theory is also rather unlikely because of the fact that contemporary Florentine documents show that, instead of the brachiata, the braccia (c. 0.5836 m.) was generally used as the standard unit of measurement in Florentine building operations in the concerned period.82

Franco Buselli proposed a theory for a complex geometric method of design for the town of Pietrasanta, which was founded in 1255 by the city-state of Lucca in northwest Tuscany.83 Pietrasanta’s plan is likely to have been a model for the terre nuove fiorentine, being basically rectangular and having relatively long parallel rows of rather narrow house lots.84 In fact, Buselli claims that the Florentine new towns were also designed by use of certain elements of the theoretical Pietrasanta design system.85 The proportions of the perimeters of San Giovanni and Terranuova would have been determined by the geometric relation of the so-called ‘golden section’. Buselli also claims that the width of the central market places of both towns would have been determined by manipulating the same triangle that was used to arrive at the golden section proportions for the perimeter, and the exact place of the parallel front streets in the Terranuova plan would have been determined by golden section proportions. Comparison of these claims with the present-day town plans leads to the conclusion that they must be largely incorrect.86 Furthermore, it is in fact unlikely that the golden section was actually used as a proportioning method in the 13th century, since the technique was probably not known at the time.87

Eugenio Baldari proposed a hypothetical geometric design method for the plan of San Giovanni.88 It was largely based on Guidoni’s proposal, which Baldari called ‘theoretical model’ (similar to fig.6.12), but was supplied with a second ‘executive model’. (fig.6.16) It seems that Baldari intended that Guidoni’s ‘theoretical model’ was only used in the design stage, on the drawing board, while the ‘execution model’ was used as the method for the actual laying out of the town plan by the surveyor.89 Baldari believes that the perimeter proportions of the town were determined by a large octagon, which has twice the size of an

80 Higounet 1962.
81 For instance: San Giovanni measured 462.50 x 190.44 m. (see app.B, n.14, while according to Higounet it would be 487.5 x 162.5 m., which gives deviations of 5.4% and 17.2% (of the smallest values) respectively. Higounet does not explain from where he got these dimensions, but they clearly are wrong. For the dimensions of the other towns, see par.3.9.2.2.
82 See above, n.74.
84 See fig.3.4.
85 Buselli 1970, p.34.
86 See app.B, par.2.2. For the plans that were used, see app.B, n.3.
87 See above, n.38.
88 Baldari 1980.
89 This idea of a twofold design method also seems to stem from Guidoni, who writes that the design geometry often forms a starting point in the design, but that the actual dimensions may be much more pragmatically chosen. (Guidoni 1970, pp.215, 219, 222) In connection with the terre nuove (and the designs of Arnolfo di Cambio) he does, however, not suppose such a procedure. (Guidoni 1970, p.233)
inner octagon that fixed the outer alignments of the inner street blocks.\(^{90}\) These inner street blocks fitted in squares of which the diagonals were directly connected to the two small outer squares that regulated the proportions of the market place according to Guidoni.

Comparison with the present-day plan shows that these ideas fit fairly well onto the plan.\(^{91}\) It is most likely, however, that this is largely coincidental. The three diagonal squares that would have given the proportions of the piazza are most unlikely, as they do not have dimensions that are logically related. The two larger squares that comprise the inner street blocks seem coincidental, while the rest of the proportions of the plan do not seem to be determined by squares in any way. The same holds true for the octagons.\(^{92}\) This makes that Baldari’s theory does not appear very likely. Only the geometric explanation of the perimeter proportions is in itself plausible. But since the geometric construction apparently does not determine other relevant proportions in the plan in a logically coherent way, the agreement between the perimeter proportions and this geometric construction is probably coincidental.

\(^{90}\) In the illustration this does not show very clearly, since the outer octagon is not wholly depicted.

\(^{91}\) For the plan that was used, see app.B, n.3.

\(^{92}\) I have tried to fit other squares and other octagons on the plan, but I have not found relevant coincidences.
Charles van den Heuvel suggested some further applications of Friedman’s basic theory. He claimed that a circle with a 30-degree-division (just like a dodecagon) would show significant correspondence with a number of relevant lines in the design of the Scarperia plan. Van den Heuvel gave no comparison of dimensions or illustrations of his suggestion; he only gave short indications in which way Friedman’s ideas could be applied differently in order to get more relevant results. Below, in paragraph 6.4.2 these indications will be checked in comparison with an accurate plan of the town.

Giglio Fiorentino had so far escaped becoming subject of theories of geometric design, since the dimensions mentioned in the document of 1350 appear so straightforwardly arithmetically determined as round numbers of braccia. In 2003, however, Maria Cecilia Bartoli proposed that Giglio’s plan was partly proportioned by a complex geometric method. She proposed that the basis of the design was the piazza, which probably measured 70 x 70 braccia. From this square the length of the town would have been determined by taking the length of the piazza plus four times its diagonal. In this hypothesis the √2 relation of the ‘rotated squares’ is once again proposed as a method of determining proportions. According to Bartoli the diagonal of the 70 x 70 b. square was approximated as 100 b., so that a length of 470 b. was the result, which is exactly the length mentioned in the document. The width of the town would subsequently have been determined by taking twice the diagonal (200 b.) as the height of an equilateral triangle, which would give sides of 230.94 b. According to Bartoli this was approximated as 232 b., to which 14 b. were added for the width of the main street. This would give the 246 b.-width of the town which is mentioned in the document.

In my opinion, this way of determining the outline proportions is very unlikely. The method is inconsistent and illogical. The subsequent steps in the process are not logically related. Also, the idea that the square piazza was the basis of the whole plan is difficult to reconcile to the description of 1350, in which the piazza is described as measuring 90 x 70 b. It is far more likely that the outline dimensions given in the description of the Giglio project of 1350, simply resulted from adding the individual dimensions of the internal plan elements, which were rationally determined and preferably rounded off at tens.

Stefano Bertocci suggested a proportioning method for some aspects of San Giovanni’s plan. As many others did before him, he postulates that the proportional relation of the side and the diagonal of the square (√2) are crucial in ‘gothic’ architecture. In his opinion, the outer perimeter of the town must have been proportioned by taking the short side as the side of a square to which the diagonal of the square was added to arrive at the long side of the perimeter. This fits very well to my measurements in the present-day plan. Bertocci believes that the inner perimeter of the town was dimensioned in another way. Apparently, he thinks that the inner perimeter was not simply the outer perimeter minus the width of the town wall, which would seem logical.
Instead, the internal perimeter would have been proportioned by taking the short side as the side of a square, the diagonal of which is rotated in two opposite directions, in this way creating overlapping rectangles (with proportions $a : \sqrt{2}a$) of which the diagonals were again rotated in order to arrive at the length of the inner perimeter. This also fits the dimensions that I measured. However, this method of design seems most illogical. If the town walls had the same dimensions on all four sides, which is most likely, it is very unlikely that the inner dimensions had been determined in a very complex way apart from the outer dimensions, which were determined in another complex way. Hence, it must be coincidental that the proposed methods for determining the outer and inner perimeter correspond to the (partly reconstructed) actual dimensions. Since their geometric constructions do not determine other relevant proportions in the plan in a logically coherent way they both seem unlikely to actually have been used for the proportioning of the town.

Bertocci’s third figure is meant to illustrate the way eight out of the 24 wall towers were spaced along the perimeter. This rather complex method seems very unlikely to actually have been used, since it only regards the positions of a limited part of the wall towers, and since it is much more likely that they were simply spaced evenly along the perimeter sides.

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104 The difference would be only 0.52%. (see appendix B, par.B.2.6)
6.4.2 Analysis of the theories of Guidoni, Friedman and Pirillo in comparison to the terre nuove plans

Thus, the theories of Guidoni, Friedman and Pirillo are left as possible methods of design for the terre nuove plans. In order to check to what degree these theories actually correspond to the plans of the towns, they must be compared in detail. The design methods are compared to the modern plans and to one another in figures as well as in the measurements of the basic dimensions. This is done in appendix B, pars. B.3.1 to B.3.4. This paragraph is a summary of that detailed analysis.

Regarding the case of Terranuova, there is a strong correspondence between the modern plan and the design system proposed by Friedman. This is demonstrated by figure 6.19, in which the theoretical figure is laid over the digitised modern plan. Friedman's theory, which is an adaptation of Guidoni's roughly worked out proposal, fits the plan very well, unlike the other relevant theories of design methods by Higounet and Buselli. It appears, however, that the polygon (or radially divided circle) fits the plan better when the radius is 143.75 braccia (83.89 m.) instead of Friedman's theoretical radius of 142.91 b. (83.4 m.).

The angular points of the polygon pinpoint the axis of the main street, the inner alignments of the streets parallel to the main street, as well as the position of the longitudinal parts of the town wall.

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105 Additionally, a suggestion by Van den Heuvel as to the application of Friedman's theory on Scarperia (see par.6.4.1.4) is also still to be considered.
106 These figures are created digitally, by digitising the most accurate paper plans that I could get hold of (see app.B, n.3), and overlaying these with the geometric figures of the theoretical design methods by use of Computer Aided Drafting (Autocad). For a more detailed description of the advantages and possibilities of computer aided drafting in reconstructing design methods, see Stenvirt 1991.
107 I have come to this unusual layout in order not to make the text of this chapter too heavily burdened with numbers and details that are not important in the context of the chapter as a whole. But for the study of the design of the terre nuove specifically the numbers and details may be important, and therefore the complete analysis is added in the appendix. Those readers who are specifically interested in the design of the terre nuove plans should read appendix B instead of paragraph 6.4.2.
108 See par.6.4.1.4 and app.B, pars.2.1, 2.2. See also Boereijn 1996, pp.141-173.
109 This would reduce the percentile difference between theoretical dimensions and my measurements to 0.43%. (see app.B, par.3.1)
It seems illogical, however, that the radius, as theoretically generative value of the whole design, would be 143.75 braccia. It would be more logical that the length of the radius was determined as a rounded number in braccia. Therefore, it seems likely that a radius of 144 braccia (which is only 0.17% more) was chosen. The number 144 was a very self-evident number back in those days, as it is 12 times 12, and the duodecimal system was as common in quantification and calculation as the decimal system is now. Apart from that, the number 144 also bore important symbolic implications, and the dimension of 144 braccia may even have referred to the biblical description of the Heavenly Jerusalem.\footnote{The number twelve had a high symbolic value in contemporary numerology (see par.8.1.3), and this value was probably even higher for 12 x 12. The dimension of 144 braccia may have referred to the Heavenly Jerusalem as described in the bible in the Revelations of St. John (21:17), where an angel measures the walls, which are 144 ells (whether this is the width or the height is not mentioned). This dimension must already have been a symbolical dimension in the bible, since it is unlikely that the height or the width of a real city wall would have been 144 ells.}

With this, it would still be possible that Pirillo’s theory of arithmetic design fits the town plan even better, which would make it appear even more likely to be right. It seems, however, that my measurements correspond better to Friedman’s theory (with the adjusted radius of 144 braccia) than to Pirillo’s.\footnote{The difference between my measurements and the dimensions in Pirillo’s theory is 2.47% on average, and between my measurements and Friedman’s theory 0.48% (see app.B, par.3.1).} From this it may be concluded that the hypothesis of complex geometric design of Friedman (and Guidoni) fits better with the actual dimensions measured in Terranuova and therefore seems more likely to be right. That is, if one accepts that the ‘designer’ did not simply choose for the easiest and most obvious method to lay out a town plan.

Friedman’s theory for San Giovanni is a strongly reduced version of Guidoni’s. (compare figs.6.12 and 6.15). His theory corresponds quite well to my measurements. With a slightly larger theoretical radius of 97.65 m., it fits my measurements even better.\footnote{The average difference would be reduced to 0.23% (see app.B, par.3.2).}
However, Guidoni’s theory seems to determine more relevant boundary lines in the plan. From figure 6.20, in which Guidoni’s theoretical figure is laid over the digitised modern plan, it appears that there is quite a strong correspondence between the plan and the hypothetical design method if the radius is chosen as 189 b. (110.30 m.). The geometric figure seems to pinpoint the centre of the main street, the inner and outer alignments of the parallel streets, the backside of the third and fourth rows of lots (counted from the main street) and the outside of the longitudinal sides of the town wall. It appears that an addition can be made to the geometric figure by which it also comes to mark the backside of the house rows right next to the main street. (see fig.6.21)

Pirillo’s theory concerning San Giovanni is that the house lots are 40, 30 (including the width of the back alley), 25, and 20 braccia (including the back alley) deep, and that the main street would be 20 b. wide. Two 16th-century documents give measured values of relevant dimensions in the town plan. Comparison of Pirillo’s theoretical dimensions with these two plans and my measurements shows that the dimensions proposed by Pirillo are not far from the dimensions measured in the 16th century, but only the width of the main street from Gentile and Batista, and the length of the fourth house lot from Della Zucca correspond precisely to Pirillo’s dimensions. Therefore, it does not seem very likely that Pirillo is right. The lot sizes according to Guidoni’s geometric theory are closer to my measurements than Pirillo’s. These lot sizes are on average also closer to the dimensions given by the 16th-century surveyors than to Pirillo’s.  

113 This radius is obviously not determined by a symbolical number, as was probably the case at Terranuova. The only special dimension of this number, as far as I can see, is that it is three to the fifth power.
114 The three diagonal squares, which would have determined the proportions of the piazza according to Guidoni fit the plan quite well, in a way that they correspond to what presumably was the original form of the piazza. (fig.6) The piazza is, however, not very symmetrical or regular in detail, so the agreement is not very clear. More problematic, however, is the fact that this construction with the different sizes of squares is not logical, or geometrically defined, since the size of the middle square is not related to the size of the other two squares in any logical way. Therefore, it seems unlikely that this was in fact the method of design or of laying out the dimensions of the piazza.
115 This addition is made up by the lines that cross through the centre point and through the four intersection points of the sides of the two rotated hexagons closest to the main street. The four points where these lines touch the outer circle mark the backsides of the first rows of lots. These points can be regarded as the corners of a 24-sided polygon, as at Terranuova. This polygon is not depicted as such in the figure, but it would have the same radius as the hexagons, in this case 189 b.
116 The two plans with inscribed measurements in braccia are made by maestri Gentile and Batista and by the surveyor Piero della Zucca. (fig.3.13) (Friedman 1988, pp.10, 11, 347-350. Archivio di Stato di Firenze, Piante dei Capitani di parte, cartone XVIII, no.28 ; Archivio di Stato di Firenze, Cinque conservatori del Contado, 258, fol. 602 b6)
117 See appendix B, table VII.
It seems most likely therefore, that the design geometry proposed by Guidoni, possibly with the small addition described above, was indeed used to find the relevant dimensions.

For the plan of Castelfranco di Sopra, Guidoni proposed a much simpler geometric figure underlying its design. (fig.6.11) It does not appear very likely, however, that this was actually used. The central diagonal square makes no sense and the larger square does not contain the central street blocks with much accuracy – all the more so because the angles are not truly right.118 (fig.6.22) The outer hexagon, which theoretically describes the relation between the width and the length of the original perimeter, seems to fit quite well on the digitised modern plan. It can be objected, however, that it is not very logical, as the length of the town is given between the outer alignments of the wall streets on the northeast and southwest sides, whereas the width is given between the inner alignments of the wall streets on the other two sides (theoretically; only on the southeast side still verifiable).119

However, close study of the dimensions in the plan, shows that a reduced version of Guidoni’s proposals for Terranuova and San Giovanni accurately pinpoints some important boundary lines in the plan. (fig.6.23) The figure is a dodecagon with a radius of 234.07 b., and its angular points mark the axis of the main street, the outer building lines of the (remaining parts of the) second parallel streets to both sides of the main street, and the outer building line of the wall street near to the southeast gate.

Thus, it seems quite well possible that this geometry was used in the design of the plan for Castelfranco. Not many dimensions are given by the dodecagon (only two actually) but the similarity of this geometry to that found for San Giovanni, Scarperia (see below) and Terranuova seems to confirm that this geometry really played a role in the design of the dimensions.120

For the terra nova of Scarperia I have also checked if there are relevant correspondences between the theoretical geometric design methods that were encountered above and the digitised modern plan. Guidoni, Friedman and Pirillo did not extend their theories to this town.121 Nonetheless, it seems possible that a similar method of design was employed here, as is suggested by Van den Heuvel.

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118 The difference varies between 2 and 5%.
119 When the outside of the lateral wall street would be taken as relevant line for the side of the hexagon to mark, the length of the hexagon along the axis of the main street would be 3.38% too much. See appendix B, par.3.3.
120 If a special significance is to be found in the number 234 (rounded from the dimension of 234.07 b.) for the length of the radius, the only option I can think of, is that the numbers 2, 3 and 4 are arranged as in the elemental numerical series.
121 According to Guidoni this town is much less interesting because of an unspecified ‘loss of tension’ in comparison to Castelfranco, San Giovanni and Terranuova (Guidoni 1970, p.229), and Friedman assumes that similar methods of design as he proposed for San Giovanni and Terranuova were not used here because only the house lots on the main street are larger than the three rows of lots behind them. (Friedman 1988, p.120) See app.B, par.3.4.
The plan of Scarperia is less regular, particularly in its outline, than Terranuova and San Giovanni, and Castelfranco as it was until around the 17th century.\(^{122}\) It appears, however, that, just like with Castelfranco, a dodecagon fits on the modern digitised plan in such a way that its angular points mark the axis of the main street, the outer alignments of the parallel streets and the outer alignments of (the remnants of) the secondary parallel streets.\(^{123}\) (fig. 6.24) As described in chapter 3, the secondary parallel streets were originally probably intended to be the longitudinal wall streets.\(^{124}\) Just as with regard to Castelfranco, this geometry is relatively limited in its relevance for the plan as a whole, but the method corresponds closely to it, and thereby also to the design systems of San Giovanni and, less directly, of Terranuova.\(^{125}\) (cf. figs. 6.22, 6.21, 6.19)

So, it seems very likely that the town plans of San Giovanni, Castelfranco, Scarperia and Terranuova were partly dimensioned by use of geometric figures. Guidoni’s theory of regular polygons that determined the distance between alignments of rows of lots and streets that lie parallel in the longitudinal direction of the plans, seems very likely. The other part of Guidoni’s theory, concerning geometric squares that give the proportions of the piazzas, appears rather unlikely, however.

Although the basic principle is the same in all four cases (Friedman calls it ‘sine geometry’) there are considerable differences in complexity and refinement. The simplest form is the dodecagon found at Castelfranco and Scarperia, which determines the relative distances between the axis of the main street, the outer alignment of the parallel streets, and the outer alignment of the wall streets (or the streets that were probably planned as such at Scarperia). (figs. 6.23-6.24) The same principle is employed in San Giovanni, but there it is extended into a more complicated figure that determines more relevant dimensions.\(^{126}\) (fig. 6.21) There it is not just the angular points of the polygon that determine the place of relevant lines in the plan, but also the crossing-points of the construction lines of the two hexagons. The relevant points lie on the circumferences of three imaginary co-centrical circles, determining the relative positions of eleven, or possibly thirteen,

\(^{122}\) See par.3.8.3.

\(^{123}\) See app. B, par. 3.4. The radius of the dodecagon is calculated as best fitting to the measurements when it is 125.68 b. But 125 b. would be the logical dimension to suppose for this radius. Although the number is not known for any specific symbolic meaning, it may have been relevant for the choice of this radius that 125 is 5 x 5 x 5.

\(^{124}\) See par. 3.8.3.

\(^{125}\) It should be considered, however, that the more complicated system similar to the one proposed for San Giovanni (fig. 6.21), based on the same outer radius of 125.68 b., also seems to pinpoint more relevant lines in the Scarperia plan. (see graphic verification in Boerefijn 1994, fig. 10.31). It regards the inner building lines of the parallel streets, the backsides of the lots facing the main street (impossible to verify, however, as this feature is rather irregular in Scarperia) and the backsides of the third rows of lots from the main street (also difficult to verify because of irregularity). Unlike San Giovanni, however, the inner building line of the original lateral wall streets is certainly not determined by this system, for which reason it appears less likely.

\(^{126}\) The same geometric figure of the two rotated hexagons may also have been drawn or set out instead of dodecagons for the cases of Castelfranco and Scarperia, and four rotated hexagons may have been made instead of a 24-sided polygon for Terranuova. The way the polygons were probably constructed will be discussed in par. 6.4.3.2.
parallel lines in the plan. The design system of Terranuova also determines eleven alignments in the plan, between which, just like in San Giovanni, the length of a house lot and the width of a street or alley had to be encompassed, whereas the ultimate dimension determined the width of the wall street and the wall. In its geometric construction, however, the figure of Terranuova is rather different from that of San Giovanni. Being a regular polygon with 24 angular points that determine the relevant lines, this system is simpler and looks more ‘logical’ than the San Giovanni system does. In Terranuova, the length of the radius of the polygon also seems to have determined the length of the whole town as well as the inner alignments of the transverse streets.

The way in which this design geometry works, may seem unnecessarily complicated. This may be an obstacle for accepting it as the actual method of design. It should be considered, however, that the geometric and arithmetic design systems that are used by present-day architects, are often also unnecessarily complicated, and would often also be very difficult to reconstruct if one would not have any information about their form or principle. Concerning the reconstructed design systems of the terre nuove, it certainly is a strong argument in favour of the hypothesis that the same principle can be found in more or less the same way in all the four town plans. Would one have found such geometry in just one of the towns, the chance would be greater that it depended on coincidence, but now this chance is very small.

The town plan of Giglio Fiorentino, the last of the Florentine new towns, was designed in a different way. The document describing its layout mentions only absolute dimensions, which are not reconcilable with similar geometric design by use of regular polygons. Because of its simplicity, this seems to be a more obvious method of design, and therefore Pirillo proposed that a similar simple method of arithmetic design was also used for Terranuova and San Giovanni. It appeared however, that the values of this simpler method

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127 These are: the axis of the main street, the two backsides of the first rows of lots, the two inner building lines of the parallel streets, the two backsides of the third rows of lots, the two inner building lines of the longitudinal wall streets, the outsides of the longitudinal town walls, and possibly also, but with a greater difference between theoretical and measured position, the two outer building lines of the parallel streets.

128 It is possible, however, that the radiuses of the polygons also played a role in determining the length of the plan of San Giovanni, Castelfranco and Scarperia, but more indirectly. See app. B, n.94.

129 For instance, the famous 20th-century architect Le Corbusier used proportions from the “golden section” and anthropomorphic forms in his dimensioning system called moduler. This design method may serve as an example of a method that would probably never have been correctly reconstructed without information from sources outside the buildings themselves, in this case the writings and drawings of the architect. (Le Corbusier 2000)
correspond less well to the dimensions actually measured in the plans than the values from the proposed geometric design methods.

There remains one aspect related to the question of geometry versus ‘numerical dimensioning’, about which something more needs to be said. The geometric figures that were found to be liable to have been used in the design of the four Florentine new towns did not provide all dimensions. They determined specific relevant lines in the plans, the space between which still had to be divided, in order to determine the width of streets and the length of lots. It is only a matter of course that this was done in such a way that the width of the street as well as the length of the lot were as convenient as possible for their purpose. With this, it is most likely that one of the dimensions was taken in whole braccia (or possibly halves, for small dimensions such as the width of the alleys). In this case, it seems most obvious that the width of the streets was given this rounded value, so that this fixed dimension could be ‘guarded’ easily. It was in the public interest to protect this space from being encroached on by private structures, for which reason it would be convenient when the width of the street or alley had a specific value that was easy to measure.130

From my measurements in the 1:500 plans it is, however, not determinable whether the dimensions of the streets were more likely to have been set out in whole braccia or those of the lots, as both generally diverge considerably from the round number. This could be due to inaccuracy in my measurements or in the plans that I consulted, or to small deviations in the building lines caused by changes over the past seven centuries, or even to inaccuracy in the original laying out of the town plan. From Friedman’s measurements on the spot in Terranuova one can conclude, however, that the widths of the streets are much closer to whole numbers of braccia than the lengths of the lots.131 It is tempting to conclude from this, that this would be the case in the other towns as well, but the dimensions measured by the 16th-century surveyors in San Giovanni do not confirm this.132 So, to be able to say more about this problem, one would first need more data from measurements on the spot. Finally, one must also consider the possibility that although the geometric method of design led to dimensions in irrational numbers, these may all have been rounded to whole numbers (or halves or smaller rational parts) of braccia.

The hypothesis of design by use of regular polygons would be supported if it would be possible to recognise some sort of logical development in this method through time. This is, however, not the case.133 Castelfranco and San Giovanni were founded at the same time, but their geometry is rather different in complexity and relevance for the plans, while Scarperia, which was founded more than six years later, repeats the simpler model of Castelfranco. Terranuova, more than thirty years later, has still another figure underlying its layout, less complex than San Giovanni’s, but with just about as much relevance for the plan. Subsequently, Giglio was designed without using such a geometric method for dimensioning its layout. Looking at the layout of the elements in the plan instead of at the dimensions, it is clearly visible that Giglio has all the typical aspects of the terre nuove plans. The plan design of Giglio also appears to be especially related to the Terranuova design. The back streets, which in Terranuova replaced the alleys of the earlier plans, were used again in Giglio, and the form and dimensions of the piazzas of the two were identical.134 But the method of dimensioning is very different. The highly complex geometry was traded for a very simple way of establishing dimensions in numerical values of the local standard value for longitudinal measurement, the Florentine braccia. Especially rounded numbers dividable by ten were favoured. The preferred relation between dimensions seems to have been the simplest one conceivable: 1 : 2. The main street (14 b.) was related thus to the adjoining lots (28 b.), while the same relation also bound the parallel streets with the adjoining lots (10 : 20 b.) and the middle class lots with the lower class lots (20 : 10 b.). Thus, the layout of Giglio followed the model of the earlier terre nuove in its basic layout, but its dimensions were determined in a much simpler way.

6.4.3 The inspiration for the geometric method used in the terre nuove plan designs and the way it was handled

Now that it is found likely that the terre nuove plans were dimensioned by a complex geometric method, it must be asked where this method could have come from and how it was exactly handled in the process

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130 In contemporary sources concerning the maintenance of spatial order in towns, one can often find specific minimal widths of streets mentioned. In Florence, for instance, the minimal widths in the 14th century, would be 12 b. for main streets and 8 b. for other streets (cf. table VII), while in Siena the minimal width for communal streets was 6 b. (Braunfels 1968, pp.102-103).

131 See appendix B, table II.

132 See appendix B, table VII.

133 This also holds true for the development of the elementary structure of the town plans, not considering specific dimensions.

134 Or at least almost identical. See discussion app.B, par.4.
of design. In order not to get lost in a-historical speculation the hypothetical design geometry must be compared with the mathematical knowledge in the period and the technical possibilities. The proposed design method will appear more probable if it can be related to knowledge of which it is known that it existed at the time. Subsequently, in paragraph 6.4.6, the question why the complex method of design was used will be attended to.

In most cases of proposed complex geometric design methods of urban plans, as treated in paragraphs 6.3 and 6.4, authors seem only to have been interested in the reconstruction of a geometric system. The questions of what inspired the use of the complex methods or how the geometry was exactly handled are rarely posed, let alone answered. Friedman is the only author who really goes into the questions of how the geometry was handled in practice and where it may have come from, and therefore his book will be much referred to in the following paragraph. But, just like the other authors, he leaves unasked the question why this complex geometry was used.

6.4.3.1 Possible sources of inspiration for the proposed geometric design method of the terre nuove plans

If it is true that the rather complicated proportioning method by use of polygonal geometry (or ‘sine geometry’) was used for the terre nuove plans, it would seem likely that it was not completely newly invented. The designer must probably have been inspired by a similar use of geometry in other designs or practical applications.

The most obvious place to search for a similar design method as a source of inspiration would be in earlier town plan designs. The town of Pietrasanta, founded by the city-state of Lucca in 1255, is the most likely source of inspiration for the urban form of San Giovanni and Scarperia. (compare figs. 3.4, 3.12, 3.20) But in Pietrasanta the lots of the original layout all seem to have had a more or less equal length (c. 18.5 m).139, for which reason it seems unlikely that a similar design method would have been used, since the essence of this method is that it generates a diminution of the distance between the parallel lines in the design system, which in the terre nuove is reflected in the length of the lots. According to Spagnesi and Properzi the plan of Cittaducale, which was founded in 1308 in central Italy, would have been proportioned in a method very similar to Guidoni’s theory for San Giovanni. In its basic layout of streets, rows of house lots and central piazza, the town plan bears resemblance to Terranuova in particular, but unlike the terre nuove the original lots all seem to have had the same length. Hence, it appears unlikely that a similar design method would have been used there.139 In fact, I know no other new towns of the period that seem to be designed by use of a similar proportioning method.

The next best place to search for a source of inspiration would seem the wider field of contemporary architectural design in general. There is no doubt that more or less complicated geometry was used in the design of architectural elements such as window tracery, rib vaulting, polygonal apses and towers, circular stairs, etcetera. For these elements, however, no similar geometric design methods seem to have been used as those that have appeared likely for the terre nuove plans.137 According to Guidoni, however, a more or less similar method was used in roughly the same period for the proportioning of palazzo facades in Tuscany. Among others, the facades of the Palazzo dei Priori in Volterra, the Castello di Poppi and the Palazzo Vecchio in Florence would have been proportioned by use of a geometric method that he calls the ‘quarter circle’.138 (fig. 6.25) This method is based on a quarter of a circle that is divided into equal parts along the circumference. When parallel horizontal lines are drawn through the division points along the circumference, their mutual distance decreases progressively. According to Guidoni the architect Arnolfo di Cambio was the first to have employed this method systematically.139 The ‘quarter circle’ and the proposed design method of the

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135 This appears from my measurements in the plan in the scale 1:1000, Provincia di Lucca, Comune di Pietrasanta, foglio n:17, levata anno 1951, riprod. anno 1954, that I obtained from the Ufficio tecnico of the commune of Pietrasanta.
136 Spagnesi & Properzi 1972, p.56. In the proposed theory it also seems very illogical that it has no relevance to the outer street blocks. Guidoni also opposes to the suggestion that a similar method would have been used for Cittaducale. (Guidoni 1992, p.93). Jäger (2004) proposed a method by which a number of dimensions in the plan design of the Maltese city of La Valletta would have been determined. The method is similar to Friedman’s proposals for Terranuova and San Giovanni. As far as I can see, the hypothesis does not seem unlikely, but it has little or no relevance for the terre nuove, as La Valletta is more than two centuries younger.
137 Mössel (1926) proposed a design method for the facade of the Münster church in Freiburg (Germany, 13th–14th centuries), which is more or less similar to the method for the terre nuove plans. According to the verification of this method by Hecht it appears, however, that the theoretical dimensions generated by the proposed geometry do not correspond well to the actual dimensions of the facade. (Hecht 1969, pp.288-291, 303) Apart, from that, another important objection is that the proposed method lacks coherence and logic.
139 Guidoni 1970, pp.217-224. Guidoni introduced this method in a chapter on the development of Tuscan architecture around the year 1300, in which Arnolfo di Cambio would have played a very important role. It is in the same context that he introduced his theory of the complex geometric design method of the terre nuove, the first of which would have been designed by Arnolfo.
Looking outside the discipline of architecture, one may find similar geometric figures as those that seem to have been used for the design of the terre nuove in the contemporary fields of geography and astronomy. The motif of the circle divided into twelve equal parts along its circumference is probably almost as old as the discipline of astronomy. The figure represented the division of the heavens, of time, and implicitly of the cosmos, into equal parts. An implicit geometrical element of this figure was used for the construction of among others sundials. It corresponded to the geometry in the proposed design method of the terre nuove plans since parallel lines through the regularly spaced points along the circumference generated progressively receding mutual distances between the lines. The astronomical instrument of the astrolabe, which could be used for observation, measuring and calculation, made use of the same sort of geometry. Some astrolabes had a so-called sine scale, which was used for measuring and calculation. It consisted of a circle or quarter circle in which parallel lines were drawn through equally spaced points along the circumference. Essential element once more, is the progressively receding distance between the lines.

In contemporary charts for sea navigation, so-called portolan charts, one may find compass roses depicted that are strongly reminiscent to the polygonic figures that probably were used for the design of the terre nuove. (fig. 6.26) The basic principle is, once more, that the spatial world is divided in equal radial parts and terre correspond in the way that a regularly divided circumference of a (part of a) circle generates regularly decreasing mutual distances between parallel lines.

I have tried to check Guidoni’s ideas. It appears that his theory corresponds fairly well to accurate drawings that I obtained of the Palazzo Vecchio in Florence and the Castello in Poppi. I have also tried the ‘quarter circle’ on some other drawings of Tuscan palace facades of the 13th to 15th centuries, and found that a similar method of proportioning may have been used in the design of three other palazzi. This research, however, has been rather superficial, since it does not directly regard new town creation, and therefore the results are not conclusive. Hence, the ‘quarter circle’ theory needs to be verified more accurately before it can be accepted, and the way in which the method would have been handled needs to be reconstructed. So, the subject is open to further research.

140 Following Friedman, one might call this ‘sine geometry’.
141 For the Palazzo Vecchio I obtained copies of drawings in the scale 1:100 kept in the Florentine Archivio Storico Comunale (inv.nrs. 26/74 and 4494 made by Luigi Zumbella). From these, it appears that Guidoni’s theory fits well, when the basis is taken on the plinth and the radius reaches to the basis of the arches that carry the crenelation. For the Castello in Poppi I obtained accurate drawings in the scale 1:50 from prof. Domenico Taddei of the architectural department of the University of Florence. Again, the ‘quarter circle’ (divided in five equal parts instead of four) corresponds quite well to the dimensions that I measured in the plan. Unfortunately I have not been able to get hold of a good drawing of the Palazzo dei Priori in Volterra.
142 In the book Architettura Toscana by Grandjean de Montigny and A. Famin (Paris 1874) the facades of a number of palaces are drawn, seemingly rather accurate. I have measured these designs and found that in a number of cases it is possible that the ‘quarter circle’ was used for proportioning. In the facade of the Palazzo Strozzi in Florence, the basis is taken on the plinth and the go-point under the entablature, the horizontal band between the first and second layer is close by the 22.5°-point and the band between second and third close by the 45°-point. Furthermore, the width of the facade is close by 1/3 of the radius. For the Florentine Palazzo Gondi it is the same, apart from the width. As to the Palazzo Sannazzari in Siena, the width is the same as the radius, when taken from the plinth up to the point just under the top layer of the cornice. The first band in the facade is close by the 22.5°-point, while the second band is near the 45°-point and the base of the entablature is near the 67.5°-point.
143 It is improbable that the ‘quarter circle’ would have been set out in scale 1:1 on the vertical plane of the facades, since this would be very difficult. It seems more likely that the design would have been drawn in a horizontal plane, whether or not on reduced scale, by use of geometric figures, from which the dimensions would have been measured. This would be similar to the method of design and execution of the facade of the Palazzo Senesino in Siena (in 1340), as described by fork. (1985, pp.82-85)
144 See below.
145 Vitruvius 1914, p.195.
146 Friedman 1988, pp.138-140. Since the 10th century astrolabes were used in the Arabic world, from where they were exported to Europe since at least the 11th century.
from a centre with a regularly divided circumference. The purpose of such compass roses is to make it easy to navigate on the basic heavenly directions. Portolan charts were no obscure phenomena solely known by seafarers, as it appears that the Florentine writers Dante, Petrarca and Giovanni Villani all knew such charts. The cleric Opicinus de Canistris (1296 - before 1352), who left a number of wonderful scriptures and drawings in which he records his view of the cosmos, even seems to have ascribed a special, more or less magical, significance to the compass rose. It seems that he interpreted it not so much as a figure that helps to order the spatial world, but rather as some hidden reality that lies behind the visible world.

In this context, it may not be omitted to discuss the fact that in the architectural treatise De Architectura libri X by Vitruvius, from the first century A.D., the compass rose is described as instrument for correctly setting out urban plans in the field. Vitruvius extensively describes the way the streets ought to be oriented with regard to the direction of the winds in order to prevent unhealthy and unpleasant winds to take a hold of the people in the streets. He also explains the way a compass rose must be constructed in the very centre of the future urban layout in order to come to the right orientation of the streets. The idea of constructing a compass rose in the centre of the urban layout is reminiscent to the polygonal figures that probably were used for the design of the terre nuove, which were also centred on the very heart of the urban layout and which look like a sort of overdimensioned compass roses. A significant difference, however, is that the polygonal figures of the proposed design method do not mark eight directions from the centre, as Vitruvius’ compass rose does, but 12 or 24. A more important difference is that the design method marked the distance between the streets and alleys rather than their direction. In the plans of the terre nuove no regularity can be recognised with regard to their orientation that might be based on the Vitruvian rules: only the topography of the landscape and the roads in it seem to have determined the orientation of the plans. Hence, the correspondence between the compass rose and the figures of the design method is only superficial. It is well possible that the planners of the terre knew Vitruvius’ treatise, but it is impossible to tell whether the design geometry is somehow inspired

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147 Friedman 1988, pp.133-138. The number of the parts is not necessarily twelve, but it always is a multiple of four, because the four elementary directions of the compass are the essential basis of the division.
151 This passage probably led to the misinterpretation of the Vitruvian street plan as having a radial structure in the 15th century. (see par.10.3, n.82)
152 Krinsky 1967, pp.36-41. See par.10.3.
A sort of Christian utopia. The Heavenly Jerusalem that was described in the Bible has 12 gates, one for every region of the world, and the regions of Christendom (by the disciples). The Heavenly Jerusalem in circular form probably stems from Rome, whereas the tradition of the square depiction (see fig.6.3) probably comes from the Beatus manuscripts from the Iberian peninsula. (Schiller 1991, vol.5, p.172, plates 748-797; see also Braunfels 1955, pp.49-50, Frugoni 1991, pp.20-21) Since the Heavenly Jerusalem is clearly described as square (actually even cubic) in the Bible (see par.8.1.1), it is likely that the image of heaven as being circular played a role in the circular depiction. (Finotto 1992, p.99)

It is more likely, in my opinion, that the polygonal figures used in the plan design of the ‘terre nuove’ were inspired by symbolic figures of cosmic significance. These figures were related to the compass roses, as the cosmic symbols implicitly also referred to the spatial world with its directions. The figure of the wheel with 12 spokes, whether in the form of a circle or a polygon, is known to have been a symbol for the cosmos since ancient times. The radial partition into 12 or, as a derivative, 24 parts, could refer to the stages of cyclical time, to the different parts of the world, the signs of the zodiac, or to images from the Judeo-Christian tradition, such as the 12 tribes of Israel, the 12 disciples or the 24 elders. In all cases, the basic idea is that different parts make up a whole that is essentially complete and perfect. Such schemes can be found, for instance, painted in the rose windows of cathedrals or in the vaults of churches and spaces with a ceremonial function, as for instance the great cupola of San Marco in Venice. Such diagrams of cosmic schemes were also drawn in manuscripts, such as those made by Opicinus de Canistris, which were already referred to above. In the one depicted in figure 6.27, for instance, among others the signs of the zodiac, the major prophets, the tribes of Israel, the disciples, the winds and the four evangelists take their place in the scheme. These elements represent among others time (the months of the year), the celestial regions, the old and the new testament, and thereby the elementary Christian history of the world including the future apocalypse, the regions of the world, and the regions of Christendom (by the disciples).

The dodecagon or wheel with 12 spokes can also be seen as reference to the Heavenly Jerusalem, which was a sort of Christian utopia. The Heavenly Jerusalem that was described in the Bible has 12 gates, one for every tribe of Israel, and had a square plan. But in many images of the 6th to 16th centuries it is depicted in a circular or polygonal form, with the twelve gates equally spaced along the circumference. (fig.8.3) It is not impossible that the polygonal figures of the proportioning method of the ‘terre’ referred to this image of the Heavenly Jerusalem.

[153] The polygons of the proposed design method of the ‘terre’ also bear resemblance to figures that according to Vitruvius were used for the design of theatre stages. (Book V, ch. 6 and 7) It regards circles of which the circumference was divided in 12 equal parts by three squares (Greek theatre) or four triangles (Latin theatre). (Isler S.D.) It does not seem likely, however, that these figures have inspired the planners of the ‘terre’, since the architectural products and the purpose of the figures were very different.


[155] Ever since antiquity, circular diagrams (whether or not radially subdivided) were used as models to visualise cosmic relations. One of the most famous and influential sources where this can be found is the encyclopaedia of Isidore of Seville from the 6th century. (Suckale 1981, pp.196, 246, cf. vol.II; Salomon 1953; Marconi 1973, pp.42,48. Other elements that Opicinus adopted in his 12-part schemes were, among others, the ‘small prophets’, body parts, the months, the patriarchs and the parts of the ‘terre’. (Salomon 1956, vol.3, p.194) Another example is a 12-parted circular scheme in a manuscript of Isidore’s ‘De natura rerum’ which only contains the 12 main winds, but which is explicitly cosmological in its meaning, since the duodecimal system was crucial in systems of quantification, as well as in subdivisions of all sorts of bodies, as for instance in the military and political organisation of towns and their administration. (see par.8.1.2)


[157] Salomon 1956, vol.3, pp.196, 246, cf. vol.II; Salomon 1955; Marconi 1973, pp.42,48. Other elements that Opicinus adopted in his 12-part schemes were, among others, the ‘small prophets’, body parts, the months, the patriarchs and the parts of the ‘terre’. (Salomon 1956, vol.3, p.194) Another example is a 12-parted circular scheme in a manuscript of Isidore’s ‘De natura rerum’ which only contains the 12 main winds, but which is explicitly cosmological in its meaning, since the duodecimal system was crucial in systems of quantification, as well as in subdivisions of all sorts of bodies, as for instance in the military and political organisation of towns and their administration. (see par.8.1.2)

[158] Marconi 1973, p.48. It could also be seen as the cosmos (Marconi 1973, p.48) or be interpreted as the majesty of the Holy Trinity in all four directions of the world (Krautheimer 1969, p.123). The number 12 was a number of the greatest significance in cosmic thought and, derived from it, in practical arithmetic, since the duodecimal system was crucial in systems of quantification, as well as in subdivisions of all sorts of bodies, as for instance in the military and political organisation of towns and their administration. (see par.8.1.2)

So, the figures of the proposed geometric design methods for the *terre nuove* plans, containing polygons or circles that are regularly divided along the circumference, may have carried symbolic meaning as reference to, or connection with, the higher order of the divinely created universe (the cosmos) or the redemption (the apocalypse) and the Christian image of heaven (the Heavenly Jerusalem). In this way, the design method, of which the essential geometric figures are invisible in the built form but which generated a number of essential proportions in the plans, may have connected the towns to the whole cosmos and the essential Christian utopia. In my opinion, this is the most likely motivation for the use of the specific geometric figures in dimensioning the *terre nuove* plans. If this hypothesis is right, it is still debatable to what extent this meaning was explicitly known to patrons, planners, inhabitants and public.

With this, however, it is not impossible that the proposed design geometry was also inspired by similar methods used in architectural design. No such methods are directly known from sources, but the ‘quarter circle’ method proposed by Guidoni for the proportioning of *palazzo* facades in 13th-14th-century Tuscany may have been important in this respect.

6.4.3.2 How was the design geometry handled?

There are several possible ways in which the polygonal figures may have been handled in order to arrive at the dimensions they generate in the plans of the *terre nuove*. These different possibilities will be described in this paragraph and it will be argued which is the most likely way. This is, however, far from easy, since it is a rather complicated technical matter.

The most obvious method seems that the polygonal figures were set out on the land by use of two ropes of equal length and pegs or stones for marking relevant points. This may have worked as follows. First the centre was determined, which was to become the centre of town, and a straight line was drawn right through it, having a rope’s length in both directions. This line would become the central axis of the main street and the whole urban structure. A hexagon was created by stretching the ropes from the centre point and the end points of the line in both directions to common end points, giving four angular points of the hexagon while the two end point of the central line make up the other two angular points. (fig. 6.28) The hexagon could be ‘extended’ into a dodecagon by stretching the ropes from the centre point through the middle of the sides of the hexagon, so that the other six angular points were found. The dodecagon could be extended into a polygon with 24 sides in a similar way.

It is not known whether planners of architectural works or surveyors actually did set out such large-scale geometric figures on the ground. Information on the contemporary knowledge of geometry of such people can be retrieved from treatises that were written at the time, so-called *practica geometriae* and abacus manuscripts. In the 13th and 14th centuries the number of these treatises increased rapidly, as knowledge of geometry and arithmetic was increasingly spread. Some of these treatises were written for particular professional

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160 It is known from various sources that surveyors used ropes and pegs in the period under consideration. (Binding 1985; Binding 1993, pp. 344-348)

161 Finding the centre points of the sides is easy, as they implicitly have the length of the rope, and the middle point of a rope is easy to find by folding it double. It is also possible to find the angular points of a dodecagon by making a right angled cross with arms of a rope’s length, which gives the first four angular points, and determining the intersection points of the five (imaginary) circles around the centre point and the four angular points. This method could not be used, however, for the design method that probably was used at San Giovanni, as this essentially involved the intersections of the construction lines of the two hexagons that implicitly make up the dodecagon.

162 For the proposed design method of San Giovanni (fig. 6.21), the intersections of the sides of the two hexagons are found by stretching the ropes along the sides. And the points that mark the back boundary of the rows of lots facing the main street are found by stretching the rope from the centre point through the relevant intersections of the sides of the hexagons.
groups, as for instance bankers or surveyors. The treatises for this latter professional group were generally called *practica geometriae*, which means 'practical geometry'. Apart from more general mathematics, they particularly treated geometry. A part of these treatises regards the measuring of the area of pieces of land by dividing complex shapes into various geometric shapes that could be measured and of which the areas could be calculated. It is a known fact that around 1300 both the *practica geometriae* were relatively widely known, and that many copies circulated in Florence. In the late 13th and 14th centuries many inhabitants of Florence also followed courses in practical mathematics.  

So, it is well possible that the planners of the *terre nuove* were familiar with the contents of the *practica geometriae*. However, the geometric theorems and methods with regard to surveying that are treated in these books solely regard measuring and calculating distances and areas; they do not concern the setting out or designing of (town) plans or, for that case, complex geometric figures.

In his article of 1970, Friedman deemed it most probable that the polygons were set out by use of ropes or chains. In his book of 1988, however, he describes a very different way in which the design geometry would have been handled in his opinion. In this version the polygons were not actually set out on the ground: the relevant distances would have been calculated by use of a trigonometric table of chords and subsequently they would have been measured out on the ground. Tables of chords originally were used for astronomic calculations, but their use was extended to other applications related to sine geometry after they were described in specific scholarly works and some of the mathematic abacus manuscripts in the 13th century.

In my opinion, however, the use of the table of chords seems rather unlikely, as this application of the table is unknown for the period and since it is a very complicated process to calculate the dimensions by the use of the table. It seems more likely that the figures of the compass roses or cosmic symbols, or possibly the figures on astrolabes or the proportioning method of palazzo facades, directly inspired the setting out of more or less similar figures on the ground for the proportioning of the town plans.

Friedman's main argument in favour of the use of the table of chords, is that there is no evidence that circles or other geometric figures were set out on such a large scale as in the *terre nuove* plans in the period under consideration. Although it is true that there is no evidence, it is not impossible that such large-scale figures were actually set out. An objection is that the large scale, with basic distances of more than 80 m., would lead to inaccuracies, as the ropes that were made at the time were rather elastic and varied in length with the humidity and temperature, and chains of such length would be very heavy. But still, it would not be impossible. When a surveyor measured pieces of land, he also used ropes of considerable length. So probably, an experienced surveyor may have been able to handle a rope in such a way that its elasticity would not be a great

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163 Van Eegmond 1976, pp.13, 31. Many of the *practica geometriae* were not particularly written for surveyors or other kinds of professionals, however. In fact, the contents often barely appear to be aimed at practice at all. (see par.7.7.1)
164 Van Eegmond 1976, pp.6, 100, 115, 146, 148, 152, 156; Friedman 1988, pp.125, 130.
165 Van Eegmond 1976, p.6. In 1343, Giovanni Villani wrote that six abacus schools existed in Florence, having about 1000 to 1200 students, which would be circa one percent of the population of the city.
166 Surveying techniques were required for setting out the geometric figures on the land and for setting out the town plans that partly were determined by the figures. For designing the plans such may not have been necessary. It is well possible, however, that both were done, or directed by, the same person(s). (see par.7.5). It should be considered here, that building masters in the period sometimes also appear to have been experienced in surveying. (Binding 1993, pp.290-291) In his article of 1974, Friedman suggested that the person who devised the geometric proportioning method of the *terre* might have been inspired by techniques that were used by surveyors.
167 Friedman 1970, n.24. Friedman also mentioned the possibility that the polygons were set out by use of an instrument for measuring angles. This is less likely in his opinion, since this method is more liable to inaccuracy and since it is not known whether such an instrument for measuring angles in the horizontal plane was ever used before 1432, when it was first described by Alberti. (Friedman 1988, p.356, n.33)
169 The table of chords was based on antique knowledge described in Ptolemy's *Almagest*. It was extensively described in Latin around 1220 by the highly influential mathematician Leonardo Fibonacci, after which it was copied many times. (Friedman 1988, pp.123-126)
170 In fact, Friedman uses the same argument the other way around: no similar use of polygons is recorded to have been used by 'medieval masons', and therefore he prefers the opinion of the tables of chords. (Friedman 1988, pp.142-165, n.6a)
171 The fact that the diameters of the various polygons for the different town plans do not structurally represent whole numbers in pericte (one pericte measured 8 braccia = 2.918 m.) or multiples of the 42 pertiche from Fibonacci's table of chords, makes Friedman's theory less probable, since it would require many rather difficult calculations. The radium of the proposed figures would be: Castelfranco: 234 b. (136.56 m.); San Giovanni: 189 b. (110.30 m); Scarperia: 125 b. (72.95 m.); Terranuova: 144 b. (84.04 m.). So, only the 125 b. radius for Scarperia measures a whole number in pericthe. The use of the table appears even less plausible when the relevant points within one design method are not all on the same circumference, but on three concentric circumferences, as in the proposed geometric system for the design of San Giovanni's plan. (see fig.6.21) If the table of chords was used here, the relevant points must have been calculated for three different radiums (theoretically of 189 b., 156.98 b. and 169.45 b.), which must have been very hard or even impossible.
172 It must be considered that even when the tables would have been used, the regular polygons must still have been the essential basis of the design method, which must have been envisaged in some way, probably in a drawing. It seems rather complex and therefore unlikely that an initial design was made with an actual polygon, after which the table of chords had to be adapted to the radius of the imaginary circle (or polygon) on the real scale of the town (i.e., a different length for every town) and that subsequently the calculated relevant distances were set out, whereas the whole polygonal figure could also have been set out relatively easily.
173 Friedman 1988, pp.256-258, n.33.
It seems unlikely, however, that ropes of more than 135 m. were used, as would have been needed for setting out the dodecagon at Castelfranco on the full scale. It is not recorded that geometric figures were ever set out on a large scale as proposed for the terre nuove plans, but there certainly exist traces of structures that do suggest so. Centuries before the terre were built, planners from different cultures were able to set out large-scale circular structures with considerable geometric accuracy. In southern France there also is a field that was reclaimed around 1250, which has a rather accurate circular form. It is not known how its form was laid out, but it is most likely that long ropes were circled around a centre point.

As mentioned above, the great length of the ropes may have made it quite difficult to set out the figures with a satisfactory amount of accuracy. Therefore, it does not seem unlikely that the figures were set out at a reduced scale from the same centre point. It is possible that the relevant distances of the reduced scale were sized to the full scale by multiplying the radius or the distance from the central axis (perpendicular to it) with a specific factor. This would be quite simple, by ‘overturning’ the rope of the specific dimension given by the reduced-scale figure a specific number of times along straight (sight)lines. In order not to get too much inaccuracy, the figure must have had a minimal diameter of circa 10 m.

The most obvious reduced scale for setting out the figures seems to be the half scale. In order to multiply the relevant distances from the half scale to the full scale, they only have to be doubled by ‘turning over’ the rope once. Construction on this scale would even make some steps in the construction of the figure redundant. In the half-scale figure the outermost points already mark the outer building lines of the parallel streets next to the main street in San Giovanni, Castelfranco and Scarperia. This makes that the distances to the 30˚ angular points (with respect to the main axis) would not have to be doubled. (see fig.6.30) The main advantage of the half-scale construction, however, would probably have

174 Methods for making the ropes less elastic, were to treat them with oil, sulphur, hot or dry wax, keeping the ropes wholly wet or wholly dry, and only using old ropes. (Booz 1966, p.82)
175 The Prussian surveying treatise Geometria Culmensis (from 1535-1547) mentions the use of ropes of 10 rods length (c. 45 m.). According to Kiely such a rope, when treated correctly, made it possible with an inaccuracy of only 0.005%. (Pouls 1997, p.47, referring to E.R. Kiely, Surveying Instruments. Their history and classroom use. New York, 1947, p.10) To me, this seems somewhat too optimistic, however. The early 16th-century surveying treatise of Bertrand Boyset of Arles states that it is better to measure with a wooden rod than with a rope, but if a rope is used, it should be 10 or 12 dishes (40.70 or 48.84 m.) long. (Guerrerau 1945, p.96) It is obvious that a rod was too short to accurately set out the polygons on the full scale. Much longer ropes did exist, but it is unclear whether these were used for measuring or setting out geometric figures. Booz mentions that for the building of a church in Nürnberg a rope was used with a length of 520 ft. (c.150 m.). (Booz 1966, p.82)
176 It regards, for instance the round city of Gur, founded in 266 BC in Sassanid Persia, which has a radius of over 200 m. (Egli 1959, pp.263-365; Johnston 1983, p.16) In Europe there are examples in the form of the fortresses that were built in the 9th and 10th centuries by the Vikings or as shelters against them. The most well-known are the Viking fortresses of Trelleborg and Aggersborg in Denmark, of around 900, which have quite regular circular layouts with radiuses of c. 86 m. resp. c. 120 m. (fig.8.4; Müller 1961, pp.102-103; Schwinkepöker 1986, p.103) Circular fortifications that were probably built to provide protection against the Viking raiders were built in the coastal area of the Low Countries. The stronghold of Oost Soubourg in The Netherlands had a diameter of 132 m. (Trimpe Burger 1973; Schwinkepöker 1986, p.103) The Etang de Montady, near Béziers, was reclaimed in 1248-1268. In the very centre of the radial layout there is a circular field with a radius of circa 150 m. (Friedman 1988, p.257; see also http://fr.wikipedia.org/wiki/%C3%8Etang_de_Montady)
177 Friedman not only refute the possibility that the figures were set out on the full scale; he also rejects the possibility that they were set out on a reduced scale. His argument is, again, that there is no proof that such geometry was used by ‘medieval surveyors’ or in ‘medieval architectural geometry’. (Friedman 1988, p.263, n.6a) This is, however, arbitrary use of the argument, since there is no proof of actual practical use of the tables of chords either.
178 In n.126 above, it is mentioned that a more complex design method similar to that of San Giovanni (fig.6.21) may also have pinpointed the inner building lines of the parallel streets, and possibly also the back boundaries of the first and third rows of lots from the main street in Scarperia. This seemed not very likely, however, because it is not possible to reconstruct the exact place of the back boundaries of the lots and because, unlike at San Giovanni, the inner building lines of the original longitudinal wall
been that the ropes of half the length would make it easier to set out the figures on the ground and would probably also make the construction more geometrically accurate.

Another possibility is that the geometric figures were drawn in plans, from which the relevant dimensions were measured and multiplied to the full scale of the town plans. There is no proof that drawings of small-scale plans were used in the planning of new towns. It has long been thought that small-scale drawings were not used at all in architectural planning before the 15th century, since hardly any such drawings were known from the period. By now it has been clearly proven, however, that particularly since the 13th century, drawings were used in the design and building process of prominent architectural projects. For various reasons, few of these drawings have been preserved, and of urban planning projects no drawings of plan designs are known at all. Town plans did exist, however: since the early 12th century at least, plans were drawn of existing cities. The first drawings of urban ground plan designs that have been preserved are from the famous theoretical treatises and urban ideal models of the 15th century, such as those by Francesco di Giorgio Martini and Filarete.

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179 Research in the past few decades has shown that drawings were becoming increasingly common in the practice of highbrow architecture, such as in cathedral design, at least since about the middle of the 13th century. See Binding 1993, pp.187-201; Harvey 1972, pp.101-109, 241; Briggs 1974, pp.96-98; Toker 1985, pp.70-72; Recht 1989; Ascani 1997.

180 It regards, for instance, highly schematic plans for the depiction of famous cities such as Jerusalem or Rome, or more detailed plans that were used for the administration of public space or of urban landownership. See Lavedan & Hugueney 1974, fig.62; Friedman 1988, pp.51-52; Braunfels 1953, p.99; Lobel 1965; Schulz 1978, pp.440, 445; Shelton & Harvey 1986.

181 The first drawings of urban ground plan designs that have been preserved are from the famous theoretical treatises and urban ideal models of the 15th century, such as those by Francesco di Giorgio Martini and Filarete. (see pars.8.4, 10.3)

182 Braunfels 1953, pp.77-78. In the plan, which is not on scale and which does not appear to be drawn by a professional draftsman, the names of the future settlers are written in the various house lots.
This drawing may not be an urban plan design; it certainly illustrates that the concept of a ground plan drawing of a new town was not unknown to the period. For the creation of new urban structures planners generally must have had an idea of the plan form of the settlement. A large-scale spatial urban structure that was to be planned must in the first stage have been conceived as a specific piece of land, within which different areas were destined for different ownership and for different functions, such as roads, market places, moats and house lots. In order to have any overview, the planners must have had an idea of a ground plan. This ground plan must at least have been a concept in the mind of the planner, and was not necessarily drawn, although that would seem likely for the cases where various people were involved in the planning. The accurate description of the plan of Giglio Fiorentino clearly shows that the concept of the town plan was quite clear to the planner(s) of that town.183 (see appendix A and fig. 3.27)

With regard to the terre nuove it appears highly probable that drawings must have been made in the design stage. If it is correct that they were designed by use of the proposed polygonal geometry, which is rather complex, it seems almost impossible that it was conceived and recorded only for the mind’s eye, without the help of some sort of depiction. It seems possible that the actual town plan was set out on the basis of dimensions that were measured from the small-scale drawing and multiplied to the full scale. This method would only have been chosen if the plan drawing was accurate and on a specific scale that was considered large enough to take measurements from. According to Toker a similar method was used in the design for the Palazzo Sansedoni in Siena around 1340.184

As far as I can see, there are no disqualifying arguments against the possibility that the geometric figures were set out, either on the site or in a drawing, and were used, directly or indirectly, to arrive at the relevant dimensions in the town plans. The most likely option appears to be that the figures were set out at half scale on the site. But it is also possible that the figures were set out on a smaller scale or in a drawing (not on the site itself), and it is not impossible either, that they were set out on the full scale.

183 Similar but less accurate descriptions for new urban structures of roughly the same period regard the new town of Fontanetto Po (1323; see fig. 8.8) in Lombardy and the exact location of streets that were to be laid out in the new extension of the city of Breccia (1237), also in Lombardy. See par. 8.6.3; Panero 1979; Guidoni 1992 (II), pp. 34, 36, 354–56; Friedman 1988, pp. 31, 53–54, 137–143; Boerefijn 2005.

184 Franklin Toker studied a drawing in a building contract for the palazzo. The drawing appears to have been a copy of the actual design drawing, both in the scale 1 : 48 (this actually was 1/4 crizia : 1 braccio). Dimensions are written in the drawing, which probably were rounded off from irrational dimensions determined by geometric manipulations. (Toker 1983, pp. 80–85) So, the dimensions must have been measured in quarter crizia (just over one cm.) in the original drawing and be scaled up to braccia. If the same scale was chosen for the design of the plan of San Giovanni, the radiuses of the polygons would have measured up to 2.3 m. This would not be impossible, knowing that architectural designs were not necessarily made on parchment or paper but also on drawing floors. (see literature n. 179 above).
6.4.4 The motive for the use of design geometry in the terre nuove plans

Now it is time to ask the crucial question why such a complex method of design would have been used. As mentioned earlier, this question is left largely unanswered or even completely unasked in much of the literature. Only a few scholars in the broader field of architectural design in the period under consideration have addressed this question in their publications. Based on their work, a possible motive for the use of complex design geometry will be proposed in this paragraph.

In the final paragraph of section 6.4.3.1 it has been argued that the use of polygons or regularly divided circles in the proposed design method may have been inspired by the symbolic meaning of such figures. This is already a reference to a motive for the use of the specific form of the geometry. According to the relevant scholarly literature, however, there is also a more general explanation for the use of geometry in architectural design of the concerned period: in contemporary thought geometry was regarded as the divine method of the creation of the universe, and this method was imitated in order to achieve harmony with the divine creation.\(^\text{185}\)

From the philosophical writings of the 11\(^{\text{th}}\) to 13\(^{\text{th}}\) centuries it clearly appears that great importance was attached to the liberal art of geometry. This attitude is represented among others by the ideas of philosophers such as Robert Grosseteste, who found that only by the study of ‘[…] lines, angles and figures, the universe can be understood’\(^\text{186}\), or by the well-known image of God as the creator of the universe making use of dividers.\(^\text{187}\) Great importance was attached to the biblical text from the Liber Sapientiae, which says that God ‘hast ordered all things by measure and number and weight.’\(^\text{188}\) Inspired by this text, church father Augustine wrote in the early 5\(^{\text{th}}\) century ‘order is the means which determines everything that is created by God’ and ‘nothing exists outside of the divine order’.\(^\text{189}\) Since around the 11\(^{\text{th}}\) century, scholars in the highly important cathedral schools of Paris and Chartres were inspired by this idea, thinking they could gain crucial knowledge of the divine creation, and thereby of divine thought, by studying the mathematical laws of the natural world. It is in this context that the above-cited phrase from Grosseteste must be seen.\(^\text{190}\) In the 13\(^{\text{th}}\) century, Bonaventura wrote that nothing in the universe is unordered because God created it.\(^\text{191}\) So, the arithmetic and geometric order was considered to be an essential link between God and the natural world, which was (partly) apprehensible for mankind through the study of mathematics.\(^\text{192}\)

Mathematical order was also thought of as a precondition for beauty and fairness in art and human creations in general. Unlike in the present day, the goal of art generally was not considered to be the communication of personal or collective feelings, but rather the imitation of the, essentially perfect, divine creation.\(^\text{193}\)

The scholars that have proposed the use of complex geometry in ‘medieval architectural design’ mostly seem to have been inspired by this kind of thought, although they often did not explicitly mention this.

Now, is this supposed motive for the use of design geometry also valid for the design of the terre nuove? This question is all the more relevant since the terre nuove form the only proposed case of complex design geometry in new town planning in the period under consideration that has been found truly probable so far.

What the proposed design method of the terre nuove plans mainly does, is determine the diminishing length of the lots, with more or less detail in the different towns according to the different variations of the design method. There was, however, no inert need to establish these dimensions by way of such a complex geometric method. This is clearly demonstrated by the case of Giglio Fiorentino, where the length of the

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\(^{187}\) Black Friedman 1974; Zalzeln 1979, pp.153-156; Kraft 1985, p.38. This attitude can also be found clearly formulated in a poem by Alcuinus of Lille (c. 1128-1192).

\(^{188}\) (Tartakiewicz 1970, p.290).


\(^{190}\) ‘Ordnung ist des Mittels, durch das alles bestimmt wird, was Gott festgelegt hat’ (Augustinus, De Ordine I/10.28; see also II/4.11; II/7.21), ‘nichts steht außerhalb der göttlichen Ordnung’. (Augustinus, De Ordine I/10.28) Cited in Naredi-Rainer 1982, p.19. See also Gelernter 1995, p.75.

\(^{191}\) This attitude was also very important in the work of, among others, Thierry of Chartres, Hugh of St. Victor and Roger Bacon. Concerning the aspect of geometry which was believed to be part of divine thought, see Von Simson 1996, pp.25-31; Binding 1996, pp.189-200, 424-429; Edgerton 1991, pp.45-47, 288; Naredi-Rainer 1982, pp.19-20; Masi 1983, pp.157-159; Binding 1996, pp.189-193.

\(^{192}\) Bonaventura, Commentarii in quator libros sententiarum, Lib.II, dist.6, art.3, quest.1; cited in Tartakiewicz 1970, pp.60. In the work of, among others, William of Conches the same idea can be recognised.

\(^{193}\) Masi 1983, p.159. This was still an actual thought in the late 16\(^{\text{th}}\) century, as can be read in the work of among others Johannes Kepler (Dijkstraus, 1977, p.339), and in the early 17\(^{\text{th}}\) century, as can be read in Galileo Galilei’s The Assayer, which states that ‘Philosophy is written in this grand book, the universe, […] which […] is written in the language of mathematics, and its characters are triangles, circles, and other geometric figures, without which it is humanly impossible to understand a single word of it.’ (Crosby 1997, p.240; Gelernter 1995, p.122) Note the correspondence between this idea and the phrase from Grosseteste cited above.
but was only used as a proportioning device in order to dimension a plan which has a shape that is completely
different from the polygonal figure. This seems less strange, however, when it is considered that architects
from other periods and from the near past also used proportioning systems, such as the golden section or the
modulor, without making them explicitly visible in the resulting design. They mostly did so because they
believed that the product would thus be more harmonious in itself as well as in relation to nature. In essence,
it is a cosmological idea that motivates the use of such proportioning methods and that inspires their forms.
Much like these modern versions, the idea behind the design geometry of the Florentine new towns may have
been that it made the structure harmonious in its dimensions, in order to make life in and around it better,
as the structure is in better harmony with the cosmos that the designer has in mind. So, it was not so much a
question of trying to make the design beautiful, which in some modern cases may be an important facet of the
motive, but rather of making it harmonious, in itself and with everything around it and in it.

Another possible motive for the use of a complex geometric design method may have been more mundane.
Possibly, the designer of the geometric scheme was also aiming at personal reward and fame, or at least eman-
cipation of his profession. Geometry was a science that stood in high esteem, for being one of the seven
liberales with geometric figures and to do things in ways that seem unnecessarily complex to the pragmatical mind.

Therefore, the designer of the plan, whatever his professional background was, may have used the geometric
scheme in the design to show his learned skill, in order to emancipate his position towards his patrons or to his
social environment in general. The least one may conclude, is that the designer must have enjoyed to ‘play’
with geometric figures and to do things in ways that seem unnecessarily complex to the pragmatical mind.

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194 The question why the house lots have different lengths will be treated in par.8.5.2.1.
195 See par.6.4.3.1.
197 A similar desire for personal reward and professional emancipation via the application of geometry can be recognised in the so-called ‘sketchbook’ of Villard d’Honnecourt of c.1230. In the introduction Villard describes that the manuscript teaches among others ‘the art of drawing, or portraiture, as the science of geometry commands and teaches’. (Bechmann 1991, p.71) In several drawings one can indeed find geometric constructions. But many of these are rather un-pragmatic: they seem to have been introduced in order to give the drawings, for instance of animals and human figures, a greater validity and the knowledge of its maker a sort of absoluteness. According to Bechmann (1991, pp.312-316) the figures are secret mnemonic devices that stand for complex geometric methods used in architectural design, for instance of window tracery or church plans. This is, however, rather implausible. Unlike the geometry needed to design for instance vaults of polygonal apses, this geometry is not practical: it seems to serve primarily to emancipate Villard’s (professional) status and to validate his knowledge. (see Barnes 1989, p.48)
Unfortunately it is impossible to discern what the relative importance of the different possible motives was at the time, and to what degree people (planners, settlers and the general public) were conscious of them.

6.5 Complex geometry versus simpler methods of planning, and modern ideas on ‘medieval design’

After the foregoing paragraphs, it is important to keep in mind that complicated geometric methods of design were not a common feature in urban planning in the period under consideration. As far as I know, Castelfranco, San Giovanni, Scarperia and Terranuova are the only cases found so far where the use of such a method is really likely. Moreover, one should also keep in mind that many urban structures that were newly created were not even laid out on a geometrically regular plan. As has been described in chapters 1 and 2, many towns had rather irregular forms, in which the only regularity was that the lots were for the most part more or less rectangular and possibly of more or less the same size originally, and that the streets and plot boundaries generally tended towards straightness as long as they were not determined by older structures or hampered by obstacles.

For the many newly planned towns of the high-period of town foundation that have more regular forms, however, various scholars have proposed theories of complex geometric planning. With this, they favoured complicated geometric methods of design over other possible methods, such as arithmetic (or simple geometric) design with rational dimensions and proportions. In paragraph 6.3.3 the case of Grenade-sur-Garonne has been taken as an example since it featured prominently in literature on ‘geometric design of town plans in the middle ages’, but it may safely be assumed that in many other cases similar conclusions could be drawn after close study of the actual dimensions in the plans.

The problem here, in my opinion, lies in the inspiration of the various theories of complex geometric design: in most cases the hypotheses seem to have been inspired not so much by the form or the dimensions of the plans, but rather by preconceived ideas on ‘medieval architectural design’. It seems that many scholars have been eager to identify complex geometric design methods, not because they had concrete indications of the use of such methods, but rather because they were convinced that such methods must have been used. This conviction seems to have been largely based on the idea that in ‘the middle ages’ geometry was regarded as the key to the understanding of the divine creation, as described in the previous paragraph. More in general, it is commonly believed that ‘the medieval mind’ thought symbolically and mystically, which is regarded as a further indication that geometric methods must have been the basis of architectural design.

Although there is no such thing as ‘the medieval mind’, the generally held idea of the importance of symbolic thought is correct up to a certain point. But this does not mean that the planners in the 12th to 14th centuries could not think pragmatically or rational up to a certain extent, and that they could not lay out a town plan by simply measuring out rationally determined dimensions.

The idea of the great importance of geometry in the methods of design in ‘medieval architecture’ has often been wrongly understood. In the previous paragraph it is described how geometry was regarded as an essential source of knowledge of the Divine creation in contemporary philosophy. There are also written sources that testify of the importance that was attached to geometry as important element in the practice of architectural design. From these sources, it appears that simple geometric methods were used to determine the dimensions of elements of buildings such as pinnacles, jambs and the width of piers and walls, in order to achieve good proportions and statically sound constructions. Actually, to understand the importance of knowledge of geometry one does not need to know these sources, since it is perfectly clear that basic knowledge of geometry was necessary to design and construct polygonal buildings such as church apses, vaults (particularly the complex vaultings of churches in central and western Europe in the 14th to 16th centuries), window tracery or spiral staircases. Without the use of geometric methods, those features could never have been built with the regular forms that they have.

But, looking at the regular forms of buildings of that period, it is also perfectly clear that these buildings were often made up of repeating units of equal form, and from closer analysis it appears that many

200 Originally, the idea of geometric methods having been the basis of architectural design in ‘the middle ages’ was also supported by the romantic idea of masonic secrets and symbolism, which was also used to explain why the geometric methods of design were so complex and so difficult to reconstruct. (see par.6.2, n.13)


202 Such geometric methods of design are described in treatises from southern Germany such as the Geometria Deutsch of Mathias Roriczer (see fig.6.2) and the Fadenbuchlein of Hans Schmuttermayer, both of the late 15th century, and the early-16th-century model book of Lorenz Lacher (or Lechler). (Hecht 1970, pp.163-193; Shelby 1983, pp.210-213) It is possible that the prominence of such geometric design methods in these treatises was partly motivated by the strive to emancipate the professions of masons and architectural designers. (see above, n.199)
Castelfranco, San Giovanni, Scarperia and Terranuova seem logic. In fact, only the plans of the terre nuove

Close examination of various theories of town plan design by complex geometric methods in the period

6.6

dimensions were determined arithmetically, as round numbers in the current units of measurement.203 From the case of Giglio Fiorentino it clearly appears that this method was also used in the design of urban structures.204 In paragraph 6.3.3 it is argued that the plan of Grenade-sur-Garonne was also designed in this way, and in my opinion it is likely that most newly founded towns with regular orthogonal plans were dimensioned in a similar way.205

This method may be simpler than are design by use of complex geometry, but this does not automatically mean that it is therefore entirely pragmatical and without symbolical significance. The regular order of the orthogonal grid, based on a much simpler sort of geometry, may also have carried symbolical meaning. And when the dimensions were not chosen in random numbers, but in numbers of specific significance or in specific numerical proportions, it seems even more likely that there was some deeper meaning. In paragraph 8.6 this subject will be elaborated on, but here it can already be mentioned that this deeper meaning was largely similar to the meaning that is supposed for architectural design geometry in the period in general: reference to the order and harmony of the God-created universe.

For a long time it has been generally assumed that in ‘the middle ages’ geometry was the basis of architectural design, and that this basis was taken over by arithmetic in the ‘renaissance’.206 Bucher, for instance, followed this idea in the article in which he proposed the complex geometric design method for the plan of Grenade-sur-Garonne.207 He wrote that it was only in ‘late medieval theory’, that proportional relations came to be used in ‘rules of thumb’, as for instance, for the thickness of walls and piers of buildings in relation to their height. This proportional theory would have had nothing to do with the ‘generative or aesthetic design process’, which essentially worked with more complex geometric methods: ‘Linear measurements within the highly modular design system were thus used only as master values for the main modules.’ With this, Bucher means that from a module with a specific dimension, other dimensions were mutated only by geometric manipulation.208 As described in paragraphs 6.3.3 and 6.4.2, this is contrary to the evidence of Grenade-sur-Garonne and Giglio Fiorentino.209 Against such ideas as those of Bucher, convincing arguments based on exact measurements of contemporary buildings and drawings, are brought up by Hecht and others more recently.210

In my opinion, however, the supposed contrast between geometry and arithmetic as being completely different design methods of necessarily different periods has been exaggerated too much. This idea sprang from the more or less explicit view of history as divided into different periods, in this case especially regarding the difference between ‘the modern period’, as essentially characterised by rationality and clarity, and ‘the middle ages’, which are regarded as mystical, dark and mysterious. This view is, of course, a gross simplification which does no justice to historical reality. In chapter 11 it will be extensively discussed how this view of history stood at the basis of a largely wrong perception of the history of urban planning.

6.6 Conclusion

Close examination of various theories of town plan design by complex geometric methods in the period under consideration has shown that most of them appear rather unlikely, because they do not correspond well to the actual dimensions, they are too complex to have been performed at the time or they lack apparent logic. In fact, only the plans of the terre nuove Castelfranco, San Giovanni, Scarperia and Terranuova seem

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204 See par.6.4.2.
205 See also pars.6.1, 9.6.1. For other examples of towns of roughly the same period for which it is argued that they were planned in a more or less similar way, see literature in n.4.
206 This idea was spread among others by Rudolph Wittkower’s influential book Architectural principles in the age of humanism of 1949 (Wittkower 1949), in which it is claimed that architects from the ‘renaissance period’ mainly used the arithmetic proportions of the musical harmonies. This theory, however, has been proven wrong by among others Mitrović (2001). Mitrović also demonstrates that the ‘renaissance architect’ Palladio used geometric proportions, particularly 1:16. Note that this is exactly the relation that Bucher and others believed to be specifically important in ‘medieval design’, but which has appeared unlikely for various hypotheses on urban design in pars.6.3.2 and 6.3.3. Özural argues that the arithmetic proportions of the musical harmonies were also used in architectural design in the 14th century. (Özdural 2002, p.235)
207 See par.6.3.3.
208 Bucher 1972, pp.48–49.
209 In fact, it has been suggested recently, that it may well have been the other way around in some cases. According to Özural (2002, pp.235–236) dimensions that theoretically were the result of geometric design were in practice set out as arithmetic values that were calculated by approximation.
210 Hecht 1969–1972, esp.1971, pp.221–222. Hecht even goes as far as to deny the importance of geometry for contemporary architectural design almost completely: ‘On the building site as well as behind the drawing board, he [the gothic architect] used dimension and number as his only reliable tools’ (‘An der Baustelle wie am Reisbrett benutzte er [der gotische Architekt] als einzige seriöse Hilfsmittel Maß und Zahl’). In my opinion this is too bold, however, since I found that geometric methods of proportioning were most probably used in the plans of the terre nuove. More recent arguments for the use of arithmetically determined dimensions can be found in the collection of essays on ‘the practical application of geometry in medieval architecture’ Wu 2002. (pp.7–8, 69–68, 127, 159–174, 219–228).
to have been dimensioned by use of complex geometric methods, which were based on the dimensions of polygons. Most other regular orthogonal town plans seem to have been planned by use of relatively simple straight lines, right angles and arithmetical dimensioning in round numbers of current units of measurement. Irregular non-geometric plans seem to have involved much less careful spatial design, but most newly created towns of the period do contain at least some elements of planned spatial regularity.

The design method that appears to have been used for the terre nuove may have been derived from a contemporary method of dimensioning palazzo facades, and the underlying geometric figures may have been inspired by compass roses, geometric figures on astrolabes or circular models of the cosmos that were radially divided into twelve parts. Unfortunately there are no solid indications as to this matter. The designs were most probably first made in drawings. After that, the regular polygons may have been set out on reduced scale on a drawing board or a floor, from which the dimensions were measured and multiplied. But it seems more likely that they were set out on the site on a reduced scale (most probably half the scale) from where the relevant dimensions were geometrically multiplied. The polygons were probably not set out on the full scale because the long ropes that were needed probably were too elastic and too difficult to handle in order to accurately set out the geometric figures.

The motive for the use of the complex geometric design method of the terre nuove plans probably was to make them auspiciously harmonise with the order of the universe, which was believed to have been designed by God, making use of geometry. The fact that the geometric figures bear likeness to circular cosmic symbols and depictions of the Heavenly Jerusalem may also be interpreted as indication to this meaning. An additional motive may have been that the designer aimed at personal reward and fame or emancipation of his profession, as geometry was a very highly valued art. Unfortunately it is impossible to discern what the relative importance of the different possible motives was and to what degree people (planners, settlers and the general public) were conscious of them.

It appears that the importance of the use of complex geometrical methods in architectural design in the period has been generally overestimated. It seems that this has largely been caused by an over-generalised view of history in which complex geometry was the basis of architectural design in the essentially mystical ‘middle ages’ and in which arithmetic design became the common method in the essentially rational ‘renaissance’. This view of history as basically divided into different periods is, however, a gross simplification that obstructs the view of the actual historical developments in the past.
7 THE PLANNERS OF THE NEW TOWNS

In the previous chapters we studied the planning of new towns, and the people involved were broadly designated as ‘planners’; no specific persons, with names, professions and biographies were mentioned. In fact, not much is known about the people involved in the planning of new towns in the 12th to 14th centuries, because the sparse written sources concerned with the planning of new towns generally omit the subject of the spatial design. Even when a written source actually considers the spatial planning, it mostly is just in very general terms, such as ‘and the king had the town laid out’ or something similar.¹

Since there are so little sources on the subject, the relevant information is gathered in this chapter in order to get a general picture of what sort of persons could be involved in the planning of new towns and the way they functioned. The material will be largely treated thematically, according to the status or profession of the people involved. The three groups of new towns that were treated in the first three chapters of this study will be treated in separate paragraphs.

7.1 Professional designers?

With the creation of a new town in the high-period of town foundation, a plan would mostly have been thought out in more or less detail before the work on the site actually started. Whether or not, or to what degree, a design was laid down in a drawing or in a description does not matter here²: the point is that nearly always there must have been somebody who developed an idea in his mind, no matter how vague or clear, about what form the new town had to take on.³ This person, or possibly body of people, is designated as ‘planner(s)’ in this study.

In many publications of the last 150 years or so, scholars refer to the creators of the spatial layout of new towns form the 12th to 14th centuries as professionals from architecture and surveying or even as professional town planners. It appears, however, that this idea is not based on solid evidence. Many scholars just assume that, in general, professional designers planned the new urban layouts. For instance, Buselli claims that architects or military engineers made the designs for new towns in the 13th and 14th centuries.⁴ He does not explain why or how, he just takes it for granted, apparently because it seems logical to him. Other authors give specific attributions; but it appears that these mostly are not very reliable, as is shown by the following examples.

According to Enrico Guidoni the new town of New Salisbury in England, which was founded by the bishop of Salisbury in 1219, was designed by the ‘architect and mathematician’ Elias of Dereham. Guidoni gives no reference for this information.⁵ It appears that Elias of Dereham was a canon of Salisbury cathedral, and custos of the building fabric of this church. He has long been taken for the architect of the cathedral, as well as of other monumental buildings.⁶ But it appears that in fact he was a cleric and an administrator, and nothing indicates that he was an architectural designer.⁷ Guidoni also writes that ‘frate Elia, famosissimo architetto-urbanista’ led the re-planning of Cortona in 1247-53.⁸ This case is similar to the one of Elias of Dereham. Frate Elia (c.1175-1253) was a very important figure in the early Franciscan order in the 1230’s, and it was probably he who initiated the building of the church of S. Francesco in Assisi in 1228 and the church and convent of the same name in Cortona in 1245. In Italy he has come to be regarded as the architect of these buildings, as well as of other buildings of the Franciscans, but this is not based on historical sources.⁹ Guidoni does not mention a source. Therefore it seems that the identification of frate Elia as an urban planner is fiction rather than fact.

¹ For instance with regard to the town of Chiavari, founded by the City of Genova in 1178: ‘[...]'consules Genesii habe n anum mensurato, et in duobus annis, quibus annis anno MCCLXXVIII' (Pascoli 1942, p.182, n.24).
² See Boerefijn 2005.
³ For the process of spatial planning, see par.9.6.
⁷ Elias may also have worked as a goldsmith. His identification as an architect seems to date from the 18th century, when Horace Walpole confused him with an Elias the Engineer. (Harvey 1972, p.82).
⁹ According to the 16th-century artist-biographer Giorgio Vasari frate Elia started the building of the church of San Francesco in Assisi in 1228. (Vasari 1991, p.112) It seems that the idea that Elia was an architect is strongly influenced by the great faith that has been put in Vasari’s Vite for centuries, being one of the very few sources on Italian artists of the 12th to 15th centuries. (see par.7.6)
A certain Itier of Angoulême is mentioned by some authors as the spatial planner of New Winchelsea in southeast England. It is claimed that Itier was an architect or even a town planner, and that he had also taken part in the planning of several bastides in Gascogne. It remains unclear on what source this is based, however. I have not found the name anywhere else, and therefore the claim may be doubted.

According to Friedman the new town of Villareal, which was founded in 1271 north of Valencia in Spain, was most probably designed by a building master from northern Italy named Nicolosa. Friedman based this on the fact that Nicolosa worked as a military engineer for the founding lord of Villareal, James I of Aragon. It is known that Nicolosa made a plan of attack on a town not far from Villareal in 1254 and that he built a wooden bridge in 1280, both for the rulers of Aragon. But the claim that he designed Villareal remains largely conjectural, much as the other attributions of urban design to professional architects and town planners above.

The same is true for the attribution of the design of Fribourg in present-day Switzerland, which was founded by Duke Berchtold IV of Zähringen in 1157, to a certain Lambertus, mansionarius del Fribor. Divorne believes that he was a professional building master and that he planned the town, because he was described as mansionarius from Fribourg. Once again this is a highly conjectural theory, since the term mansionarius generally means sacristan or holder of a domain or a farm, and since the source does not clearly identify him as the designer.

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10 Morris 1972, p.88; Briggs 1927, p.77. According to Morris Itier was one of a team of three. One of the others was Stephen of Penhurst, 'warden of the Cinque Ports', a sort of maire of Winchelsea and four other towns on the southeast coast of England. The third man was Henry le Waleys, who primarily functioned as financier of the new creation of the town. Lilley (2005 II, p.225) mentions, following the original documents in the Calendar of Patent Rolls (1281-92, 3), that in 1281 the king appointed Stephen de Penecester, Iterius de Engolisma and Henry le Waleys '[...] to assess certain plots of land at Ihamme [...]', where the new town was to be founded. (Lilley 2005 II, p.225) It is not clear, however, to what extent they contributed to the planning of the town.

11 Friedman 1988, pp.110-111.


13 Besides that, the source is rather unclear. Divorne (1993, p.181, n.153) only refers to a source Les origines de Fribour by Pierre de Zurich.
All in all, there is not one case that proves, or even strongly suggests, that professional architectural designers or town planners created the layouts of new urban structures. The cases treated above clearly illustrate that the general assumption that such professionals designed the new towns and town extensions in the 11th to 14th centuries is not based on historical evidence. It seems that the assumption is rather based on analogy to the modern practice of town planning. This analogy, however, does not appear valid in this respect, as far as the historical sources demonstrate. In the following paragraphs it will be described what the historical sources actually do tell.

### 7.2 Various sources: ‘dessignatores’, ‘sapientibus’ and ‘incegnerii’

When the written sources of the period mention anything about the designers or the process of design, it mostly is in narrative sources of later date, which often give the founding lord the credit of the design.14 The layout for the new town of Nogaro in southwestern France, for instance, is reported to have been drawn up at the instructions of ausûndus, bishop of Auch and founder of the new Sauvêét around the year 1055.15 Concerning the town of Victoria, which emperor Frederick II founded before the gates of Parma during a siege in 1247, a chronicle reports that it was designed by Frederick himself.16 Likewise, a contemporary chronicle describes the way the new town of Ciudad Real in Castile was set out by its founder King Alfonso X in 1255; he ‘[...] ordained how a town should be settled there and ordered that it should be called Villa Real and set out the streets and signaled the places where the enclosure should be made [...]’.17 For the new town of Manfredonia King Manfred of Apulia and Sicily (1258-66) is reported to have traced the walls and streets and to have begun the building of the town.18 A Napolitan nobleman called Mariano Capece would have been assigned to give direction to the building of the town, which was undertaken by more than 700 labourers.19

Fasoli studied an enormous number of archival documents concerning new town foundations in north and central Italy. In these documents she found that the delimiting and division of the area for the new towns as well as the actual building was often directed by people who are described as suprastantes (executives), sometimes called designatores (demarcators) or incegnerii (engineers). But the actual inauguration, as it may rightly be called, was mostly done by the consoli (consuls) or the podestà (a sort of mayor) of the founding commune, by their own hands tracing the limitation, just as had been done in ancient Roman times.20 From this it may be deduced that it is well possible that the written sources which mention founding lords as creators of the spatial layout of towns must be understood in the sense that they traced the plan in the inauguration ritual, rather than that they actually planned the forms of new towns. Considering their status, it seems quite unlikely that bishops, dukes or kings designed the specific layouts of the towns they founded. Probably, they commonly assigned an officer to oversee the job. Lords of lower rank, like Benvenuto da Carturo, may have lead the operations themselves, but it is well possible that they assigned others to actually create the specific spatial layout.

The term designatores probably does not mean designers, as it might suggest; the word rather indicates the work they were supposed to do: to demarcate (designare) the different pieces of land in the new town. It seems likely that these designatores were in some way experienced in surveying; possibly they even were professional surveyors.21

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14 The same is true for sources describing the planning of important buildings such as monasteries and churches. See Binding 2002, pp.101-104.
18 Franchetti-Pardo 1994, p.367; Valente 1980, pp.15-21. This information comes from the chronicle by Matteo Spinelli, which was written some decades later. ‘[...] Re Man- frido fue impuesto a disegnare lo piedamento de la mura e a quattrare le strade de Manfredonia [...]’. (Valente 1980, p.18) Other cases of identification of founding lords as planners in ancient sources regard Freiburg im Breisgau and Itzehoe in Germany. (See Friedman 1988, pp.149, 265, n.1; Willett 1995, p.118)
19 Valente 1980, pp.15-21. According to the Dizionario Biografico degli Italiani (1975, p.423) it is, however, unlikely that Mariano (or Marino) Capece (c.1230-1268) was the master builder of Manfredonia, since none of the contemporary sources, which are relatively many on his person, does indicate so.
20 Fasoli 1992, p.202. See also par.9.5. There was, however, not always such a clear distinction between lower functionaries plotting out the plan, and higher officials for the ceremonies: according to Higounet the land of the new town of Villafranca di Verona is reported to have been divided into lots by a consul and a procurator of the mother city Verona in 1186. (Higounet 1989, p.221).
21 According to Comba (2004), polestà’s of city-states were responsible for the foundation of many new towns by North Italian cities in the 13th to 14th centuries. The terms of office of these magistrates were limited, and therefore they often served different cities consecutively. Comba believes that they could therefore have spread specific experience in town foundation from the one city-state to the other. The evidence of their involvement in new town planning is, however, very thin. Comba’s main indications appear to be that various new towns were named after polestà’s (for instance the Novarese foundations of Borgo Agnello after polestà Zucchoni de Agnello and Borgo Lavezzaro after Perachia Lavezzius).
The documents that were made up in connection with the creation of new towns sometimes mention people who received the general responsibility for the realisation of the town foundation. Mostly, it regards persons in general organisational or administrative functions rather than people from the building professions or surveyors, who most present-day scholars seem to have hoped to find.

The new town of Monaco, for instance, is reported to have been built in 1215 by Fulcho de Castello, who was consul of the city of Genova, and his men.24 For the re-foundation of Haldersleben in northern Germany in 1224, archbishop Albrecht II of Magdeburg entrusted the operation of rebuilding and re-settling the town to a high officer at his court, bailiff Gerhard, who was also known as an able military leader.25 According to the ordinances that were edited by King Jaime II in 1300 for the re-colonisation of the island of Mallorca, the lowland of the island was to be parcelled out anew by men who are indicated as ordenadors and stablidors. These men also received the responsibility to lay out fourteen new towns of a hundred families each. Five of these men are known by name, from which it appears that they were administrators in the king’s service rather than technicians.26

An illustrative and relatively well-documented case is described by Beresford.27 At the parliament of autumn 1296 in Bury St. Edmunds King Edward I of England summoned 24 towns ‘[...] to elect from among your wisest and ablest who know best how to devise, order and array a new town to the greatest profit of Ourselves and of merchants.’28 This was a peculiar call, because this seems to have been the first time that an English king organised such a colloquium on the issue of town foundation. It is unknown whether this call really led to a successful meeting. Not much later, however, specific persons were summoned from London and twenty other English towns to come to the king to discuss the rebuilding of the town of Berwick-upon-Tweed, which had been largely destroyed in the war with Scotland. The colloquium met at Harwich, where it was decided that a smaller group from these men would go and execute the project. Unfortunately, no details of the discussions have survived. It is clear, however, that not all men were eager to set to work: one of them had to be excused and two others sent substitutes, one of whom was deaf and ineligible. Nevertheless, a castle and a town were built which served the king’s army to keep the Scots under control and which served the merchants and the king, as lord of the town, as an economic centre.29

The motive for the colloquia must have been that the king wanted to make the towns to function as well as possible, and therefore he wanted to draw on the experiences of existing towns. Most of these existing towns were venerable and well-established, but among them was also a new town of recent creation: New Winchelsea, which was re-founded and rebuilt only 15 years before, in 1281. (fig.7.1) From this place came Thomas Alard, who was one of the leading merchants in the town, holding several properties within it. Since Alard had been a prominent citizen of Winchelsea in the period of its re-foundation, he had some direct experience of town plantation, was Henry le Waleys. At the time, he was one of the most distinguished members of the merchant community of London. In that city he had been alderman and even...
Lord Mayor for some years, during which he showed to be able to take the initiative for urban building projects. Among others, he had organised the creation of a new market place, a jailhouse, a weighing bridge, a conduit and a housing project. He also was a trusted administrator and diplomat for King Edward, already in 1274. In 1281 he served in a commission, assigned by the crown to lay out the town of New Winchelsea. The assignment for that operation was formulated like this: ‘You shall plan and give directions for streets and lanes, and assign places suitable for a market and two churches.’ When Le Waleys was called to the meeting in Harwich, he had just returned from a mission to Gascony in the name of the king. He was very much at home in Gascony, since he traded in wine and he had been mayor of Bordeaux in 1275. There is no doubt that Henry must have known a number of the many new towns that were founded in Gascony by the English kings and their officers. He himself had invested a large amount of money in a ten-year farm of the tax collection in six of these bastides.

Other cases of similar consultations of ‘wise men’ for the foundation of new towns are Carnisprivium, already discussed above, and a new town near the monastery of Petersberg in upper Saxony. Abbot Dietrich von Landsberg called together ‘all his relatives and several wise men’ there to consult, because he wanted to build a rivitas. In analogy to the cases of Berwick and New Winchelsea, these ‘wise men’ may have been men from the burgesse elite of successful older towns. For the re-foundation of Fontanetto Po in northern Italy, the responsibility was given to a committee composed of the potestate, the local officer of the marquis of Monferatto, and seven sapientes (‘wise men’) from the commune of Fontanetto.

It may be concluded that the various documents indicate that matters of urban planning, including the spatial design, were entrusted to people who did not have a specific professional background in architecture or town planning. The men who were asked for the committees for Berwick and New Winchelsea seem to primarily have been selected because they had experience with urban life and the way it would best be organised; among others, but not solely, in spatial sense. And although experience with the creation of new towns must have been an advantage, it seems that the ability to conduct affairs was most important. Commissioners such as Thomas Alard and Henry le Waleys were organisers and administrators who knew from experience how a town would best be organised. They were informed men, so it may be assumed that they knew how to plan a basic spatial layout, but their prime knowledge and interest must have been with money, making investments and getting returns, rather than with street lines and plot boundaries. For the foundation of abbot Dietrich the case is much less clear, but there too, it does not appear that professionals from the discipline of architecture, land measuring or town planning were consulted. As for some other new towns, it is only known that ‘wise men’ – which mostly seems to have meant men from the higher strata of society that were eligible for governmental functions – were involved. The designators that were mentioned in documents regarding some North-Italian town creations probably were not designers but surveyors. In the case of Carnisprivium, however, next to 16 ‘wise citizens of the mother city of Parma, four ingegneri were to take place in the committee that was to choose the exact site, to delimitate the area of the town and to fortify it. So, here it appears that professional ‘engineers’, probably builders of all kinds of constructions for military defence and offence, were explicitly involved in the siting and laying out of a new town. It seems likely that such (military) engineers must have been involved in the creation of new towns more often, particularly when these towns were planned with significant fortifications right from the outset.

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31 I do not know any details on these building operations, but it seems likely that Henry did not do this for the city’s profit only, but also for his own, because officials often used to operate as entrepreneur at the same time. In the rebuilding of Berwick Henry also had a personal share, since he took up some building plots on which he had a number of houses built, and he had his own quay for the transfer of goods there. (Beresford 1967, p.7)
32 Beresford 1967, p.19; see also above n.10. Since the work did not progress much, a new commission was installed three years later, in which the Mayor of London, Gregory of Rokesley, was added to the team. (Morris 1972, p.88)
33 Beresford 1967, pp.6-10. For the new towns in southwestern France, see ch.2. The towns Henry farmed the tax collection of, were the royal towns of Beaulieu, Beaumont-du-Périgord, Fonroque, Labastide-Villefranche (de Monestier), Lalinde and Molières, which were all founded not long before.
34 Dietrich called together ‘[...] enmes sus consangues et plus prudentes vinos ull consulium approbus [...].’ (Schwineköper 1980, p.137) It is not impossible that prudentes vinos were entrepreneurs in settlement creation, so-called locatoren. (see par.7.3)
35 Paner 1979, p.107. The commune of the small town was probably given such a great role in the committee because the commune and members of it owned (part of) the land on which the town was to be rebuilt, for which reason their cooperation was absolutely necessary.
36 In my opinion it is wrong to translate ‘prōfondhommes de plus sachauz et plus sufissauz’ as ‘besonders kennisreiche und geziigte Fachleute’, as Schich (1993, p.90) does. Fachleute would mean professionals in town planning or town building, but that is not what the document says, it rather says ‘most wise and able gentlemen’.
37 On the involvement of surveyors, see par.7.7.
38 See also par.7.4.
### 7.3 Settlement entrepreneurs: ‘locatores’

In the process of colonisation of central and eastern Europe, especially the northern zone of present-day Germany, Czechia, Poland and Lithuania, landlords who wanted to develop their territories into more productive lands often assigned large areas to a sort of property developers. Such an entrepreneur would be called locator, or sometimes promotor, cultor or magister incolarum. These locators received the fee farm of a specific area of land and the privileges that were newly attached to it from the founding lord, on the condition that he would create a new settlement. Subsequently he worked out the plans for the actual plantation of the new settlement. In order to make profit, the locator rented out the lots he devised, and usually he got the hereditary right to be bailiff (advocatus, Stadtvogt) in case the new settlement was a town, or village head (scultetus, Schultheiß) in case of a village. Of course, villages were more numerous than towns. Further, he also received a considerable part of the land for himself as well as special privileges such as the rights on milling, smithing, fishing, hunting, running an inn or a bathhouse, and selling beer, bread and meat.

In this way, by farming out the land and the attached privileges on the condition of settlement creation, the lord of the land limited his risk and effort. Meanwhile, he would profit, if it all worked out as planned, from the new settlement by the collection of admission fees of the settlers, part of the rents, most taxes and tolls, as well as from income from justice. Sometimes the locator also had to pay an admission fee, probably particularly when there was competition among locators. In the contracts between the landlords and the locators one may sometimes find a clause that guarantees the lord the return of all the rights on his land in case the settlement might not become a success, for instance if no substantial number of settlers would take up properties within the year.

The locatores commonly were entrepreneurs who had money and effort to invest, and who necessarily enjoyed the confidence of the landlord. It seems likely that they preferably also were experienced. This appears from the grant of a new settlement by King Přemysl Ottokar II of Bohemia to the locator Conrad von Löwendorf. The king states that he has chosen Conrad to lead the project ‘[...] since We have heard that he is the right man for such things and is experienced [...]’. The locators often seem to have come from the lower nobility or from the higher urban classes, but in particular cases appear to have been cleric, tailor, baker, chemist and farmer. Sometimes, the son of a locator became the locator of another new settlement elsewhere.

A case on which there is relatively much information, is the (re)foundation of the town of Liebenwerde (Kęty). An entrepreneur called Simon, in cooperation with his two brothers, had planned to transform a village into a town around 1261, at the invitation of Duke Wladislaus of Opole (Silesia). Some years later, however, the privilege was bought from Simon and his brothers by a notary called Arnold and his two

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41 Aubin 1966, pp.408-431.
42 Bartlett 1993, p.143.
43 In the paragraph above it is mentioned that Henry le Waleys farmed a number of bastides for a ten-year term. As a business transaction, this is more or less comparable to the locator enterprise. Important differences were that Henry only got involved some years after the bastides were created, and that his participation was temporary.
44 Bartlett 1993, p.142. Another locator who is likely to have been active in more than one place is Wilhelm von Reichenbach, who probably acted as locator for the duke of Silesia in both the towns of Reichenbach (Rychbach) and Fürstenwald (Bierutów) around the middle of the 13th century. (Helbig & Weinrich 1970, Bd.II, p.81)
knightly brothers Rüdiger and Peter. Arnold was a cleric coming from a German noble family, who was in the service of the duke, for whom he had worked among others on the drawing up of locatio charters for other projects. After he had bought the privilege, he created a town on the basis of the older village in 1277. Two additional villages were planted in the surrounding area that belonged to the same territory. Some years later Arnold received additional privileges from the duke, while remaining in his service. In 1292 his brothers also received the locator-ship for the new town of Zator from the duke, as an expression of gratitude for the service that Arnold had rendered to him. According to Kuhn, it is likely that high (legal) officials in the service of other princes in the colonisation areas east of the river Elbe were similarly rewarded and thus became settlement-entrepreneurs on the side.46

The ‘locating business’ could be very profitable, if only enough industrious settlers would come and stay in the new settlement. But apart from financial gain, the locatores could also improve in social status. As village head or bailiff, the locator actually was a vassal of the landlord, and sometimes this meant that he would effectively become absorbed in the nobility.47

From the previous example it already appeared that there could be several locatores for one new town foundation. For the case of Friedland the documents mention four locatores, and for Prenzlau there appear to have been no less than eight promotores in 1234. But it could also be the other way around: that several villages and towns were created under the same locator.48

All in all, it is obvious that the locatores did not have backgrounds as professional architectural designers; they rather were men with organisational and administrative abilities and an entrepreneurial spirit who could be trusted by the lord of the land.49 It is clear, however, that the land on which the new villages and towns were founded, had to be measured and allotted, not only in house lots but also in gardens and fields.50 It is likely that this was done by men with experience in surveying, although the written sources barely mention them. One of the scarce exceptions is a mensurator by name of Gregorius, who is mentioned to have measured out the territory of the village of Schönwald for the duke of Opole in 1269.51 Another indication may be recognised in the name Conrad Spannseil, who was the locator of Conradesdorf in northeastern Germany. Spannseil possibly means ‘measuring rope’, suggesting that the man was experienced in surveying.52

Entrepreneurs in settlement creation similar to the locatores also appear to have existed in Spain. There they were commonly called populatores, and it seems that their activity was limited to villages rather than towns.53 According to Divorne, locatores were also active in the foundation of the so-called Zähringer towns in southern Germany and northern Switzerland; but the evidence is very thin.54

There is one interesting case of an entrepreneur taking on the building of a new town in The Netherlands. Arent toe Boecop, who was steward of the duke of Gelre, created the new layout of the town of Elburg in 1392. (fig.7.3) Arent had bought a piece of land next to the existing town, and he obtained permission from his lord to extend and to rebuild the town, and to resettle the population of the surrounding area. From documents it appears that the settlers did not rent the house lots, as was usual in the period, but that they had to buy them. It is not entirely clear, but it seems that Arent largely sold his land, as well as a house, to the town and its mayors, from which the settlers bought the lots. In order to be able to buy the land, many settlers had to lend money from Arent and the mayors against a yearly rent.55 All in all, this must have been quite a lucrative enterprise for Arent and the mayors. The story was described around a century later in a chronicle. ‘Thus he had a piece of his land […] marked out as large as he thought fit, so that the town would be in right

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46 Kuhn 1984, pp.97-102. Similarly, this may have been the case in 1257, when the Bohemian royal mint master Eberhard became locator for the new town of Prague, the Malá Strana. He appears to have fulfilled this new function next to his position as mint master. (Hoensch 1989, p.103). The locator of České Budějovice in 1265, was also to become mint master later on, at Kutna Hora.
47 Zientara 1990, p.43.
48 Higounet 1986, p.289. See above, n.44.
49 The aspect of reliability probably was the reason for the fact that the locatores were often chosen from the circle of attendants or even relatives of the landlord. An additional motive may have been to keep the profits within the circle of relatives. For instance, it is likely that for these reasons Heinrich Fleming, bishop of Ermland (Warminia in Prussia), chose his brothers Johannes and Gerhard as locators of the towns of Braunberg in 1279 and Frauenburg in 1310, respectively. (See Hammel-Kiesow 1995, p.265, n.6)
50 Not only the villages, but also the new towns were accommodated with significant areas of agricultural land, particularly in the lands east of the Elbe. (see par.9.23)
51 Higounet 1986, p.255. See also par.7.7.
53 Bartlett 1993, pp.117-118, 142.
54 Divonne 1993, pp.94-174.
55 There is a document which records that the duke ordained Arent to lay out the town anew. It seems likely, however, that Arent had come up with the idea and only received the order in answer to a request from his side. With the rebuilding of the town he must have invested a lot of money and effort, but he must also have received considerable returns, while meadowland was turned into valuable building land on which many inhabitants of the surrounding area were more or less obliged to settle. (Rutte 2000, pp.2-4; Rutte, Visser & Boerrefijn 2004, pp.122-123, 127-128)
proportion to the existing street of the Holy Ghost, and he had this town ordered right square, and the streets marked through it, and a stream directed straight through the middle of the town into the sea, and he had a ditch dug surrounding it and had it walled.\textsuperscript{56} Figure 7.3 clearly shows the regularity and symmetry of the plan; the only elements of irregularity being the older street with older plots adjacent to it in the western part of the town. The regularity of this town is unequaled in the Low Countries before the late 16\textsuperscript{th} century. Therefore one might expect that the design was made by someone with a special consideration for aesthetics, possibly a professional designer of some sort, and one might also expect that the plan was set out by a professional surveyor. But, once again, the written sources do not tell so.

\textsuperscript{56} "Soe hefft hy een stukke landes van syn erwen, dye hy in dat Oldenmocch hadde lyghen uyt laten sticken soe groot als hem dochte, dat dye stadt nae proportie van dye Hjillighe Ghistes strate solde wessen und hefft dye voirs Stadt recht viercant ghordirn und dye straten dair in dair laten sticken ende eijn beke dair recht myddel durnich dye stadt hent in dye zet gheluydet und hefft dye groffe dairenme laten graven ende bemuren." (Westerink 1961, p.23)
7.4 The planners of Edward I’s new towns in Wales

Much the same as for other regions, there is very little information on the planners of the new towns in Wales. The only case for which the name of a planner is mentioned in the written sources, is Bala. Around 1310, King Edward II ordained his justiciar in the region, Roger de Mortimer, to order (‘ordinare’) the new town, after the district had been harassed by gangs that robbed travellers.57 Once again it is an administrative official, which the sources indicate as planner, and nothing is mentioned on any consultation of a professional surveyor or an architectural designer.

It is likely, however, that the boroughs of King Edward I, or at least those that were to receive defences from the very beginning, were planned at least partly by the people who the king had appointed to take care for the construction of the castles and defences. In places such as Flint, Rhuddlan, Aberystwyth, Conwy, Caernarfon and Beaumaris, which were begun as part of the English military campaigns of 1277 and 1282, large numbers of men had to be encamped safe from enemy attack.58 It is known that the building of castles and defences was begun simultaneously with the encamping at these places, and it seems likely that the defences for the camps were planned to become the defences of the new boroughs.59 Therefore, it is probable that at least the layout and form of the defences, whether built of earth or of stone, were planned by the king’s military engineers, possibly according to the king’s ideas.60 It is not clear to what degree the knights and clerks of the king’s household, who were given great responsibilities as overseers of the works, may have also been involved in the design.61 Of course, the form of the circuit of walls and the place of the gates therein determined the layout of the main streets within the defences. So, in absence of clear sources, it seems sensible to assume that the king’s engineers and oversees planned the defended castle towns.

Fortunately, there is quite some information on the people who were employed by Edward I on the building of the castles and defences in Wales. Much of this information comes from the documents of The King’s Works, which have been thoroughly studied by Taylor.62

In July 1277 an ingeniator Richard of Chester was master of the works at Flint. In 1301-03 he was working there again on the repair of the castle.63 The king’s clerk William of Perton initially was ‘keeper’ of the works. Master William of March and a knight named Peter of Brampton lead the work of the diggers on the defences. It seems that the planner of the town, or at least its defences and thereby its basic structure, must be sought among these men.64 In the very first stage the area within the defences seems to have been a military camp rather than a town, but most probably it was already envisaged to become a civil settlement.65 Burke and Lavedan ascribe the design of Flint and Caernarfon to Richard of Chester, but they do not give good arguments why they do so. It seems that they were eager to ascribe the urban design to a person with an architectural background.66

In 1277-78, an ingeniator regis (‘king’s engineer’) named Master Bertram, who probably was of Gascon origin, was responsible for the works at Rhuddlan. It seems that the planning of the castle may be ascribed to him up to some extent, and this possibly also holds for the defences to the southeast of it.67 The present town of Rhuddlan, to the north of the castle, may be some years younger,68 and therefore it might have been created under Bertram’s successor on the construction of the castle from April 1278 on. It concerned engineer and master mason James of St. George, whose role on the various works in North Wales will be discussed below. The king’s clerk William of Perton was keeper of the works at Rhuddlan as well as at Flint in the first stage, but in late 1277 he was succeeded by Nicholas Bonel. In the summer of 1279 the clerk

57 Beresford 1967, p.557.
58 In the cases of Flint and Rhuddlan the number of men was at least several thousands. (Quinnell & Blockley 1994, p.219)
59 Although this probably was not eventually realised in that way at Rhuddlan, as explained in par. 1.7.2.
61 It regards people such as knights Eustache de Hache at Caernarfon, John de Bevillard at Conwy and William de Cicon at Rhuddlan and Conwy, and the clerks William de Perton and Nicholas Bonel at Flint and Rhuddlan, John of Candover at Conwy, John of Dunster and Hugh of Leominster at Caernarfon and Harlech and Walter of Winchester at Beaumaris. (Coldstream 2003, pp.39-31; Lilley, Lloyd & Trick 2005, s.v. Flint, Rhuddlan, Conwy, Caernarfon, Harlech and Beaumaris, Discussion, Early history)
63 Taylor 1963, pp.309-318. Later on, in 1283-84 Richard of Chester was working together with Master James of St. George at the works at Caernarfon castle, while in 1284-85 he was contracted for the carpentry at Conwy castle and in 1301-04 he supervised the works at Rhuddlan castle. (Taylor 1963, pp.393, 344, 356)
64 Lilley, Lloyd & Trick 2005, s.v. Flint, Discussion, Early history; Lilley, Lloyd & Trick 2007, p.289; Lilley, Lloyd & Trick make no mention, however, of Richard of Chester in this context.
65 See par. 1.7.1.
66 Burke 1971, p.51; Lavedan & Hugueney 1974, p.113. Burke even calls Richard of Chester ‘town planning expert’, without motivating this designation. Lavedan hints at a certain similarity between Flint and Caernarfon in the layout of the streets.
67 Bertram later also worked at Bere (in 1283 according to Taylor, but it seems more likely that it was in 1284), probably directing repairs at the castle, and at Caernarfon in 1285, where he died in that year. (Brown, Colvin & Taylor 1963, pp.1036-1037; Taylor 1987, p.37)
68 See par. 1.7.2.
William of Louth, an important figure in the king’s wardrobe, was ordained by the king to make a survey of the town. William of Perton, James of St. George and the townspeople were instructed to help him. This event may have marked the shift from the area southeast of the castle to the smaller area north of it. William of Louth is also mentioned to have been involved as supervisor in the foundation of the bastide of Cussac or Cubzac in Gascony.

The work at Aberystwyth was begun in August 1277 under master mason Henry of Hereford, but he was soon replaced by a Ralph of Broughton as ‘keeper and viewer’ of the works, under overall supervision of a knight named Roger de Molis. It is known that under Ralph of Broughton in 1278 stones and timber were shipped in for the works on the castle and the town, which at least included the making of a town ditch. By that time the town must already have been partly built up, as it was chartered in December 1277.

In the early stages of the work at Caernarfon a Master Mannasser de Vaucoleurs lead the earthworks being carried out for the castle and the town, under the supervision of the king’s household knight Eustache de Hache and the clerk John of Dunster. It seems that a basic layout for the town and castle must already have been determined by then.

From 1278 on Master James of St. George (Magister Jacobus de Sancto Georgio, c.1235-c.1308) was made chief of the most important royal building operations in North Wales. He became supervisor of the works on the castles of Rhuddlan, Conwy, Harlech and Beaumaris. He was also controller of the works at Caernarfon, Flint, Aberystwyth and Builtin, and he directed the works at Hope, Criccith, Bere and Dolwyddelan. Apart from that, he received various smaller assignments elsewhere, among others in Gascony and Scotland. He was alternatingly called ingeniator, cementarius or mazun, but from 1282 he carried the title of ‘master of the king’s works in Wales’. These professional titles suggest that it is highly likely that he was the main designer of the buildings and defences he worked on as supervisor right from the outset of the works, such as Conwy and Beaumaris, and probably Harlech and Caernarfon.

James of St. George was probably named after the castle of St. Georges-d’Espéranche, near Lyon, the construction of which he had directed between 1268 and 1274 as chief household architect of Count Philip of Savoye (1268-85). This count sent him off to enter the service of his nephew King Edward. In 1278 master James was on his way to Wales ‘[...] to ordain the works of the castles there [...]’. Until 1298 he worked in Wales. In the same period there were also other masons and carpenters from Savoye working on the king’s works in Wales, some of whom had also worked at St. Georges.

Master James was schooled in his home country of Savoye, where he learned the trade from his father, who was a master mason, working among others on castles and town walls at Chillon and the new towns of Yverdon and St. Georges-d’Espéranche. The designs of the castles he worked on are of different types and do not follow one specific style. It is clear that forms, types and techniques were adapted to specific functions of the castles and to the circumstances of the different sites. As described in chapter 1, the same can be said for the defences and layouts of the towns that Edward founded in North Wales. As with the castles, the circumstances of the sites constituted a factor of decisive importance for the layout of the towns.

In July 1290, James was made constable of the castle of Harlech and mayor of the borough. It seems that he was designer and master of works of the castle, and by making him constable, the king probably meant to express his gratitude to him. He kept this function until 1293, while no serious construction work was undertaken on Harlech castle any longer after 1291. Already in 1284 James and his wife were rewarded with a pension, and in 1295 he received a grant for life of the manor of Mostyn in northeastern Wales. In the

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69 Lilley, Lloyd & Trick 2005, s.v. Rhuddlan, Discussion, Early history
70 See par. 7.2.
71 Tout 1920-1933, vol. 2, p.65; Beresford 1967, pp.55-56. William of Louth (c. 1240-1298) was a close associate of King Edward. He was dean of St. Martin the Great in London and archdeacon of Durham cathedral. From 1280 to 1290 he was keeper or treasurer of the king’s wardrobe and after that he was elected bishop of Ely. (Martin 2004)
72 Lilley, Lloyd & Trick 2005, s.v. Aberystwyth, Discussion, Early history.
73 Lilley, Lloyd & Trick 2005, s.v. Caernarfon, Discussion, Early history.
75 Brown, Colvin & Taylor 1965, p.204. If he was not the designer, he was at least one of the main designers, as it seems that King Edward had an important role in the design of the castles himself, and that other masons working on the projects and knights and clerks from the king’s household who were given important administrative roles in the places where castles were built may also have had influence on the designs. (Coldstream 2003)
76 1.7, 1.8.1.
77 Taylor 1997, pp.10-11; Metternich 1994, p.44.
78 Brown, Colvin & Taylor 1965, p.204; Coldstream 2003, p.32.
79 Brown, Colvin & Taylor 1965, pp.204-205, 106-109. Some of these men seem to have come to Wales in the following of Count Amadeus of Savoye (1285-1323), when he fought in the king’s army in 1277 and 1282.
80 Coldstream 2003, p.21.
81 See par. 1.7, 1.8.1.
82 Lloyd 1986, pp.17-18; Brown, Colvin & Taylor 1965, p.204.
history of the king’s works up to the 16th century there is no other craftsman who was entrusted so much responsibilities or who received so much of the king’s favour.83

It is only seldom that the names are known of people involved in architectural design up to around the 16th century, and it is even rarer with regard to urban planning. Hence, it is quite remarkable that the name of Master James of St. George and some details about his life and work are known. This seems to have brought a number of scholars to unreservedly take him for the planner of the towns associated with the castles he worked on.84 One must, however, be aware of the fact that James was primarily a specialist in fortifications, with which his prime concern was certainly in the construction of the castles. It is completely unclear to what degree he was also concerned with the creation of the towns. It seems most likely, however, that he was at least concerned to some extent at Conwy, Beaumaris and possibly Caernarfon and Harlech. If he were actually involved with the building of the towns, it would have been firstly with the building of the gates and walls rather than with the layout of plots and streets. Hence, one should be reserved with regarding him as the planner of the towns, and certainly beware of seeing him as a typical town planner of the period.

The conclusion is that it is not precisely known who the planners of the new Edwardian boroughs in Wales were. They must have been in the service of the king. But it is possible that king Edward also played a role in the planning himself. It is reported that he was closely involved in most of the projects and from the case of the castle of Linlithgow it is clear that Edward instructed his engineer Master James of St. George personally on the form of the castle and the materials to be used.85 It is unknown, however, whether the king was as interested in the construction of towns as of castles. It is also unclear to what degree the knights and clerks that Edward appointed as overseers or ‘keepers’ of the works, were responsible for the design of the castles or of the towns. For the boroughs that were to receive defences it is likely that the king’s engineers had a significant role in their design. Since these defences determined the plan forms of the towns to a considerable extent, it seems that the engineers must have been influential in the planning of at least the basic urban structure of these boroughs.

7.5 The planners of the bastides

Regarding some of the new towns of southwestern France, which are discussed in chapter 2, there is information on who the planners of the urban layout were. For the most part of the towns, however, nothing is known. In this respect the situation is much the same as almost anywhere else. Many scholars believe that specialist town planners were responsible for the laying out of the bastides. Divorne, for instance, claims that “The work of laying out the plan and the allotment generally is the accomplishment of specialists.”86 This claim is, however, not supported by the contemporary written sources, which mostly mention administrative officials or people of legal professions that were given the responsibility of realising the spatial layout as well as of other aspects of town creation.

One of the exceptional cases for which the name and profession of the planner was reported, is Montréal-du-Gers, which was founded by Count Alphonse de Poitiers in 1255. (fig.2.28) In that year, the notary Pons Maynard from Agen was ordained to draw up a charter, to appoint the administrators of the new town and to ‘(...) to cut out streets, by dividing and assigning the places of the piazza and the house lot and the place of the houses’.87 Did this mean that he could do this according to his own insights? Unfortunately, there is no way to know, in absence of more specific sources. It appears that this notary was given the responsibility for almost the complete creation of the new town, covering almost every aspect of it apart from the actual construction of the buildings. Hence, it seems likely that he contracted personnel to help him with this job. It is possible, for instance, that he hired a surveyor to set out the spatial structure of the town and the gardens and fields belonging to it, but this is only speculation.

83 Taylor 1987, p.7; Brown, Colvin & Taylor 1963, pp.204-205, 393.
84 For instance: Bell & Bell 1969, p.34; Morris 1972, p.90; Binding 1993, p.78. According to Coldstream Master James’ role in the design of the various castles in North Wales is also overrated by Taylor. (Coldstream 2003)
86 ‘Ce travail d’implantation, de tracé et de lotissement est généralement le fait de spécialistes.’ (Divorne, Gendre, Lavergne & Panerai 1985, p.46)
87 ‘[...] ad talliandum carreriam, platea et casaleria et loco domorum dividenda et adjudicanda’. (Lavedan & Hugueney 1974, p.73)
Higounet writes that Montréal was designed by ‘traceurs professionels’, with whom he probably means Pons Maynard, despite the plural form. According to the sources, however, Pons was a notary, and he was not only responsible for the spatial layout but also for the legal and administrative organisation of the settlement. Some years later, he was given a comparable assignment in the creation of Castillionès, together with a certain Gautier, who was bailiff in the bastide of Monflanquin.

Another notary had a role in the distribution of the gardens and fields that belonged to the bastide of Beaumont-de-Lomagne in 1282. This notary, Pierre de Guérin, was also surveyor of the royal domains in the sénéchaussée of Toulouse. He was probably involved because the co-founder of the town was Eustache de Beaumarchais as sénéchal of Toulouse. Apparently, a notary could be a professional surveyor at the same time, so perhaps it may be assumed that Pons Maynard was also surveyor. The link between the two professions is that both have a juridical nature. Boundaries between properties have a legal value, as do notarial documents. De Guérin was, however, only a member of a committee, in which also took part his employer Eustache de Beaumarchais and the surveyor of the city of Toulouse. The latter of these had also taken part in the committee that had been present when the co-founder, the abbot of Grandeselve, officially handed over the land for the town and the additional fields to a lieutenant of the sénéchal, which took place almost two years earlier. Other members of this committee were the main judge of the district court and the four consuls of the future town. According to the related document the land that was handed over was meant ‘For to lay out streets, squares, roads and lots of the work of the said bastide’. The surveyor’s function probably was to check the amount of land and to mark its boundaries. He probably acted in the same role two years later, when the garden lots and the fields of arable land were handed over to the citizens of the new town. It is well possible that this surveyor allotted the land for the town and the gardens and fields surrounding it in the meantime. Unfortunately, nothing is known of who actually planned the layout of the town, but it does not seem unlikely that this surveyor actually designed what he set out on the ground.

It is reported that the realisation of the bastide of Baa was lead by a brother of the Dominican order called Richard of Escham. The town has disappeared completely since some centuries, but it is known from the preserved documents concerned with its creation, which are relatively extensive compared to the bastides in general. The English crown appointed the Richard as organiser and treasurer of the works, but he assigned the ‘ordering’ of the new town to a magistr called Gerardo de Turri. Randolph suggests that Gerardo was a surveyor, but actually, he may just as well have been a notary such as Pons Maynard. He may also have had another profession, but the term magistr suggests that he was appointed to this job because of his specific professional knowledge. Trabut-Cussac does not hesitate to call Gerardo ‘architecte urbaniste’. This is, however, a re-projection of the modern professional situation in town planning, for which there are no historical clues at all.

In the early 14th century, a lieutenant of Edward I’s sénéchal, by name of Bertrand Panissals claimed in a petition to the king that he had built the bastides of Roquepine (founded in 1283), Molières (1278-84) and Monpazier (1285). It seems that Bertrand was a sort of entrepreneur who often worked in the service of the king, for he also claimed that he had acquired the castle of Puyguilhem and its dependant territory for the king and that he had built a dam and watermills in the Dordogne at Lalinde. According to Higounet it is ‘beyond any doubt’ that Bertrand must have been the ‘chef-d’oeuvre de géométrie’ of the plan of Monpazier.
(which is renown for its great regularity).\textsuperscript{99} This claim is completely conjectural and probably mainly inspired by the desire to put a name on the spatial design of the town. In my opinion, it seems more likely that Bertrand was an organiser and entrepreneur rather than an architect or a surveyor, as Higounet probably intends.

There are also documents that mention administrators in the role of organisers of bastide building. It seems that the founding lords often appointed agents to organise and oversee the projects. In the case of a paréage, both lords might appoint one of their men. Thus, for the foundation of Villeneuve-sur-Lot a monk represented the abbey of Eysses and a knight was appointed by Count Alphonse de Poitiers. There was also a third appointed man, a notary by profession, but it is not clear whether he represented the local lord of Pujols or whether he was appointed by the three paréageurs together. A similar committee was instituted for the foundation of Granges. But in this case the members were of higher status, being the abbot of Clairac and the sénéchaux of Agenais and Aquitaine themselves, assisted by a treasurer. Together they were to ‘construct and realise’ the new town as they judged best.\textsuperscript{100} It seems likely, however, that the abbot and the sénéchaux did not constantly supervise the project themselves. They probably set employees to the job or left it to the treasurer to oversee. Unfortunately, it cannot be determined who actually devised the layout of the town, or to what degree the abbot and sénéchaux were involved in it.

With the foundation of Montgéard, by the French royal sénéchal Guierd Gui in 1317, an officer of unknown professional background was appointed to see to it that the realisation would be orderly, and that the planned dimensions of lots, streets and fields would be respected. For the foundation of Revel, by the French crown in 1342, Guillaume Flottes was appointed commissioner. As lord of Revel in the Dauphiné, he was responsible for the name of the new town. His function probably was the general organisation of the realisation of the new settlement and overseeing its construction. Just as in the previous cases it is not possible to tell to what degree he was responsible for the actual planning of the spatial form.\textsuperscript{101} The same is true for the prud’hommes (notables) that according to a document were to oversee the laying out of the town of Libourne, which was founded by the English royal sénéchal Roger de Leyburn around 1270.\textsuperscript{102}

7.6 The planners of the terre nuove fiorentine

‘Around the same time, the Florentines desired to erect the fortified towns of S. Giovanni and Castelfranco, for the convenience of the city and the food-supply by way of the markets; and Arnolfo made the design in the year 1295, and he did this so satisfingly, as he had done on other occasions, that he was made Florentine citizen.’\textsuperscript{103} This was written in 1568 by Giorgio Vasari, the father of art historical writing, in the biography of the architect Arnolfo di Cambio. (fig. 7.4) Thanks to this piece of text, the mighty gate tower of Castelfranco, the town hall of San Giovanni and various institutions in these towns are named after Arnolfo. Most authors who wrote about these towns did not doubt Vasari’s attribution.

Over the centuries, Vasari’s biographies have remained important sources on Italian artists of the 13th to 16th centuries, but it has been suggested and demonstrated many times that they do not always record the historical facts and that this was not even Vasari’s primary goal.\textsuperscript{104} In this paragraph, the attribution to Arnolfo will be examined closer, and it will be discussed who the planners of the other terre may have been. In comparison to the previous paragraphs this is fairly extensive, due to the fact that more relevant information is known on the terre nuove and their planners than on most other new towns of the period.

The fact that Vasari did not always write down what actually happened, appears among others from his attribution of the design of the new town of Scarperia to the architect and sculptor Andrea Pisano.\textsuperscript{105} In 1306, when Scarperia was founded, Andrea was only about 16 years old, and it seems most unlikely that he was

\textsuperscript{99} Higounet 1992, p.37. For the regularity and the status of the plan of Montpiazzu in historiography, see par.2.10.3.1.

\textsuperscript{100} ‘construenda et facienda’ (Lauret, Malebranche & Séraphin 1988, p.79)

\textsuperscript{101} Saint-Blanquat, 1985, p.120. Lauret, Malebranche & Séraphin (1988, p.299) write that the ground plan was ‘established’ by Flotte, but this is probably too much simplified in the desire to identify a designer.

\textsuperscript{102} Divonne, Gendre, Lavergne & Panerai 1985, p.44. For this information, no reference is given to a source.

\textsuperscript{103} ‘Volendo in questo mesto i Fiorentini murare in Valdarno di sopra il castello di S. Giovanni e Castelfrancu, per commodo della città e delle vettovaglie, mediante i mercati, ne fece Arnolfo il disegno l’anno 1295, e satisfisce di maniera così in questa, come aveva fatto nell’altr’co, che fu cittadino fiorentino.’ (Vasari 1991, p.123; translation author)

\textsuperscript{104} In the introduction to the second part of the Vite, Vasari wrote that the writing of history should not solely be aimed at making the past be remembered in an entertaining way, but that it must also provide ‘guidelines to our conduct’. So, Vasari wrote a moralised entertaining history of art, in which the historical facts were not necessarily strictly followed in order to make the story more pleasant to read and more morally instructive. (Wollen 1994, p.28.)

\textsuperscript{105} Vasari 1991, p.175. ‘Vita di Andrea Pisano, scultore et architettore’.

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given such an important assignment already at that age.\footnote{Only in 1340 Andrea was officially hired by the Florentine administration as master of the construction of the cathedral, and there are no recordings of his presence in Florence earlier than 1330. (Friedman 1988, p.277, n.86) According to Beccatini & Granchi (1985, p.308) Andrea designed the keep of Scarperia. Nicolai (1914, p.383) writes that he only designed the walls of the town, while the keep and its tower were designed by Arnolfo. None of these claims is supported by arguments. The question who actually planned the spatial structure of Scarperia is treated below.}

There are very few documents that may help to verify Vasari’s attribution of Castelfranco and San Giovanni to Arnolfo. In an administrative document of 1300 Arnolfo di Cambio is indicated to be the master builder of the new cathedral project in Florence, and he is designated as ‘the most famous architect and expert in the building of churches’.\footnote{Paatz 1937, p.91; Romanini 1980 (2), p.20, n.21: ‘[..] il più famoso architetto ed esperto costruttore di chiese [..]’ (Guidoni 1970, p.467)} In fact, this is just about everything that is known of Arnolfo from primary sources. A secondary source mentions that an administrative document of 1294, now lost, indicated him to be the building master of the works of the city of Florence.\footnote{Braunfels 1953, p.241, referring to: Migliore, Ferdinando Leopoldo del, Firenze, Città Nobilissime, Firenze 1648, p.6.} Apart from this, there is no direct information on Arnolfo.\footnote{See Braunfels 1953, pp.240-241.}

Vasari pictures Arnolfo as a true champion of 13th century architecture and attributes all the important building works in Florence of around the last quarter of the 13th century to him. Among others it regards various churches, the loggias of Or San Michele and the Piazza dei Priori, the Palazzo Vecchio and the so-called ‘third wall’ around the much extended city (1285-1333, see fig.7.4). Outside Florence he would have worked on the sepulchres of popes Honorius III and Bonifacius VIII in Rome. Due to his death in 1300, he left many of these works unfinished, according to Vasari.\footnote{The year of Arnolfo’s death mentioned by Vasari, is probably wrong. According to an obituary, ‘magister Arnolphus de lopea die Sancta Reparata’ (= Florence cathedral) died on March 8, but it is unclear which year. It probably was between 1301 and 1306. (Grote S.D., pp.36-37 (1301); Romanini 1991, p.514 (1302-1310); Toker 1983, p.104 (1301-1310); all three referring to the same document, published in C. Guasti, Santa Maria del Fiore. La costruzione della chiesa e del campanile secondo i documenti, Firenze, 1887; doc. no. 25).} It is very probable, however, that not all the works mentioned by Vasari were actually Arnolfo’s. In fact, most works have also been ascribed to others by art historians at some moment. And conversely, art historians have ascribed other works of architecture, sculpture and even painting to Arnolfo. The fact is that nothing much is known of Arnolfo, and that Vasari’s biography must be taken with some reservation.\footnote{For modern biographies of Arnolfo and the works ascribed to him, see Romanini 1980 (2); Carli 1993; for a bibliography, see Romanini 1991, pp.513-514.}

Since it is reported that Arnolfo was the master builder of the works of the city of Florence in 1294, which probably lasted to his death, and that he was highly regarded, it appears well possible that he was in fact given the assignment to make the designs for the Florentine new towns of Castelfranco and San Giovanni. These projects are more or less comparable to that of the ‘third wall’ of the city, the construction of which...
may also have been led by Arnolfo, as Vasari claims. They were all very important large-scale civic building projects that involved big budgets and probably considerable prestige. It may be that this precisely is why Vasari ascribed the design of the new towns to Arnolfo, since he clearly wanted to depict Arnolfo as the most important architect of the period, but it is also possible that he had specific sources on which his attribution was based. It is unlikely, however, that Arnolfo made the designs already in 1295, as Vasari claims, since the decision to found the two new towns was only taken in January 1299.

Most authors that have written about the *terre nuove* accepted Vasari’s attribution to Arnolfo without hesitation. There have also been modern scholars who ascribed the planning of Scarperia and Terranuova to Arnolfo. Since Arnolfo died between 1301 and 1310 it is not impossible that he made the design for Scarperia, which was founded in 1306; but it is highly unlikely that he designed Terranuova’s plan, since that town was only founded in 1337. Firenzuola and Giglio were also created considerable time after Arnolfo’s death. Nevertheless, comparison of the plans of Castelfranco, San Giovanni, Scarperia, Terranuova and Giglio shows that there are considerable correspondences that cannot be coincidental. Therefore, it seems unlikely that they were made completely independent of one another: either they must have had the same designer or the one design must have inspired the other. For Scarperia and Terranuova it is all the more likely that their plans were inspired by the first two terre, since they appear to have been proportioned by way of similar geometric constructions.

Fortunately, there are contemporary documents that contain information on the planning of Scarperia. The first document is the foundation charter of 29 April 1306. It states that officials of the Florentine administration were given the assignment to assess the land where the town was to be built, to select the future settlers, to lay out the streets, piazzas and churches, and to oversee the building of gates and bridges over the ditches, in ‘the way they think best’. Apparently, these officials were free to select the site for the new town. It seems, however, that they did not get far with their assignment, since, two months later, two new documents were made up in which the assignment to take up the planning of the town is given to an officer who was addressed as ‘*dominus Matteus judex, magister de Egi...*’; *officialis et capitanus ad hoc pro Comuni Florentie spetialiter deputatus*.

Dominus Matteus was capitanio of the region for the commune of Florence, which meant that he acted as legal, administrative and military officer. He was given the assignment to lay out the town at the place called ‘La Scarperia’, in the form and size which he thought right according to his own judgement, and to build ‘[...] wells, fountains, roads, streets, and to direct and level them [...]’ as he considered appropriate. From this, it appears that the ‘officials’ mentioned in the first document only came so far as to establish the specific site of the new town and to seize or buy the required land.

Friedman clearly registers that there was a shift in responsibilities in the different projects for the *terre nuove*. For Castelfranco and San Giovanni a committee was instituted existing of two officials called *retore*, who were experienced in legal issues. As with many other commissioners in contemporary Florentine administration, they were chosen from the politically active citizenry of the city. These officials, among whom the father of the poet Petrarcia, were to assess the land on which the towns would be built, to organise

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112 Vasari seems to have given Arnolfo a more important role in his history than he actually had, in order to create an exemplary figure of an architect in what he termed the first stage (primo olio) of the renaissance, as a counterpart to the more or less contemporary painter Cimabue and sculptors Nicola and Nicola Pisano. (Panofsky 1972, pp.115-117)

113 Friedman 1988, pp.308-310, doc.2.


115 Regarding Scarperia, see Nicolai 1914, p.382; Becattini & Granchi 1985, p.307; Grandini 1978, p.25. It seems that this idea is based on a local oral tradition according to which Arnolfo was assigned to do the job in 1292. This date is certainly wrong, however. Lino Chini (1969, p.174; originally 1875) writes that somebody by the name of Mini ascribed the design of Scarperia to Arnolfo. Regarding Terranuova, Guidoni writes that he has “unambiguously” demonstrated it to be designed by Arnolfo, by ‘analyses of structure’, with which he probably means his proposed design schemes. (Guidoni 1970, p.229; see par.6.4.1.1)

116 As explained in par.3.8.4, the plan of Firenzuola was changed in the late 14th or 15th century, after the town had been severely damaged several times. It is probably only since then that the plan shows some relevant aberrant traits: the original plan at least had two intersecting main streets and four town gates, just like the other towns.

117 Because of the similarity in the methods of design by use of complex geometry between Castelfranco, San Giovanni and Terranuova, the latter town must also have been designed by Arnolfo according to Guidoni. (Guidoni 1970, pp.229, 215-216) for the design schemes, see par.6.4.1.1, 6.4.4) This seems quite unlikely though, given the fact that it was only founded in 1337 and Arnolfo died before 1310.

118 See par.6.4.2.

119 The document is published by Friedman as document no.3. (Friedman 1988, pp.310-312) According to Friedman the assignment was given to two officials. (Friedman 1988, p.350)

120 According to Nicolai his proper name was Matteo di Neri di Gubbio. (Nicolai 1914, p.382) Nicolai mentions the provvisioni of June 28 and July 18 of the Priori delle Arti e Gonfalonieri di Giustizia. Friedman only used the latter of these two documents, which he also published in an appendix. (Friedman 1988, pp.313-314, doc.4) According to Grandini his name was Matteo de’ Neri de Cassio, but he gives no proper reference for this. (Grandini 1978, p.23)

121 ‘[...facere in dicta terrea puta, fontes, vis, stratas, et dirizzare et splanare quocumque et qualitercumque agnoverit et deliberaverit fore decens et ad sui liberam voluntatem [...]’ (Friedman 1988, pp.313, doc.2, 18 July 1306) See also Nicolai 1914, p.383.


the work to be done by the settlers and to tax them for the expenses of constructing the new towns. The committee was not responsible for the actual designing and building of the towns, unlike the officials that were assigned the responsibility for the organisation of the new towns of Scarperia and Firenzuola six years later, as discussed above. For Castelfranco and San Giovanni the central Florentine administration, more particularly the priors of the guilds and the Gonfaloniere di Giustizia, held the right to establish ‘[...] in which length and breadth and which manner and form [...]’ the towns would be laid out.124

Still later, the organisation of the new town planning took on another form. For the restarted project of the new town of Firenzuola in 1332, a special committee was instituted to oversee the complete project in all its aspects. From every one of the six quarters of the city a citizen was chosen to serve a six month term in the committee, which had a budget of its own and was fairly autonomous in its decisions. This committee was responsible for the planning of the new town as well as for the pacification of the region, as were the appointed officials in the case of Scarperia. Later that year, the committee was also given the responsibility for the project of the new town on the Consuma pass-road, of which much less is known and which seems to have been aborted soon after.125 Likewise, the projects for the fortification of the town of Cerretto Guidi and for the new town of Terranuova were given over to this committee in 1338, respectively 1339, after they were first begun under distinct committees. Other projects of fortification and extension of existing towns were assigned to other committees. Shortly before the middle of the 14th century, however, a new committee was made responsible for the all fortifications in the Florentine countryside. The members of this commission, which was also responsible for the planning and realisation of the new town of Giglio Fiorentino, were called the Ufficiali della Castella.126 The members of these committees were no specialists: they were just part of the section of citizenry that participated in the government of Florence at the time. Many of them served in other committees or public functions in other years.

The committees hired employees for specific jobs that were paid by the day or by the month, such as a treasurer, a notary and a clerk. Most probably, there also must have been a master who stood at the head of the building equip, whether existing of professional workers or of residents of the region who were obliged to work on the project. Apart from this person, master builders who were valued for their knowledge, such as for instance the leading master of the cathedral opera, were hired for short periods to advise the committee on specific problems.127 It is, however, a matter of speculation to what degree important non-technical parts of the design, like, for instance, the size of the town and the lots, or the place and form of the piazza, were determined by advisors, the master of the works or the officials in the committee. For the cases of Firenzuola, Terranuova and Giglio Fiorentino, and apart from Vasari’s remark also for San Giovanni and Castelfranco, it is not known if there was a specific master of the works associated with the planning and building of the towns, let alone that it would be known who actually made the design.

Friedman is convinced that the officials hired ‘professional designers’ to do the job. In this, he is inspired by the analogy with other cases for which it is known that the capomaestro of the cathedral opera or his assistants (in Florence and other cities) received the responsibility, or did advisory work, for communal building projects.128 There is no such source, however, regarding the planning of a new town, apart from Vasari’s reference to Arnolfo.129 Friedman gives much weight to the document reporting that Neri Fioravanti assisted two members of the committee responsible for the realisation of Giglio Fiorentino on a trip through the Val d’Ambra in late June and early July 1350, for which reason he takes Fioravanti to be the designer of the Giglio plan.130 Fioravanti seems to have been vaguely associated with the cathedral opera in Florence, and worked on various projects of greater or lesser importance in Florence.131 Friedman’s point is not very strong, however, as Fioravanti’s trip with the committee appears to be after the site for Giglio was chosen and the

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124 ‘ [...] in et latitudine et longitudine et ea modo et forma [...]’ (Friedman 1988, document 2, p.308)
125 For the new town on the Consuoma pass road, see pars. 3:3. 3:5-4.
127 Friedman 1988, pp.150-158.
128 Friedman 1988, pp.162-166. Braunfels (1955, pp.216-247, esp. 245) even claims, regarding Tuscany in the 13th to 14th centuries, that ‘Dombaumeister sind Stadtbaumeister’ (‘cathedral building masters are city building masters’). By this he does not mean that the masters of the cathedral projects built complete cities, but that they also served the cities in other communal building projects. Binding, however, writing on the official institute of communal building master (which is first recorded in Bourges in 1247) claims that these city building masters usually were administrators rather than professional builders or designers. (Binding 1993, p.92) The difference might be explained, however, by the fact that Braunfels is only concerned with Tuscany, while Binding is more concerned with Europe north of the Alps.
129 Buselli claims that the new Lucchese town of Pietrasanta (see app.B, par.2.2) must have been designed by a master builder named Lombardo, since he was the head of cathedral opera of Luca between 1256 and 1260, the period in which Pietrasanta was founded. (Buselli 1970, p.40) Since Buselli mentions not one concrete indication, the attribution appears to be completely conjectural.
130 Friedman 1988, pp.158, 162.
131 Neri Fioravanti is among others reported to have vaulted the great hall of the communal Bargello palace, to have cut stone for the campanile of the cathedral, to have started work on the church of Sant Anna and to have proposed a new version of the choir of the cathedral around 1360 together with other artists. (Friedman 1988, p.158)
layout was designed, and for as far as known only regarded other projects in the Val d’Ambra (in which Giglio was planned as well). Apart from this trip, his only other reported involvement with the committee was that he spoke for it with respect to another project, three years later in a meeting of a government council. Consequently, it is very much conjectural that Friedman ascribes the design of Giglio to Neri Fioravanti and those of the other towns to other ‘professional designers’ from the cathedral workshop. He solely attributes the design of Scarperia to a non-professional designer, being dominus Matteus, the administrative official of the region. He does so because he assumes that no geometry or arithmetical order guided the plan design of Scarperia. In his opinion it is just an adaptation of the model of San Giovanni, which was pragmatically changed in various aspects in order to fit the circumstances. In paragraph 6.4.2, however, it is argued that it actually is likely that there are geometrically determined dimensions in the plan of Scarperia, similar to the plans of Castelfranco, San Giovanni and Terranuova.

Dominus Matteus was made responsible for the design of Scarperia, but this does not necessarily mean that he actually designed the form of the town. At some stage he must have hired people from the building profession to design and build gates, bridges, a church, etcetera, and probably he also hired a surveyor to set out the plan as it was designed. It is, of course, possible that he employed a professional architectural designer or a surveyor to design the town plan. But since there is no concrete indication that suggests so and since the document cited above shows that the assignment to lay out the town was given to Matteus himself, it appears most obvious, by lack of further information, to assume that it was he who made the design, making use of the examples of the two earlier terre nuove.

But if Matteus designed the spatial layout for Scarperia, then why could the layouts of the later terre nuove not be ascribed to the officials in the committees, rather than to professionals from architecture or land measurement? After all, these officials were not just ordinary men: they all had a certain standing and some of them even were important men from the urban elite. So if they had an example of an earlier town, and if they knew the way it was designed, they probably must have been able to create variations on it. After all, the information about the planners of other towns elsewhere throughout Europe also suggests that notaries or entrepreneurs, rather than ‘architects’ planned the physical layout of new towns. But then again, this information is scarce and often not conclusive, and with their underlying geometry and relatively strong regularity the plans of the terre nuove are certainly more sophisticated than was the average new town plan.

In principle, it is possible that one person designed the plans of Castelfranco, San Giovanni, Scarperia and Terranuova, which were all proportioned by use of more or less similar geometric methods. And possibly this also holds for the original plan of Firenzuola. After all, the period in which they were founded, from 1299 to 1337, lies within the span of a possible professional career. It seems more likely, however, that the plans were designed by different people, but that the designers were inspired by earlier examples. Possibly, it happened as follows. The designer of Castelfranco and San Giovanni – who may well have been Arnolfo di Cambio – showed the cunning geometric method that he used for proportioning the plans to his assistants, his patrons, the surveyors that actually set out the plans on the ground, or to everyone that was interested. Subsequently, the basic type of plan of San Giovanni and the proportioning method of Castelfranco was used by another planner – possibly dominus Matteus – for the design of Scarperia’s plan. Much later, an adapted version of the basic layout and the geometry was also used, probably by other planners – possibly one or more members of the committee or professionals hired by them – for Terranuova and maybe also for the original layout of Firenzuola. Giglio Fiorentino was not designed by use of a similar sort of geometric proportioning, but by relatively simple arithmetical proportioning. But there too, the same basic layout was used again by the designer, who may have been a committee member or a hired professional.

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132 Friedman 1988, pp.158. Friedman believes that the design for Giglio must have been made by a professional designer, since in his opinion it is a great achievement that the plan of Giglio, which was proportioned by simple metrology, was adapted from the plan of Terranuova, which was designed by use of complex geometry. (Friedman 1988, p.162; see pars.6.4.1.2, B.3.1) I do not see, however, why one should specifically need to be an architectural designer to conceive the Giglio plan. After all, it is a lot easier to do so when one has a model. For deciding on dimensions of lots, open spaces and the keep, one does not necessarily need an architectural training, but rather an example, some competence in adding numbers as well as a portion of common sense. In my opinion, the possibility that it was not planned by a professional, is higher for Giglio than for Castelfranco, San Giovanni, Scarperia and Terranuova, as their designs appear to be more complex. (see pars.6.4.2, B.4)

133 According to Friedman the three terre in the Valdarno must have been designed by professional designers because of ‘their “complexity and sophistication of composition”’ (Friedman 1988, p.163), but he believes that Scarperia and Firenzuola were not designed in such a subtle way. The plans of these two northern terre, however, would have been inspired by the design of San Giovanni. (Friedman 1988, p.159)

134 See Friedman 1988, p.155.

135 See n.116 above.

136 See pars.3.9.2.1, 6.4.2, B.4.
7.7 Surveyors as town planners

Above, it is already mentioned that some scholars believe that professional surveyors were responsible for the design of the ground plans of new towns.137 Indeed, this seems likely, since it appears logical that professional surveyors who are reported to have measured existing plots of land and who set out new agricultural allotments, were also assigned the job to set out urban allotments.138 If they were, this would not automatically mean that they made autonomous decisions on the form of the plan, but since many new town plans are so simple in structure, one is tempted to assume that these surveyors were given the free hand, within reasonable limits. Unfortunately, there is not much evidence to support such an assumption.

There is one source that gives relatively much information on the planning of a new urban structure. It regards the new extensions of the town of Arders in the northwest of France. Around the year 1200, a local priest wrote a chronicle on the early history of the town and the lordship of Ghisnes, which describes how, during the 12th century, the town was gradually made into the administrative, social, economic and demographic centre of the territory by its lord Arnold IV. According to the chronicle the town was enlarged and fortified in 1139. This operation was led by a man by the name of Symon who was described as a doctum geometricalis operis magistrum, which probably means that he was a surveyor, or possibly a mathematician in a more general sense. This master Symon is described to have set out the plan by estimation with his eyes rather than by measuring with his rod, after the design, which he had conceived ‘in his mind’.139 The chronicler goes on to report that he had houses and farms taken down and gardens, orchards and fields erased, as he projected the streets in their place. Meanwhile, older streets were widened and regularised. Unfortunately, this cannot be verified from what is preserved of the town above ground level140, but what is important in the present context, is that a doctum geometricalis operis magistrum is mentioned as the designer of the new layout.

Above it is already mentioned that the surveyor of the city of Toulouse was present when the land for the bastide of Beaumont-de-Lomagne was handed over to the royal sénechal in 1280 and again two years later when the garden lots and fields were handed over to the settlers. This surveyor may have been the person who took the decisions considering the plan form of the town, but this is no more than a conjecture.141 The same holds true for the mensuratorem Communis of the city of Bologna, who was to set out the extension of the town of Castelfranco Emilia, as described in a document of 1231.142

Another case where the involvement of a surveyor in the laying out of the lots of a new town is documented, regards the town of Bricherasio in Savoy. This town was moved to a new site by its lord Filippo di Savoia Acaia, after he had a new pass-road laid out.143 A document describes that three men, among whom a mensurator (surveyor) called Johannis de Corio de Vigone, were sent to the place for two and a half days ‘[...] in order to measure and set out the plots for the new town of lord in Briqayrasio [...]’144

In many cities of considerable size, there seem to have been official communal surveyors.145 In Florence, for instance, there was one since the late 12th century.146 In the 13th century, however, the lots in the new extensions of the city seem to have mainly been measured out by monks147, but it is not impossible that these monks were in fact experienced surveyors. A document of 1298 mentions that a widened street in Florence is measured out by a magistro Nieri who is designated as ‘abbachista et mensuratore’, which means that he was a sort of arithmetician, probably accountant, as well as a surveyor.148 Various Florentine documents from the 13th and 14th centuries record that surveyors were also called in for the construction and repair of roads in the countryside.149 Hence, it seems legitimate to assume that professional surveyors must also have been

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137 Divorne, Gendre, Laverge & Panerai 1895, p.44; Higounet (1975, p.366), regarding the notary Pons Maynard as designer of Montréal. See also Meckesper 1991, p.66
138 Such as, for instance, the mensurator by name of Gregorius, who was reported to have measured out the territory of the village of Schönwald for the duke of Opole in southern Poland in 1269. (Higounet 1980, p.255) As argued above, it is also likely that the designators recorded in a document from Vercelli (Higounet 1989, p.221; see par.7.2) were surveyors.
140 Irsigler 1983, p.18.
141 See par.7.5.
142 Friedman 1988, p.272, n.51.
143 This situation is more or less similar to that of the building of the Florentine new towns of Scarperia and Firenzuola, which were also focused on a newly laid out pass road. (see pars.3.8.3, 3.8.4)
144 ‘[...] causas mensurandi et trebuchandi castellio burgi novi domini in Bricherasio [...]’ (Fasoli 1942, p.180, n.226)
147 Szura, cited in Franchetti-Pardo & Sanfilippo 1976, p.272.
149 Richter 1940, p.362, n.54; Pampaloni 1973, p.140.
involved in the laying out of the Florentine terre nuove. The only mention of a surveyor in connection with the creation of a Florentine new town, however, concerns ser Tinaccio magistro et mensuratori who was involved in the building of the walls at Pietrasanta (present-day Casaglia) as a clerk and surveyor in 1293.150

In the lands of central Europe east of the river Elbe, many new towns and villages were founded since the 12th century, for the most part on ground that was newly reclaimed from marshes and forests. So much land needed to be measured and allotted for these foundations, that it seems highly likely that there were people who made their profession of this work.151 From the 13th century on, documents confirm that mensuratores were active in the laying out of new settlements in these lands, but this is mainly with regard to agricultural allotments.152 As already mentioned above, a mensuratorum Gregorius was reported to have worked on the allotment of the village of Schönwald in Silesia.153 A Kirsstannus mensurator, who was also bailiff of Ossig, is mentioned in a document of 1276. It is likely that, as a bailiff, Kirsstannus had acted as the locator of the town. This is all the more probable since he is reported to have bought two villages in 1287, to reorganise them into the new town of Borkwitz.154 Starting from the 13th century, there are also sources which testify that professional surveyors were set to this work in Prussia. Often, however, clerics were assigned to the job in this country, as it was governed by the knightly clerics of the Teutonic Order.155 Possibly, these clerics were experienced surveyors. It seems too bold, however, to assume that all new settlements and holdings east of the Elbe were set out by professional surveyors, as some scholars do.156

### 7.7.1 ‘Mensores literati’, geometrical treatises and town planning

Not much is known about the surveyors in Prussia in the 13th and 14th centuries. But fortunately there is an important source in the form of a treatise on surveying from Prussia of around 1400. It is called Geometria Culmensis, after the important Prussian town of Culm (present-day Chelmno), and it is written by an anonymous surveyor in the service of the Teutonic order, presumably a cleric.157

In the treatise it is mentioned that there are two groups of mensores. The first are the mensores literati who are learned in mathematics and whose work is mainly theoretical, and the second are the mensores laici, who are mainly concerned with the practice of land measuring. It is specified that the treatise is particularly meant for the second group.158

Various scholars believe that mensores literati, literally meaning ‘lettered measurers’, played an important role in town planning in the high-period of town foundation. For instance, Zagrodzki believes that they can also be recognised in the ‘wisest and ablest men’ summoned by King Edward I of England to the colloquium for the rebuilding of Berwick-upon-Tweed. This is, however, quite unlikely to be correct. Although these men were supposed to ‘[...] know best how to devise, order and array a new town to the greatest profit of Ourselves (the king) and of merchants’, it is pure speculation to assume that they must have been learned in geometry.159 Zagrodzki states this claim in order to support his theory that new towns from the 12th to 15th centuries generally must have been planned by people who had knowledge of theoretical works on geometry and land measurement, and specifically the late-antique Corpus agrimensorum.160 This hypothesis is also conjectural, being solely inspired by the superficial resemblance between the plans of the orthogonal colonial towns of Roman times and those from the 12th to 15th centuries (particularly those in Zagrodzki’s home country Poland), which cannot be coincidental in his opinion.161

Since around the 10th century, scholarly works were written on the liberal art of geometry, based on the remnants of antique knov. The most important sources for these works were the Elements of the

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150 Friedman 1988, p.295, doc.1, 23 September 1293. Friedman (p.156) translates magistro as ‘building master’. He does not explain why he does so, but essentially it is incorrect.
151 Meckseper 1982, p.77.
152 Schich 1993, p.91.
153 See par.7.2.1.
154 Kuhn 1975, p.251. Unfortunately, I have not been able to find out how these places were reorganised in spatial sense. It might be interesting to investigate if there are significant differences in the layout or the dimensions of these settlements in comparison to newly laid out settlements in the area of which it is known that they were settled by locatores who were no surveyors by profession.
155 Erlen 1992, pp.149, 257.
156 For instance: Blair 2000, p.259.
158 This distinction is also to be found in earlier treatises on ‘practical geometry’, such as those by Leonardo Fibonacci and Dominicus de Clavasio. (Victor 1979, p.52)
159 See par.7.2.
160 Zagrodzki 1966, esp. p.454; Zagrodzki S.D., esp. p.101. See also par.10.2.1. The Roman surveyors were called agrimensores or gromatici (after the Roman instrument for laying out an orthogonal plan, the groma, a sort of cross-staff) hence the term for the group of manuscripts that were preserved and copied in different monasteries, corpus agrimensores or gromatici vetores.
161 See par.10.2.1.
Greek mathematician Euclid (first half of the third century B.C.) and the instructive manuscripts of Roman surveyors, collected in the Corpus agrimensorum. In the 11th century, new treatises on geometry were written by among others Gerbert of Aurillac and Pseudo-Boethius. Although the literal meaning of the word ‘geometry’ is ‘measuring the earth’, these works were of little use for the practice of measuring pieces of land or the laying out of allotments; they were strongly theoretical in nature. Even when the treatises went under the title of ‘practica geometria’ (‘practical geometry’), as many did, their contents mostly were far more complicated than would have been necessary for the practice of the surveyor, treating many theoretical subjects.

And when the treatises commented on practical topics, it mostly regarded rather complex problems such as the measuring of the height of towers or mountains, the depth and width of rivers, the circumference of the earth, etcetera. They barely treat more usual practical examples, whereas the creation of new allotments is not treated at all.

The main goal of the treatises appears to be the education of the liberal art of geometry, as part of the training in philosophy in the tradition of the seven liberal arts as the curriculum of higher education. The treatises that go by the name of ‘practica geometria’ treat geometry by way of giving examples from practice or an imaginary practice. This does not mean, however, that they were actually meant to teach for practice.

Zagrodzki claims that the use of complex geometry in the design of town plans indicates that the planners knew the geometrical treatises and that they were mensores literati. And in his opinion many of the new towns of the high-period of town foundation were designed and set out by use of complex methods using modules and working with geometrical relations. However, in chapter 6 and appendix B it is argued that most theories which claim that complex geometry was used in the design of new town plans in the period under consideration are unlikely to be correct, and that is also true for Zagrodzki’s proposals.

For the terre nuove fiorentine, however, it does appear likely that complex geometry was used for the design of elements of the plans. But even then: although the designers must have had a certain knowledge of geometry, they need not necessarily have been acquainted with theoretical writings on geometry, since the specific geometry in question is not treated in the ‘practical geometries’. It would have been even less necessary for them to be acquainted with the manuscripts of the agrimensori, since the material treated in these works is still more remote from the sort of geometry that probably underlies the plans of the terre nuove.

Hence, it is clear that Zagrodzki’s claim that ‘the mensores literati may therefore be regarded as the real authors of the regular plan in medieval urbanistics’ is an overstated conjecture. Lilley also claims that designers of regular plans must have had significant knowledge of the theoretical geometry of among others Euclid. This claim can be challenged, however. In the cases of regular orthogonal planning the people who designed and set out the plans must have had a basic knowledge of geometric principles in order to make straight and parallel lines and right angles at regular intervals. For this, one did not need to know the contents of the literature on geometry, however. Only in a limited number of cases involving more complex geometry, such as the proportioning of the terre nuove, the designers and surveyors must have been more able in geometric construction, and therefore they probably must have had some schooling in geometry. As described in paragraph 7.6, they may not have been professional mensiores (surveyors), but at least they were literati.

Master Symon, who is reported to have planned the extension of Ardres, seems to have been a surveyor with a theoretical background, since he was described as a doctum geometricalis operis magistrum, and the same may hold true for magistro Nieri who, as a ‘abbachista et mensuratore’, was involved in the widening of a street.
in Florence. Most surveyors, however, may have learned their job from the practical tradition, and possibly also from treatises containing basic and practical techniques of surveying, such as the Geometria Culmensis and the nearly contemporary work by Bertrand Boysset from southern France.

The Geometria Culmensis and the treatise by Boysset clearly aimed at explaining the basic rules of practical geometry explicitly to surveyors. They also regard some more theoretical aspects, but they are different from the ‘practical geometries’, in the sense that they were meant to treat the theory behind the practice of surveying.

In both treatises it is emphasised how important it is to measure and calculate correctly and that fixed measures and boundaries must be respected. In the introduction of the Geometria Culmensis, the writer, an anonymous surveyor in the service of the Teutonic order (presumably a cleric), states that he was assigned to write a ‘book about the employment of practical geometry’ because there are too many faulty measurements and calculations, which create discord among the people. From the treatise on land measurement by the surveyor Bertrand Boysset (Arles, c.1405) it clearly appears that the writer essentially saw the divine as the fundamental guarantee for the legitimacy of fixed dimensions and boundaries. In a number of ways, Boysset tries to claim heavenly ratification for his treatise and undeniable authority for fixed measures and boundaries in the spatial organisation of society. From other sources it is known that, at least since the early 14th century, official surveyors had to swear an oath by which they promised to be honest and to use the right units and instruments of measurement. God and the saints were called upon to help therein and see to it.

The honesty and ability of the surveyor were of the greatest importance in the measurement of pieces of land. In new settlements it was, of course, necessary that the settlers would be confident that they would receive the amount of land that they were promised and for which they paid. Everybody had to get what they deserved: der gerechte Maß, as it is called in the Geometria Culmensis. Therefore, the people who marked off the plots had to be reliable, preferably guaranteed by a sworn oath, they had to be able in measuring, and their measuring rods and ropes needed to have the right length.

For all this, it seems likely that professional surveyors were involved in the planning or at least the setting out of new town plans. But all in all there are only a very limited number of references to the involvement of professional surveyors in the laying out of new towns. And there is only one reference to a surveyor, or possibly a scholar in geometry (doctum geometricalis operis magistri), as the planner of an urban layout, regarding master Symon at Ardres in the second half of the 12th century. One should keep in mind, however, that the written sources are scant and that it is likely that surveyors were far more often involved, at least in setting out the plots, than the contemporary documents tell.

7.8 Clerics as planners or as surveyors

So, honesty was regarded as a precondition for the surveyor to function well, and the divine was called upon to see that surveyors did their work right. It is known that in the period under consideration monks sometimes acted as surveyors. Possibly, this was because, as men of God, they were regarded to be honest. The fact that they were generally relatively well educated was probably also relevant.

Some examples of clerics as surveyors are already encountered above. Many of the surveyors in Prussia under the Teutonic order seem to have been monks, and the allotments in the new extensions of the city of Florence also appear to largely have been set out by monks. For the large-scale extension of the city of Brescia in northern Italy in the years following 1237, it is known that the operation of measuring out the new streets in relation to the existing properties was led by a monk. His name was Alberico da Gambara and

174 See above in this paragraph.
175 Poulis 1997, p.43.
177 Guerreau 1995, p.89.
178 Boysset even writes that Jesus designated himself as detrador (estrictor), atermador (demarcator) and esquairador (someone who traces right angles?). (Guerreau 1995, p.99, n.93)
179 Poulis 1997, p.37. The idea of heaven as the guardian over boundaries probably is universal for traditional societies; boundaries are generally protected by religious taboos.
180 Helbig & Weinrich 1968, p.525.
181 See par.7-7.
he was a brother from the mendicant order of the Umiliati.\footnote{182}{Guidoni 1981 (II), p.127.} Another brother of the Umiliati, by name of Domenico, is reported to have led the building of the new town of Paganico. This town was founded by the government of Siena (in 1292) and therefore it is no accident that Domenico’s community resided in that city, just as Alberico’s friary resided in Brescia.\footnote{181}{Guidoni 1981 (II), p.168. According to Guidoni, the order of the Umiliati was relatively often engaged in urban building operations, since it was a specifically urban monastic order, which was relatively open to the surrounding world and which actively took part in the urban economy. (Guidoni 1981 (II), pp.127-146; Guidoni 1981 (I), pp.155-176) Guidoni also suggests that experience in town planning, particularly in orthogonal new town planning, was transmitted over Europe within the monastic order of the Cistercians. (Guidoni 1981 (III); Guidoni 1992, p.110) But his argument is not convincing, among other things because some of the towns that serve as his examples have nothing to do with the Cistercian order, whereas towns that were founded by this order are overlooked.}

In 1286 two men were called to the job of laying out the town with the telling name of Newton on the south shore of England. These men were personally appointed by King Edward I and were ordained to make it so that it would be ‘appropriate for merchants’. They were to lay out streets, lanes, a market place, a church, building plots and a harbour. Of the two appointed officials it is only known that one of them was a cleric from Gloucestershire.\footnote{184}{Beresford 1967, p.3; see par.7.2. Note that this call probably regarded the total project of making the town revive after it was heavily damaged in war, and not solely the architectural aspect.} It is not clear whether they were to be in charge of the whole operation of town foundation or whether their job was only to create the spatial structure.

7.9 Conclusion

The few contemporary written sources commonly do not mention anything about the planners of new towns. In the modern literature on newly created towns from the high-period of town foundation, many authors ascribe the spatial planning to professional architectural designers or even to professional town planners. This appears, however, to be a retro-projection of the modern situation, which is not justified by the evidence. The writing of the history of town planning in the past 150 years or so, has often been the subject of scholars with a background in the discipline of architecture and urban planning rather than in the discipline of history. It appears that particularly these scholars have sought to identify the planners as professional architectural designers or town planners.

The sole source that mentions professional architects as designers of new towns is Giorgio Vasari’s Vite, which was written in the 16th century. Vasari identified the architects/sculptors Arnolfo di Cambio and Andrea Pisano as designers of the early Florentine terre nuove in the period around 1300. These attributions, however, appear not to be very reliable. The attribution to Andrea is almost certainly wrong, while that to Arnolfo may be right but cannot be positively verified.\footnote{185}{One other clear source identified a ‘geometrician’ as the planner of an urban extension at Ardres in northern France. Furthermore, relatively many written sources identify the founding lords as the designers of new towns, but this is a topos that generally is unlikely to reflect what actually happened.} One other clear source identified a ‘geometrician’ as the planner of a urban extension at Ardres in northern France. Furthermore, relatively many written sources identify the founding lords as the designers of new towns, but this is a topos that generally is unlikely to reflect what actually happened.

As far as written sources mention specific people involved in the planning of new urban structures, it nearly always regards persons that were responsible for the general organisation and administration: clerics, clergymen, officers and notable citizens such as the men in the committees that were responsible for the planning of Giglio Fiorentino and Berwick-upon-Tweed. The sources also mention entrepreneurs that were engaged in the planning of villages and, less often, towns. They are particularly numerous in the lands east of the river Elbe, where they were commonly designated as locators. For all these officials and entrepreneurs it is not known to what degree they actually were involved in the spatial planning of the urban structures, but by lack of sources that show otherwise, they must be held responsible. Some of these men have been wrongly labelled as professional town planners by modern scholars, while other scholars suppose that these men must have hired others that were experienced in spatial planning.

It does indeed seem likely that the experience was sought of men that had been doing a similar job elsewhere in the time before, much as experience was sought after in the king’s call for advisors for the re-building of Berwick-upon-Tweed: ‘[...] from among your wisest and ablest who know best how to devise, order and array a new town to the greatest profit of Ourselves and of merchants.’\footnote{186}{Esford 1967, pp.427-428. The whole project appears to have been aborted not long after, so nothing seems to have been realised.} It seems particularly likely that, when several towns were created for the same lord, he set the same men to work at the different towns. But there are no
written sources to confirm this, apart from the notary Pons Maynard, the committee that was involved in
the foundation of Castelfranco, San Giovanni and a third town in the Valdarno di Sopra, the ordenadors and
stablidors that were to create the fourteen new towns at Mallorca, and a number of locatores that were involved
in the planning of several villages and towns. In a certain sense, one might call these people (part-time) town
planners, but with this it is essential to note that the most important part of their job was to organise and
oversee the operation of the creation of new towns, rather than to design their urban form.

By lack of further sources, it seems valid to assume that surveyors who were involved in the setting out
of spatial structures may also have been involved in the design of these structures. These surveyors may have
been full-time professionals, or they may have been notaries, monks or teachers in geometry. In a small
number of cases it seems likely that military engineers, for whom military architectural design was prob-
ably part of their job, planned new towns. For instance, the ingenerii mentioned in a document regarding the
layout of Carnisprivium in northern Italy probably were professional military engineers. It also seems that
the spatial planning of new towns that were founded in relation to military campaigns and that were laid out
in relation to new castles, as for instance Flint, Conwy, Caernarfon and Beaumaris in north Wales, may be
ascribed to military architectural designers.
8 IDEOLOGICAL ASPECTS CONCERNING THE FOUNDATION AND PLANNING OF NEW TOWNS

The previous chapters mainly dealt with the physical aspects and procedures related to the foundation, planning and building of new towns in the high-period of town foundation. Next, this chapter will discuss ideological aspects that were related to the urban settlement as a societal and architectural structure in the period under consideration. These aspects are very relevant to the newly founded towns of the period, since they influenced their creation, their forms and their institutions up to some extent.

The manmade landscape and our view of it are shaped on the basis of ideologies which one may or may not be conscious of. Consequently, ideologies from the past may be ‘read’ from the landscape, historically layered as it is. In this respect, the term ‘ideology’ must be understood as a system of ideas that ideally is integrated into a complete ‘world view’ or an interpretation of the ‘cosmos’. Since the organisation of society is a very important aspect of the human world view the landscape of settlement, being the stage of human society, must necessarily reflect ideology, and particularly ideas on the organisation of society. This must be even more true when explicit planning, which is implicitly aimed at order, is at issue, as in the planning of new towns.

This chapter will first deal with ideologies concerning the civic society, in general as well as concerning its spatial form. In the second part of the chapter, aesthetic ideologies will be considered in relation to the urban form of newly planned towns and newly planned urban ensembles in existing towns.

8.1 Ideal societies

8.1.1 The Heavenly Jerusalem and the godly city on earth

In Christian thought, the ultimate ideal of a society is heaven, where all truly faithful Christians are believed to live after the Last Judgement. In the bible, this Christian heaven is described in the form of the Heavenly Jerusalem. It is described by the prophet Ezekiel as well as by St. John in the Apocalypse, where it is named ‘the Holy Jerusalem’. In the Apocalypse this city descends from heaven after the Last Judgement, while according to Ezekiel’s vision the city is built by God, and the Israelites are guided there after He has defeated the people of Gog. In both visions the city is described as having a square plan with its sides oriented to the cardinal directions, built out of the most precious shiny materials. The city is walled and has twelve gates that are named after the tribes of Israel and are distributed equally over the four sides of the square outline. (fig. 8.1)

In the period under consideration, the Heavenly Jerusalem formed the ideal society that Christians strove to inhabit, uniting the whole of (Christian) mankind after the Day of Judgement. But according to the immensely influential book De civitate Dei, written by the church father Augustine between 413 and 426 AC, the ideal Christian society should also be sought after in the terrestrial sphere, by organising the society in accordance to the love of God. Augustine described this ideal terrestrial society in the form of a civitas. Due to the immense influence of St. Augustine’s work it became the ultimate religious and societal goal in the Christian world to realise the godly city on earth, as a pre-apocalyptic ideal society. This ideal was most literally followed in the monasteries that were founded since the fifth century, but it was also followed in the organisation, liturgy and architectural form of the Christian church, as well as in the organisation of Christian states in general.

5 According to Saint John the 12 foundations of the walls carry the names of the apostles, and in the city there is no darkness, nothing impure, no horror and no lies. And there is no temple in the city, because the Lord is all-over. According to Ezekiel its name will be ‘the Lord is there’, and the length and width are 4500 ells. According to St. John, however, the city is a cube, because its length, width and height are 12000 furlongs. (Revelations 21:9-27; Ezekiel 48:30-35)
8 For instance, the architectural form of a church could represent the godly city in the entrance, which was often built in the form of a city gate since the Carolingian era.
The form of the ideal society in both the Heavenly Jerusalem and the Civitas Dei was that of a city. It is not surprising that these images, which were so important in Christian thought, had some impact on actual towns and cities, as the current worldview was to see the transient world as a transcendent image of the divine plan, wherefore the earthly city was often seen as a reflection of the Heavenly Jerusalem.9 Thus, according to Augustine, the *civitas terrena* was an *imago* of the *caelestas civitas*, and hence the *cives* of the earthly city were also transcendent inhabitants of the heavenly city.10

The form of the Civitas Dei is not described by Augustine, but mostly it was depicted in the form of a round or polygonal city wall with towers and with saints in it. This was probably because the circle was seen as the perfect and therefore truly divine form. This form represented the form of the heavens, and according to Augustine it symbolises virtue, being the essential basis on which the Civitas Dei should be built.11

8.1.2 Influence of the images of the ideal Christian societies on the perception of real urban settlements

The clearest accounts of imitations of the Heavenly Jerusalem and the Civitas Dei in real towns and cities can be found in texts, where cities such as Kiev and Constantinople were called New Jerusalem, or cities like Rome, Trier, Cologne, Mainz, Prague and Strasbourg were called *sancta civitas* in their official seals and documents.12 These references were based on the history and functions of these cities, rather than on their architectural form.13 It is clear, however, that one of the goals of building churches with many high towers and impressive exteriors in a city, was to emit the image of a god-fearing and blessed community.14 It is illustrative that in many contemporary panegyrics on towns and cities the number and height of the towers is stressed and exaggerated.15 According to Bauer the urban form could also refer to the ideal cities of Christianity in a more general sense by way of beauty and order. In his opinion, the creation of the city-states of the 11th to 15th century was even to a considerable extent influenced by the images of the Heavenly Jerusalem and the Civitas Dei.16

Since about the 14th century, the Heavenly Jerusalem was often depicted in the form of a church building. (Bandmann 1951, pp.62-112; Konrad 1965, p.534) As to the form of the state: among others the Carolingian empire has been interpreted as a conscious attempt to realise the Augustinian vision. (Konrad 1965, p.529)

10 Haverkamp 1987, p.144. For other biblical passages and patristic commentaries on the Heavenly Jerusalem, see Orsini 1994, pp.421-422.
12 Cardini 1994, p.246; Haverkamp 1987, pp.123-124. It seems that these cities were called *civitas* particularly because they contained many monasteries and churches.
13 The earthly Jerusalem and Rome and other cities with particular important roles in the history of Christianity, were commonly thought of as closer in resemblance to the Heavenly Jerusalem than other cities. (Konrad 1965, pp.527, 531)
15 For instance by the ‘anonymous Genovese’ on the city of Genova: ‘[...] con terre in grande quantitate, chi tute adunan la citar [...].’ (Finotto 1992, p.83) Boccaccio especially praised Pavia for the great number of its high towers (Guidoni 1981 (II), p.147), and a Florentine writer boasted of his city having more than 150 towers of over 120 ells height. (Friedman 1988, p.215, n.45) For more examples, see Frugoni 1991, pp.79-80.
16 Bauer 1965, pp.2-17.
In some panegyric descriptions of cities of the 12th to 14th centuries, the so-called laudationes urbium, references can be found to the form of the Heavenly Jerusalem. In a laudatio of the 14th century, for instance, Florence is described as having 12 city gates, while it actually had 15. A similar ‘mistake’ can be found in a 12th-century description of the city of Milan.17

There are also cases for which it is likely that the actual forms of town walls were influenced by the heavenly image. In Cologne for instance, the town walls, which were begun in the late 12th century, were furnished with 12 gates. This is likely to have been a symbolic reference to the Heavenly Jerusalem, since two of the gates seem to have been rather unpragmatic, as they did not really open up to radiating streets. At Aachen, there were also 12 gates since the enlargement of the wall circuit in the middle of the 13th century, which number may also have been chosen in order to refer to the heavenly city.18

Many towns and cities were somehow organised in a 12-part (or sometimes 24-part) scheme. These quantities may be found, for instance, in the number of administrative units or neighbourhoods, the number of aldermen or consuls, or the number of guilds.19 This may also be seen as a reference to the Heavenly Jerusalem, as its 12 gates also stand for the 12 tribes of Israel and the 12 apostles.20 This symbolism is explicit in a chronicle from the first quarter of the 12th century concerning the city of Bergamo in northern Italy. It describes how there is an unparalleled respect for the communal laws in this city, and that these sanctas leges. viris sanctis Italy. It describes how there is an unparalleled respect for the communal laws in this city, and that these

In written and iconographic sources from about the 11th to 15th centuries, one can often find the outline form of existing cities described or depicted as circular in shape. These were not the real forms: they were either gross simplifications of the actual form or complete fantasies.22 The most well-known examples are plans of Jerusalem itself, that is to say the earthly Jerusalem. (fig. 8.2) According to many scholars, the circular outline refers to the Heavenly Jerusalem. This is very well possible, since the Heavenly Jerusalem was often depicted in round form. (fig. 8.3) Probably, this form was preferred above the square because the circle was also regarded as the perfect geometric form and besides that also as the form of the heavens.23

Because of this possible symbolic meaning, settlements of circular or more or less circular shape (in descriptions, depictions or in reality) have received relatively much attention in the art historical study of urban planning in the past.24 Most students of these settlements in the Europe of about the 5th to 15th century have tried to connect the outline shape with the Heavenly or the terrestrial Jerusalem.25 Some scholars believe that it was the ideal of every founder or planner to make a new settlement circular in form, and that other forms were only chosen for being easier to achieve, or alternatively, that they were formed ‘organically’.26 Most of the supposedly circular settlements that would have been created after this image of Jerusalem, however, are not really circular but rather ‘rounded’ in form. And mostly these rounded forms are clearly influenced by the

17 Braufelds 1953, pp.49-50.

18 Haverkamp 1987, p.137. According to Roeck (1989, p.215) the same principle was still motivating in the early 17th century, when Elias Holl built the magnificent gates of Augsburg, which had a symmetrical rather than a defensive function.


20 Braufelds 1953, p.50. A more important meaning of this division into 12 or 24 parts, however, seems to be the general cosmological duodecimal partition. The number 12 thus stands for completeness or wholeness, similar to the 12 hours of day, the 12 months of the year and the 12 signs of the zodiac, which are, of course, all related as divisions of time and space. It is likely that this cosmological partition into 12 or 24 parts had a certain influence on the number of tribes of Israel, the number of apostles and the form of the Heavenly Jerusalem. (see pars.6.4.3.1, 6.4.4) The phenomenon of the division of towns and cities into 12 or 24 neighbourhoods in southeastern Europe and Italy may have been diverted from the Byzantine tradition to divide the urban population into 12 parts for the sake of military organisation. Here the cosmological connection appears in the term for the constituent parts: horae or on., which means hours. (Guidoni 1978, pp.93-96; Heers 1990, p.330) It is interesting that the 12-partition of the city can also be found in other cultures. The cities of ancient China, for instance, often also had 12 councillors, and Plato’s Atlantis was also divided in 12 parts (Johnston 1983, p.21), just like the ancient Sassanid city of Ctesiphon (presently in Iran), in which the parts were named after the signs of the zodiac (Egli 1959, pp.263-265; Johnston 1983, p.16).

21 Frugoni 1991, p.74. In chapter 6 it has been mentioned that it is possible that the number of 24 towers at San Giovanni and Terranova may also have been meant as a reference to the Heavenly Jerusalem. Furthermore, the 144-ell length of the base-line of the probable geometric design method of the plan of Terranova may have been inspired by the description in Revelations 21:17, according to which the walls of the Heavenly Jerusalem measured 144 ells in width or in height. (see par.6.4.2) It was also suggested in chapter 6 that the polygonal form of the basic figure of the probable geometric design method of the town of Aachen, with 12 or 24 sides, may have been inspired by the likeness to the contemporaneous round or polygonal depictions of the Heavenly Jerusalem or the Curies Dei. (see par.6.4.3.1)


topography of the landscape, such as the form of a more or less round hill or a bend of a meandering river.27 The settlements that are actually likely to have been purposely built in circular form, are mostly not influenced by Christian imagery: for instance the round settlements of the Vikings, such as Trelleborg (fig.8.4), or the traditional Slavic dˇ ediny settlements.28 There are also remnants of circular settlements on the Northsea coast of the Low Countries, such as Burgh, Middelburg and Oost Souburg in Zeeland, which were probably built as defensive forts against Viking raids.29 But there too, it is unlikely that these settlements have anything to do with the Heavenly or the earthly Jerusalem, since they appear to have been forts rather than towns.

Since the circle and the regular polygon, as a derivative, must have been regarded as ideal outline forms for the city, it is quite remarkable that no towns were built in truly circular or regular polygonal (for instance dodecagonal) form in Christian Europe until the 15th century. When new towns had regular outline forms, they were always rectangular.30 One might think that this may have been a reference to the Heavenly Jerusalem described in the bible. It must be doubted, however, whether that is right, since the towns mostly have an elongated rectangular outline and only rarely a square one, and since the number of gates of these towns is never twelve.31

The Heavenly Jerusalem could also be represented in real towns and cities by small elements, which did not have a significant influence on the total urban form.32 In the year 958, for instance, a cross was erected in the market square of the ancient German city of Trier, as a symbol of immunity during market hours, the so-called market peace.33 This cross also acted as a direct reference to the Heavenly Jerusalem, because it had a lamb depicted on it, and according to the biblical Apocalypse ‘Lamb and tree of life stand in the centre of the heavenly city’. Thus, this cross made Trier into a symbolic depiction of the Heavenly Jerusalem.34

28 See Lavedan & Hugueney 1974, pp.7-8; Müller 1961, pp.102-103.
30 Braunfels 1953, p.48.
31 In this respect, the situation in Europa was very different from the situation in the East, where it is all too clear that many towns and cities were conceived as formal copies of the divine heavens, in whole or in specific aspects. (see Heine Geldern 1959; Wu 1963) It is remarkable that many towns and cities that were built in the East are actually quite similar to the ideal models of the Christian West. For instance, the imperial capitals of ancient China with their more or less square outlines and three gates on every side (see Skinner 1977, p.48), or the Persian Sassanid capital of Gur, which is round and radially divided into twelve sectors with separate gates. (Egli 1959, pp.259, 352-354; Kostof 1991, pp.165-164; see also Johnston 1983, pp.14-220) Probably, these cities and the ideal cities of Christianity had common roots in ancient cosmology. One of the main reasons why such urban forms were not realized in the West may be that the towns that were purposely newly created there were all relatively insignificant compared to the newly created capital cities of the East, among others due to the fact that the mightier rulers in Europe resided in castles rather than in capital cities. Another important difference is that kingship, religion and the view of the cosmos were more closely tied up in the East than in the Christian West, where the ultimate religious goal essentially lay in the future, following the cosmic cataclysm of the apocalypse.
32 See Borger 1975.
33 See also par.9.16.
34 Haverkamp 1987, p.132. Bandmann even suggests that every town with a cross on a column in its centre explicitly referred to the Heavenly Jerusalem. (Bandmann 1972, p.86)
8.2 Urbanism in ecclesiastical thought

In the high-period of town foundation, new towns were created by members of the political elite, such as emperors, kings, princes, bishops, abbots or nobles from the lower ranks. This implies that these people saw political and economic advantages in the foundation of towns; but also that it was regarded as an appropriate thing, or even a good thing, to do for the gentry of contemporary society.

In antiquity the city was generally viewed as being cultured (this is how the word ‘civilised’ originated) in contrast to the countryside, which was thought of as primitive and ill. Since Roman times up to about the 12th century, however, many members of the clergy regarded towns and cities as places of sin and moral decay, and adverse to social order in their organisation. But these ideas changed later on, particularly in the 13th century.35

In the early 12th century, for instance, Abbott Guibert of Nogent wrote in a negative way about the then new urban communities and the unbounded freedom of their members: ‘Commune! new and detestable name. By it people are freed from all bondage in return for an annual tax payment.’36 Later in that century Saint Heribert doubted if any saint had ever founded a town, drawing attention to the negative biblical scenes of the foundation of Enoch by Cain and Babylon by Nimroth. According to Saint Bernard, Paris was equal to Babylon in moral respect.37 But already in the 9th century the influential cleric and encyclopaedist Hrabanus Maurus gave a binary reading of the city and its parts in his exegesis of the way the city should be interpreted in symbolic sense. This reading was positive on the one hand and negative on the other, but it seems that the positive symbolism prevailed in Hrabanus’ mind.38

In the 13th and 14th centuries, thinkers in the field of political theory formulated theories of society as it would ideally be organised in their view. Most of them largely based their theories on the ancient philosophers, primarily Aristotle, Plato and Augustine. Inspired by these authorities, they saw the city in its earthly form as a possible ideal society. Very important among these thinkers was St. Thomas Aquinas. Around

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35 Meier 1994, pp.24-54.
38 Finotto 1992, p.52.
the middle of the 13th century, he wrote an educational work for a prince, a so-called 'mirror of princes', in which he stated that the city is the '[...]' best form for the material and moral existence of man. St. Thomas actually claimed that the foundation of cities is one of the most important functions of a king, and he even compared this to the foundation of the world by God. This is reflected in the contents of the unfinished book, which deals extensively with the foundation of towns. Unfortunately, St. Thomas does not discuss the material form the city should have.

Around the same time, a similar positive perception of the phenomenon of the city can be found with Thomas' former teacher, Albertus Magnus. In a sermon delivered in Augsburg he preached 'The teachers of faith are called a city, because like a city they give security, urbanity, unity and freedom.' In the early 14th century, the political philosopher Remigio de Girolami even wrote that a person has to be a civilian in order to be a good Christian and a good human. Around the same time the popular preacher Fra Giordano da Rivalto preached in Florence that 'City (ciuitas) sounds so much like love (caritas), and for love people built themselves cities; because humans enjoy staying together.' Later in the 14th century, the Franciscan scholar Francesc Eiximenis wrote that wisdom has its home in the city and that there is less sin in the city because there is closer control and more guidance. Eiximenis was right in this, at least in principle, because within the urban confines there were more rules that guided the behaviour of the individual, and more institutions that looked after it. In most towns, for instance, it was forbidden to carry arms or to injure people, because the town was a locus pacificus. In many cities of the 14th and 15th centuries there were even regulations that forbade people to show off their wealth too much, as clothes and jewellery, feasts and funerals were limited in their abundance. John Pecham, archbishop of Canterbury and important advisor to King Edward I of England, even recommended urban life to his king as a way of civilising the conquered Welsh people: 'First of all, sire, the savagery and other evils arise from this cause, that they do not live together but dwell far apart from each other. And so, sire if you wish to make them behave in accordance with God and the world, and take away their savagery, command them to live in towns [...]'. With this, the archbishop offered the king a legitimisation to colonise Wales and found the towns there that are treated in chapter 1. Around the middle of the 15th century, the Castilian diplomat Sánchez de Arévalo wrote in his Suma de la Política that it is much better for 'justice and virtue' to found new towns, than it is to institute a new administration in conquered towns and cities. Both methods had been applied in the Iberian context of the reconquista on the Moors in the centuries before. But for Sánchez de Arévalo new structures were to be preferred above the re-use of old ones, in order to destroy the old social structures and habits that were tied to the existing spatial structures.
The fact that the urban population was taken seriously by the Catholic church, is clearly signified by the official papal approval of the mendicant orders of the Franciscans and the Dominicans in the early 13th century, and the Augustinians and Carmelites somewhat later on.\(^{49}\) These new monastic orders established their religious houses exclusively in urban centres. With the new spiritual guidance that they offered the town, it certainly became a more decorous place of living in the view of the conservative ecclesiastical movement, which had been largely anti-urban in earlier times. Increasingly, towns developed their own specific religious life, with their own local (patron) saints, religious feasts, devotional brotherhoods, sermons for large crowds and specific liturgies with processions.\(^{30}\)

### 8.2.1 The ideal city according to Francesc Eiximenis

In the second half of the 14th century the Aragonese cleric Francesc Eiximenis (1340-1409) wrote a text that has become the most explicit and therefore the most important European source on town planning theory in the West since the Roman architectural treatise of Vitruvius (c.30 B.C.) and before the treatise by Alberti.\(^{49}\) Unlike these other two sources, which dwell on the subject of town planning as being part of the discipline of architecture, Eiximenis has a clear model in mind of the way a city should ideally be laid out.

Eiximenis was a Franciscan friar who was highly respected at the Aragonese royal court for his knowledge of philosophy, which was mainly based on Aristotelian-Thomistic and Augustinian sources.\(^{51}\) In his encyclopaedic work El Crestià (The Christian), of 1381-86, the twelfth book is titled The princely government, of the cities and the public cause, and the 110th chapter is dedicated to the question ‘Which form should the beautiful and well-built city have’.\(^{52}\) Strangely enough, this important source has only very rarely been taken into consideration in the writing of the history of town planning.

As might be expected from a member of one of the mendicant orders, Eiximenis’ vision of life in the city is essentially positive. He writes that living in the city is best for the fulfillment of man’s material and spiritual needs, and that the ultimate goal of living together in a city is to honour God. He wrote: ‘The city is a congregation in agreement of many participating persons and traders and inhabitants, and this congregation must be well composed and honourable and ordered for a virtuous life’.\(^{53}\) If the city’s organisation and functions would follow God’s law, it would accomplish its earthly mission and it would prefigure the ‘final public cause’ or the Heavenly Jerusalem.\(^{54}\)

According to Eiximenis the city should be well-ordered in three senses: the spiritual, the temporal and the material.\(^{55}\) He amply discusses different aspects of civic society as it should be according to him, but here we will only discuss the architectural form of the ideal city that he describes. It should be kept in mind here that, as far as known, he was the first to record such a description since Roman times.\(^{56}\)

Eiximenis wrote that ‘just like the Greek philosophers\(^{57}\) say, after the wise Christians had adjusted some things, and they briefly said that every beautiful city should be square: because like that it is more beautiful and more ordered’. The...
wall on every side of the square should be a thousand paces long, and should have a main gate at its centre: ‘and from the eastern gate to the western gate passes a great and wide street which traverses the entire city from one part to the other: and the same is true for the one from the principal gate that looks on the midday to the other main gate that looks onto the north wind.’ And on either side of the main gates there are secondary gates: ‘and it is said that the streets run straight from the eastern gates to the western gates: and those from the south to the north: so the straight and beautiful streets run from each of the secondary gates to the ones on the opposite side.’ The city has four quarters, and each one should have noble houses and a great and beautiful square. On one side of the city is the princely palace, ‘strong and high and with an exit to the outside of the town wall’, while the cathedral is in the centre, next to the great and beautiful central square which is surrounded by porticoes. Trash, noise and violence are to be suppressed. And in every quarter there is a monastery of one of the mendicant orders. The practitioners of the different professions are to be spread, so that every quarter has its own shops and services. And the gates and walls are good, high, great and strong, so that the city is not only defended by the virtue of its citizens but also by the virtue of its walls. Eiximenis goes on to give a relatively extensive description of the form of the walls and fortifications. Finally, he writes that hospitals, brothels and sewers must be located downwind from the city.

There are many other aspects in this short text that deserve further study, but in the present context it is particularly relevant that the described city is up to a certain extent similar to the biblical Heavenly Jerusalem. Just like the Heavenly City, Eiximenis’ design is square and has three gates on all four of its sides. The writer does not explicitly refer to the Heavenly Jerusalem as a source of inspiration, but the similarity cannot be coincidental. As a Christian from his time, the first ‘ideal city’ that came to his mind simply must have been the Heavenly Jerusalem.

Eiximenis’ description of the form which the ‘beautiful and well-built city’ should have, was no utopia as was the Heavenly Jerusalem itself, but certainly it was an ideal city. Eiximenis explicitly referred to the ideal cities described by the ancient Greek philosophers, and with that he placed his own description in that philosophical context. It is difficult to say whether he really devised and described his design in the hope that this model would actually be followed in practice, or that he rather saw it as a philosophical exercise. In any case, his model was not impossible to realise in practice.

8.3 Town foundations aimed at societal reformation inspired by religious ideologies

In the preceding paragraphs it appeared that the city was often considered to be the ideal form of societal organisation. No towns are known to have been actually built as clear formal copies of the Heavenly Jerusalem or the Civitas Dei. But still, these and other ideal cities had a relation with the situation in reality, because they were inspired by reality and, conversely, they inspired reality, although not as clearly influencing their form as Eiximenis’ description might suggest. In the following paragraphs some examples will be discussed of the influence of higher ideals on the foundation of new towns. First, the organisation of urban society will be considered, and then the urban forms that resulted from the higher ideals will be discussed.

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59 “De la forma de la ciutat son stades diverses opinions: car dixerem los grechs philosop jat sia que apres hi hajen ajustat quelcom los savis crestians e han dit summariament en esta materia que tota bella ciutat devia esser quadrada: car ret seu pus bella e pus arrenegada; car lavors al mig de cada costat deu esser un portal principal que sia luny de cascun angle de mur seu per chinchents passes; e del portal d’orient fins al portal de ponent pas carrer gane e ample traversant tota la ciutat de part en part; semblant sia del portal principal qui garda mig jorn fins al altre principal qui guarda tremontana; posamencs encore que de cascun d’aquests portals principals fins als d’altres angles que li stien a dos costats hagues dos altres portals menys principals la un fins a la part dreta l’altre a la squerra; e que axi com dit es que ungusses carrers drets del portal d’orient al portal de ponent: e d’aquell de ponent [sic] fins aquell de tremontana: axi unguess carrers drets e bells de cascan dels portals mens principals fins als altres portals contiens.’ As cited by Puig y Cadafalch, 1936, p.1 (from: Francesc Eximenis , El Crestia, Vol.XII: `Regiment de princeps, de la forma de la ciutat e de les ciutats,` Barcelona, 1929, c.130).

60 According to Torres-Balbas (1954, p.90) and Iglesias (1985, p.30) Eiximenis meant that the different professions were to be located in different streets; but that is not what is relevant fragment of text edited by Puig y Cadafalch (1936, p.2) says.

61 Eiximenis, as quoted by Puig y Cadafalch 1936, p.2.

62 With this described form, the city also has a strong likeness to Chinese imperial capitals (particularly to those where the imperial palace is not placed in the centre of the city, but on the northern side, such as the Tang-dynasty capital of Chang-an), of the 7th to 10th centuries; see Shatzman Steinhardt 1986). It is not impossible that Eiximenis had heard of these cities, since contacts between Europe and China had been relatively intense in the 13th and 14th centuries. It is not impossible, for instance, that the rather vague description of Beijing (Dadu) by Marco Polo had some influence on Eiximenis’ design. (see par.8.6.4.)
8.3.1 The town foundations of Count Reinoud I of Gelre

A curious case of town foundation motivated by particular Christian religious ideologies is given by the town policy of Count Reinoud I, who ruled the county of Gelre in the present-day Netherlands and Germany from 1271 to 1318. This count issued a number of odd but very interesting charters and decrees between 1289 and 1312. The ambitions of the documents seem so pretentious, that they are often ascribed to Reinoud’s supposed insanity.63

He founded two new towns and renamed, or rather re-founded, four towns in his county. The first new town was Staverden, planned next to a new hunting-estate Reinoud had himself built in the centre of the largely uncultivated region of the Veluwe.64 The town, indicated as repubica and oppidum, was founded 25 March 1298. With the town, a hospital was founded.65 Since the town was not successful at all, nothing is known presently of its originally intended form. But it is clear from the documentation that it was originally meant to become a central place of special significance.

The hospital that was founded with the town was to be governed by a societas that was initiated by the count shortly before. It seems to have been some sort of knightly order on the model of the knights of St. John, having a crusade as its main goal.66 The count himself was the head of this societas.67 It seems that he also planned the societas to have some sort of academic or theological function.68

On the same day as Staverden, Reinoud founded another new town at or nearby the village of Hathem, at the north point of the Veluwe region. The place was indicated as oppidum and was named ‘Mons Dei’. It was to be peopled with the inhabitants of Hathem. This case is similar in that a hospital was founded at the same time, which was also to be administered by the societas.69 This hospital seems to have been planned as the head of a group of hospitals that were all named Mons Dei, founded in different places in the region of the Veluwe. These hospitals were probably meant to play a central role in the religious life of the towns they were planted in or that were founded with them.70

The name ‘Mons Dei’ for his new town and hospitals is a clear sign that Reinoud had special intentions of a religious nature with these foundations. The name referred to the biblical ‘Godly Mountain’ Sinai, where the Jews received the ten commandments on their way to the promised land, and to the holy mountain Zion, which is hailed as the invincible city of God in psalms 46-48.71 Saint Augustine was inspired by these psalms when he claimed that the Civitas Dei is the same as the ecclesia that was founded on the mons sanctus, and that this civitas, of which only the most pious Christians are the citizens, is the caput of all other civitates.72 ‘Mons Dei’ also refers to the Last Judgement, via psalm 48 and the prophecies of Isaiah, which say that in the final days God will judge over all people at ‘the mountain of the Lord’.73 In fact, Reinoud appears to have had strong eschatological expectations, and these were probably the main motivator behind Reinoud’s plans and foundations that are described here.74

It seems that the hospitals that Reinoud had founded in 1298 were primarily meant to support his crusading ambitions. In 1306 he founded three more hospitals that were probably all called Insula Dei.75 These foundations, only one of which was actually realised, were still related to his crusading ambitions, but it seems that they were more directly meant to take care for the souls and health of his familia - his relatives and subjects - and the poor from outside this group.76

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63 Schneider 1990; Moors 2000.
64 Reinoud obtained permission for the foundation of Staverden from King Rudolf of Habsburg in 1291. The privilege was restated by the king in 1295 and 1299. (Moors 2000, pp.43-44)
65 In the early documents the town was to be open for settlers from anywhere, except for vassals of the Empire. (Moors 2000, pp.44-45) But eventually, it seems that the town was reserved solely for Reinoud’s own subjects, who would not receive complete freedom. (Schneider 1990, p.16)
66 Schneider 1990, p.21; Moors 2000, p.44. Some years later, this societas was also given the rule over other hospitals, called Mons Dei and Insula Dei (see below).
67 Schneider 1990, p.15.
68 Moors 2000, pp.44-45. The terms societas, or collegium, and its associated cancellarius in themselves seem to refer to some sort of academic status. Reinoud also planned a grand theological conference somewhere in the Veluwe region in 1315, for which among others the magisters of the university of Paris seem to have been invited.
69 Moors 2000, pp.44-45; Schneider 1990, p.14. Judging from the form of the present-day town of Hattem, it seems to have been laid out partly according to a predetermined plan, somewhere around 1300, starting from an older core.
70 Schneider 1990, p.15. The hospital at Mons Dei (Hattem) also functioned as a place of residence for the count and his relations. (Moors 2000, p.45)
71 These psalms were part of a ‘Zion tradition’, in which Jerusalem is identified with the utopian community under the protection of God. (Ollenburger 1987, pp.15, 17, 23) For contemporary commentaries, see Schneider 1990, n.32.
72 Augustine’s writings may have had a particularly strong influence on the politics of Count Reinoud. (Schneider 1990, p.14)
73 Isaiah 2:1-5.
74 According to Moors (2000, pp.43, 56-64), Reinoud’s eschatological expectations were inspired by Franciscan theologians whom he met during a stay in Paris in 1289.
75 Schneider 1990, pp.12, 15, 19-20.
76 Schneider 1990, p.18; Moors 2000, p.47. Two hospitals were planned to be built in France and in the Holy Land, but they were never realised. (Schneider 1990, pp.12, 15)
77 The third hospital, ‘Insula Dei in Velua’, may have been founded in or near the town of Arnhem, which was gradually becoming the centre of the newly won northern part of the county. (Schneider 1990, nn.48, 66) Moors and others, however, believe that the hospital was founded in or near Hattem. (Moors 2000, pp.47-49)
Reinoud also renamed, or rather re-founded, a number of towns in Gelre, such as Hattem (formerly Mons Dei), Wageningen, and Kessel and/or Roermond into Insula Dei. It seems that he wanted to make these towns into virtuous places: a sort of islands of Christian morals, where caritas was the norm, within a sinful world.77

Most probably, Reinoud also used various of the hospitals and towns, and also monasteries, residences and the societae that he founded, to strengthen his foothold in the region of the Veluwe, which was a relatively new addition to the county. Another more mundane motive probably was to achieve a greater unity of the county as a whole, as it was still a collection of separate domains and lordships that had been acquired fairly recently.78

In the present context, however, it is of primary importance that the towns that Reinoud founded or re-founded also played an important role in a sort of ‘salvation program’, which he must have had in mind for his familia or his territory.79 It may be concluded that Reinoud most probably thought of towns, preferably provided with hospitals of his societae, as the best place to live in for his subjects, so that their souls would be cared for in the best possible way. It seems that Reinoud had an ideal of shaping his territory into a virtuous state, well-organised and administered by himself and his societae, so that his familia would lead a harmonious and virtuous life in preparation for the Last Judgement, and that from this basis the heathens would be defeated and the Holy Land would be re-conquered.

Reinoud’s plans were, however, over-ambitious: he never went on crusade, and the societae as well as the two unions of hospitals did not outlive his rule, which lasted to 1318.80 Consequently, Reinoud’s plans are mostly attributed to his supposed madness.81 His town foundations were a little more successful: Hattem was of regional importance until the 17th century. Staverden on the other hand, was a complete failure, since it was located on a site that was ill-suited and its settlers did not receive freedom from feudal obligations.82 Arnhem, however, flourished during Reinoud’s reign and nowadays it is the capital of the province of Gelderland in The Netherlands. It is not clear, however, to what degree Arnhem was actually affected by the policies discussed here, as there are no unambiguous indications that Arnhem was also one of Reinoud’s (re-)foundations.

Nevertheless, the case of Count Reinoud’s foundation policy clearly shows that the foundation of towns could sometimes be largely motivated by considerations of an ideological nature in the period under discussion.

8.3.2 The Hussite town of Tábor

In the year 1415 Johannes Huss, who had been rector at Prague University, was sentenced to death by the council of Constance and was burnt to the stake for preaching anti-papal ideas. Through a peculiar combination of circumstances this was indirectly the starting point of a great popular social revolt that broke out in 1418 in the towns of southern Bohemia, where people from the lower classes rose against the ecclesiastical and secular authorities.

Part of the revolting people formed religiously inspired communities that founded, or rather re-founded, towns where they settled. They called their towns ‘cities of the sun’, and they believed that these settlements would survive the End of Time, which they believed to be nearby. The Hussites, as the religiously inspired rebels are called, assembled there and in camps on hilltops with biblical names such as Sion, Horeb and Tabor. The cities combined in leagues and the military leaders of the Hussites became the actual leaders of the country of Bohemia after the dethroning of King Sigismund in 1421, when an interim government was appointed. The Hussite forces managed to defeat the armies of crusaders that were supported by the Roman church since it condemned the Hussite movement as heretical. Finally, in 1434 the Hussite-state died largely because of internal disagreements.83

The most significant of the Hussite towns was Tábor. (fig.8.5) In 1420 a band of Hussites had conquered

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77 Schneider 1990, p.20. At 4 December 1312, Reinoud issued a number of charters to existing towns and villages in his county, among which two of the new Insulae Dei towns. In general, the towns that were not named Insula Dei were termed oppidum, while the Insulae Dei are called civitas. (Moors 2000, pp.50-51) In the charters it is stated that the towns should turn to the ‘Maior civitas de Insula Dei’ for juridical consult, which would have made this place become a sort of mother town. Unfortunately, it is not possible to solidly identify which town this actually was. Schneider believes that it is Arnhem, whereas Moors and others claim that it must have been Roermond. (Schneider 1990, pp.21, 23; Moors 2000, pp.48-51) The new issue of charters had no long-lasting influence.

78 Schneider 1990, pp.15, 22-25.

79 Schneider 1990, p.18.

80 Schneider 1990, pp.24, 25.

81 Moors 2000, pp.39-42.

82 Fockema Andreau 1948, p.123.

the stronghold of Hradiště, which was sited on a well-defendable hilltop with steep sides surrounded by rivers. In February 1420, the Hussites went up the mountain from the nearby town of Ústí, which they left burned down, in the conviction that the End of Time was nearby. They called the camp they made there Hradiště hory Tábor, which means Fortress of the Mountain of Tábor, after the biblical mountain where the Israelites camped before they conquered the land of Canaan. In the following years, especially in 1422-24, the camp was turned into a town with an economical, social, administrative and architectural structure. In essence, the Taborite community was really a sort of communist society, since the credo was that ‘Private property is mortal sin. All people shall be brethren and there shall be no rulers and no dominion […]’. According to Gutkind, Tábor was the first town ever that was founded on such strongly communitarian principles. Since its foundation Tábor attracted many people, especially manual labourers, from nearby and far away.

Considering the urban form of the town, it is striking that the plan is highly irregular. (fig. 8.5) Regarding the circumference, it is obvious that its irregular shape was chosen rationally, following the contours of the topography. The complex pattern of streets and lots, however, cannot be interpreted in this way. Although the area within the walls is far from level, the alignments of the streets do not correspond to the gradients in a logical way. In the scholarly literature different explanations are given for the irregularity of the plan. Some authors write that the irregular labyrinthine structure of streets was created explicitly for reasons of defence. This does not seem very probable, however, because then it would not be logical that the two main streets lead directly from the gates to the central square. Therefore, it seems more likely that the irregularity was caused by the remnants of pre-existing structures that influenced the form in which the first camp was set up and which subsequently fossilised. This hypothesis could probably only be proven by close investigation of the old buildings and archaeological excavation. It almost seems as though the anti-authoritarianism of the movement is reflected in the plan of the town. And in a certain sense this may indeed be the case. The rejection of private property in the initial phase of Tábor’s history may have caused the house lots to have ‘come about’ in a gradual process of private occupa-

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84 Bujnoch 1988, n.25; Judges 4.
86 Before 1272, King Premysl Ottokar II had already founded a town on the site, but after some years it was destroyed by revolting lords from the region.
90 Later in the 15th century, Alberti advised to lay out irregular street structures for reason of defence in his architectural treatise. (see par. 11.2)
91 I have not been able to find publications on these subjects. It appears, however, that many underground tunnels have been found, leading to the fortifications. They seem to date back to the Hussite period. It is obvious that these tunnels played a role in the defence of the town. (Gutkind 1972, p.318)
tion, instead of having been created wilfully and coordinated. So, it seems that the typical spatial form of Tábor has come about by the combination of the form of the initial camp amongst the remnants of earlier structures, and the gradual creation of an allotment into distinct private house lots.

The church is sited on the highest point of the town next to the central open space. It does not date back to the period of origin of the town, however: initially it was explicitly omitted as a reference to the Heavenly Jerusalem of the Revelations of St. John, in which there is no church because God is all over the place. Instead of a church, the central open space must have served as the stage for religious service.

After the defeat of the Taborites, the town seems to have been turned into a ‘normal’ town rather fluently. Apparently, the reason for the success of the town had not just been the Taborite ideology, but also the economic and strategic opportunities of the site.

8.3.3 Comparison with other foundations of utopian cities

The case of the foundation of Tábor is very different from the foundations of Count Reinoud of Gelre, but there are also some significant similarities. Most striking is the reference in the town names to biblical mountains, which seems to have had eschatological connotations in both cases. Another similarity is that in both cases the care for the poor is an important aspect. One can also find these themes in other occurrences in the course of the history of Christianity.

After the capture of Jerusalem in 1099, during the first crusade, the party of ‘the poor’ within the host of crusaders, probably consisting of peasants and lower clergy, opposed the establishment of any kind of government, because they expected the Kingdom of Heaven to descend on Mount Zion within the near future, as prophesied in Psalm 46-48. In this Kingdom absolute justice would make the poor to be among the first to enter the Heavenly Jerusalem. The other interested parties, however, the feudal rulers and the clergy, did not proclaim such revolutionary ideologies and demanded the appointment of a lay ruler and a patriarch respectively. Eventually, a worldly kingdom of Jerusalem was instituted.

The Hussite utopian towns can also be compared to later literary utopian cities, such as Thomas Morus’ Utopia and Tommaso Campanella’s Città del Sole (which means City of the Sun, just like the Hussite towns were called) for their visionary social ideology. But the Hussite towns are even more similar to other settlements founded with an eschatological ideology. In Italy in the 13th and 14th centuries, dissident Christian movements, such as the ‘Dolciani’ or ‘Pauperes Lombardi’, appear to have founded settlements with similar ideologies. There are also parallels with the city of Florence during the republic of the humanist priest Girolamo Savonarola (1494–98), and the ‘Kingdom of Sion’ of the revolting movement of the Anabaptists at Münster in Westphalia in 1534–35, where societal organisation was aimed at achieving an ascetic godly city on earth in preparation for the apocalypse.

8.4 ‘Ideal city’: a problematic term

The town foundations inspired by religious ideologies that are treated above, might be regarded as ideal cities. There are, however, some problems with this term that should prevent us from casually doing so.

The terms ‘ideal city’ and ‘utopian city’ have become expressions that are often used for designs of imaginary cities and, less often, for cities that were actually built in the past. In the literature on ideal cities it is, however, more or less generally considered that these terms cannot be applied to cities and towns of the ‘middle ages’, since the idea of the ideal city is almost generally regarded as an invention of the ‘renaissance’.

It is supposed that in the ‘renaissance’ of 15th-century Italy, under the influence of the humanist idea that

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90 It should be noted, however, that rejection of private property of land does not necessarily lead to spatial disorder. Cf. the 19th-century Mormon foundation of Salt Lake City. See Kostof 1991, p.101.
91 See Franchetti-Pardo 1982, p.459.
92 Revelations 21:22.
93 Franchetti-Pardo 1982, p.459. It seems that at first the open space was not meant as a market place.
94 Moors 2000, p.98.
95 Prawer 1972, p.473.
96 Gutkind 1972, p.317. The later literary utopian cities will be briefly considered in par.8.4.
man could shape the world himself, creating new cities and new civic communities became an option that did not yet exist in the ‘middle ages’, since the world was seen as essentially created by God and not alterable by man in that period. Even when students of the subject of ideal cities know of the existence of new town planning in the centuries preceding the 15th, they often disregard it. Furthermore, the absence of theoretical writings on architecture and town planning from before the ‘renaissance’ is more or less commonly explained as a complete absence of urbanistic reflection, and therefore it is thought that towns and cities that were created in that period could never be ‘ideal’.

From the material treated in the previous chapters and paragraphs, it can be concluded that there is something wrong with this view. How can it be explained that ‘medieval man did not think he could shape his world’, while people were damming rivers, reclaiming and cultivating woods and swamps, building new villages and towns, and re-organising complete regions at the same time? Why could ‘medieval man’ not have a comprehensive idea of a city that did not (yet) exist in reality, while Eiximenis clearly described one. The answer is that these ideas are based on a preconceived and partly wrong view of the periods of ‘the middle ages’ and ‘the renaissance’, rather than on the actual study of the relevant material. In chapter 11 this problem will be discussed in detail.

In the 15th century a new phenomenon appeared in the world of architecture and town planning: the architectural treatise. Inspired by the Roman architectural treatise De architecture libri X, written by Vitruvius around 30 B.C., scholars and architects began to write educational works for architects and amateurs on architecture and town building. In these works advice is given on the siting, layout and organisation of towns and cities. A large part of the contents of these works is inspired by the writings of authors from antiquity, such as Vitruvius, Vegetius and Aristotle. The most important early examples are the treatises by Leon Battista Alberti (1452), Filarete (1460-64; fig. 8.6) and Francesco di Giorgio Martini (1479 / 1492).

In the 16th and 17th centuries another type of literature concerning visions on cities was revived. It regards fictional works that have come to be termed ‘utopian literature’. They describe imaginary perfect societies

98 Many studies could be cited as examples of these ideas; but the general view is clearly pictured, with many references, by Rahmsdorf (1999, pp.12, n.8, 16) and Kruft (1989, pp.11-13). See also par.11.2.

99 Rahmsdorf, for instance, acknowledges the fact that new towns were wilfully planned in the 13th and 14th centuries, but belittles it by denying that they were completely planned as complexes, with the argument that no plans are known that were drawn in advance. (Rahmsdorf 1999, p.24) As discussed in par.6.4.3.2, it is, however, likely that simple plans were made and it is obvious that planners must at least have had ideas of plans in their minds. (see pars.9.6 and Boerefijn 2005) Drawn plans are not necessary to prove that people had comprehensive visions of whole towns and cities. The fact that the ‘renaissance treatise’ of Alberti or utopian texts such as Thomas Morus’ Utopia and Tommaso Campanella’s Civitas Solis did not come with plans, can neither be interpreted as a lack of vision of the form and organisation of the imagined cities.

100 Kruft 1995, p.11.

101 It is also interesting in this context, to consider the description of the project for Giglio Fiorentino, in which an architectural plan of the town was integrated with a population scheme and social, administrative and juridical schemes. (see appendix A)

102 Actually, the architectural treatise in itself is not entirely new in the 15th century, or, for that matter, ‘the renaissance’. The ‘sketchbook’ of Villard d’Honnecourt from about 1220-35 was also meant for education in design, among others in architecture. This was, however, something completely different from the Italian treatises of the 15th century, being relatively awkward and lacking theoretical coherence. (Hahnloser 1935; Barnes 1989; Bechmann 1991)


104 Alberti 1988 (see also par.11.2); Averlino 1985; Rühling 1995.
in imaginary places, inspired by classical literature, such as Plato’s Laws and Timaeus and Aristoteles’ Politia. In the texts authors implicitly criticised the world they lived in, and in the described perfect societies they incorporated ideas of what would make a better society according to them. In these utopias the perfect society is given the form of a city. The most important examples are Thomas Morus’ Utopia (1516), Kaspar Stibilin’s Commentariolus de Eudaemonensium Republica (1555), Tommaso Campanella’s Civitas Solis (1602–3 / 1623) and Johann Valentin Andreae’s Christianopolis of 1619. The form of the cities is commonly described only briefly, and in the one text it is clearer than in the other. Remarkable correspondences are that they all have a geometric outline of round or square form, defined by a town wall. And in all apart from Morus’ Utopia there is a special focus on the centre, where an open space with a temple is located, with streets regularly radiating out from it.

The literary utopias were meant as ideal cities or as commentaries on the idea of the ideal terrestrial society. But the urban designs in the architectural treatises of the 15th to 17th centuries are also often called ‘ideal cities’ in the scholarly literature. This term, however, is problematic, since it is mostly not defined what is ‘ideal’ about the concerned towns and cities, and it appears that there are rather different conceptions of what an ideal city would be. The term is often used for the designs of geometrically regular urban plans in the architectural treatises, as if the regular plan is what makes an idea of a town or city ‘ideal’. Towns from the 15th century and after, which were actually built or restructured more or less following the models from the treatises, are also often termed ‘ideal cities’. These towns, such as Sabbioneta, Palmanova (fig.10.12) and Pienza in Italy and Freudenstadt in Germany, have received relatively much - almost excessive - attention in comparison to the planned towns of the centuries before. It has never been clearly described, however, why such towns of the 15th to 17th centuries would be ‘ideal’ and why planned towns from before the ‘renaissance’ are not considered in that perspective.

Hanno Walter Kruft defines the ‘ideal city’ as ‘[...] the paradoxical effort to realise a utopia, of which the form of the town is the visible reflection.’ The literal meaning of the Greek term ou-topos is non-place, but in a modern dictionary ‘utopia’ is described as ‘an imagined perfect place or state of things’. Therefore, it is a paradox to conceive of a utopia that is actually realised. The word ‘ideal’ has many different meanings, but here, too, the dictionary makes clear that the word is primarily related to phenomena that are ‘perfect’ and ‘existing only in the idea’. Hence, it is rather paradoxical to speak of actually realised towns as ‘ideal cities’. As described in the previous paragraphs, the form and organisation of actual cities and towns can certainly be inspired by ideals or even utopian ideals. Stronger still, as Colin and Rose Bell write, ‘[...] any artificial shaping of the environment according to a plan is inevitably idealist to some degree, and inevitably suggests the prospect of planning for total perfection. [...] There is no hypothetical situation in which we can regard the builder as free from choice, and every choice which is made for reasons in which the physical, spiritual, aesthetic, political or economic welfare of the proposed inhabitants plays some part, as opposed to that of the planner, is in that restricted sense an utopian choice. In either case, planners who might be supposed to be concerned merely with the provision of cheap and tolerable accommodation for factory workers very often turn out to consider that what they propose will also eliminate crime, improve health, and inspire an artistic renaissance, if it does not accelerate the Second Coming.’ In town planning ‘[...] the most extreme social, and the most pragmatic civil, share in this context a faith in the importance of environment, and each can give the other ammunition.’ This is a fundamental notion which makes the use of the term ‘ideal city’ quite senseless for cities that are actually built. A new urban settlement can be created with an ideal city as a model, but that does not make the result an ideal city.

For a definition of the utopian literature, and an extensive bibliography, see Rahmsdorf 1999, pp.9-14. Rahmsdorf 1999, Borst 1996. Filarete’s description of Sforzinda in his Trattato di architettura of 1460-64 can also be interpreted as a utopian description, but since the emphasis is strongly on the architecture and only weakly on its society, it is rather different from the real societal utopias of Morus and his followers. Rahmsdorf 1999, pp.34-39, 54-59. The outline of Morus’ Utopia, however, is described as ‘more or less square’ (figura fere quadrata). (Rahmsdorf 1999, p.98) See Rahmsdorf 1999, pp.93-208. Kruft 1989, p.10; Van den Heuvel 1991, pp.6-20; Rahmsdorf 1999, pp.60-63. Some authors motivate the use of the word ‘ideal’ by stressing that the regular geometric form has a symbolic meaning, as symbolising the link between microcosm and macrocosm. (Van den Heuvel 1991, p.15; Rahmsdorf 1999, pp.16, 60-63) The idea of the reference to the form of the cosmos is largely based on a passage and a figure in Francesco di Giorgio Martini’s Trattato, in which the city is compared to the human body in its functional parts and where the human body is explicitly called a microcosm that mirrors the macrocosm. This link of macrocosm / man / town, however, does not specifically refer to geometrically regular polygonal or round plans, as is often tacitly presumed. (Rahmsdorf 1999, pp.41, 65) It seems that plans with regular polygonal structures are sometimes over-interpreted as cosmic symbols, because these structures were also, or maybe mainly, valued as the optimal form for defence. (see for instance: Lang 1972; Marconi 1973; Johnston 1983, pp.36-64) Van den Heuvel 1991, pp.6-20. The interpretation of actually realised towns as ideal cities, can be found, for instance, in Kruft 1989. This book also contains a bibliography of literature on ideal cities.

112 Kruft 1989, p.10: ‘Wir verstehen die Idealstadt als den paradoxen Realisierungsversuch einer Utopie, die Stadtgestalt als ihren sichtbaren Abdruck.’
113 Rahmsdorf 1999, p.80; The Oxford Compact English Dictionary 1996.
The interpretation of real towns and cities as ideal cities has led to questionable results. In various cases it has even obscured the true motives of choices for specific forms, such as, for instance, regular polygonal fortifications.\textsuperscript{115} This does not mean, however, that it is senseless to interpret towns and cities that were actually built as material expressions of ideals. In fact, this can be very useful, for instance in order to learn about ideas on urban social organisation, about aesthetic preferences on urban form or about the relation between mundane motives and higher ideals.

The term ‘ideal city’ must be used with care, however. It is an appropriate term for conceptions of cities that are truly meant to form perfect societies. But it is confusing to put the label on any plan design of regular geometric form, or any realisation that resembles the designs in the architectural treatises of the 15th century and beyond, as has been done all too often.\textsuperscript{116}

8.5 Aspects of societal ideology in the newly planned towns of the 12th to 14th centuries

It is clear that some of the ill-fated (re-)foundations of the count of Gelre, treated in paragraph 8.3.1, were inspired by ideas regarding the organisation of society, related to contemporary crusader-ideology and eschatological expectations. Societal ideologies related to the End of Time are much more clearly recognisable in the case of the Hussite town foundations, particularly Tábor.\textsuperscript{117} It is evident that writings such as St. Augustine’s \textit{De civitate Dei} and St. Thomas’ \textit{De regimine principum} handed influential ideological arguments for the foundation of new towns.\textsuperscript{118} Some contemporary sources concerning new town foundations of a more usual sort than those of Reinoud of Gelre or the Hussites, also mentioned motives of ideological nature. Regarding the Florentine new town of Firenzuola, for instance, the foundation document of 1332 mentioned that it was created ‘[…] for the honor, peace and good state of the Commune and populace of Florence and the Guelph Party and the holy mother Church’.\textsuperscript{119} And in the foundation document of the town of Polička in Bohemia, of 1265, it was stated that the town was founded ‘[…] as Christian devotion and the future welfare of mankind demand.'.\textsuperscript{120} It is highly probable, however, that rather pragmatic military and economic motives were of far greater importance in both these foundations. But in official documents such pragmatic motives are rarely explicitly mentioned. In fact motives are rarely mentioned at all in the contemporary sources, so mostly it is difficult to discern if there was an ideological drive behind the foundation of a new town. It seems, however, that in most cases more mundane motivations, such as the exercise of power or the exploitation of the land and the people living on it, formed the main motives for new towns to be founded.

It should be kept in mind, however, that all artificial shaping of the environment according to a plan is inevitably idealist up to a certain degree.\textsuperscript{121} And it is logical that this idealist content must be relatively important when the shaping of the environment regards the foundation of a new town, because it does not only consider the shaping of the landscape, but also the institution of a new closed society, for which laws and regulations are newly laid down, determining the rules for co-existence.

In the following paragraphs we will discuss possible ideological motivations that determined the urban form of newly founded towns from the 13th and 14th centuries. Once again, the Florentine \textit{terre nuove} will play an important role in this discussion, which is due to the fact that they are relatively well-documented and well-studied.

\textsuperscript{115} Van den Heuvel 1991, pp.14-15. Various fortified towns and cities of the 15th to 17th centuries have been misinterpreted as ideal cities due to their regular plans and polygonal outlines, which also form part of the literary utopias of the period. It is implicitly denied that the aspect of optimal defence was generally of main importance in the choice of the outline forms. Another example of a too limited view due to interpretation as ideal city regards the Tuscan town of Pienza, which was partly rebuilt in the 15th century. (see among others Kruft 1989) In my opinion comparison to other towns of the period and region and their relation to the landscape offers more insight in the creation of its specific urban form than just viewing it as an ideal city, even though aspects of its design were certainly influenced by particular ideals.

\textsuperscript{116} In 1965, Bauer proposed to use the word \textit{Planstädte} (plan-cities), instead of ideal cities, for the designs in the treatises and their realisations. (Bauer 1965, p.99; Rahmdorf 1999, pp.123-62) In my opinion this is not a specifically appropriate term, since all cities and towns have plans and most of them are largely planned. Therefore, it is better to use more accurate descriptions.

\textsuperscript{117} See pars.8.3.1 and 8.3.2.

\textsuperscript{118} See par.8.2.

\textsuperscript{119} Friedman 1988, p.329, doc.13; see par.3.5.5.

\textsuperscript{120} Kuthan 1996, p.39. For more comparable motivations given in contemporary written sources, see par.9.1.5.

\textsuperscript{121} See par.8.4.
8.5.1 Equality of the house lots in newly planned towns

In most of the newly founded towns for which the originally intended sizes of the lots are known, the lots were, unlike the terre nuove fiorentine, conceived equal in size. Is it possible that this was based on an essential ideology of equality among the citizens of a town? Or were the lots conceived equal in size just because this is the simplest way to lay out a plan, to organise the settling of the inhabitants and to determine the rents? According to Spiro Kostof there actually was an ideology of equality: ‘In accordance with the free society they promoted, medieval new towns had honorable intentions about the equality of their parcels.’ Unfortunately, he does not elaborate upon this fundamental statement.

It should be considered here, that equality of lots is not necessarily imbedded in the grid plan, as is clearly shown by the terre nuove, which have a systematic variation in lot sizes. Conversely, however, the choice for lots of equal size does favour the grid plan; at least, if the planners do not want to make their job unnecessarily difficult. Therefore, new towns that were founded by the Huguenots in the 17th century in Germany and Poland and the Mormon-cities in 19th-century USA, in which the lots were all equal in size in order to reflect the equality of their inhabitants before God, were laid out on highly regular orthogonal grids.

Ideas concerning equality among citizens can be found in theoretical writings from the 13th century and later, in which the idea in juridical sense is specifically connected to civilitas and urbanitas, presented as flowing forth from the Christian ideals of love, charity, equality, and unity before God. The town is seen as the metaphor for brotherly and god-fearing life.

The planned equality of the initial house lots in new towns may also have had other motives. It is most likely that the principal equality of lots is, at the very least, partly motivated by pragmatics of planning and of rent calculation. If the equality of the lots was really a principal ideal in the layout of new towns, it would at least seem likely that regulations would have been instituted to keep the plots to their original size. I know of no such regulations, however. In fact, there are various towns where the principally equal standard lots appear to have been distributed in multiples or parts already in the initial phase.

Apart from the techniques of planning and rent calculation, there is another rather pragmatic possible motive for the equality of the planned plots. It was (and still is) of essential significance for the attraction of people to new settlements, that possibilities were offered that looked promising for the improvement of individual and collective existence. Starting from an essential equality must certainly have looked promising to ambitious people. A clear example is the donation of civic rights to the town of Jaca by King Sancho Ramírez of Aragon in 1063. The king promoted his castle settlement to the status of town. In the donation of the privileges it was formulated why the king made the laws equal for every settler from the day of the foundation: ‘because I want that it will be well-settled I give and confirm you and all who will move to my town Jaca, all the good laws, that you have requested, so that my town will be strongly settled’, and therefore all citizens received the same rights and had to suffer the same punishments in case the rules would be broken, ‘whether he is knight, burgher or farmer’. It is not clear what the original lots in the town looked like, but the quotation suggests that the king thought his new town would be most successful in attracting settlers when he gave them good privileges that were the same for all of them.

In my opinion, it is likely that the same idea played a role in the initial distribution, or promise, of lots of equal size to settlers, whatever their social background was. The terre nuove are essentially different from

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122 Keyser 1938, pp.30-31. See also par.8.11 and appendix C.
123 Kostof 1991, p.100.
124 See par.8.5.2.1.
125 See par.8.10.4.
126 Kostof 1991, p.101. Above, this ideology of equality before God is already encountered with the Taborites in the early 15th century. But in their city of Tábor there are no traces of an equality of lots. This is because, on the one hand, Tábor was not purposely laid out by the Taborites, and on the other hand because initially their ideology was that there would be no private possession. See par.8.3.2.
127 This equality of citizens before the law became the normal situation since about the 13th century. (Frenz 2000, pp.72-77, 134) In earlier times social groups, such as merchants, craftsmen, clergy, noblemen and serfs, lived under their own specific laws. (Frenz 2000, pp.17-22, 136-137) Later on, citizenship was often still refused to various ethnic groups, women, clergy, noblemen and for the unfree as far as they still existed before the law. (Mumford 1931, p.317; see also par.9.9)
128 For instance in the anonymous North Italian Oculus Pastoris of c.1222, William of Auvergne’s De sacramento in generali, from the first half of the 13th century, Francesc Eiximenis’ Regimen de Principis of 1483 and Johann von Soest’s Wy men wol ein statt regyrn sol (How to govern a city well) of 1495. (Frenz 2000, pp.214-233; Trueta 1966, ch.5 (Eiximenis))
129 See par.9.11.
130 This was probably the case in Bern, where the original lots were 105 ft. wide and 60 ft. deep according to a later charter, seemingly intended to be cut up in pieces right from the outset. (Strahm 1946, p.81; Föllli 1935, p.206; Divonne 1993, p.42; see par.9.11) Other cases are Döbecye in Little Poland and New Salisbury in England. (see par.9.11)
131 Pitz 1991, p.381. Pitz only gives a German translation of this part of the document: ‘weil ich will, daß sie stark besiedelt wird, gesteh ich euch zu und bestätige ich euch und allen, die sich in meiner Stadt neiderlassen, alle jenen guten Gesetze, die ihr von mir erbeten habt, damit meine Stadt stark besiedelt werden’; ‘er sei Ritter oder Marktbürger (burgensis) oder Bauer’.
many other new towns since they were more or less forcedly settled with existing communities; if they had been planned to attract new settlers from anywhere else, nobody would have wanted to occupy the smaller lots, since it does not appear that they were cheaper. The situation of the initial equal lots in the new towns of the 12th to 14th centuries may be compared to the situation in the USA in the late 18th century, when under the National Land Ordinance the whole country, as far as it was not yet settled, was theoretically divided into a grid of equal lots that could be cheaply obtained by settlers, in order to colonise the still uncultivated parts of the country as well as to work as a ‘social equaliser’. Just as in the older newly planted towns in Europe, however, the original equality of the parcels was disturbed quickly when the land market became more dynamic once the settlers had flocked in.

So, there are indications suggesting that ideals concerning equality of the citizens may have played a role in the planning of new towns in the high-period of town foundation. It is well possible that the principle of equality of the lots in many new town projects may have been inspired by this. It should be considered, however, that it is likely that practical considerations regarding the planning and settling of new towns, as well as the calculation of rents and taxes most probably also played important roles as motives for the basic division of the land into equal lots. Unfortunately, it is not possible to reconstruct the relative importance of these considerations.

8.5.2 The Florentine terre nuove

Hermann Bauer claims that the terre nuove fiorentine can be regarded as small realisations of the ideal city. In his opinion they were the ideal cities of the faction of the guelfi, which was in power in Florence at the time the towns were founded. Bauer claims that the guelfi aimed to realise in the terre nuove the things that they could not realise in Florence due to political resistance and the toughness of the existing situation. Bauer is rather vague about what exactly would be ideal in the case of the terre nuove. He describes that Florence was sometimes regarded as a depiction of the Heavenly Jerusalem, and he claims that the terre nuove were planned to have been depictions of Florence. His main argument is that they were explicitly sited on plains, such as Florence itself, instead of on higher locations, where it would have been easier to defend them. With this argument, however, he ignores other important motives for the choice of the specific locations of the terre. Bauer also argues that they were ideal towns because the aspect of beauty, pulchritudo, played a role in the communal regulations in the terre, which were formulated long after their realisation in the statuti of the late 14th and 15th centuries. This is not a strong argument, however, since pulchritudo was an aspect of importance in the regulations of many of the cities and towns of northern and central Italy since the 12th and 13th centuries. Pulchritudo certainly had to do with aesthetic ideology, as will be discussed in paragraph 8.6.1, but it makes no sense to interpret the terre nuove in particular as ideal cities for that reason.

There is no doubt, however, that in their spatial, social and administrative structure, the terre nuove contain aspects that reflect ideas about the ideal organisation of the city, that lived among the ruling class of Florence at the time. This ruling class mainly consisted of the elite of merchants of the most powerful guilds.

David Friedman clearly described these aspects and the ideas they were based on. He refers to the unity of the towns, with their internal coherence and the wall that surrounds them, to the cruciform layout of the main streets, and to the centrality of the piazza, with its important functions and the buildings of the

132 Kostof 1991, pp.100, 116, 121; Reps 1965, See pars.10.3.1, 10.4.
133 It is possible that the aesthetic ideal of regular spatial order, as will be discussed in par.8.6, also played a role in this, although the plans of the terre nuove demonstrate that this ideal did not necessarily lead to equal lots.
134 Bauer 1965, pp.22-23.
135 As discussed in pars. 3.5 and 3.9.1, it is obvious that the terre nuove were built on strategic locations on main routes into the Florentine territory in fertile valleys in areas where the rebels had their bases of power.
136 Bauer 1965, pp.18-23.
138 Guidoni also writes that the terre nuove and other non-specified newly planned towns in Italy can be regarded as ideal cities. In his opinion, every town foundation by the city states of northern and central Italy is always (implicitly or explicitly) an ideal reproduction of the mother city, where new aesthetics and techniques could be tried out much easier than in the mother city itself. But only some of these new foundations can be really regarded as ‘ideal’, according to Guidoni. (Guidoni 1992 (II), p.91) Already in 1953 Braunfels argued against the interpretation of the new towns of the 13th and 14th centuries in Tuscany as ideal towns. In his opinion this interpretation was based mainly on the regular plans and the fact that they lay in Tuscany, for which reason they were regarded as a sort of ‘proto-renaissance ideal cities’ instead of as part of the contemporary surge of new town creations. (Braunfels 1953, pp.10-11)
139 Friedman 1972; Friedman 1968, pp. 200-220.
administrative and ecclesiastical institutions that are sited on it. These aspects can also be found in idealised representations of the city of Florence of the 14th and early 15th centuries. Friedman also describes how the government strove to make streets in Florence straight, wide and without obstacles, in order to make them better surveyable by its officers, in order to prevent crime and rebellion. It hardly succeeded in doing so in the city, but in the terre nuove all streets were planned following this ideal form. Another aspect that Friedman interprets as the reflection of an ideal of societal organisation, regards the ban on the nobility (magnati) from the new towns. In the city itself, the administration was not able to ban all magnati, but in the terre and their immediate surroundings they were simply not allowed to live or to have possessions from the very start of the projects.

8.5.2.1 The different lot sizes in the terre nuove

Friedman also considers the hierarchical order of the parallel rows of houses that get smaller towards the outside of the towns (most clearly visible in fig. 3.27) to be an aspect that is based on an ideal view of the organisation of the city of Florence itself. In principle, this would be diametrically opposed to the ideal of equality that may have been represented by the initially equal house lots in many other new towns, which is discussed in paragraph 8.5.1. Friedman describes that hierarchical order was an essential aspect of the idealised representations of the city of Florence that were made in the 14th and early 15th centuries, with the centre as the point of highest importance and decreasing levels of importance, in social, economic and administrative sense, towards the outside. The systematically ordered variety of house lots that is so typical of the terre nuove would have been planned to accommodate the variety of rich and poor farmers. The spatial organisation explicitly did not provide space for a completely different social class such as the nobility or the very rich, according to Friedman.

The variety in the size of the house lots, which diminish in length as they are sited further away from the central main street, is a very peculiar phenomenon. The Florentine terre nuove of Castelfranco, San Giovanni, Scarperia, Terranuova and Giglio Fiorentino are the only towns of the period that had such a systematic variation in the size of the house lots. Many, or possibly most, other new towns were initially planned to have lots of equal size. For as far as known, only few had house lots of different sizes that were planned in advance. But without exception, the variation was more limited and less regularly ordered than in the terre nuove. It is possible that in still other cases the allotment into house lots was deliberately left open to the demand of the settlers.

Now, why were different lot sizes planned in the terre nuove? It seems likely that the highly ordered variation of the house lots - distributed in three or more different classes with relatively small differences between them - must have reflected some sort of ideology with respect to the composition of the urban society. This ideology appears to have contained at least three aspects: the aspect of different classes (at least three) of households that had a different need for space, the aspect of orderly grouping, with the lots of the same classes side by side in rows, and the aspect of hierarchy, which was focused on the centre. From many sources it appears that in the period of about the 12th to 16th centuries the ideal way to order towns and cities in social and economic sense, was to distribute the professions, and with them the house-
In origin, a similar idea might have been behind the distribution of the different house lots in the terre nuove. However, there it clearly did not meet the actual variation in economic activities, since nearly all households originally lived of agriculture. It is also known that the distribution of wealth did not reflect the distribution of the different sizes of house lots: there were many people who owned very little, and there were only a few with relatively great wealth. So, if the variation in lot sizes was planned to accommodate a variation in profession or in wealth, it did not correspond with the way in which the towns were actually populated.

Regarding the idea of society as composed of different classes, there was also another ancient tradition of classification. Already in the fourth century B.C. Plato described his vision of the ideal society as consisting of different classes that harmoniously constitute one complete whole. In his opinion the best way to organise society was the city-state or polis, which was composed of three different social classes: the guardians or philosopher-rulers, the auxiliaries or warriors, and the commoners or producers (farmers, artisans and merchants). Since then, this societal model, which is usually called ‘the theory of the estates’, has played an important role in western thought on society at least until the 18th century.

The precise partition between the classes, however, varied by period and place. In the 12th to 15th centuries, for instance, adjustments were made to this system of ‘estates’, as the existing model that had been moulded on an essentially agrarian society organised along feudal lines had to be adapted to fit unto the new urban societies as well. In the 13th and 14th centuries, various thinkers on theology, politics and law wrote about the order of different social categories of the urban population as it was supposed to be in their view, among others describing the difference between the citizens that took part in the administration and those that did not, thereby creating distinctions in at least two different classes. In English towns, meanwhile, the social groups

148 Lavedan & Hugueney 1974, pp.156–157; Platt 1976 (1), pp.47–49; Dodgshon 1978, p.110; Piccinato 1988, p.128; Aquino 1997, p.110; Lilley 2002, pp.227–228. This professional zoning was often reflected in the names of streets. For instance in the town of New Salisbury, there used to be a Butcher Row, Pot Row, Oatmeal Corner, Wheelerrow (wheelwrights), Ironmonger Row, Poultry Street, and Cordwainer Row. (Ancient and Historical Monuments of the City of Salisbury 1980 (vol.1), pp.XL-XLII)

149 Braunfels 1953, pp.122–125. The petitioner added that every other good town already had a regulation to see to this professional zoning, but that was very much overstated.

150 A tax-assessment of Scarperia from 1356 shows that from 234 families (probably around 1000 people) there were only 10 that lived, at least partly, from non-agricultural professions. There were 5 millers, 1 butcher, 1 stipendary, 2 barbers, and 1 doublet-maker. The first two professions are clearly related to the agricultural sector. Apart from these professionals, it is likely that there were also people who were (partly) active in the working of iron and in keeping inns. (Romby & Diana 1985, p.32, n.31)

151 Likewise, in San Giovanni in 1427 there were about 1500 inhabitants, most of whom lived from agriculture; apart from that there were two merchants in spices (who were the wealthiest people in town), a furrier, an inn-keeper, some cobbler, smiths, prostitutes and clergyman. (Beccarini, Billi & Galli 1989, p.37)

152 Plato, The Republic, part 4, p.131. In fact, this theoretical social tri-partition was already centuries old in Plato’s time, but in the older view the philosopher-rulers were rather presented as priests.

153 Duby 1978 (2); Niehoff 1985, p.33. In Christian thought, this societal model was extended with notions from Saint Augustine’s ‘ordo–philosophy’.


were often simply discerned in ‘rich’ or ‘powerful’, ‘middling’, and ‘poor’, or alternatively ‘great’, ‘middling’, and ‘lesser’.\footnote{156}

In early 14th-century Florence there was a very popular preacher by the name of Fra Giordano da Rivalto, also known as Giordano da Pisa. He was a Dominican priest, and his public consisted mainly of the higher class of citizens, the wealthy members of the major guilds, known as the popolo grasso. His sermons often dealt specifically with city life. Just like many illustrious predecessors such as Aristotle, Saint Augustine, Thomas Aquinas and many others, he explicitly thought of the city as the ideal form of society.\footnote{157} In one specific sermon, Giordano compared the different professions that are practiced in the city with the different parts of the human body. About the differences he said: ‘the one part of the body is more noble and more graceful than the other, but in this variety lies the beauty, which is greater than when all parts would be equal’.\footnote{158} But he added that the different parts can only be beautiful when they are in the right place: ‘The way the nose is beautiful within the face, but ugly when without the face [...] thus is the foot beautiful in its own place; when it is on the chest or on the head, it will be ugly’.\footnote{159} Giordano used this anthropomorphic metaphor in order to stress the fact that there can only be harmony through ordered diversity, in the Divine creation as well as in human creations.\footnote{160} This was a well-known principle in the theory of beauty in the 13th century; and the metaphor of the human body was a more or less common way to illustrate it.\footnote{161}

With this, Fra Giordano was not speaking about different social classes such as priesthood, warriors and labourers, but about different professions within the city or members of different guilds. Essentially, his message was: there are different classes within the same society, some people are wealthy and others are poor, some are rich and live an easy life, whereas others can only obey and have to work very hard, and this cannot be changed, because God has ordered it in this way. With the metaphor of the human body Giordano meant to say that the different professions in the city necessarily need to be different in prestige and need to be in the right place, in order to constitute the perfect God-created body, which is the ideal city. In this way Giordano defended the existing difference in professions, and consequently social classes.\footnote{162}

When it is taken into consideration that Fra Giordano preached especially for the higher class of merchants and bankers, the popolo grasso, his propaganda in favour of class-differentiation is hardly surprising. This higher class of citizens was represented by the major guilds, the arte maggiori, who held power in Florence in the period around 1300.\footnote{163} This segment of the Florentine population formed the administration that was responsible for the founding of the terre nuove; and the relevant sermons were written around the same time that the towns were created. This demonstrates that the people who were responsible for the creation of the terre nuove are likely to have been familiar with ideas about the organisation of society such as Giordano’s.

In my opinion it might well have been the ideal of harmony and completeness in the composition of the different parts of the urban community, as of the parts of the human body, which was expressed in the ground plan designs of the new towns. The different classes of lot sizes represented the idea of supplementing groups in the urban society, that formed a complete wholeness as long as they were clearly and harmoniously ordered into a ‘natural’ hierarchy. The variation in lot sizes was based on an ideal image of urban society. This ideal image was a schematic and stable composition into classes. The distribution of the house lots into classes of different sizes in the terre nuove did not correspond, and possibly was not even meant to correspond, to the actual situation in the rural society of the satellite towns,\footnote{164} but reflected the ideal of what the urban society, more particularly that of

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\begin{itemize}
  \item[156] Reynolds 1982, p.20. It was taken as a matter of course that the ‘rich’, ‘powerful’ or ‘great’ took active part in the administration of the town. For instance, in the 13th century cardinal Brunetto Latini wrote that they had the moral obligation to help those who were less well off and that they were least selfish and least likely to be corrupted by money. (Reynolds 1982, p.20-21)
  \item[158] ‘Così dico io: tutti saranno a modo d’un corpo: ciascuno sarà membro e l’uno più nobile, e più gentile che l’altro assai, ed in questa diversità è la bellezza piú che se tutti fossero pari’. (Braunfels 1953, p.124, n.466; Frugoni 1983, p.195) Braunfels adds that the comparison between the civitas and the human body was not unusual at the time: among others John of Salisbury used the metaphor.
  \item[159] ‘Così il nace è bello in sulla faccia, e fuori della faccia è sua cosa e non è bello [...] così il piede è bellissimo nel suo luogo; se fosse fuori di suo luogo, nel petto e nel capo, sarebbe sazzisimo.’ (Braunfels 1953, p.124, n.465)
  \item[160] For Giordano’s ideas on the importance of order in the town, in spatial as well as social sense, see also par.8.6.3.
  \item[161] Niehoff 1985, p.33. The human body and its different parts had become quite a common metaphor particularly for the differences between classes or groups in society. It can be found among others with Plato, Saint Paul (Letter to the Romans 12: 3-8), John of Salisbury (Sherwood 1980, pp.163-164) and Francesc Eiximenis (Eiximenis 1967, pp.11-13).
  \item[162] See also Da Rivalto 1867, pp.52-53.
  \item[164] From the old plans of Castelfranco and Scarperia (figs.3.6, 3.19), it can be deduced that the variety in lot sizes did not mirror an actual variety in classes (of profession, wealth or status) over the towns as a whole, because the plans show clearly that only the larger lots were occupied in the quarters where less people were settled (the quarters were settled according to the places where the settlers came from, so that old social structures remained more or less intact, see par.3.8). In Scarperia, for instance,
\end{itemize}
\end{footnotesize}
real cities, should be like: a limited number of different classes, orderly housed in different groups of equal house lots that were hierarchically ordered into one perfect composition.

With the different classes of lot sizes, the plans of the terre nuove represent the societal and aesthetic ideals of order, harmony, hierarchy and completeness. The size of the lots reveals that there was no place for the few that outshine the lot, such as the old feudal gentry, but that there certainly were differences in status among the households. In fact, these differences are welcomed and elegantly ordered in the urban layout. In reality, however, the variety in the classes of the population of the terre never came to resemble the neatly ordered variety of the planned lot sizes.\footnote{165}

### 8.6. Aesthetic ideologies and their influence on the design of spatial urban order

From here on, this chapter will be concerned with aesthetic ideologies in relation to the spatial urban form. Apart from newly planned towns, newly planned urban ensembles in existing towns will also be considered, since there are more relevant written sources on this subject. It will be discussed how the design of new towns and new urban structures was influenced by aesthetic ideologies that are related to the idea of ‘order’. Specific attention is given in the following paragraphs to the subject of urban streets and their ‘ideal’ form, because this specific subject gives a clear insight into the aesthetic considerations in town planning at the time.

#### 8.6.1 ‘Pulchritudo civitatis’

Since around the 13th century, beauty became an important element in the care for the spatial form of cities and towns.\footnote{166} Contemporary written sources from central and northern Italy repeatedly stress the importance of a beautiful appearance of the city, which is often designated as pulchritudo civitatis (‘beauty of the city’). Documents show that in the 13th and 14th centuries the administrations of various cities, such as Florence, Bologna and Siena, made great efforts to regularise and beautify the appearance of the city for the sake of the pulchritudo civitatis. This policy influenced the building of new churches and cathedrals were built, largely financed and directed by the urban administrations, and various communal buildings and the building of new urban extensions surrounded by new city walls.\footnote{167} Also, new monumental piazzas were created and existing streets were straightened and widened.\footnote{168}

In a general sense, the appearance of the city was regarded as a visualisation of the well-being of the civic community and the righteousness of its government- as is still the case today.\footnote{169} In a meeting of the Sienese government in 1357 an officer petitioned for one of the streets to be re-structured, stating that ‘without order nothing good will be done’, and that the government of the city ‘is held to give the city order and rule’.\footnote{170} In this specific context it may be assumed that ‘order and rule’ meant public order as well as spatial order, based on laws and regulations. Public order was thus being improved by spatial order.

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*the* most densely settled quarter (the northwestern one) contained 104 hearths in 1356, while there were only 32 in the southwestern quarter. The distribution of wealth over different classes was about the same in both quarters. (according to a tax assessment of 1356; Romby & Diana 1985, pp.18-24; Friedman 1988, p.169) But in the least populated quarters all houses were simply built on the largest lots, while the smaller lots were only used as gardens there. From this, it may be concluded that, if the size of the lots was meant to reflect the wealth or status of the inhabitants, the less wealthy were probably lucky if they were settled in a quarter with less fellow inhabitants, because then they could take up the larger lots.

\footnote{165} There are some interesting parallels to the aspect of the ordered variety of the lot sizes in the terre nuove, which are partly based on similar ideologies. The Hindu caste-system had its visible reflection in the planning of towns in India in the past, sometimes leading to a systematic variety in the size of lots. (see Begde 1978, *The Dictionary of Art*, vol.15, pp.208-210; Boerefijn 1997) The town of Friedrichstadt in northern Germany (1620) was planned with six different classes of lots. (Burm 2003) Other interesting examples regard Leopoldov in Slovakia (c.1670, Johnston 1983, p.90) Philadelphia (1682, Carter 1975, p.118), Grammichele in Sicily (1583, Johnston 1983, p.87), Saint Petersburg (1714, Stoob 1979, p.203), Cullen in Scotland (1822, Adams 1978, p.70) and the design of Victoria (1849) by James Silk Buckingham, which was based on the model of the South-Indian temple town (see plan in Bell & Bell 1969, p.197). In most of these cases the largest lots were sited in the centre and the smaller ones in the periphery.

\footnote{166} Contemporary written sources from central and northern Italy repeatedly stress the importance of a beautiful appearance of the city, which is often designated as *pulchritudo civitatis* (‘beauty of the city’). Documents show that in the 13th and 14th centuries the administrations of various cities, such as Florence, Bologna and Siena, made great efforts to regularise and beautify the appearance of the city for the sake of the *pulchritudo civitatis*. This policy influenced the building of new churches and cathedrals were built, largely financed and directed by the urban administrations, and various communal buildings and the building of new urban extensions surrounded by new city walls.\footnote{167} Also, new monumental piazzas were created and existing streets were straightened and widened.\footnote{168}

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\footnote{170} ‘[...] volendo esse commendationi meritamente avere ciò che voler dare compimento e perfezione a la detta fonte e via, e ciò rimane perciò in ciò per la presente non è ordine alcuno, e senza ordine non si fà alcuna cosa buona, e a considerato chi avete coloro che avete a dare e tutta la città ordine e regole [...]’. Consiglio Generale, Deliberazioni 22 dec. 1357, vol.106, c.37. Published in Braunfels 1953, p.253, doc.d.
This spatial order was warranted by special regulations, which were relatively abundant specifically in the cities of central and northern Italy. These regulations considered among others the rectification, plastering and cleaning of streets, the design of facades and of fortifications. In several cities, there were special officials or committees to look after the observance of these regulations, such as the ‘ufficiali de l’ornata della città’ in Siena.

At the beginning of the 14th century, the preacher Fra Giordano da Rivalto delivered a sermon in Florence from which it clearly appears how important it was considered for the city to be orderly structured and beautiful. He preached: ‘See how beautiful the city is when it is well ordered [...] the order in the city is a thing which is all too beautiful, and this order confers three qualities: beauty, strength and greatness’. ‘A comfortable city that is ordered and in harmony would be so strong that it could never be conquered, and it would conquer all other people [...]’. Subsequently Giordano compared the power of the well-ordered city with that of the saints in heaven, who also draw their strength from their collectiveness. So, according to Giordano order brings beauty, power and greatness to the city, all three seemingly being about equally important.

It is important to consider here, that ever since the writings of Saint Augustine pulchritudo was regarded a divine quality in Christian philosophy that was primarily to be achieved through harmony, order and unity, in this way not only being the opposite of ugliness, but also of badness. In part inspired by this thought, the idea of the godly city was thought to be at least partly accomplishable through the achievement of pulchritudo in the urban form and harmony and of order in the urban society. In this light, the devotion to morphological coherence in the street, the piazza and the entire urban structure can be regarded as a reflection of ideas on the civic society. This ideology appears to have been closely adhered to particularly in Italy since the 13th century.

In the cities of 13th- and 14th-century central and northern Italy, the wish to be the most beautiful appears to have led to a sort of contest among towns and cities. They strove to beautify their appearance by erecting new magnificent buildings and decorating existing ones, by re-ordering the urban structures and by cleaning and paving the public spaces.

But the will to order and beautify also touched the design of private buildings, particularly those that flanked important public spaces. For instance, with the creation of the piazza of the campo in Siena in 1297, the material of the facades and the number and design of the windows of the houses around the piazza were prescribed, so that all private constructions would look more or less identical. Similar regulations were also issued in Florence and Nuremberg in 1318-1319.

The idea was that, by way of such regulations, regular and beautiful facades would be created along the major public spaces. Ideally, the facades of the houses would be more or less identical, built in one line, side by side and with the same height. In this way the individual house would be concealed behind a more or less ‘communal’ facade, reflecting the idea of the unity of the city and its society.

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172 Braunfels 1953, pp.95-98, 112; Finotto 1992, pp.98-104; Guidoni 1992 (II), pp.331-419. These publications all regard central and northern Italy; but it was not just in Italy where such institutions could be found. For instance, in Scottish towns officers called liners, who looked after plot boundaries and building regulations, were recorded since the late 12th century (Rosser 2000, p.340), and in Valencia (Spain) and Villingen (Germany) there were communal institutes that were to see to public space and building regulations from 1238 and 1316 on, respectively. (Cárcel Ortí & Trenchs Odena 1985, pp.1478; Jenisch 1999, p.73)

173 ‘Vedete come è bella la cittade quando è ordinata [...], troppo è bella cosa l’ordine nella città, e quest’ordine dà tre cose: bellezza, fortezza, grandezza’. ‘Una agevile cittade che fosse ordinata, e bene in concordia, sarebbe il forte che non si potrebbe guarnire alcun, e vesserebbono ogni altra gente [...].’ Sermon no.94; Cited in Braunfels 1953, p.124, n.494; Frugoni 1983, p.246; Meier 1994, p.51. Giordano also compares the city to paradise, because order and love have such a great role in its organisation. (Meier 1994, p.50)

174 The importance of the city being beautiful is also reflected in many other written sources from central and northern Italy of the 13th century and later. (Braunfels 1953, pp.126-130; Bauer 1965, pp.7-9; Cherubini 1991, p.107; Finotto 1992, pp.104-112; Guidoni 1992 (II), pp.320-328) It particularly regards sources concerning urbanistic operations and other communal building operations. (Braunfels 1953, pp.86, 104, 110, 126-130), but also other sources such as sermons (Frugoni 1983, p.111) or chronicles (Guidoni 1992 (II), p.130). According to some scholars it is very well conceivable that another deeper motivation for the devotion to beauty and order in the spatial form of the city is to be found in Christian, particularly Thomist doctrines. (Frisch 1977, p.69; Guidoni 1992 (II), pp.320-321; both referring to: Assunto 1963) These assertions are very vague, however.

175 Guidoni 1992 (II), p.321; Tatakiewicz 1970, pp.54, 58, 209, 231-232, 249; Finotto 1992, p.57. According to Alexander of Hales and Hugh of St. Victor, the good, the beautiful and the true are three expressions for the same thing, which can only be expressed in form, and that the visible beauty of form refers to the invisible beauty of the divine. Robert Grosseteste wrote ‘When we say that God is beautiful, this means that he is the cause of all beauty’. (Tatakiewicz 1970, pp.40, 50, 54, 92, 232)


177 Elsewhere in Europe, this phenomenon seems to have come to the fore only in the 14th and 15th centuries. (For Spain in particular, see Torres-Balbas 1954, pp.93-96)

178 Braunfels 1953, pp.121-122, 250, 110; Finotto 1992, p.85. That these regulations were successful in the case of the Sienese Campo is confirmed by Agnolo di Tura, who wrote in 1346 that it was one of the most beautiful piazzas in the world. (Finotto 1992, p.105)

179 In Florence, it is regarded among others the Piazza S. Giovanni in 1356 and the Via S. Reparata in 1388-89. (Braunfels 1953, pp.116-117; Trachtenberg 1997, pp.32, 67, 153-154) In Nuremberg there were also relatively exact ordinances regarding the facades of private buildings, which is rare for cities north of the Alps. (Nichols 1997, p.353)

180 Braunfels 1953, pp.108-109. See also the remark about the house facades along the main streets of the new town of Giglio Fiorentino in par.8.6.3. 325
8.6.2 The straightening of streets in existing towns and cities

For the beauty of the city it was considered very important that the streets were paved, wide, clean, regular and straight. Since around the 13th century, efforts were made to regularise the appearance of public space. Existing streets that were narrow and crooked, or on which houses or elements of houses (such as stairs, shop counters and jetties) protruded and reeded from the straight line, were widened, straightened and paved by public works. As far as these interventions touched the private buildings flanking the streets, this was legally founded on instituted regulations that gave juridical basis to among others expropriation and demolition.

In some documents streets that were not ‘beautiful, wide and straight’ (‘pulchra, ampla et recta’), were called ‘ugly and disgraceful’ (‘turpis ed inhonesta’). In the Florentine Statuto del Capitano from 1322-25 the reason for the laying out of a straight street across the city, connecting two opposite city gates, is formulated like this: ‘[…] to improve the becomingness and for the utility of the city of Florence and especially for beautiful and straight streets and entrances to this city, and so that the tradesman and people who import cereals from the regions of the Mugello and the Romagna can freely and directly reach the honourable portico of Or San Michele, where cereals are sold […]’. Similar motives can also be found elsewhere in the Florentine statutes, and also in administrative documents of other cities in central and northern Italy.

The quotation above clearly demonstrates that the ambition to create straight and wide streets through the city was motivated by the striving for a beautiful city in combination with the wish to improve the flow of traffic. But in many cases, public order was also a motive for the regularisation of city streets. Narrow and winding streets were considered to be a shelter for criminals and rebels because they were difficult to survey for the agents of the government. Such streets were likely to come under the control of the powerful noble families that often were very mighty within the neighbourhoods where they lived. Hence, it was for the public cause, in the interest of the city as a whole, that the streets were regularised. Narrow alleys were even completely closed off for this reason. In this respect the operations were more or less similar to the re-structuring of 19th-century Paris by Haussmann.

The regularisation of streets and the laying out of new streets in existing urban structures by the civic authorities only concerned public streets, or streets that were made public instead of private by this process. Although this process of regularising and ‘publicising’ was very slow, the idea was clearly aimed at the unification of the whole urban structure into one easily surveyable and aesthetically homogeneous whole.

This aspiration for physical unity found its motivation, at least partly, in a need for greater social unity within towns and cities. Many neighbourhoods in older cities were ruled by noble families with their clans, rather than by the urban government. The citiescape was far from homogeneous, with neighbourhoods dominated by castle-like defensive towers of the noble families, and streets and alleys that were closed off when clans fought out their intra-urban struggles. The cityscape was far from homogeneous, with neighbourhoods made impenetrable in times of unrest. Cases like this were rather extreme, but it is clear that in many cities and
towns, especially in the older ones, the solidarity within the neighbourhood or the clan was often far greater than with the urban community as a whole. Therefore, much unrest and damage was caused by intra-civic controversies. In order to prevent such disharmonies, regulations were established by the communal administration with regard to public behaviour and social order as well as to architectural form and spatial order.192 With regular and public streets instead of irregular (private) streets and alleys, the government tried to strengthen public control over urban space and create an orderly structured whole out of a patchwork of different units.193 In this way, the regularisation, harmonisation and ‘publication’ of the urban space and architecture reflected the aspiration for social harmony.194

This desire for social unity had different reasons. Struggles within the community were of course counter-productive and harmed the economy, for which reason unity was sought after. Also, the urban administration had an internal drive to enforce its power over all individuals and social structures and organisations, for which unity served as an excuse. But another, less mundane, reason was to mirror the image of the Christian ideal cities of the Augustinian Civitas Dei or the Heavenly Jerusalem, important elements of which were the strong faith of the inhabitants and the unity and harmony among them.195

So, there were different motives for regularising the layout of streets: improvement of traffic flow, increase of governmental control and the beautification and unification of the city. In most cases the direct occasion to undertake action will have been a practical reason, but the documents clearly show that the ideology of regularity, order and unity, in social as well as aesthetic sense, was also a very important factor.

Straightening and widening streets was no common practice for all European cities in the 13th and 14th centuries. But the idea that regular order in urban form was beautiful and therefore good and worthy to strive for, was probably alive almost anywhere in the towns and cities in the christianised parts of Europe.196 Through the centuries, the ideal of regular order in urban form was put into practice in various ways, culminating in the era of ‘Haussmannisation’ and modernist town planning in the second half of the 19th century and the first three quarters of the 20th. The spatial order, however, was only a component of the ongoing operation of urban ordering in a broader sense, which was most clearly reflected in the extending set of communal regulations.197

8.6.3 Beauty, straight streets and regular spatial order in towns and cities in contemporary written sources

In the paragraphs above, the aspects of beauty, order and unity of urban structures have been discussed. This discussion was about existing cities and towns, and not newly founded ones, although they are the basic subject of this study. This is because the clearest contemporary sources reflect on the older and larger cities, particularly of central and northern Italy, and not newly founded ones. But beauty, regularity and unity were also important considerations in the planning of many new towns, as well as in new urban extensions, particularly since about the second half of the 13th century. Very few contemporary sources, however, clearly tell so.

There are some exceptions, however. The foundation document of the new town of Mělník in Bohemia, edited by King Přemysl Ottokar II in 1274, mentions that ‘The fame of our kingdom grows best by the beauty and ornament of the towns.’198 Apparently, the beauty of towns was a relevant aspect, not only for the towns themselves but also for the greater whole of the territory. In the documents regarding the building of the fortifications of Firenzuola, of 1336 and 1338, it is described how the walls should be constructed in order to be ‘beautiful and useful’ (‘pulcrius et utilius’), and how the northern gate should be made ‘strong, beautiful,
useful and praiseworthy as it ought to be’ (‘fortis pulcra utilis et laudabilis sicut deceret’). Less explicit is the example of the description of the project for the new town of Giglio Fiorentino from 1350. In this document it is determined that the houses that front onto the main streets must have a facade of 10 braccia high, built out of stone or brick. Although the document does not clearly say so, it is obvious that this was decreed in order to give the main streets a beautiful, wealthy and uniform appearance.

As became clear in the previous chapters, new towns that were founded throughout Europe since about the 13th century were commonly, though not always, laid out with streets that were straight or almost straight. It is highly likely that aesthetic aspects involving order, regularity and beauty played an important role in this. But unfortunately there are hardly contemporary sources that directly confirm this. As explained in paragraph 8.4, theoretical architectural treatises that elaborate on urban planning are only known from the 15th century and later. But fortunately there are written sources of other sorts that show how much straight streets were admired. Some of these have already been dealt with above, with regard to the straightening of streets in Florence and in the discussion of the straight and wide streets that were considered very beautiful.

In one of his sermons delivered in Florence in 1303-06, the preacher Fra Giordano da Rivalto used the straight street as a metaphor for moral righteousness, in contrast to the winding street, which stood for sin and deceit. Among others, he mentioned that the straight street is better because it is more uniform, by which he most probably meant that it is therefore also more beautiful. The metaphor of the straight street for righteousness and the winding street for sin was far from new. Similar symbolism can be found in the old testament and in various writings of the church-fathers. For instance, Proverbs 21:8 says: ‘The way of the guilty is crooked, but the conduct of the pure is right’, and The Acts 13:10 says: ‘You son of the devil, you enemy of all righteousness, full of all deceit and villainy, will you not stop making crooked the straight paths of the Lord?’ The same traditional imagery can be found with Gregory the Great, Isidore of Sevilla and Saint Bernard, who compared foxes with demons, liars and heretics, because they move along tortuous paths. This imagery was also used in the fable Van den Vos Reynearde, originally from 12th-century northern France, in which the sly fox is stealing along winding paths in order to get what he wants by lying and cheating. All in all, it is clear that the general public will have associated winding roads or paths with negative notions, particularly in contrast with straight ones. This must also have been generally the case with words such as ‘bended’, ‘crooked’ and ‘winding’ in contrast to ‘straight’ and ‘right’.

Of course, these examples all concern allegorical imagery, which may not be taken as representative for actual town planning. But, on the other hand, there is no reason to ignore this material. There is not much information on the way people thought about the organisation of (real or imaginative) space, and the material discussed above certainly presents some relevant clues in this matter.

In texts that describe existing towns and cities, such as laudationes, one can also find descriptions of streets. For instance in a description of the city of Florence from 1339 in which the city is extolled, an anonymous author proudly writes that ‘The streets of the city are mostly large, straight and paved partly with stone and partly with brick [...]’. A 12th-century laudatio on the English town of Chester says that the town ‘(...) has two main streets, straight and excellent, in the form of the blessed cross’. These texts clearly illustrate the importance that was ascribed to the straightness, width and order of the city-street.

Many other cities and towns were praised for their unique beauty in laudationes. With these, it is remarkable that the streets are often celebrated for their wideness and for being paved, but if they are not

199 Richter 1940, pp.376, n.84, 385-386.
200 Friedman 1988, doc.20, pp.345-346; see app.A.
201 Giordano, sermon no.5. As cited in Braunfels 1953, p.102, n.339.
202 See also Psalm 125:5; Proverbs 2:9-15; 2:20; 11:5; 12:15; 1 Samuel 12:23; Hosea 14:10; Isaiah 40:3; The Acts 13:10; Luke 3:15; John 1:33. Actually, this symbolism of the straight road and the winding road is not exclusively Christian. In almost every religion this same metaphor of the road for the ‘path of life’ can be found, and the straight road is mostly clearly preferred. (Reicke & Rost 1969, s.v. ‘Weg’)
204 In this context it is important to consider that in Latin and (diverted from it) among others in present-day English, German, Dutch, French and Italian, similar words (such as rectus, right, rect, driot, diroit) signify spatial and geometrical straightness (as opposed to curved) as well as moral and juridical righteousness (as opposed to wrongness). And, most of all in Latin, there is also the meaning of ordering (dirigo, rectificatio) in spatial as well as non-spatial sense, and guiding or governing (recto, English: directing). The fact that the origin of the word for straightness is the same as the words for order and righteousness, is interesting, because it implies that since the times of old there is a direct link between the idea of order in space and the idea of truth and righteousness. See also n.243.
205 ‘Vit civitatis communiter omnes lange, recte ac lapidibus et in parte lateribus lastricate [...].’ (Braunfels 1953, p.101).
206 ‘Habet etiam platonem duas equines et excellentes in modum benedictis crus’. (Liber Luciani De Laude Cestrie, 1 Fol. 13. As published in Taylor 1912) It is also relevant in this case that the two streets have the form of a cross, which is important for the allegorical imagery the writer wanted to cast over the structure of the town. (see par.6.4.3)
207 Hyde 1965; 66; Slote 1990.
straight they are never praised for being winding, crooked or curved. 208 In fact, a description of Valencia from 1393 explicitly uses negative words to portray the irregular form of its streets. It says that the city is built ‘[...] by the Mores according to their customs narrow and miserable, with many narrow and winding alleys and other deformities [...]’ and it also speaks about ‘[...] these deformities that are in this city with Moorish alleys and other evils [...]’. 209 In this description there is a direct link between the winding street and badness, just as in the biblical and allegorical texts. Here, however, this link is no longer purely metaphorical but very direct, in the sense that the text is about real streets and real ‘heathens’.

From the many streets that were newly created in new towns and new town extensions, there are very few documents concerned with the planning process that comment on whether they were (to be) straight or not. For the case of the terre nuove fiorentine, for instance, there are just two documents (as far as I know) which mention that streets are (to be) straight. 210 Apart from this, none of the documents mention a straight line at all, not even the document that describes the plan of Giglio Fiorentino into detail. This document describes the streets as they are to be laid out, with their relative place and their width, but it is not mentioned that they are to be straight, although one can be fairly certain of this by analogy to the other Florentine new towns. 211 (see figs. 3.6-3.27) There is a more or less similar source for the town of Fontanetto Po, which was re-founded in 1323 in northern Italy by the monastery of San Genuario and the marquis of Monferrato. (fig. 8.8) The foundation document described that the main street is to connect the two town gates in a straight line: ‘ab una porta ab alia fiat via recta’. The two intersecting streets are also indicated to be straight. Although the four sides of the original outline of the town are also straight, these are not explicitly described as such. 212 Neither is it mentioned in either the case of Giglio or Fontanetto that the various streets and sides of the outlines were connected by right angles. 213

Of course, the streets were purposely made straight and connected by right angles. Apparently, it was rarely found necessary to mention this in the documents, as it was regarded more or less self-evident: when one plans a new street, it is made straight, and when one plans another street intersecting it, it is made perpendicular to the other one, unless there are special circumstances that demand other solutions. 214

There is one contemporary document that does clearly mention that streets ought to be planned straight, but this not with regard to towns. It is a 13th-century document from Castile which prescribes the layout of military camps: ‘it is just like the form of a village. When it is made oblong, it must be given a street in the middle completely straight, and when it is made square, it must be given two or better four, some in the long direction, the others perpendicular.’ 215 Apparently, the streets in military camps and in villages ideally ought to be straight and the structure ought to be orthogonal. I am convinced that this also has been the basic idea for the plan structure of towns and cities in general, but unfortunately no contemporary written source is known that clearly says so.

It is an important indication, however, that the ideal city described by Francesc Eiximenis in the late 14th century

208 For instance: Bonvesin de la Riva about Milan, in De Magnolibus Urbis Mediolani from 1288. (Guidoni 1981 (II), p.143)

209 ‘[…] per muros a lux castam extrems et moenae, ab omnis carrum extrems volumes et altrus deformantes […]’ (Garcia y Bellido, Torres Balbis & Cervera 1968, pp.145-153) The word deformitas can be found again and again in the records of the Valencian committee that was to see to the public space in the city. It is often used for the old, narrow and crooked streets and the bridges and balconies above them. Straight streets, on the other hand, are described as beautiful. For the beauty of the city (‘per bellam de la ciutat’) the authorities sought to avoid anything that would appear as Moorish, in order to wipe out the deformitas.

210 Both documents regard the main streets of Fierenzuola. The first one is the short description of the town that is to be built in the legislation document (see par. 3.8.4), and the second one is a decree of 1388, prohibiting bridges over the streets. It is explicitly mentioned that the two streets connected the four gates by rects lines. (Richter 1990, pp.382, 385, docs.52, 53; Friedman 1998, pp.329, 331, docs.13, 15)

211 See appendix A.

212 Panero 1979. The general description of the town given in the document fits the structure of the town as it presently exists, but oddly enough, the indicated dimensions do not all seem to have been followed in the layout.

213 There are other sources, however, that clearly indicate that right angles were regarded as important for the beauty of urban spatial form. For instance, in the Florentine chronicle of Giovanni Villani, the writer complained that the plan form of the Palazzo Vecchio was not rectangular. (Giovanni Villani 1823, book IX, ch.XXV; Trachtenberg 1997, pp.21, 251, n.92) In a decree regarding the piazza that was laid out in front of this palazzo, it is established that the new piazza was ‘being squared and made equal’ (‘squadret e adeguat’) and ‘that this piazza must be made rectangular and be honourably arranged in a square’ (‘ébat ispia platea quadri et ad quadrum et in quadratu honestit ecter’). (Trachtenberg 1997, p.396, n.123, p.304, n.230) See also Marco Polo’s description of Dadu (Beijing) in the following paragraph.

214 Another interesting document in this respect is the Liber de Vis factis et dialogis in cunctis ciuitatibus bizae (Book of streets made and staked off around the city of Brescia) from 1237. It describes the streets that are newly staked out in a new urban extension of Brescia in northern Italy, by giving their width and carefully indicating where the stakes are placed. (Guidoni 1978-II, pp.99-120; document published in Guidoni 1991 II, pp.334-357) The evidence of the present-day town plans shows that those stakes were mainly placed in straight lines, so that the new streets were straight. (see plan in Guidoni 1992 III, p.363) Remarkably enough, it is not mentioned in the document that the streets were to be straight.

215 ‘que es así como la pueble de una villa. Si fuee longa, deben dexar una calle enmedio derecho, et si fueu quadra, deben dexar dos o feste quatro, les unos en longa, les otros en tranva.’ (Pereda II, 16, 223, 10, c.103; cited in Alonso 1976, p.56) It regards a chapter of a general revision of laws, the so-called Siete Partidas, which was enacted by King Alfonso X (1252-86). The relevant chapter is titled: ‘How the military camp should be laid out’.

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century has a regular orthogonal layout: the ‘[…] beautiful city should be square: because like that it is more beautiful and more ordered’, ‘and it is said that the streets run straight from the eastern gates to the western gates: and those from the south to the north: so the straight and beautiful streets run from each of the secondary gates to the ones on the opposite side’. Thus, the straight streets clearly form an integral part of an orderly and implicitly orthogonal composition. It should be well noted in the present context, that the only explicit reasons Eiximenis gives for this are beauty and order; not pragmatics of design, nor commodity, nor defence.

So, this only source that gives a description of the plan-form of an ideal city from the period in between antiquity and the 15th century clearly demonstrates that ideological considerations of an aesthetic nature had great relevance for thought on urban form: it was regarded very important for the city to have a beautiful layout. Essential factors for this beautiful layout were straight streets in a regular structure and a regular square outline. Apparently, orthogonal urban order was experienced as beautiful. This is also demonstrated by the many towns and urban extensions that were built in the 13th and 14th centuries on regular plans, with regular allotments, straight and wide streets, and (to a lesser extent) rectangular outlines.

8.6.4 Cosmological meaning of regular orthogonal order in the design of urban structures

It clearly appears from the various texts cited above, that great importance was attached to regular order in urban layouts in the period under consideration. Regular spatial order was thought to bring beauty and to promote order and harmony in the urban society. It was also seen as a reflection of the ideal of societal harmony. It seems, however, that there may well have been a further meaning to regular order in the design of urban structures, which has a more abstract cosmological nature. In paragraph 6.4.4 it has already been argued that the complex geometrical order in the design of the town plans of the terre nuove probably referred to cosmological ideology. In my opinion, it is likely that the simple geometrical order of the regular orthogonal plan had a similar meaning in the period under consideration.

When one studies the layout of a regularly planned town, such as for instance Grenade-sur-Garonne, one can recognise significance in the basic geometry of the straight roads, the right angles and the rational relations of the dimensions. In my opinion there is a message in the regularity of the plan, which reads: order and harmony. Apart from creating beauty and promoting societal order, a further reason to strive after this regular spatial order was that order was thought of as the system on which God had created the universe. Order was seen as the source of harmony and beauty, and all three they were essentially thought of as divine

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216 See par. 8.2.1, particularly n. 59; Puig y Cadafalch 1936, p. 1.
217 The same holds partly true for some of the other written sources mentioned above, but there are also more pragmatic reasons mentioned in the other sources. The difference is, of course, that Eiximenis was writing about an ideal city: although it probably could have actually been realised, he did not have to cope with the circumstances of reality in his description.
218 See also Marco Polo’s description of Beijing in the following paragraph, from which it also appears that the regular orthogonal town plan was very highly regarded.
219 In the traditional writing of the history of town building this has, however, mostly been denied or regarded as anomalous for that period. It has long been thought that the straight street and the highly ordered, symmetrical, orthogonal town plan were new developments from the ‘renaissance’ and that they are therefore typical of ‘modern times’. This traditional, basically 19th-century, view is still more or less generally adhered to. In chapter 11 this controversy will be discussed in detail.
220 Lilley (2002, pp. 165-167) has the same opinion, but in his idea the symbolical meaning behind the regular spatial order of new towns is mainly connected with the use of complex geometry in the design.
Jerusalem, standing on a mountain in the centre of the universe represented the ideal world. This Heavenly city, which some sort of crosswise organisation is a central element, was also acknowledged in other aspects of the cosmos, such as the elements, the winds, the humours, the cardinal virtues, the evangelists, etcetera. And the cosmic cross symbol was, of course, also connected with the Holy Cross, with its rich allegorical symbolism. In the 7th century, for instance, Bede and Sedulius Scotus wrote: ‘What is the importance of the cross if not that of the quadrate of the world’.

For the present subject it is highly relevant that the cosmos was often depicted or described symbolically as a city. Already in antiquity one finds the four-parted city, often placed on a mountain in the centre of the world, as a cosmic symbol. In Christianity this symbol was taken over from the Jewish tradition: the Heavenly Jerusalem, standing on a mountain in the centre of the universe represented the ideal world. This Heavenly Jerusalem has been depicted in different forms, but the four directions mostly were an important element of its form, whether symbolised by four radiating streets or by four sides of a square outline. (see figs. 8.1, 8.3)

Various scholars have written about symbolic meaning in urban plans of the 11th to 15th centuries, in which some sort of crosswise organisation is a central element. A relatively well-known phenomenon is the crosswise layout of an ensemble containing four or five churches in an urban setting. These crosses of churches have been interpreted as deliberate attempts to mirror the form of the heavens in cities. Another phenomenon in urban plans that carried symbolic meaning, was the motif of two main streets that cross at more or less right angles near the centre of a settlement. Such crossroads were often regarded as a sort of centre of the world, a so-called omphalos.

With regard to urban structures, there are contemporary written sources that explicitly refer to this symbolism of the cross and the four cardinal directions of the world. For instance, in the late-12th-century laudatio on the city of Chester that has already been cited in the previous paragraph, the market is described as the centre of the city, which is connected to four streets in the form of ‘the blessed cross’ so that products from all four directions of the world can be brought to the market. The four gates of the city would have been protected by the four evangelists, since four churches dedicated to these saints were sited near to them. In this description the actual shape of the urban structure is somewhat distorted in order to adapt it to the ideal scheme, whereby the city and its central cross of streets are made into a centre of cosmic significance. In other laudationes, for instance on the cities of Pavia and Florence in Italy, similar interpretations of the urban plans can be found.

These texts clearly give symbolic interpretations of the urban structures, but only in literary-allegorical sense. But outside the confines of the literary allegory, cosmological significance was attributed to cross-

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222 See for instance Esmeier 1978, fig.50.
226 Esmeier 1978, pp.73-74.
227 See par.8.1.1.
229 Herzog 1964, pp.241-251; Mekking 1988, pp.21-54; Pracchi 1996, pp.403-422.
230 Mekking 1988, p.27.
231 Müller 1961; Guidoni 1979; Kaulsen 1990. The idea and the meaning of the omphalos, where the four directions come together, is clearly described by Wheatley (1971, pp.417-455) with regard to Chinese imperial capitals.
roads just as well. The fact that chapels and high-crosses were often erected at crossroads, and that justice was often administered in these places clearly demonstrates this.  

Another primary element of the regular orthogonal town plan is, of course, the straight street. In the previous paragraphs it is already demonstrated that there was an explicit preference for the straight street over the winding street and that the straight street was generally seen as a symbol of moral righteousness.

One more element with a positive symbolic connotation, which often formed part of orthogonal spatial structures was the square. The geometric form of the square was described as symbolising moral perfection. This indicates once more that regular geometric order was very highly valued.

All in all, it clearly appears that the essential elements of spatial orthogonal order - straight lines that cross at right angles, pointing in four directions - generally had a positive symbolical meaning.

Further support for the idea that there was a ‘higher meaning’ to regular orthogonal urban form, can be found in references to the form of the Heavenly Jerusalem. In the bible the form of the Christian utopia of the Heavenly Jerusalem is described as a city with a square circuit of walls, with three city gates equally spaced on every side. (fig.8.1) This description suggests that the streets inside go straight from one gate to the opposite, thus forming an orthogonal grid. This image of the Heavenly Jerusalem clearly inspired Eiximenis’ description of an ideal - but feasible - city, dating from the 1380’s. The capital city that he describes also has a square circuit of walls with twelve equally-spaced gates. Furthermore, it has ‘straight and beautiful streets’ running from every gate to the one on the opposite side, forming a regular orthogonal plan.

A rather different contemporary text which is telling of the experience of regular orthogonal order in urban structures is Marco Polo’s description of the plan of Dadu, nowadays Beijing, where he stayed in 1275. He writes that ‘The new city is laid out in the form of a perfect rectangle […]’, with three gates on every side, and ‘The whole plan is laid out in highly regular form. […] The streets are so straight and wide that you can see right along them from end to end from one gate to the other. […] All the plots of ground on which the houses of the city are built are four-square, and laid out with straight lines. […] Each square plot is encompassed by handsome streets for traffic; and thus the whole city is arranged in squares just like a chess-board, and disposed in a manner so perfect and masterly that it is impossible to give a description that should do it justice.’ (fig.8.10)

What Marco Polo probably did not know, is that Dadu, as well as various other Chinese capital cities, was built to resemble the cosmos in its basic traits. From pre-modern China as well as India there are clear sources that demonstrate how the orthogonal urban plan, oriented on the cardinal directions and having a

235 Among others, the philosopher Pierre de Roissy wrote so in the early 13th century. (Bucher 1972, p.50, n.2)
236 See par.8.1.1.
237 Revelations 21:9-17; Ezekiel 48:30-35.
238 In some depictions of the Heavenly Jerusalem the area within the walls is represented by a grid of small squares in two tones, like a chessboard. (see fig.8.1 and Esmeyer 1978, fig.60; Poiron 1986, pp.25, 29 (11th c.); Cardini 1994, fig.196 (11th c.).) It is possible that this has to do with the idea of the orthogonal town plan.
239 See par.8.2.1.
240 The number of the gates is probably wrong: old Chinese sources only mention 11 gates. (Yule & Cordier, 1975, p.177) Marco’s mistake may have been caused by a confusion with the, for Christians all-important, image of the ideal city of the Heavenly Jerusalem as described in the bible. (cf. fig.8.1)
rectangular outline, was conceived as a reflection of the universe. No such clear sources are known from Europe in the period under consideration. Nevertheless, it seems likely that similar ideas have played a role there, given the clues discussed above.

It is clear that Marco Polo – just like Eiximenis, Fra Giordano and, in my opinion, most people from their time would have done – admired the amount of regularity and order that was warranted in the plan of Dadu by its right angles, its straight streets and its rectangular lots and outline. Back then, regular spatial order generally was seen as beautiful. In fact, geometric regularity was still regarded as precondition for beauty, as it was thought that God had created the universe with the help of geometry. Only since the 18th century this is no longer the rule, when the aesthetics of ‘the picturesque’ became appreciated in the perception of the natural and cultural landscape.

In my opinion, the sources discussed above indicate that the regular orthogonal order in the spatial structures of settlements in Europe from the 12th to 15th centuries can be interpreted as referring to a higher order. The geometric order of the settlement was based on the study of the order of the divine creation, in order to make the settlement harmonise with the divine creation, so that it would receive His blessing. Just as in pre-modern China and India, the settlement was to reflect certain aspects of the cosmic divine order, so that it would auspiciously be in harmony with it.

But the aspiration to achieve aesthetic and cosmological order was not the only reason to take the effort to bring regular order to urban layouts. The striving for spatial urban order was related to various aspects, such as the tradition of design, the practice of setting out a plan, the practice of settling, administration and taxation, ideas on social order, and symbolic thought. And of course these aspects are partly interconnected. It is impossible to discern what the relative importance of the various different aspects was at the time and to what degree they were consciously meditated over in the process of design: much as in present-day design it is very difficult to distinguish between such different aspects as motivations in the brains of the designers, not least because they often are not even explicitly thought over by them.

One should also be aware of the fact that the orthogonal plan is a relatively uncomplicated and pragmatic scheme to bring regular order to urban form. Therefore, many people tend to see it as a practical solution without any further meaning. In some cases more or less orthogonal forms may even have come about almost ‘accidentally’. For instance when a settlement developed at a location where two traffic routes crossed at more or less right angles, thus favouring an orthogonal layout. Therefore, many people tend to see it as a practical solution without any further meaning. In some cases more or less orthogonal forms may even have come about almost ‘accidentally’. For instance when a settlement developed at a location where two traffic routes crossed at more or less right angles, thus favouring an orthogonal layout. But looking beyond practical considerations, one must ask why in many cases there clearly was, and still is, the ambition to make urban form regular, even when it would be a lot easier set out plots and streets in a layout conforming to the existing landscape. I believe that the regular spatial order which is strived after, is to a considerable degree the result of the desire, or rather the need, of planners to make their product fit into their view of the world, their cosmos.

In the period under consideration there was a dominant ideology that demanded human acts and products, no matter how trivial, to contribute to the realisation of the ideal Christian society, by following God’s rule and imitating the ‘rules of divine order’, among which geometry and arithmetic were thought to be very important. So, although there may not be any specific contemporary written sources that unambiguously attest to the link between spatially regular town planning and the concept of divine order, this link certainly fits in very well with contemporary ideology.

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243 See par.6.4.4. It should also be reminded that beauty was directly related to the divine qualities of truth and righteousness. (see n.175) A similar attitude can be read in a sermon of Fra Giordano da Rivalto, directly related to the form and organisation of the city, see par.8.6.1.

244 In n.204 it is already pointed out that the words for spatial straightness, moral righteousness and ordering/guiding have the same origin in Latin and various modern languages. It should also be noted that in many languages a 90-degree angle is called a right angle (Latin directangulus, rectangular; German rechte Ecke, Dutch rechte hoek, French angle droit). I believe this has consequences for the idea of orthogonal order throughout the ages, and I think this suggests once again that orthogonal order, just like straightness, in town building as well as in other disciplines, is not just a simple and pragmatic way of ordering, but also implicitly refers to a higher abstract order. In his novel Lila, Robert M. Pirsig writes that the words recte, recht, right, etc. have their origin in the proto Indo-European morpheme rt, as do words such as art, arithmetic, rhetoric and rites. According to Pirsig the general meaning of rt was ‘first, created, beautiful repeated order of moral and aesthetic truth’. It is also relevant that in Sanskrit rt means ‘cosmic order of things’, relating to physical as well as to moral order. (Robert M. Pirsig, Lila. An Inquiry into Morals. New York, 1991. pp.338-400)

245 See ch.11, n.52.


247 The aspects of design and setting out are discussed in chapter 6 and in par.9.6, and the administrative and social aspects are discussed in pars.10.3.1, 10.4, 8.5.1 and 8.5.2.


249 See also par.10.2.1.

250 See also pars.6.4.4, 6.5.
Regular orthogonal order in urban planning probably referred to the divine order of the cosmos. This does not mean, however, that it was necessarily explicitly thought of as such. The concept in general had a higher symbolic meaning of a largely implicit nature - as, in a certain sense, it still has today. One must not think that geometrically regular urban forms were always thought of as reflecting divine order; but I believe that at least there were ‘intellectuals’ who consciously understood this higher meaning. I do not claim that the planners of highly regular, orthogonal urban layouts such as Grenade-sur-Garonne (fig.2.22), San Giovanni Valdarno (fig.3.12) or Elburg (fig.7.3) necessarily worked explicitly from the idea of following the design of divine order, but in my opinion they must at least have felt a very strong urge to make the plans as regular as they could, which was partly driven by a semi-conscious thought of the symbolic value of spatial order in relation to the larger world, e.g., the cosmos. The spatially regular urban plan probably was not conceived as a symbolic form to be read, in the sense of a ‘sign’ visible to the human eye. Rather, it must have been an allegorical symbol, which may not have been completely comprehended by people from all layers of society, but which played an important role in the cosmology of the leading thinkers of the age and the more educated people in their slipstream.

8.7 Conclusion

The conclusion of the first paragraphs of this chapter (pars.8.1 to 8.5) must be that with the vast part of the newly founded towns from the high-period of town foundation, there are no concrete indications that ideological motivations in the sense of societal ideals played an explicit role.250 There are some clear exceptions, however, such as the ‘cities of the sun’ of the Hussites, town foundations of other religious movements with eschatological expectations, and the (projects for the) foundations of Count Reinoud I of Gelre. It is likely, however, that with many other town foundations, as well as in existing towns and cities, societal ideologies, such as those concerned with the Augustinian Civitas Dei, also played a role, but mostly this was probably implicit rather than explicit. Only very rarely did such ideologies recognisably influence urban form.

But it may well be that the fact that hundreds of towns were newly created, had something to do with certain societal ideals. Towns and cities may often have been good places to live and to conduct affairs, and they often formed advantageous possessions to their lords, yielding financial and political profits. But the

250 It should be noted that this was barely different in the 15th to 17th centuries. The ideas expressed in the treatises of this time, mostly came to realisation only for as far as the fortification was concerned: mundane techniques rather than high ideals determined the actual realisation of urban form. (Rahmsdorf 1999, p.50)
concept of the free and politically integral urban society was also a societal ideal, which was among others inspired by biblical and theological texts, foremost Augustinus’ Civitas Dei. Therefore, foundations of new towns may well have been inspired by higher ideologies, apart from being the result of more mundane considerations. It is illustrative in this respect that St. Thomas claimed in his De regimine principum that the city is the ‘[...] best form for the material and moral existence of man’, and that the foundation of cities is one of the most important functions of a king, comparable to the foundation of the world by God.²⁵¹

So, societal ideals seem to have influenced the foundation of new towns and their shapes up to a certain extent. But it remains very vague up to what extent precisely. In paragraphs 8.5 and 8.6 it has been argued that ideas on the structure of urban society and aesthetic ideologies also influenced the shape of new towns and urban ensembles. The differentiated size of the house lots in the Florentine terre nuove may have been (partly) based on ideas of social harmony by a careful composition of different classes, and the equal size of the house lots in many other new towns may have been based on ideas about civil equality. Furthermore, it appears that order and regularity were sought after in urban form because, apart from various practical considerations, they were experienced as beautiful and formed an aesthetic ideal that was related to the symbolism of moral righteousness and philosophical ideas concerning order in urban society and the structure of the divine creation. In fact, ideas on spatial, societal and cosmic order appear to have been linked to each other up to a certain extent in the field of urban planning. This resulted in public streets that were preferably straight, wide and with regular facades along them, and urban structures that were preferably regular and orthogonal.

9 SYNTHESES: GENERAL DESCRIPTION OF THE PROCESS OF NEW TOWN CREATION IN THE 13TH AND 14TH CENTURIES

Now that three specific groups of newly founded towns have been introduced and a number of specific aspects of new town creation in the 13th and 14th centuries have been discussed, this chapter will provide a broader view. In the first part of the chapter the process of the founding, planning and building of new towns will be described, treating the different aspects one at a time, largely in the order that they presumably came to play a role in the process of town creation. The second part of this chapter (pars. 9.11 to 9.23) deals with the various physical elements that commonly were planned with the creation of a new town. Together, these elements, such as roads, houses and defences, made up the form of the planned towns.

This chapter is built of evidence from a great number of different new towns of the 13th and 14th centuries in southern, western and central Europe. This material is mainly taken from scholarly literature, and part of it is based on the study of plans or of the situation as it presently exists. The information from the different individual towns is combined in order to make a ‘complete’ reconstruction of the process of the creation of a new town and a description of the various elements of such a town. This is necessary because there is not one individual case for which the sources provide ‘complete’ information. The combination of material from different cases is also intended to give a more or less general picture of new town creation in the period under consideration.

9 PART I: ASPECTS OF THE CREATION PROCESS

9.1 Motives for town foundation

The first thing one has to consider is why new towns were founded at all. It is likely that there often was more than one reason to set out on the venture of town plantation. In the following sections the most common motives for the foundation of new towns in the period under consideration will be discussed.

9.1.1 Gathering subjects

Most of the new towns of the 12th to 15th centuries in Europe can be described as ‘colonising centres’. Their main goal was to allow the founding lord to get a (stronger) hold on the land, people and economy in a specific area. But the explicitly intended functions of the towns varied according to the specific circumstances and the different motivations of their founders.

The essence of the foundation of any new town was to gather settlers to a specific place. This is, however, explicitly mentioned only in a few contemporary sources as a motive for a new town’s foundation. The population of western, southern and central Europe went through a phase of strong growth in the 11th to 14th centuries. This offered good opportunities to populate new villages and towns from the population surplus of existing settlements. With the foundation of the new town that was added to Cracow in Silesia in 1257 (fig. 9.1) Duke Boleslav V aimed to ‘[... congregate men there from different regions [...].’ Another possibility for the foundation of a new town was to concentrate the older settlements of the surrounding countryside, as happened with the Florentine terre nuove and many of the new towns in southwestern France. The foundation of Serravalle in Tuscany in 1259 was initiated in order to ‘[... congregate men and unite them [...]’, presumably also mainly with people from the nearby region.

The unexpressed motivation behind this gathering of settlers must have been that the founding lord would strengthen his control over the settlers in as much as they already were his subjects, and that he would

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1 See also pars. 6.1.3 and 10.3.1. Also: Bartlett 1993, pp. 170–178, 293–291; Elen 1992, pp. 1–9, 289; Lilley 1997; Panero 2004.
2 Bartlett 1993, pp. 118–120, 128.
3 See par. 6.1.2.
4 ‘[...] homines in de diversi climatibus congregare [...].’ (Higounet 1986, p. 285)
5 Pars. 2.8, 3.6. Already in the 10th and 11th centuries, centres such as Castel Sant’Angelo were founded in Latium with the documented motive to ‘amass men’ (‘amasere homines’) or to ‘congregate the people’ (‘congregare populum’) from the region. (Tobert 1973, pp. 313; 325; 365; 536; 540)
increase the number of his subjects if they came from elsewhere. This could also give the lord a strongpoint in the political organisation of the land, in military or administrative respects. This motivation can be read in a foundation document of 1264, regarding King Přemysl Ottokar II’s new town of Bezděz (Bösig) in Bohemia, in which it is stated that the ‘[...] honor, fame and power of the kingdom are based on the number and wealth of its faithful subjects [...]’.8

Some new towns of the period appear to have been founded not so much to attract new settlers but rather to prevent subjects from moving to towns that were created in other nearby lordships. This was an important motive, for instance, in the re-foundation of Fontanetto Po in 1323. This settlement was recreated as a small fortified town by the monastery of San Genuario and the marquis of Monferrato, after the city-state of Vercelli had founded the nearby town of Crescentino, about 70 years earlier, which had caused a substantial diminution of the number of subjects under the monastery’s lordship. The creation of various bastides and other new towns elsewhere seems to have been instigated by very similar motives. In particular, the creation of new towns only a short distance from each other in different lordships may often have been the result of such a competition in attracting subjects.9

9.1.2 Motives of defensive and offensive character

Some town foundations were clearly military in character, in the sense that the new settlement was intended to serve in the defence of a territory. This may have involved the protection of a region previously occupied, as in the case of the Florentine new towns, which were founded, among other reasons, ‘[...] in order to oppose the malicious actions of the exiled citizens [...]’.10 New towns might also be founded for the purpose of defending newly conquered lands, in which case the motive might be seen as offensive rather than defensive in nature. This was the case, for instance, with most of the Edwardian new towns in Wales. A very rare, but clearly aggressive, town plantation was that of Victoria, by Emperor Frederick II in 1247. He founded it right before the walls of Parma in northern Italy, during a siege of this rebellious town, with the intention that old Parma

8 ‘[...] Ehre, Ruhm und Macht des Königreiches stützen sich auf die Anzahl und den Reichtum seiner treuen Untertanen [...]’. (Kuthan 1996, p.39)
9 Panero 1979, p.103.
10 See par.5.1.4 and fig 5.2. A document concerning the bastide of Cançon mentions that it was founded in 1253 by the lord of Madalian because six other bastides that had been founded in the previous years in neighbouring lordships were gradually robbing him of his subjects. By founding the new town he tried to provide them with better prospects on his own land. (Beresford 1967, p.234) Similar motives may sometimes also have played a role in town foundations at greater distances from each other. When one lord did not have a town, while other lords in the region did have (new) towns, there was a significant danger of a draining of subjects, as well as of economic activity, which may have motivated new foundations.
11 See par.3.3, n.35.
12 See par.1.5.1.
would be destroyed and the new town would replace it. However, despite its name and the careful astrological observations which were made in order to find an auspicious moment for its foundation, the new town was destroyed. In general, it seems that only great and wealthy lords had the means to found new towns purely for military reasons, being able to disregard considerations of economic viability, as only they could spend the large sums of money and use the great number of labourers necessary for such ventures. The late 12th century foundation of Lippstadt in northern Germany is described in a heroic poem of circa 1250. It describes how Bernard II von Lippe (1167-1224), a middle class landlord in central Westphalia, asked the king for permission to build himself a fortified town, because he needed it in order to be able to defend his land. Bernard is also reported to have stated that fortified towns are a lord’s ‘source of power’ over the surrounding countryside. Thus, the motive for the foundation of this new town would have been primarily defensive, at least according to this text.

In his grant of the right of fortification to the town of Jaroměř in Bohemia, King Přemysl Ottokar II states that it is his ambition to solve the problem of ‘[…] how to beautify and strongly stimulate the lands under our dominion with a great number of towns, so that our heritage will be full of splendour and beauty, and will not be easily hindered by enemy attacks and by plundering hands.’ Something similar is mentioned in the grant of fortification rights by the same king to Jihlava in Moravia. Hence, it is clear that this king, who founded a large number of new towns in his extensive territories in the present-day Czech Republic and Austria, looked upon these towns as of utmost importance for the defence of his lands.

Regarding their defensive aspect, it is to be noted that towns were rarely founded as military forts within a greater defensive system. Many towns were not even fortified and, if they were, they commonly were more or less isolated strongholds serving the function of facilitating the government of the general population against harassment by hostile elements such as robbers, marauding bands or enemy forces. Sometimes, the foundation of a new town was explicitly petitioned by a local population in order to acquire better protection, as, for instance, in the cases of Terranova Bracciolini and the bastide of Cassegnes-Bègonhes. It is quite possible that it happened more often that new towns were founded by lords at the request of their subjects, but there are few towns for which this is actually documented.

A similar motive for town foundation was the protection of travellers, especially on trade routes, from harassment by robbers. This was an important motive in the foundation of (among others) the Florentine terre nuove and the bastide of Molières. In England there is a particularly interesting foundation by the name of New Eagle (1345), which was to be sited exactly halfway on the Foss way from Newark to Lincoln because, as the town charter recalls: ‘there have been felonies and robberies on the Foss way; the reason is the long open stretch without any vill […]’. All in all, it is evident that the need for better control over and policing of trade routes was an important motive for quite a number of town foundations.

In some cases the founding of new fortified towns was quite clearly aimed at increasing control over the population, in order to be able to tax it more efficiently - on which point I will elaborate below - or to prevent rebellion. With the foundation of the Edwardian new towns of northern Wales this was an important motive;
but a much clearer example is Lucera in southern Italy, which was founded by Emperor Frederick II in order to re-settle the Muslims who previously lived in Sicily (1233-1246). This example contrasts with most of the new towns of Wales, in the sense that in the latter the possibly rebellious Welshmen were specifically excluded.

In frontier regions, new town foundations could be intended for the purpose of the annexation of land, subjects and economic structures from neighbouring lordships. On the borders between different lordships the rights of dominion were often rather vague, as the boundaries of different dominions were not yet that clearly defined. Therefore, the building of a new town could create a clear mark in the landscape that signified the dominion of a specific lord, while at the same time reshaping older structures of settlement that possibly referred back to previous dominions. It should be considered, in this respect, that border areas tended to be underdeveloped in terms of economic exploitation and population, since borders often coincided with natural barriers in the landscape. Because of the growing population and the developing agricultural technology, these marginal areas became more and more profitable for exploitation in the 11th to 13th centuries.

In some cases, the plantation of a new town was, to a large extent, motivated by the wish to compete with an existing town in a neighbouring territory. This was an important motive, for instance, for the foundation of Radstadt in Austria by the bishop of Salzburg in 1289. This town was founded in competition with the town of Rotenmann, which was promoted by the duke of Austria in 1279. Hagestein in The Netherlands was founded in 1382 as a competitor of Vianen, which was sited just 2 km. away. This earlier town had been founded by the lord of a neighbouring territory only about half a century before. When a serious conflict broke out, in 1405, the lord and people of Vianen saw their chance to thoroughly demolish Hagestein, after which it was never rebuilt.

Towns that were founded to compete with existing towns would, for the most part, not grow into flourishing successful settlements, however, as it was hard to take over the central functions of the older town. So, either one - usually the newer one - or both towns would often suffer dearly from the competition.

The territorial claims on frontier regions by the foundation of new towns were mostly effected by political and economic strategies rather than by arms, except for in times of military crisis. The lords were after political and economic control over as many people, as much land and as much economic capacity as possible. This last aspect seems to have been a fairly new phenomenon in the 13th century, or at least it was becoming more important and more clearly visible. It is intimately connected with the swiftly progressing monetarisation of the economy and the accompanying increase in the ‘power of money’. The importance of this ‘power of money’ grew strongly in comparison to the number of subjects or the size of the territory: the ambitions gradually shifted from these capital goods themselves to their productive power; and in the organisation of this productive power the new towns played an important role. This phenomenon must have been a factor of great influence in the increasing number of town foundations in the 12th to 14th centuries, as will be argued in the following section.

9.1.3 Economic motives

It is clear that considerations of an economic nature often formed important motives for the foundation of new towns. Yet, the contemporary written sources very rarely provide information about these motives. One of the rare examples regards the new town of Langenau in Germany which, according to a source of 1381,

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26 See par.1.5.
27 This motive also played a role in the foundation of the Florentine new towns, a number of bastides and some other towns elsewhere. (see pars.2.5.1, and par.3.5.2) Settia observed the same basic motive, especially with the goal of luring subjects away from other lords, in many foundations of new towns by cities and feudal lords in northern Italy in the 12th century. (Settia 1991, pp.643-653) In the course of the Spanish reconquista many towns (as well as villages, estates and castles) were newly founded or re-settled in border regions in order to secure the conquered territory and to expand the borders further. (Bartlett 1993, pp.177-179) On a smaller scale, such motives also played a role elsewhere, as in Silesia, where Duke Wladislaus (1266-1270) founded the town of Weidenau and several villages on the border of the lands of the bishop of Neissen, in order to steal up on his territory. (Kuhn 1984, p.96)
28 Gutkas 1963, p.87.
29 Koenheim 1982, p.10; Heniger 1982, pp.32-44; Rutte S.D., pp.86-87. In the early 12th century, much the same happened to a new town that was founded by the Milanese government near the town of Como. (Settia 1991, p.649)
31 See, regarding the bastides, Trabut-Cussac 1994 and par.2.5.1.
Economic considerations could be an incentive for town plantation in many different ways. It has already been mentioned above that the control of trade routes and the colonisation of new land could be motives for town foundations. There are various other specific motives, however, that could be placed under the heading ‘economic’.

Economic exploitation of natural resources is one of these. For instance, many towns were founded as part of a process of the clearing and reclamation of new lands. This holds true for, among others, a number of towns and villages founded in present-day Poland, specifically in Prussia, in the 13th to 15th centuries.

Many small towns were founded in order to intensify the existing agricultural exploitation of the land. In chapter 2 this has been described with regard to many of the new towns of southwestern France. This motive is explicitly given by a contemporary source regarding West Malling in England. The 12th-century Life of Gundulf, Bishop of Rochester reports: ‘That vill had been a wasteland from of old, with only the occasional inhabitant to till it. With the help of King Henry II the Bishop of Gundulf made there for the use of the nuns a good-sized town well-suited to merchants, as may be seen today, and crowds flocked from all sides and set up house.’ In the foundation document of the town of Polička in the present-day Czech Republic, which was issued by King Premysl Ottokar II in 1265, the town’s creation is clearly linked to population growth and reclamation policy: ‘Knowing that the fame of the ruler is made up of the quantity of the people, and that the multiplication of subjects proves the honour and power of the royal lordship, we will make desolate and remote places of which the site is suited, to be brought into culture by man for the honour and embellishment of our kingdom, as religious devotion and the future welfare of mankind demand.’

There were also towns that were especially founded in order to facilitate the mining industry. Several towns in England, founded, for instance, within a relatively short period of time in the mountains of Thüringia and Saxony when new veins of silver, iron and other metals were discovered there. In Devon and Cornwall in England, towns were founded in connection with the mining of tin. In paragraph 1.4.2 it has already been suggested that the facilitation of mining may also have been a motive for town foundation in Wales. King Edward I also tried to create a new port town on the Isle of Purbeck, from which the valuable ‘Purbeck marble’ was to be shipped. This foundation was, however, aborted for unknown reasons.

Far more often, however, new town foundations seem to have been aimed at the facilitation and exploitation of trade and industry. This could be done in different forms. With a town foundation a safe port could be created for naval transport, as we have already observed for a number of bastides and the abovementioned projected town of Newton on Purbeck. Newly founded towns that became very successful, thriving because of their function as trading ports, were, for instance, Cardiff in Wales, (Kingston upon) Hull in England, La Rochelle in France, Manfredonia in Italy, Lübeck in Germany, Königsberg in Russia (present-day Kalin-
ingrad in former Prussia), and Riga in Latvia. A new town could also be founded in order to attract new economic activity. This was probably one of the main motives for the foundation of the Neustädte of Hildesheim in Germany, and of Wrocław and Thorn in Poland, which seem to have been especially added to the older towns in order to settle craftsmen from the textile industry, which became of major economic importance in the period of the 12th to 15th centuries.

But probably most often, the economic goal of a new town foundation was to create a thriving market. In chapters 1 to 3 I have already stressed the importance of the markets in the new towns of the respective regions. By providing the infrastructure of the market and the freedom and protection that accompanied it (see below par.2), being connected to the infrastructure of the trade routes, and sited in a town where consumers and more or less specialised producers were concentrated, the economy of the place would be strongly stimulated. Founders aimed at attracting trade to the places where they had more control over it, thus being able to tax more of it.

A market was a lucrative institute for a lord, because the importation, sale and exportation of goods could all be taxed. Normally, agricultural produce was taxed anyway, mostly as a fixed percentage of the production, but when it was traded in the market, the lord could profit from it yet again. Apart from taxation, the founder could also make money from the market by renting out the places and stalls in it. The inhabitants of the town, and of other privileged settlements under the same lord, generally were partly exempted from market fees and tolls.

In chapter 3 it was described how the food reserves of the city of Florence were sometimes too low in the late 12th and first half of the 13th century, and how this was one of the motives for the foundation of the Florentine terre nuove, as market towns, as strong-points to control the countryside from, and as places for the safe storage of food produce. In fact, the legislative document of the short-lived terre nove plano Asenti project of 1249 clearly states that one of the main motives for the foundation was its market. The market town, which was to be sited on the border of the Florentine territory on a high-lying pass on a main road, was founded so that ‘people from the Casentino-valley and the province of Romagna come here with corn, grain, feed, and domesticated and wild animals and other viuutals’.

Landlords who founded new towns could significantly increase their income not only through taxation, but also by the collection of rents, the administration of justice and monopolies. In terms of the yield from the land, towns probably always brought in more money to their lords than did agricultural exploitation, let alone the use of the land as common or wasteland. Beresford argued that new towns were often planted on ground that previously was used extensively, because the gain was relatively greater.

Probably without exception, rent and at least some of the taxes were exempted for the first few years that the immigrants lived in a new town, so that the costs of moving, building a house and starting up economic activity would be partly compensated. After this period, a fixed yearly rent was to be paid to the lord of the town for every house lot. On top of that, the lord would receive a special fee if the lease on the plot was given over to a different person, for instance in the case of the tenant dying or choosing to move elsewhere.

From his analysis of contemporary accounts regarding newly founded towns in England, Beresford found that, in some cases, the lordly income from the circulation of goods and other revenues was higher than from rents, while in other cases it was the other way around. From this, he concluded that the prosperity of the catchment area of the town market, the hinterland, was as important for the income that could be generated from a town as was the attraction of settlers.

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42 In par.1.8. it is described how, in most of the Edwardian foundations in Wales, the port was also a crucial element; but here its importance primarily concerned the military infrastructure, as it presumably also did at Aigues-Mortes in southern France (Inventaire Général 1973, p.18; Lavedan & Hugueney 1974, pp.88-89). See also: Beresford 1997, pp.119-122.
44 Strahm 1950, p.397.
45 Beresford 1967, pp.63-64; Saint-Blanquat 1985, pp.89-91.
46 See pars.3.5.1.2 and 3.5.4. The 16th-century historian Vasari explicitly wrote that the towns of Castelfranco and San Giovanni were founded ‘[…] for the commodity of the city and the victuals, by way of the markets […]’. ‘[…] per commodo della città e della vettovaglia, mediante i mercati […]’ Vasari 1571, p.292.
47 ‘et Cosentenzii et aliis circumstantibus et Romolodi conferrunt cum frumento, blado, farinace et bestis tam domesticis quam silvestribus et aliis victualibus’ (October 1329; Friedman 1988, pp.44-44, 327, doc.12; Richter 1960, pp.354, 356, 381, doc.4). See also: Pirillo 1981, p.189. A similar case is Pietrasanta on the pass-road to Faenza, founded in 1284. (Davidson 1962, vol.IV, p.368; Pinto 1978, pp.107, 113, 300) Examples of towns that were founded mainly as market centres in northern Italy, are mentioned by Settia (1991, p.645).
50 See par.9.9.
51 See par.9.11.
52 Saint-Blanquat 1985, pp.63-64.
53 Beresford 1967, pp.65-68. See also Keene 1996, p.100.
During the period of about the 13th to 16th centuries it became more and more common for lords to lease out (or ‘farm’ out) specific sources of their income against a specified yearly rent. Such sources of income could be, for instance, the market taxes, the rents on market space or stalls, exclusive rights on mills or fishing, tolls, or even the complete revenue of a town. Initially, such fee farms were commonly leased out to entrepreneurs, but in the 14th and 15th centuries it became the more normal practice that the town community leased the collection of revenues, so that instead of a number of separate payments the lord received a single, specified sum. In a growing economy this would save the community money, and would save both the lord and the community the trouble of separate collections. In different regions or lordships one finds such fee farms in different forms or intensities. There is especially clear evidence of such lease agreements with the English royal bastides in Gascony.

From his comparison of a range of different accounts from England, Beresford concluded that lordly income from newly planted towns, while considerable, was mostly relatively low compared to the average lordly manor. The advantage of town foundation, however, was that it provided extra income against relatively small effort and costs, for which expenditure the profit would be substantial.

But apart from direct income from the town itself, the foundation of a new town could also have a positive effect on the economy of the surrounding countryside. New settlers - to the extent that they did not come from the immediate surrounding area - would raise the demand for victuals, raw materials and other goods. Together with the proximity of the new market, this would stimulate the increase and rationalisation of production in the surrounding countryside. This could lead to, among other things, new clearing and reclamation of marginal land that previously would not have been cost effective. In this way, the circulation of capital increased, which would lead to higher income from taxes and tolls, and the manorial lands of the lord could also be exploited more intensely, by both the sale of produce and the renting out of parts of its ground.

So, town foundation could be very lucrative. This meant that, apart from landlords, entrepreneurs also engaged in urban creation. Paragraph 7.3 already discussed the so-called locatores, who engaged in the new foundation of towns and villages in the lands east of the Elbe as entrepreneurs who speculated on the future success of the new foundations. In that paragraph we also examined the case of Elburg in The Netherlands. This town was re-founded and newly laid out in 1392 on the initiative of the local steward of the duke of Gelre named Arent toe Boecop. It appears that Arent made a lot of money on his scheme, since he owned a large part of the land that was parcelled out into house lots that were subsequently sold. He also made money on the mortgage loans that he gave out and on the sale of an existing house that was to become the town hall. As far as is known, there was no specific, pressing reason to re-found the town, so it seems likely that profit was the main motive for Arent, so, in this respect at least, he acted as an entrepreneur.

9.1.4 Administration

Another important motive for the foundation of new towns and the concentration of the population of the countryside therein, was the desire to increase administrative control over the people and the land. This motive

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54 Often the lower jurisdiction was given to a court of the town community itself, for which the founding lord would receive a particular annual sum. The higher jurisdiction was the monopoly of the court of the lord, or even that of a still higher lord, for instance the king. (Saint-Blanquat 1985, pp.95-96)
55 This is clearly shown in Beresford’s table listing different elements of the annual income from a number of newly founded towns in England and Wales in the late 12th and 13th centuries. (Beresford 1967, p.66, table III.1, esp. Kidwelly) “Justice, went the saying, is a great profit” according to Beresford (1967, p.86).
56 Strahn 1945, pp.39-33; Beresford 1967, p.211; Saint-Blanquat 1985, p.91.
58 Beresford 1967, pp.9-10, ap. 365. See par.2.5.4.2.
60 Beresford 1967, pp.75-76. This effect is particularly clearly visible in the process of systematic regional colonisation of the lands east of the Elbe, where urban and rural development went hand in hand. (see Higoumet 1986; Erlen 1992, pp.178-202, 248-275; Bartlett 1993, pp.122-128, 139-140, 144)
61 Beresford 1967, pp.75-76; Saint-Blanquat 1985, pp.45-49.
62 See par.7.3; Rutte 2000, pp.7-4; Rutte, Visser & Boerefijn 2004, pp.122-123, 127-128.
is intimately connected with both the military and the economic motives. We previously encountered this motive in chapters 1 to 3, in the sense that the administrative institutions of the founding lords were established in the new towns. There they surveyed the populations of the new towns as well as of the surrounding countryside, which ability tightened the lord’s control over the population in economic, judicial and military respects. One could place this organisation of the administration of the territory under the heading ‘political organisation of space’. This motive never seems to have been clearly expressed in the written sources, however.

It is clear that the need for administrative control was particularly great in newly conquered or colonised territories, or in regions where the military, political or social situation was unstable, as was the case in Wales and on the margins of the Florentine territory in the 13th and 14th centuries. The large town foundation of Lucera in southern Italy by Emperor Frederick II in 1233-46 is one of the few clear examples of the creation of a real regional capital, in this case of the Capitanata. The fact that the city was to accommodate a weapons industry, a mint and a castle containing the imperial archives, a part of the imperial treasure and even Frederick’s art collection, shows that the city was also to be an important residence of its founder.

9.1.5 Other motives

Many new towns were built because older towns had to be moved for one reason or another. More or less common reasons were, for instance: the silting up of a harbour or river, which was the motivation for the new foundations of New Hythe and New Romney in England; the flooding of older towns, as at New Winchelsea in England and the bastide of Mirepoix; destruction by war, as at Naarden in The Netherlands, Neu Haldersleben in Germany and Lodi in Lombardia; changes in the political and territorial situation, as at Beaumaris in Wales and San Giovanni in Tuscany; or for basic pragmatic reasons, such as the need for drinking water, as at Albiano in Tuscany, or the provision of goods and services to the lord’s court, as at New Woodstock in England.

An additional motive for the founding of new towns may have been the prestige that it would bring to its founder. Thomas Aquinas explicitly referred to the possibility of making the name of the founder immortal by naming a new city after him. From about the 14th century on, the distinguishing attributes of French nobleman were the possession of a castle and, in its proximity, a monastery, hunting grounds and, not least, a town. If there were no town present, one could be founded, concentrating the population of the domain there. This was not just the case for noble lords, but also for men who came from lower ranks of society and who dearly aspired to acquire the status of a landed nobleman. Such was the case, for instance, with the foundation of the town of Purmerend in Holland. Willem Eggert, a wealthy banker, who also was treasurer and advisor to the count of Holland, was rewarded for his services in 1410 by being invested with a noble title and with the lordship of Purmerend and Purmerland, just north of Amsterdam. Almost immediately thereafter, Willem built himself a castle and made a town of the village of Purmerend. Apart from the economic motive, prestige must have played a considerable role here.

In paragraph 8.3 we examined the town foundations of Count Reinout I of Gelre and the Hussites and other heretical movements, which were motivated by more or less obscure Christian ideologies related to crusading ambitions and eschatological expectations. An ideological motive of a more practical kind drove Abbot Thomas Packington of the Benedictine abbey of Burton-upon-Trent when he ‘made a borough of Cattestrete [...] by reason of the great famine there was that year’. It seems that the town foundation was something

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63 See pars.1.7.5, 2.5.3 and 3.5.3.
64 Rutte (2002) uses this term rather generally to indicate the motives for the foundation of new towns.
65 See pars.1.7.5 and 3.5.3.
66 Wipfler 2005, pp.132-193. Other examples of the creation of regional capitals, but on a much smaller scale, are Conwy and Caernarfon in Wales (see pars.1.7.4, 1.7.5), Jüterbog in northern Germany (Aubin 1966, p.473; Schlesinger 1978, pp.304-307; see par.1.1.4) and Montecurliano in Tuscany (Cortese 2004, pp.301-302).
67 Fischer 1952.
69 Aquino 1997, pp.177-178 (II, 2). He mentions King Ninus’ founding of Nineve and Romulus’ founding of Rome in this context. In the 15th century, Leon Battista Alberti also offered various examples of how the ancients named towns in honour of persons, in his De Re Aedificatoria, book 7, ch. XVI.
70 Fockema-Andre 1948, p.118; Burke 1956, p.53; Feger 1963, p.49.
71 Rutte 2000, pp.1-5. Another case very much like this one is the foundation of the town of Middelburg in Flanders (1452), described by Rutte in the same article.
of a charitable scheme to provide land and, probably, employment to people affected by a famine.\(^{72}\)

In a number of documents regarding town foundation as well as other facets of his urban policy, edited at the court of King Přemysl Ottokar of Bohemia, formulations can be found that refer to the well-being of his subjects and of the country. In one document we read that ‘[…] the government has the assignment to bring the subjects prosperity and benefit’, and in the foundation document of the town of Polička of 1265 one can read that the town is founded ‘[…] as religious devotion and the future welfare of mankind demand.’ This should probably be seen in the light of any king’s duty as a good Christian ruler to found towns, an idea which was propagated by, among others, Thomas Aquinas.\(^{73}\) In many of the different foundation charters issued by Ottokar, his foundations may be seen to have been rooted in the Christian faith by his use of the expression ‘God-obeying’. According to Kuthan, this word must be understood as a reference to biblical texts such as those on king Salomo’s building activities.\(^{74}\)

In an earlier quotation above, from another of Ottokar’s charters, it was clearly stated that town foundation was motivated, not only by the desire to increase the power of the kingdom and the reclamation of new lands, but also by the idea that towns embellish the country.\(^{75}\) A similar motive was given in the foundation document of Mělník, from 1274, which says ‘The fame of our kingdom grows best by the beauty and ornament of the towns.’\(^{76}\) This striving for beauty by the foundation of towns can also be regarded as an idealistic motive. It seems quite obvious, however, that this was not a primary motive for the foundation of new towns.

### 9.1.6 Conclusion on motives

The prime motive behind practically every town foundation was the idea that the founder would gain something from it in the end, be it by collecting more rents and taxes, by a stronger military position, by having tighter administrative control or by enlarging his territory. The founding lords sought to enlarge or consolidate their power by using the growth of the population and the economy as their instrument.\(^{77}\) This was, however, rarely explicitly mentioned in the documents related to the foundations, and sometimes the prime motives may have actually been veiled behind pious and charitable formulations.

The different motives that have been treated above probably never came into play in complete isolation: in almost all cases there were different motives which combined to inspire the rulers over the land to engage in the creation of a new town.\(^{78}\) In the traditional historiography of town building the motives for the foundation of new towns in the ‘middle ages’ have mostly been described as being primarily, or at least to a large extent, military in character. It seems that modern scholars have generally not seriously considered that deliberate economic policy could play an important part in contemporary politics. This is fundamentally wrong, however, as has been argued above, and more specifically in the chapters concerning the bastides and the Florentine terre nuove.\(^{79}\) Often the two aspects of economic strategy and offensive territorial strategy converged in the foundation of new towns, and it is often difficult to establish just how great a part was played by either of these two, or by other possible motives. But it is a fact that determined economic policy was part of the politics of dominion over territories and subjects in the period, and that it played an important role in settlement policies. Although it is quite impossible to adequately and objectively set off the one motive against the other, it is my opinion that economic exploitation was far more important than military strategy for urban creation in the period under consideration.\(^{80}\)

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\(^{72}\) Slater 1996, p.74.

\(^{73}\) ‘[…] die Regierung der wichtige Aufgabe habe, die Unterten Wohleigen und Nutzen zu bringen’; ‘[…] so, wie es Gottesfurcht und das künftige Wohleigen der Menschen Schönheit hírschen.’ Kuthan 1996, p.39; Aquino 1997, pp.117-119, 134 (see par.8.2) A similar motivation was given by Duke Barnim of Pommerania, who stated in connection with the foundation of Prenzlau in 1234, that he wanted ‘[…] to found free towns for the use and profit of his land, after the example of other provinces […]’. (Kuhn 1956, p.79) In this respect the foundation of a town is comparable to the creation of churches, monasteries, roads, bridges and so on, for it was generally recognised to be the duty of a good Christian ruler to found and built these, in the interest of society.

\(^{74}\) Kuthan 1996, p.39. Kuthan only gives the German translation Gottesgeschahm of the original Latin expression. Biblical texts relating to Solomon’s building activities include, for instance, II Chronicles 8:1-6; I Kings 5-7; see also Ecclesiastes 40:19.

\(^{75}\) See par.9.1.3. See also the citation from the fortification grant of Jaromír in par.9.1.1.

\(^{76}\) ‘Der Ruhm unseres Königreiches wächst am meisten durch die Schönheit und Zierde der Städte.’ (Kuthan 1996, p.39)


\(^{78}\) See pars.1.4, 2.5 and 3.5.

\(^{79}\) Slater 1996, p.74.

\(^{80}\) Regarding the German lands, both Koebner and Sydow acknowledge the importance of economic motives, and Beresford strongly articulates it with regard to England, Wales and Gascony. (Koebner 1964, p.44; Sydow 1980, p.190; Beresford 1967) According to Settia (1991, p.65) most of the new towns that were founded in northern Italy were founded mainly for economic reasons, and were only militarised in later times, once they had attained some importance.
9.2 Rights and privileges given to new towns

In order for a new town to be successful it needed to attract settlers of free status, especially those that were employed in activities involving manufacture and trade. Therefore, it had to be endowed with special rights and privileges. This is clearly put into words in a document of 1253 concerning Głogów in Poland, which speaks of ‘[…] a free and secure city, which can attract many people because of its freedom […]’. Without such privileges or ‘freedoms’ - called immunitates or libertates in Latin, or franchigie, franches, Freiheite, liberties etc. in the languages of the various regions - the settlement would not be considered a town. In this juridical sense, the town is the geographical area in which the special rights are valid.

In general, it may be supposed that towns received specific privileges from their lords in order to allow them to function well in juridical, social and economic contexts. With every new foundation, the founding lords wanted to attract settlers to a specific location, often probably as many as possible. And therefore they needed to put attractive privileges at the disposal of the settlers, apart from good land at an attractive location. The donation of civic rights to Jaca, by King Sancho Ramírez of Andorra in 1063, may serve as an example. The king promoted the settlement where his castle, manor and the bishop’s seat were located so that it became a town. In the donation of rights it was clearly formulated why he gave the settlers the privileges they had asked for: ‘because I desire that it will be well-settled, I give and confirm you and all who will move to my town of Jaca, all the good laws, which you have requested, so that my town will be strongly populated’.

For the most part, the urban privileges were laid down in written form in a charter that was kept by the town’s administration. In some cases, however, especially in the earlier period up to about the late 13th century, the privileges were not written down initially and were only codified in a charter later on. Normally, the privileges were foreseen right from the outset of the foundation, but in most cases they were only instituted after some time, often a number of years, when there actually was a developing urban community to give the privileges to. These charters are, nevertheless, important sources for the study of town foundation, since they often are among the oldest preserved documents regarding specific towns.

The sets of privileges for a new town were mostly copied with little or no changes from existing sets of privileges enjoyed by older towns. In this way ‘chains’ of urban customs were created, in which one or more towns were indebted to an older town for their juridical constitution. There are various examples of groupings in which a great number of town charters stem from one single ‘mother-town’, thus constituting a ‘family’ of charters. The most widespread of these families of rights are probably those of Breteuil in Normandy, which were diffused over England, Wales and Ireland under the Norman colonisers; those of Magdeburg and Lübeck in northern Germany, which spread all through the eastern principalities of present-day Germany, Poland and the shores of the Baltic Sea; and the rights

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82 For instance Florence, Bologna, Reggio Emilia and Brescia. Often these urban extensions did not fill up with new settlers as quickly as was planned, due to the economic and demographic crises of the 14th century. (see par.1.5.1)
83 This idea has been put forward by: Vanetti 1973, p.188; Morini 1963, p.119. For the concentration of people from the countryside, see pars.2.8, 3.6, 9.1.1.
84 Bartlett 1993, p.167. A similar reason for the great attraction of settlers is given in the Lippiflorium of around 1250, which describes the foundation of Lippstadt in northern Germany: “People rush in, attracted by the many privileges.” (“Viele steinen herein, geläuts von der Fülle der Freiheit”) (Althof 1900, p.49)
85 See par.0.1.
86 Pitz 1991, p.381; see ch.8, n.131.
87 The bastides of southwestern France, for instance, often received their chartes de costumes after one year if they were founded by the French crown, but other founders usually took more time before they actually granted the charters. (Lauret, Malebranche & Séraphin 1988, p.44)
89 See par.1.2.
of Cuenca-Teruel on the Iberic peninsula. Usually, towns founded by the same lord would be given the same customs. In the course of time, however, the customs tended to be adjusted in response to specific demands in the different places.

The town customs contained different sorts of privileges and regulations concerning private, public, and often also criminal law. In general, three basic elements can be distinguished in the charters. The first and most important is the formulation of the relationship between the lord and the town community. In this respect, the town charter is a sort of contract between the lord and the settlers who take up plots of land within the specified area for which the customs are meant, in which the rights and duties of both are specified. The second element is the town’s constitution; and the third is a specific set of economic and material privileges that the members of the urban community receive.

The most important aspect laid down in these statements of customs is the general principle that the ruler over the land gave up part of his rights over and the revenues from the people living on his lands, to which he was entitled according to ‘feudal law’, in return for fixed rents to be paid by the settlers for fixed plots of land in the town. These rents progressively replaced the corvées and revenues that previously formed the duties of the settlers towards the lord. The plots (‘burgages’ as they were often called in England) would commonly be held from the landlord in hereditary tenure (iure hereditarium or burgagium), which means that they could be inherited and sold to other members of the town community.

The ruler also gave up a considerable part of his rights over aspects of the personal lives of the settlers on his lands. Formerly, many of the subjects of the lords were limited in their actions: they were, for instance, not free to go wherever they wanted, to grow what they wanted on their fields, to marry whomever they wanted, or to bequeath their possessions to their relatives. For the most part, these kinds of rights were given up by the lords when they founded new settlements. Of course, they did not do this out of philanthropic motives, but rather out of the necessity to make their new settlements attractive to settlers.

Members of the town community were often freed from military services for longer than a limited period of time (often one day per year) and from the obligation to pay certain taxes and tolls held by the founding lord, and sometimes also for tolls held by his vassals and associates. In return, the settlers had to swear loyalty to the lord.

The urban customs also contained privileges regarding the town as a juridical community, the administration of justice and the administration of the town. Of course, it was essential for the settlers that there was some sort of guarantee that there would be order: so that crime would be discouraged and punished, and that the settlers could live and trade safely. Often, the town received the right to have its own court for handling matters falling under the lower justice. Many a time, however, this privilege initially remained with the lord of the town. Furthermore, the statements of customs often also contained regulations regarding the defence of the town, concerning both men and fortifications.

A more important part of the privileges, however, were the elements of mint, toll and especially market rights. Originally these were royal regalia: in the Ottonian empire, for instance, only the king had the right to build fortifications and to establish mints, tolls or markets. But gradually, as the central power in the empire crumbled, lower lords like bishops and counts, and, later on, lords of even minor status, claimed the right to build strong fortifications and to found markets, towns and tolls. In areas outside the empire there...
often was a similar development. In England, however, the king managed to hold on longer to his regalia.

Market rights were essential for the economic well-being of the town, as they provided inhabitants as well as buyers and sellers from elsewhere the possibility to trade freely. This freedom was limited to a particular place and a particular time: the market. Together with its other economic privileges, the freedom of property and inheritance, and a weekly market, the town formed a sort of equivalent to a modern ‘economic development zone’.

Apart from these basic elements, often there also were other features spelled out in the statements of customs, such as criminal laws and regulations of a social and environmental nature.

Sometimes, sets of specific rights were promised on the condition that first a specific minimum number of settlers had to inhabit the new town. In the bastide of Réjaumont, for instance, it was stipulated in the foundation charter that the institution of urban rights would be cancelled if no more than 20 houses had been built within a few years. Even when customs were already granted, they were not perpetual. They could be changed later on by, or with the permission of, the lord of the town; or they could be completely withdrawn by him. This happened to many small towns which, in the eyes of the lord, did not attract enough settlers. It also happened that customs were withdrawn as a way to punish a town community for misbehaviour towards the lord. It also happened that town communities that were not content with their rights spent large sums of money in order to receive more privileges. For instance, in 1338 a number of existing towns and villages in the district of Villelongue near Toulouse bought the same customs that were enjoyed by the royal bastides in the area, for the sum of 9,000 livres tournois.

It should be well understood that the privileges mentioned in the charters did not apply to everybody living in the town. The privileges were only valid for those who stood in a direct relation to the town lord, in the sense that they held a house lot in hereditary tenure from the landlord. In later stages of the town’s history, people who rented a smaller part of the original house lots, or part of a house, would often also receive citizenship if they complied with set conditions, such as living in the town for a certain period of time (usually one year), the payment of an admission fee and the possession of a certain amount of capital.

Similar sets of privileges were not strictly exclusive for towns: villages could also receive certain privileges. Normally these were limited in comparison to towns, but this was not necessarily always the case. A contemporary chronicler, writing of the foundation of a number of new villages by the monastery of Pegau in southern Germany, even commented that he found it ‘ridiculosum’, so many liberties did the abbot promise to the future settlers.

Overlooking the customs of new towns in the various parts of Europe, it is striking how many similarities exist among the various places. This can partly be accounted for, as in many cases they were simply taken over from older towns. But for others, the similarities of rights in different regions of Europe remain to be explained, all the more so since it is likely that in different regions they developed from different sources and in different ways, as Pitz made clear.

There is, however, an important general distinction in the purposes of town customs that seems to have been ignored in the literature. Rights and privileges that were granted to existing settlements were often the fruit of long and bitter struggles between the communities (which often had to pay considerable fees in order to get them) and the lords. But for the newly created towns the situation was different. The general contents of their customs were mostly promised at the initial stage of the foundation process, in order to

\[\text{(100) Beresford 1967, p.216. Most towns also had one or several yearly fairs on particular days, often corresponding to the feast day of a saint who had some special relevance to the place. Especially in Eastern Europe, however, elementary victuals like beer and bread were excluded from free production and trade. These would be monopolised by the founding lord or his officer. (Erlen 1992, pp.44, 184-204)}\]

\[\text{(101) Lauret, Malebranche & Séraphin 1988, p.89.} \]

\[\text{(102) Saint-Blanquat 1985, p.21.} \]

\[\text{(103) Hammel 1988. In the case of the bastide of Larrazet, the families that received the customs in 1265 were even mentioned by name. (Lauret, Malebranche & Séraphin 1988, pp.58-59)} \]

\[\text{(104) Dollinger 1980, p.275; Divorne 1993, p.250.} \]

\[\text{(105) Erlen 1992, pp.9, 11, 38-40.} \]

\[\text{(106) Schwienkopf 1980, p.164.} \]


\[\text{(108) Within Western Europe the developments were rather different in the British Isles, the northwest of the continent, and Spain and Italy; still more different were Scandinavia, Russia and Byzantium. The great similarities are all the more remarkable since within older cities they often developed from different rights granted to distinct social groups. (Pitz 1991, pp.256-300; for the different rights for distinct social groups, see also Frenz 2000; Lilley 2002, pp.93-104)} \]

\[\text{It seems that historians who specialise in town charters have been timid to compare urban customs on a European scale, preferring rather to concentrate on individual charters or families of charters. The international comparisons of town charters that I know only appear in the margins of wider discussions of colonisation and town foundation. Erlen 1992; Bartlett 1993, pp.157-178; Lilley 2002, pp.49-55.} \]
attract ambitious settlers from elsewhere and to create thriving economic centres. So, in the first case the rights and privileges were the result of bargains struck between inhabitants and lords; while in the second case, they were promised in order to serve as an attraction and stimulus to settlement.

The examples of Glogów and Jaca noted earlier in this section illustrate this point, but an even clearer case is the foundation of Queenborough in south England by King Edward III in 1368. The foundation charter states 'In order that many might more readily come and live there he [the king] granted borough status, two markets a week, two fairs a year, the right to elect a mayor and two bailiffs, together with the independence from the jurisdiction of the Cinque Ports.' As an additional privilege, the king also transferred the highly important staple rights for the export of the region’s wool from the older town of Sandwich to the new foundation.109

9.3 The town land

If someone wanted to found a new town, one of the basic prerequisites was, of course, the disposition of a piece of land that was suitable for the building of a town. The location had to offer at least some basic favourable conditions: the ground should be firm enough to build houses on; there should be drinking water available; and the area should offer the inhabitants the possibility of producing enough food products and raw materials to make a living. And, in order to insure economic success, the location had to be well sited within the larger system of settlement, so that the town would profit from its location within the regional or interregional transport network. If the founder did not yet dispose of such a site, he could buy or trade a piece of land. This happened, for instance, with the foundation of New Winchelsea in England. When the old town of Winchelsea was increasingly threatened by a rising sea around 1287, King Edward I wanted to move it to a higher site nearby. In order to do this, he had to trade a piece of land on a nearby hill with the lord and lady of Iham.110 Another possibility was to obtain the permission to found a town on somebody else’s land and agree to share the profits with them, as happened in the paréages that were agreed to for the foundation of many of the bastides of southwestern France.111 The specific conditions that were required in order to serve as a site for a successful town foundation, and the specific sorts of sites that were chosen, are amply treated in chapter 5.

9.4 Town names

At a certain point in the foundation process, a name had to be chosen to call the new town by, so that it would be easier to communicate about the subject and to give the place a specific identity. Sometimes a new name was made up, sometimes the old name of the site remained in use, and on yet other occasions a term was used that somehow described the status or the place of the new settlement. Many new towns of the period under consideration are still more or less clearly identified as new town foundations by their names.

One can often find terms that refer to the newness of the settlement. Examples are, in different languages, Novus Burgus, Newton, Newcastle, Newport, Villeneuve, Terranuova, Villanuova, Villanova, Nieuwpoort, Nieuwstad, Neustadt, Neumarkt and Nowy Targ. But such names were so non-specific that places could easily be confused: in the county of Hampshire in England alone there were three different settlements that were called Novus Burgus.112

Another type is the name that refers to the free status of the settlement, such as Villefranche, Villafranca, Castelfranco, Freistadt and Freiburg. The word bastide, which can be found in many names of new towns founded in southwestern France, directly refers to a certain condition (involving novelty) as well as a certain juridical status. Examples are Labastide-du-Temple (founded by Templars), Labastide-Saint-Pierre and

109 Beresford 1967, pp.457-459, 179-180, 337. Queenborough was to be the last town plantation in England until the early 17th century. Because of the demographic crises of the 14th century (in particular the Black Death) the new town did not prove to be a very successful venture. The start was good, with almost instant economic activity, but after the privilege of the wool staple was shifted back to Sandwich after ten years, the town seems to have withered.

110 Beresford 1967, pp.14-15, see also pp.102-104. A similar land swap took place for the foundation of Conwy in north Wales. In addition to the land traded, however, King Edward I also had to pay a large sum of money to the former owner of the site, the abbey of Aberconwy. (see par.1.7.4) For the re-foundation of Fontanetto Po in northern Italy it was the abbey of San Genuario that traded land with various members of the existing community in order to come into possession of the whole area for the new town. (Panero 1979, p.106) See also Cortese 2004, p.301 (Montecurliano).

111 See par.2.4.2.

112 Beresford 1967, p.383; Higounet 1992, pp.111-113. A precedent which is telling of the great continuity in colonialism and town foundation, is the Greek colonial town foundation of Neapolis. This city, which is presently known as Naples, was in origin a Greek colony of about 600 BC and was given the name Neapolis because it means ‘new city’. (Dilke 1971, p.202)
Names for new towns were often simply taken over from local toponyms that already existed. According to Higounet, this is the case with almost half of all new towns of the high-period of town foundation. Examples are Harlech in Wales, Aigues-Mortes in southern France, Bunschoten in the Netherlands and Villingen in Germany. Often the adjective ‘new’ was added to the toponym: for instance, New Sleaford, New Radnor and Neu Haldersleben.

There is a wide variety of names that were really newly chosen, but in this variety there are types of names that were more favoured. In many cases names were chosen in reference to the location of the town. Often the names have positive connotations, such as, for instance, Beaumaris, Beaumont, Mons Securus/Monségur, Podium Mirabile/Puymirol, Bonneville, Bonnegarde, Belvedere, Casterbon, Schoonhoven and Schönberg.

Quite often, towns were named after older cities, preferably those of high status: Pavie (referring to Pavia), Bruges (Brugge), Tolosa (Toulouse), Bern (Verona), Frankfurt an der Oder (Frankfurt am Main), Cölnn (Cologne), Nizjni Novgorod (Novgorod) etc. There were even new towns that were named after very exotic cities, such as Baldac (now Baldock) in England, referring to Baghdad, and Damiatte in southwestern France, referring to Damia. Here, as with Grenade-sur-Garonne (after Granada), and other bastides named after Cordoba and Valencia, it is clear that Islamic cities could also be highly admired.

Many town names were chosen as a reference to the name of the founding lord or a relative of his. Examples are Charlevalle, Saint-Louis (the canonized Louis IX), Saint-Edouard (invoking the name of the saint as well as of the king), Libourne, Alessandria (c. 1168 named after pope Alexander III, but 15 years later renamed Caesarea when the community wanted to make peace with the emperor), Giglio Fiorentino, Manfredonia, Montecarlo and Santa Fé. Names with outright meanings are relatively rare. Battle and Victory refer to battles won or to be won. Flagella means ‘whip’, a reference to one of the motives for the foundation of this city in central Italy by Emperor Frederick II, which was to punish the pope and his subjects in the nearby territory of the Papal State. As described in par. 8.3.1, a number of town foundations by the count of Gelre, which were piously motivated, were named Insula Dei, meaning ‘Godly Island’. Christburg, a foundation of the Teutonic Order, probably received this name because it was sited in the heathen country of Prussia. The town name Buonalbergo, in Tuscany, means something like ‘good place to stay’.

Thus, it appears clear that names of new towns were, for the most part, not chosen randomly. For instance, the names of four out of the six Florentine terre nuove discussed in chapter 3 originally referred more or less explicitly to the founder, in order to put a Florentine stamp on them. In this manner the landscape was reshaped, at least to a certain extent, in the minds of the people. In historical colonisation processes, as in

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Footnotes:
113 Higounet 1992, pp.112-113. See also par.2.2.
117 Berson 1967, pp.382-383; Divorne 1993, 199; Settia 1991, p.652. Celano in south Italy was also named after Cordobas and Valencia, it is clear that Islamic cities could also be highly admired.
118 Higounet 1992, pp.117-118. The reference to Damia may have something to do with the crusade that conquered this Egyptian city in 1220.
119 Opl 1966, pp.185, 191; Settia 1991, p.652. Celano in south Italy was also named after Cesarea when it was re-founded by Emperor Fredrick II in 1223. But here too the new name did not hold, so the town is presently still (or rather, again) known by its old name. (Wipfler 2005, p.196)
122 See pars.8.2, 8.3, 8.4, 8.5.
the Florentine situation, toponymy has been quite a common instrument used to re-create the landscape according to the will of the conqueror. This instrument was one of many which helped to appropriate the land and to legitimise this action.\(^{123}\)

Sometimes, it appears that a name of an older toponym found more recognition with the people living in the area than a newly given name, which was gradually forgotten. Many towns were renamed later in their history, whether or not in other languages, depending on territorial changes or political circumstances.

### 9.5 Foundation rituals

From a small number of historical sources it is known that town foundations were sometimes symbolically inaugurated at a specific moment by a consecration ritual. With a number of bastide foundations, a pole (‘pulm’ or ‘pau’) with the arms of the founder or founders was placed in the centre of the settlement at a specific moment. This pole was often planted by the founding lord himself. Subsequently, the settlers swore an oath and the founder symbolically handed over the house lots, while God and specific saints were invoked as witnesses.\(^{124}\)

Another ritual of town foundation is described for the foundation of the ‘siege-town’ of Victoria before the gates of Parma by Emperor Frederick II in 1247. In order to determine the most auspicious moment for the foundation ritual, the court astrologer was consulted. The best moment was calculated to be when Aries was ascending, since it is the sign of Mars, the god of war. At the chosen moment Frederick traced the circumference of the town with a plough on the ground. According to the source, this symbolic ritual was chosen because the ‘ancient magnates’ had used it.\(^{125}\) Indeed, in the distant past the ritual tracing of a town’s boundaries with a plough at auspicious moments had also been customary for town foundations of the Etruscans and the Romans, as well as of people in other cultures in the Near and Far East.\(^{126}\)

A very similar ritual was enacted with the foundation of Cittadella in northern Italy in 1220, where an auspicious day was astrologically determined, on which the plan of the town was drawn on the ground.\(^{127}\) According to Fasoli’s descriptions of town foundations by north and central Italian cities, the actual inauguration was mostly done by the consoli (consuls) or the podestà (a sort of mayor) of the founding commune, who traced the boundaries with their own hands, probably in reference to the mythical foundation of Rome by Romulus.\(^{128}\) When King Manfred of Puglia and Sicilia founded the town of Manfredonia on the Adriatic coast in 1256, he had himself advised by two astrologers to find the best time to lay down the first stone. One month later, he came to the place in order to trace the walls and streets with his own hands and to begin the work on the east end of the town.\(^{129}\) The Florentine new town of Firenzuola was officially founded at the eighth hour of April 8, 1332, because it was at that hour that the sign of the Lion would be ascending, which would mean that its construction would be ‘stronger, stable and powerful’.\(^{130}\)

The Lübeck Benedictionale of 1486 describes the ecclesiastical ritual with which a new settlement was inaugurated in the lands east of the Elbe. A priest would appeal to heaven for the health and growth of the settlement, by blessing all house lots with a small cross and a mixture of water, salt, consecrated ashes and wine. After this, the small cross was attached to a large cross that was put up in the centre of the settlement. With this ritual, Matthew 5, verses 13-16 would be read. This ritual is very similar to the dedication ritual of new churches.\(^{131}\)

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123 See, for instance, Pearce 2004. Remarkably, this does not hold true for the names of the Edwardian new towns of North Wales. For towns that were founded in such an offensive operation of colonisation, it seems quite strange that most of them carry Welsh names rather than names that refer to the glory and power of their founder. Apparently, Edward and his advisors were not interested in toponymy, and did not see any advantageous opportunities in it.

124 See par.2.6. A similar ritual was staged with the foundation of a new town of which the name is not known, near Venzone in northeastern Italy. On May 21 of the year 1297, Patriarch Raimondo of Aquileia, as founder of the settlement, planted an iron cross on the place that was to become the centre of the new town. (Michele 1980, p.47)


126 Rykwerdt 1976, pp.132-143.

127 Francescchetto 1990, p.52. Unfortunately, it is not specified in the source exactly how the plan was drawn.

128 Fasoli 1942, p.202. Fasoli probably means that this was done with a plough. See also Wipfler 2005, p.204.

129 Franchetti-Pardo 1999, p.367; Valente 1980, pp.15-21. After the chronicle of Matteo Spinelli, which was written some decades later.


131 Müller 1961, p.68.
Similar rituals as described above were also enacted with the foundation of new towns in later centuries. Apparently, there was a strong tradition in the rituals for town foundations. In fact, this is quite logical, since it is one of the main functions of rituals to place unique events in a long tradition. It is telling in this respect that Emperor Frederick II’s ritual inauguration of Victoria is specifically described in a contemporary chronicle as a tradition from the antiqui magnates.

9.6 The laying out of the plan

No drawings of designs for new settlements from the period under consideration are presently known, and even written sources that describe the actual planned forms of new towns are highly exceptional. Nor do the written sources give much information about the way that planned structures were actually laid out. Therefore, the physical remains of the original layouts are an important source from which details of the process of planning and laying out a new town may be deduced. The following discussion of the laying out of town plans is, therefore, based on a combination of written sources and surviving physical evidence. The discussion primarily concerns newly founded towns but, in principle, it is also largely valid for the creation of new extensions to older towns in the period, since most newly founded towns were also created on the sites of existing settlements. Hamlets, castles, monasteries and villages were favourite places for the creation of new towns, which could be laid out either over or next to the existing settlements. Probably without exception there already were roads at the site of the new town, and often also fords and sometimes even market fields or ports. Later on in history, the newly founded towns mostly became the core of further extensions themselves.

With the actual creation of a new town, there must probably always have been some kind of scheme for the division of space. The founder had destined a specific piece of land for the new settlement, and within that piece of land different areas had to be destined for different functions, such as roads, markets, moats and house lots, or for different users: the various settlers, ecclesiastical institutions and the founder himself. A document from the 1280’s regarding the foundation of Newton on Purbeck, mentions that the founder, King Edward I, ordered two especially appointed officers ‘to lay out with sufficient streets and lanes, adequate sites for a market and church, plots for merchants and others in a new town with a harbour in a place called Gotowre super Mare in Studland Parish.’

The founder would normally not leave the organisation of space to the settlers. In fact, there is not one case for which this is actually known. Tábor is an exception, for it was not founded by the lord of the land, but by a group of people who simply took the land. Its irregular structure seems to have partly resulted from a lack of coordinated planning. But there are also other towns that are reported to have been newly created, with plans that look like there was no planning dictated from above. Possibly, the settlers were left free in their need for space, but unfortunately there are no historical sources that tell what actually happened in such cases.

The normal process of planning a layout for a new town probably must have consisted of the following steps. Early in the planning process it must have been determined, more or less exactly, about how many house lots were needed and what their size would be. At this stage the general plan also must have been determined. The main part of the structure of the plan was made up by the arrangement of house lots and their access by streets. Other relevant factors were the size of the streets and the site and size of market places, churchyards and possible further structures for religious, public or governmental use. Of course, these were not always all planned right from the outset; they could also be filled in later, within a roughly laid out framework. If defensive structures were originally intended, their spatial structure would also be determined more or less exactly in advance.

132 For instance, with the foundation of the mining towns of Annaberg and Marienberg in Upper Saxony in 1496 and 1521, where the perimeters were traced with a plough (Kratzsch 1972, pp.19, 43); with the foundation of Livorno in 16th-century Tuscany and the foundation of Grammichele in Sicily in 1693, where auspicious moments for the initiation were determined astrologically (Angelo Guidoni Marino, Grammichèl. In: Zeri 1980, pp.407-442. pp.415, 422); and with the foundation of the fort-town of Terra del Sole by Cosimo I de Medici in 1564 and of many colonial towns in Central America by the Spaniards, where rituals like the ones in the bastides and in the Lübeck Benedictionale were staged (Franchetti-Pardo 1994, pp.367-368).

133 See pars.5.1.6, 5.2, 5.3.

134 See for instance Strahm 1950, p.396; Blair 2000, pp.246-258.

These elements had to be put together into a general plan, which may have been very basic or may have been more elaborate. It may have been an ‘ideal’ plan made up in the mind of the planner, irrespective of the actual circumstances; or conversely, a plan set out more or less clearly on the ground, taking into consideration the conditions of the site, like existing roads, water courses, slope, amount of space, etcetera. With this, new solutions could be ‘invented’ or existing models could be followed. Conformation to a model may have been a conscious choice for some reason, or it may have been unconscious, simply due to a lack of consideration of other possibilities.

Who the planners of the urban form of the towns were has already been treated in chapter 7. Contrary to what is often thought, they were rarely building masters or what we presently call ‘architects’, at least as far as the historical sources can tell us. The planners may just as well have been notaries, monks, army officers, merchants, officers of the founding lord, private investors or surveyors. It seems likely that the people who set out the plan on the ground often were of this last professional group. But in fact, the sources are poor, so one cannot be sure about that. It may even be doubted whether there actually were many full-time professional surveyors: notaries, military engineers, master masons and monks appear to have done this job on the side.

It is unclear to what extent the people who made the plans were the same as those who supervised their actual realisation on the ground. It seems likely that often they must have been the same, as it is most likely that accurate plans were rarely designed in advance. There are a few documents, however, that contain descriptions of urban structures to be newly laid out. This shows that at least sometimes more or less accurate designs were formulated in advance, acting as intermediary between planner and surveyor or between planner and patron.\footnote{136}{See par.8.6.3 and appendix A.}

One would expect that when accurate plans were formulated in advance, they would have been drawn in a small scale. In contemporary highbrow architecture, such as in cathedral design, this was the case ever more often and with increasing accuracy since at least the early 13th century.\footnote{137}{Articles by Schöller, Müller and Ascani in Recht 1989, pp.227-277; Bucher 1972; Binding 1999; Binding 2002.} However, there are no sources that testify to the existence of paper plans for urban structures that were to be laid out in the period under consideration. It is known, however, that town plans did exist. And there is even one plan from a new town that was only just created. But this plan of the Tuscan port town of Talamone was no design plan; it was only a schematic drawing on which the officials wrote the names of the settlers of the different lots in the town.\footnote{138}{Braunfels 1959, p.99; Friedman 1988, pp.235-236, n.1.}

(fig.6.31) But nevertheless, the fact that a plan was drawn for such a simple function, makes it seem quite likely that actual design plans of urban structures also existed. Possibly, they were all destroyed later on; but since there are no references at all to such plans, one must be very cautious with this assumption.

The extent of the area in which the particular new privileges were to be instituted would generally be marked by crosses, posts or ditches.\footnote{139}{In the bastides, for instance, with ditches or posts (Saint-Blanquat 1985, p.62), and in the new town of Naarden in The Netherlands with posts (Engen, Kos & Rutte 2000, pp.98-99).}

There are various possibilities as to what would have been done within that area to prepare for the issuing of the house lots. In the one plantation the regime of spatial order may have been more or less free, as long as the size of the lots that was agreed on would be respected, and old or newly set out roads would not be intruded on. In this way, a structure could come into existence the form of which depended on the number of settlers. This may have happened in the case of simple plans of limited regularity, as for instance Pembroke in Wales. \footnote{140}{Schwinkeöper 1980, pp.110-111, 167.}

(fig.1.6) In other cases, considerable works may have been executed in advance, for instance the raising or leveling of the ground surface, the layout of a drainage system with ditches, or the layout of defences such as banks and ditches, palisades or even stone walls.\footnote{141}{It could happen that the defences that were built initially did not correspond well with the number of house lots that were settled. At Marchegg in Lower Austria, for instance, stone walls and ditches were built around a large area that was to become the town, but it never really filled up with settlers, for which reason it became a village-like settlement within a ring of defences. (see par.9.8 and fig.9.6) Something similar happened at Bunschoten in The Netherlands. (see par.9.6.1 and fig.9.2) At Iselstein in The Netherlands, a different solution was chosen. Here the shortfall in settlers was countered with the digging of a new ditch, which left almost half of the initially intended urban area, which was already moated and partly walled, lying outside the town. (Fafianie 1989, pp.212-214).}

With smaller foundations, the ‘street system’ could consist of no more than one central axis. With bigger ones it is possible that, in the beginning, only the main streets and possibly a market place were set out, leaving secondary streets to be added later.\footnote{142}{Schwinkeöper 1980, pp.110-111, 167.} Often, however, a more or less complete system of streets and alleys would be laid down, by which means street
blocks were created. These blocks need not necessarily have been initially cut up in, or composed of, individual plots.\footnote{See the case of Bunschoten in The Netherlands below, par.9.6.1.} Sometimes all house lots would be set out initially, as was the case with the terre nuove Florentine, while in other cases only the lots that could be issued immediately, for which new settlers were present, would be marked out. This was probably the case in Elburg in The Netherlands, of which it is known that most of the plots had the size of $2 \times 8$ rods ($1$ rod = $14$ ft.), but that plots of different widths were also issued.\footnote{See also pars.6.3.1 and 6.4.3.2.} In this case, however, the layout was so compelling in its entire structure, that it was already clearly dictated how the various plots were to be set out. (see fig.7.3)

### 9.6.1 Regular plan forms

In the preceding chapters it already appeared that many new towns had more or less regular and orthogonal plans. In paragraph 8.6 it was even argued that straight streets and a regular orthogonal order probably formed the basic ideal in spatial urban layout. But the use of regular orthogonal layouts must also have had weighty motives of a practical character. Firstly, an orthogonal structure was easy to conceive and to transfer. Secondly, the uniformity or the simple dimensions of the plots would have made it easier to calculate rents and taxes on the basis of the area. And thirdly, an orthogonal plan is easily surveyable, and thereby made it easier to maintain public order than is the case with an irregular plan with winding streets. In some cases the more or less orthogonal plan may also have been suggested by the existing form of the landscape of the site. For instance, the plan may have been adapted to the structure of an already existing through-going road or crossroads, or may have been based on an older, more or less regular allotment of fields.\footnote{See also Burke 1956; Lavedan & Hugueney 1974, pp.10-11.}

It must also be considered that when a predetermined plan is set out on the ground, the regular orthogonal plan is the easiest model. A predetermined plan that has rounded shapes, different angles and irregular dimensions is far more difficult to set out on the ground. This does not mean, however, that it is not difficult to set out a plan which is really accurately regular and orthogonal. In the process of setting out the plan and building the town there were always faults or inaccuracies of various sorts that caused smaller or greater irregularities.

On a flat piece of ground straight lines could be set out by sighting, and be marked by pegs or stones. Regular distances could be measured out along these straight lines with ropes, chains or rods of specific length. The only more complex action in the process would have been to set out right angles.\footnote{For instance, the structures of the plans of Schoonhoven, Nieuwpoort and Vianen in The Netherlands were based on pre-existent field structures with parallel ditches more or less at right angles to dyke structures. (Visser 1964, pp.118-120; Henderikx c.c. 1990, p.26; for Vianen this can be recognised in fig.9.2, but not in fig.9.16 because the structure of the fields surrounding the town appears not to be depicted correctly there) See also Burke 1956; Lavedan & Hugueney 1974, pp.10-11.} This might have been done with a rope forming the pythagorean triangle of which the length of the sides have a ratio of $3 : 4 : 5$; with two ropes on a baseline that touch on both sides of the baseline where their radii intersect; or with some sort of instrument with a fixed right angle, like a hook, a groma or a board with fixed points or pins that mark a right angle.\footnote{That is, if there is no other, more complex geometrical system behind the plan design, like in the terre nuove, which is, however, unlikely since such complex geometry seems to have been used for town plan design very rarely. (see ch.6)}

Relevant points in the plan were probably marked by pegs or poles hammered into the ground, or by stones set upright. It is known that surveyors used such simple techniques, although they are not testified to specifically with regard to the laying out of new town plans.\footnote{That is, if there is no other, more complex geometrical system behind the plan design, like in the terre nuove, which is, however, unlikely since such complex geometry seems to have been used for town plan design very rarely. (see ch.6)} An interesting source, in this respect, is the newly founded town of Bunschoten in The Netherlands. A large oval piece of land was assigned for the new town and was surrounded by a moat and an earthen wall. But the area never filled up with houses, apart from the central main street. (fig.9.2) Most of the remaining land was used only for agrarian purposes. Within this area a grid of low earthen banks was laid out. This is an interesting structure, because these banks most probably mark the originally planned street pattern. The banks were straight but not completely at right angles, the directions being largely determined by the pre-existing field allotment of the land, which had been reclaimed from the marshes about two to three centuries before. The banks seem to have been thrown up in the same period as the digging of the moat and the construction of the walls around the area. Their exact purpose is not completely clear, however. They may have been thrown up in order to mark out

\[9.6.1\]
clearly the planned street structure, so that in the course of the slow process of the building up of the town, the
original plan would be followed. But it is also possible that harder ground or sand was used in order to get a
solid bed for the streets, instead of the soft boggy soil of the area. It is known, however, that earthen banks, as
well as ditches, were also used elsewhere to mark out the lines of plans as they were originally set out.

There are no clear sources which tell us how, exactly, streets were set out. It is not unlikely, however, that
in many cases they were initially set out only along their central axis, instead of along both building lines. In
this way, the actual building lines could still become rather irregular. The actual setting out of straight building lines, and the prescription to build along these
lines, was a better instrument to use in order to create regular and straight streets. On the basis of the plans
as they presently appear, it might even be argued that the technique of setting out both building lines in new
urban structures only became a common method in the 13th and 14th centuries, but it is possible that later
changes to the original structures give a misleading picture. As far as I know, the first documented regula-
tion demanding a straight building line is a decree from Vicenza in northern Italy, from around 1200.

9.6.2 Irregular plan forms

There were great differences in the amount of detail by which new urban structures were planned. One town
may have been meticulously planned in spatial sense, while another may have been left fairly free in regard to
its physical structure. It seems that, in the one case a lot of effort was spent on the actual layout of the plan,
while in the other the spatial form of the town seems to have been given little attention. In most cases the
founding lord will have prescribed the terms for the geographical size of the newly created legal territory
and the number and size of the plots that were issued. In some cases, the rest of the spatial organisation may
have been left more or less free to be decided upon later.

Previously, we noted that regularity of plan was the spatial ideal for newly founded towns; but, in reality,
one finds that many new towns of the high-period of town foundation have rather irregular plans, at least
compared to present-day standards. The question is: how have these irregularities come about, if regularity
was the ideal? There is no easy single answer to this question. Irregularities in the plans of new towns can
have many different causes. The most common will be briefly discussed below. It should be noted here,
however, that the matter does not just concern the centuries under consideration in this study, but is largely
valid also for urban creation in other periods.

A common cause for irregularities in plan structures was the topography of the pre-urban landscape. For the
most part, the site of a new town would not be completely empty or level. Nearly always there were features
of natural or man-made origin that prevented a facile layout of a regular plan. For instance, the natural relief
and the course of streams often made a completely regular layout difficult. So, if the founder did not want
to invest much effort in changing the landscape, the plan had to be adapted. The irregular outline forms of
Caernarfon, Aberystwyth and Ceské Budějovice, for instance, were clearly determined by the relief and the
water around the more or less peninsular sites on which they were built. (see figs. 1.6, 1.20, 9.4) In Cordes,
not only the outline of the plan is determined by the elongated shape of the hilltop on which the town was
sited: the direction of most of the streets was also determined by the relief, as was the location of the market
place, for it was sited on the highest point. (see fig. 2.11) The ridges on which Pembroke, Beaumont-du-
Périgord and Bern were built also determined the outline and the direction of the most important streets.

(see figs. 1.6, 1.24, 9.19) At Pembroke and Beaumont there are also secondary streets, the placement and
direction of which are determined by the relief, allowing them to serve to drain surface water. These streets lead the water away from other streets because they are connected to them at their lowest points and they follow shallow natural gullies.\(^{153}\)

But the pre-urban landscape was, for the most part, also formed by man-made features, such as property boundaries, canals, dikes, buildings and so on. These features also influenced the forms that newly planned structures took on. Some of the house lots in Thame and Stratford-upon-Avon in England, for instance, were formed on the basis of pre-existing agricultural fields.\(^{154}\) (see figs.9.12, 9.7) In Newborough in Wales two new streets were laid out, straight and almost at right angles, cutting through an older agricultural allotment of irregular layout. But for the new house lots no regular structure was chosen: the old agricultural plots were simply cut up into narrower lots.\(^{155}\) (see fig.1.41) In Elburg in The Netherlands the opposite situation was more or less true. The pre-urban allotment was largely overlaid with an almost perfectly symmetrical plan structure, for which a brook was canalised to form its axis. But a pre-existing street with some adjoining lots also had to be fitted into the plan. The result is that this street is an anomaly in the town, with its slightly curved layout, and that it spoils the symmetry of the plan. (see fig.7.3)

Whether or not planners were able to change existing spatial structures was not just a question of the amount of effort that could be brought to bear or of technical ability, but also of possession and power. The founder was not always in complete possession of the ground, so the ability to change existing settlement structures depended partly on the power he had over the inhabitants or possessors, or on whether he had the legal power to expropriate parts of the land.\(^{156}\) Of course, finances also played a role in this. These aspects may have been the reasons why, for instance, the existing settlement core around the church at Villeréal was left in place, disturbing the regularity of the new spatial structure.\(^{157}\) (fig.2.44)

Above, the form of the existing landscape is regarded as an obstacle to the realisation of a regular plan. It should be noted, however, that highly regular plans were also influenced by the structure of the existing landscape. Their location, orientation, inclination, and probably many other elements, were also determined by the existing topographical situation.\(^{158}\)

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\(^{153}\) See par.9.13.

\(^{154}\) See par.9.11.

\(^{155}\) See par.1.7.11.

\(^{156}\) Slater 1990, pp.68-70; Carter 1990, pp.189-190.

\(^{157}\) See also par.5.1.6.

\(^{158}\) For instance, at Flint in Wales the form of the plan was probably largely determined by the structure of the agricultural fields. (see par.1.7.1) At Fontanetto Po in northern Italy the direction of the whole plan and the situation of at least two of its seven streets were determined by the older church that was left in place when the town was re-founded and re-structured in 1323. (Panero 1979, p.107) (fig.8.8)
Many scholars from the late 19th century onward particularly admired the free adaptation of ideal regularity to the irregular landscape, which often resulted in the ‘picturesque charm’ that was appreciated so much in the form of old towns. Many observers have prized the way the planners made use of the form of the landscape in order to adapt the plan in such a way that nature and culture combined to make a structure that is optimally adapted to its environment.\footnote{For instance, M.G.R. Conzen praised ‘[...] the characteristically adaptive attitude of the medieval town planner to the natural site of the town and his equally free and flexible, but consistent notion of urban form [...]’ (Conzen 1968, pp.119-120)} It seems that this view on the matter resulted primarily from contemporary aesthetic preferences which, themselves, originated in reaction to the monotony and grand scale of modern town planning.\footnote{See par.11.1.1.}

Irregularities also came into being in structures that were originally conceived of as regular, but which were less regular in their laying out, due to the limitations of the techniques and equipment that were used for measuring and setting out the plan. From at least the 12th century onwards, the knowledge, techniques and equipment needed for the laying out of a regular orthogonal plan on more or less flat ground did certainly exist, but that does not mean that it was at hand in every individual case.\footnote{See par.11.1.1.} Also, circumstances like bumpy, steep or wooded terrain made it more difficult to set out a plan exactly as it was ‘meant to be’. Another problematic circumstance, not unknown to modern surveyors, might have been that pegs or other markers disappeared or were moved before boundaries were converted into the more stable lines of buildings, ditches or fences.

It is also possible that a plan was set out to be more or less regular, but that not all of it was set out initially. As already mentioned above, it is possible that only one central line was set out to mark a street, so that the actual building lines remained to be delineated, or that only the main streets and market place were set out, while the boundaries of lots and alleys or back streets remained to be filled in later. This might have been the case, for instance, in Brandenburg Neustadt. (fig.9.5) It seems quite possible that only the two perpendicular main streets and the market place were set out initially, and that the other streets followed later on, as the town was gradually filled in and the lots on the main streets and the market were all occupied. The course of these secondary streets was, to a large extent, influenced by the irregular rounded shape of the island on which the town was built. This is in contrast to the situation in Ceské Budějovice. (fig.9.4) This town was built on a similar island-location with an irregular, rounded outline. But here the course of most streets was clearly predetermined, almost completely irrespective of the conditions of the site. Only the two streets in the northwest corner incline in order to follow the outline of the town, for some unknown reason.

Ideally, the size of the lots, whether measured out in advance or at the moment of occupation, would be equal, or at least proportional to the rent to be paid for them. In reality, however, accurate plan analysis shows that many lots are not very regular in size. This can partly be ascribed to changes in the lot boundaries over the centuries and partly to inaccurate measuring or setting out of the original plots. In particular, plots of irregular shape must have been very hard to measure out correctly, due to the irregular forms of bordering streets or other existing structures.

Whether or not the different house lots were set out very regularly was largely a question of accurate measuring and marking. This may have been determined by technique, equipment, experience or circumstances but, in some cases, the lack of regularity may be due to a limited importance placed on the accuracy of plot sizes. Probably, this would largely have been a question of ‘market value’. If land was relatively abundant, then the value was low and it would normally not have been a great problem if the distribution of ground was not all that regular. But when the land was scarce, the amounts received by the settlers would have been jealously guarded. Inequality of lot sizes in relation to the rent would probably not be a big problem if another aspect was valued much higher, such as, for instance, the privileges that the settlers received or the location of the plots.\footnote{For plots for which the rents were differentiated according to their location, see par.9.11.}

One case in which it is known that the proportionate inequality of the lot sizes as they were distributed to the settlers was considered problematic, is that of the bastide of Grenade-sur-Garonne. (figs.2.22, 2.52-53) In 1322, 32 years after its foundation, it was decided, in answer to a petition, that the town and its grounds would not be newly measured out, but that individual lots would be measured upon request, after which the rents would be adjusted. Nine years later, however, the situation apparently still was not

\footnotesize\begin{itemize}
\item\textsuperscript{159} For instance, M.G.R. Conzen praised ‘[...] the characteristically adaptive attitude of the medieval town planner to the natural site of the town and his equally free and flexible, but consistent notion of urban form [...]’ (Conzen 1968, pp.119-120)
\item\textsuperscript{160} See par.11.1.1.
\item\textsuperscript{161} See pars.7.7, 10.2.2; Binding 1993, pp.340-348.
\item\textsuperscript{162} For plots for which the rents were differentiated according to their location, see par.9.11.
\end{itemize}
satisfying, as a new survey was carried out for the whole settlement, at the expense of the community. In the charte de coutumes of the bastide of Trie-sur-Baïse it is even mentioned that, if inequality of the lot sizes would appear from a possible re-measurement of the bastide grounds, the settlers who had received too much land would have to pay additional rents, on top of the standard amount.

A probably rather common cause of deviations from an originally conceived town plan was a long lapse of time between the setting out of a plan on the ground and the actual occupation of the land itself. In chapters 1 to 3 it was described how, in many cases, it took some decades before the new towns actually filled up with settlers. It is only logical that the chance that the original structure would be gone or would have lost its topicality, increased with the time that lapsed before a planned structure was actually occupied. This is why in many towns the structure becomes less regular towards the outer limits of the original plan. Commonly, the centre was occupied first and the periphery later. In the bastide of Sainte-Foy-la-Grande for instance, there is a remarkable irregularity in plan near to the southeast corner of the town. In this area, which was only occupied a long time after the town was founded in 1255, three streets follow oblique directions that do not conform to the regular grid that was the basis of the original plan. Probably, these oblique streets were only created in the 19th century, when the town wall was breached in order to make connections to extra-urban roads. (fig.2.21)

Often, it can be observed how the form and size of the lots get more irregular towards the margins of the town. This is mostly due either to the fact that these marginal lots were settled considerably later than those in the centre, or that they were depopulated in times of crisis - for instance with the ‘black death’ - and were restructured later on when they were reused as house lots or gardens. (see for instance figs.2.13, 2.39, 3.5, 3.19, 9.1, 9.18) A similar phenomenon can be observed in the wall circuits of many towns. Since the walls were mostly built some decades after the foundation of a town\textsuperscript{165}, their circuits often are rather irregular, as they more or less followed the outlines of the towns for as far as they were built-up at the moment. (see for instance figs.9.3, 2.14, 2.44, 10.7) It must be noted, however, that fortifications were often built with irregular circuits because they were also planned to use the form of the existing landscape as much as possible, in order to be optimally defensible and to save on costs. The wall circuits often follow steep natural slopes (figs.2.11, 2.31, 3.19 west side, 7.1, 8.5, 9.19) or water courses (figs.9.4, 9.5, 1.6, 1.20, 1.27, 5.4)\textsuperscript{166}

The loss of regularity during the period in which a town is slowly settled is, of course, dependant on the strictness of supervision over the distribution of plots and on the presence of building regulations and their enforcement. In the contemporary realisations of large and long term projects such as the construction of cathedrals, it is easy to observe how the passing of time resulted in changes in concepts and ‘styles’, causing deviations from the initial plans. In town planning, similar deviations from the initial plans may have occurred. Moreover, it is also relevant here that the plans had to be ‘filled in’ by individual landholders. Often, this seems to have happened without close supervision.

There are newly set out town plans that were not occupied completely for many centuries, due to lack of development or to depopulation. Often this has led to a gradual dissolution of the originally planned structure. (see figs.9.6, 2.29) But in other cases the structures have remained visible in the layout of roads, watercourses or fields.\textsuperscript{167} (see figs.9.2, 2.36, 2.52-55)

The most common cause of the irregularisation of urban form, probably, are changes made to the original structure in the course of the centuries. In every old town there are structures that were originally realised according to a planned scheme, but which were altered later on in history. In the case of the towns from the high-period of town foundation at least six centuries have passed since their creation, during which time many greater or smaller piecemeal alterations were made. These alterations have often blurred the original picture, generally making the forms more irregular.\textsuperscript{168} It sometimes happens, for instance, that originally planned regularity has been blurred by the dissolution of the original lot division through subdivision or amalgamation of plots (fig.9.7); by the occupation of open

\textsuperscript{163} Saint-Blanquat 1985, pp.62, 99.
\textsuperscript{164} Saint-Blanquat 1985, p.62.
\textsuperscript{165} See par.2.10.4.2, and par.9.17.
\textsuperscript{166} This all depends, of course, on the landscape in which the towns were built. For instance, towns that were built on the sites of fords in wide valleys, could easily make use of the water for protection. This can often be seen in central and eastern Europe, as at České Budějovice and Brandenburg (figs.9.4, 9.5). (see also Lavedan & Hugueney 1974, figs.4.4, 4.75, 5.99, 5.39, 511, 516) For towns that were built in a landscape with considerable variation in its relief it was usually easier to use steep gradients for protection.
\textsuperscript{167} See the cases of Grenade-sur-Garonne, Saint-Denis (par.2.10.8) and Bunschoten (par.9.6.1).
\textsuperscript{168} Conzen 1988, p.119.
spaces (for instance ‘market colonisation’, figs. 9.5, 9.12, 9.14); by the rebuilding of edifices in different form resulting in the alteration of older boundaries (fig. 1.13); or by not rebuilding at all after calamities or periods of depopulation.\textsuperscript{169} (figs. 2.29, 3.12 southern part of town, 3.7 corners)

\textsuperscript{169} Quite wrongly, the process of the slow ‘irregularisation’ of formerly regular urban structures has often been taken to be typically ‘medieval’, since formerly regular Roman town plans were gradually altered into less regular forms from about the third century onwards. (see for instance par. 10.2.1) The theorist/architect Gianfranco Caniggia even coined the term medievalizzazione for the irregularisation of urban form. This trend of thought completely ignores the fact that, in more recent periods, regular town plans also tend to be irregularised with almost every alteration.
9.7 Preparation of the site

It may be assumed that, normally, the ground was cleared before a plan was set out. Low lying land often had to be drained by the digging of canals or ditches. For instance, with the building of the new town of Hagen, which was added to the older town of Braunschweig in northern Germany around 1166, two canals had to be dug in order to drain away the water from the low lying ground. The course of these canals, which was determined by the relief, subsequently had a great influence on the plan structure of the new town.\footnote{This was the subject of the paper presented by Wolfgang Meibeyer, ‘Der planmäßige Ausbau durch Neustädte und neue Kirchspiele, aufgezeigt am Beispiel Braunschweig’, at the Arbeitsstagung zur mittelalterlichen Gründungsstadt, 15-17 March 2001 at the Universität Göttingen. The new town was probably settled with immigrants from the Low Countries, possibly even because of their knowledge of techniques for draining the swampy land in which this part of the town was laid out.} The ground level was also raised with sand and logs.\footnote{Rötting 2001, p.418.} For various other new town creations the land was also artificially raised or provided with dykes, in order to prevent flooding.\footnote{See par.5.2.1.}

A small number of new towns was laid out on land in which even small-scale pre-existent relief was levelled. This seems to have been the case with the Florentine terre nuove. Although they are all laid out on relatively flat land on valley floors, their sites appear as though they have been artificially levelled in order to clear away the micro-relief. At Unterseen in Switzerland the earth that was dug up with the creation of the town moat was used to level the slope of the shore of the river Aare on which the town was sited.\footnote{Gutscher & Studer 2003, p.192. Much the same happened at Burgdorf and Wangen an der Aare, which are also creations of the second half of the 13th century in Switzerland. (Gutscher 2004, p.105).}

The foundation of Lippstadt in central Germany in the late 12th century was also accompanied by the construction of extensive earthworks, according to the description in the Lippiflorum of around 1265: ‘Diggers hurry to the scene, they measure the length and width as well as the area, and a ditch cuts deep through the land. Earth is

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{fig95.png}
\caption{Plan of Brandenburg Neustadt in northeastern Germany. (From: Siedler 1914) The Neustadt (New Town) was created shortly before 1196, probably by the margrave of Brandenburg. It was built adjacent to the older settlement Brandenburg Altstadt (originally Parduin, probably of the first half of the 12th century, upper left). This older settlement, in its turn, was created next to a pre-10th century Slavic fort, which stood on the island to the north of the Neustadt. The form of the new town was largely determined by the slight relief and the courses of the various branches of the river. (Müller 2004, p.83) The market place next to the intersection of the two main streets is largely filled in with shops, market buildings and a town hall, built in various phases.}
\end{figure}
thrown up, and soon the dam rises up high in the air, and a mighty wall winds around the settlement.\textsuperscript{174} In Burgdorf and Laufen in Switzerland, archaeological research has shown that the various lots on the slightly falling slope were terraced. It seems, however, that this was not done initially, but only when the lots were actually settled.\textsuperscript{175}

9.8 Construction of governmental and public buildings

The founders of new towns often also took on the responsibility of building a number of edifices for communal or public use. Often, a chapel or a church was founded by the lord. When fortifications were planned, the lord would be responsible for the construction of at least the gates, while the construction of walls and moats may have been made the responsibility of the community. Sometimes, the founder also took responsibility for the building of a house for the administrative officials, where the court of law might also be housed, and which sometimes was also combined with a market hall, as for instance in San Giovanni Valdarno. (fig. 3.15)

An unusual case that demonstrates quite well what powerful lords were capable of when they wanted to found a new town, is the town of Marchegg in Lower Austria. (fig.9.6) King Přemysl Ottokar II of Bohemia, who was also ruler over large parts of Austria, founded this town in 1268 on the shore of the river March, on a site that does not seem to have been inhabited before.\textsuperscript{176} This case is interesting because the relatively large town (in surface area) remained, for the most part, unpopulated. The most important motive for the foundation of the town was to have a fortress on the border with Hungary; but the site was not very well suited to support the economy of a large town. Therefore it was difficult to lure settlers to the new town, and consider-

\textsuperscript{174} ‘Gräber eilen herbei, man mißt in die Länge und Breite jetzo die Fläche, und tief schneidet ein Graben das Land. Erdreich schüttet man auf, bald hebt sich der Damm in die Höhe, und ein mächtiger Wall schlingt sich abseits um den Ort.’ (Althof 1900. pp.46-49; cited in Rutte 2002, p.37)

\textsuperscript{175} Gotscher 2004, p.195.

\textsuperscript{176} According to Gutkas there had been a village on the site, which was cleared away for the building of the new town; but more recent research suggests that the village of Chundorf lay further west, and was gradually deserted by its inhabitants in favour of the new town. (Gutkas 1963, p.86; Gutkas 1977, p.147; Österreichischer Städteatlas 1985, s.v. Marchegg)
able damages suffered in various wars along the border did not help recruitment, either. In retrospect, the project was clearly too ambitious. So, houses were relatively scarce in the town until the 20th century, even despite later attempts to attract more settlers. But in the first few years after the foundation, a more or less complete infrastructure was built, consisting of, among other things, roads, a market place, stone walls with three gates, a castle, a church and an Augustinian abbey. It is estimated that the town was meant to contain about 10,000 inhabitants, but in reality it would never have more than 1,500 within its impressive circuit of walls.\textsuperscript{177} It seems, however, that this order of events in the process of creation of a new town was exceptional: usually a stone town wall would only be built, and a monastery would only be founded, once the new town was on its way to proving itself to be successful in a social and economic sense.

9.9 Settlers

Until far in the 20th century, the general idea has been that the growing urban population of the 12th to 14th centuries was mainly made up of fugitives from feudal oppression in the countryside. In paragraph 0.4.1 it was argued that the traditional idea of the opposition of ‘feudal countryside’ and ‘free town’ is largely erroneous. The idea may be even more incorrect when it comes to newly planted towns. With the foundation of a new town, the founder must have had an idea of where the future settlers of the town would come from. Generally, there were two possibilities: either people from the nearby territory of the lord would

\textsuperscript{177} Gutkas 1963, p.86; Gutkas 1977, p.147; Österreichischer Städteatlas 1985, s.v. Marchegg. With 10,000 inhabitants, the town would have been almost as big as the most important town in the whole region, Vienna. To me this number obviously seems too high. Nevertheless, the new town may have partly been intended as an explicit competitor to Vienna, although its main intended purpose was to act as a frontier base against the Magyars. (Gutkas 1977, p.147)
be resettled in the new town; or settlers were to be attracted from further away. The first possibility can be found with the replacement of older towns by new ones (as, for instance, with Naarden in the Netherlands and New Winchelsea in England), or with concentration of inhabitants of a region that was formerly settled in scattered farmsteads, hamlets or villages (as was the case with the Florentine terre nuove and most of the bastides). An especially impressive case of the concentration of a formerly scattered population is the new town of l’Aquila in the Abruzzi mountains of central Italy. According to tradition, this large new town was populated with settlers from 99 different settlements in the region, which were resettled as communities within their own neighbourhoods in the new town. These neighbourhoods or locali mostly had their own piazza and church, whose dedication followed that of the church of the original rural community. Such resettlement in groups together in the same neighbourhood seems to have been the normal procedure in cases involving the concentration of population from different settlements.

The other possibility was that a town was intended to attract settlers from further away, either from the territories of other lords or from existing towns and cities. This was the case with many of the new towns founded in Wales by Edward I, where most settlers came from England. The same holds true for the towns founded in northern Europe east of the river Elbe, where most settlers came from the west, and for the foundations following the reconquista in Spain, where many of the new inhabitants came from further north. In 12th-century Navarre, for instance, a number of towns were founded which were especially intended to be settled with immigrants from north of the Pyrenees, francos as they were called. Probably, however, in every town foundation, even those primarily aimed at the resettlement of people from nearby, settlers from further away would be warmly welcomed as long as they would contribute to the economy, because they would only increase the lord’s political power and income. For the town of Sarzana in Tuscany, which was moved to another site around 1170, it is known that the lord bishop of Luni reserved a hundred lots for the inhabitants of the old town and twenty for new settlers from elsewhere.

In particular, inhabitants from older towns and cities must generally have been favoured candidates as settlers for new towns, because they had experience with urban life and, more specifically, with the urban economy. There is little material from which one can get a picture of how large the percentage of new town settlers was that came from older towns, but it seems likely that, with the fast growing population up to the first half of the 14th century, urban dwellers that strove to start their own business must often have migrated to other towns where new possibilities enticed them.

For the most part, the recruitment of new settlers, whether from nearby or from far away, probably began soon after the decision to found a new town. Once again, there are no sources that clearly describe how this happened, but it may be assumed that in most cases it was announced orally that a new town was to be founded. Much as in the present, most probably, the attractions and advantages, such as the appealing location and the many privileges, were enlarged upon. A 15th-century chronicle gives an impression of the re-settlement of the non-newly founded town of Jaén. After its conquest by Ferdinand III of Castile ‘(...) he sent for settlers into all regions, promising great liberties to whoever came to settle there.’

In general, the founders did not aspire to attract just any settler. As mentioned above, they sometimes clearly aimed to resettle the inhabitants of the region. But in other cases they particularly strove to attract ‘investors’ that had something to offer: experience in craft or trade and knowledge of relevant (new) techniques, capital to invest, and the ambition to work hard. These ‘investments’ could all help to increase the circulation of capital and thereby stimulate the economy and the lord’s income. This often meant that the founding lord sought settlers who had experience with new agricultural and industrial techniques and who already were involved in the trade economy. According to the 12th-century Chronicle of Sahagún, King Alfonso

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178 See pars.2.8, 3.6. In general, the population of towns and cities seems to have mainly come from the surrounding region. (see for instance Platt 1976 (1), p.96) In the cases of the small towns of Arconciel and Vaulruz in Switzerland, it appears that the inhabitants mainly came from an area within about 15 km. from the towns. (Flückiger 1984, pp.36, 113-114)

179 Merlo 1992, p.26; Clementi & Piroddi 1986, pp.1, 20. In the new city the communities were placed more or less in the same spatial constellation as they had been in before, but on a smaller scale. In l’Aquila it is quite clear that this settlement scheme was chosen to leave intact the communal rights that the different communities had over the lands of the mountains that surround the town, which were used for as pasture. The number of 99 communities is not correct: a document of 1294 mentions 71, and the number was later increased several times when the territory of the city was enlarged. It appears, however, that some communities shared a locale. (Clementi & Piroddi 1986, pp.28, 75)

180 This was also the case, for instance, with the terre nuove Fiorentine. (see par.3.6) See also Higounet 1992, pp.47-48.

181 See par.1.5.

182 Higounet 1992, p.49.

183 See also Beresford 1967, pp.192-196.

184 Cortese 2004, p.289.

185 Beresford 1967, pp.197-198.

186 Bartlett 1993, p.179.
A major disadvantage for the settlers was, of course, that they had to move, which would involve considerable effort. And, if they immigrated from far away, they had to build up a new business: they had to find new suppliers and customers, they may have had to clear and reclaim new fields, etc. Indeed, it could take years before a successful business was established. To compensate for these costs and efforts, the new settlers were freed from the duty to pay rents and other duties during the first years in the new settlement.

The term for this exemption from duties varied with the region, or sometimes with individual cases, or even with the specific piece of land. In southwest France it was often three years, while in eastern Europe it could be up to 20 years. The number of exemption-years generally depended on the attractiveness of the project for the settlers.

The new settlers were all assigned a house lot, or sometimes more than one. With this, they had the obligation to build a house on it, usually within one year. This regulation was to insure that the foundation would actually become a town in a physical sense, and to limit the possibility of speculation with the land - which nevertheless seems to have been considerable in many cases. So, the settlers were responsible for the building of the houses. In paragraph 9.12 the construction of the houses will be considered.

In the 19th century, many historians believed that Stadtluft macht frei (‘urban air makes free’) was the general motto of urban communities in the 10th to 15th centuries. They sketched an image of serfs that fled the countryside to escape oppression by feudal lords to towns and cities, where they were warmly welcomed and obtained freedom and human dignity, once they had stayed there for a period of a year and a day. In the towns and cities they were able to use their productivity and creativity to contribute to the free urban economy and culture, which eventually lead to the modern bourgeois society.

Though many people still seem reluctant to accept the fact, this view is largely wrong. Firstly, Stadtluft macht frei is no original ‘medieval’ juridical formula. It is a 19th-century construction based on the more general original formula Luft macht eigen, which means ‘air makes dependant’, actually implying the opposite of ‘urban air makes free’. Secondly, serfdom was not as general a status of the inhabitants of the countryside as is often thought. Full servitude of a major part of the country folk only existed in certain regions. As to the freeing of serfs, towns and cities had rather different policies, even if they were autonomous. Many town charters stated that serfs would become free citizens once they had lived in the town for a year and a day. But there were also many towns that had laws that forbade serfs of specific lords, particularly of the lord of the town himself, to live there without permission, or which excluded serfs from becoming citizens at all. In the new towns founded by the commune of Asti in northern Italy, the settlers received certain privileges but, for the most part, they remained obligated to their old lords. Only specific settlers, probably the most important ones for the economy of the town, like traders attracted from foreign cities, received full freedom. In fact, many older cities had a rather two-faced, opportunistic policy. Subjects of hostile

188 ‘de vento’ or ‘de vento et visio’. (Beresford 1967, p.225)
189a Heers 1990, pp.203-495. Divorce (1993, p.68), for instance, still holds forth that the motto Stadtluft macht frei was a saying which was known in all of Europe and which referred to all towns; while Lazzareschi (1994, p.16) still claims that, in the 12th century, most of the inhabitants of towns were fugitive serfs.
189b Strahm 1947, pp.38-38f. According to Strahm (p.111) the actual situation was that ‘urban air’ made inhabitants the subjects of the lord of the town after a year and a day, which is something very different from being made ‘free’, although the urban privileges could be so many that one could speak of ‘relative freedom’. Actually it was only in the towns of sovereign lords that burgesses could really be juridically free. (Strahm 1947, pp.102-104)
189c The situation was quite similar in the new towns founded by the bishop of Luni, but there the difference was that the serfs who settled in the

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lords were often completely freed from obligations towards them, while subjects of allied lords were often not admitted to the free communities or, if they were, they were only partly freed from their previous obligations.

So, serfs were often not allowed to settle in new towns. An important reason probably was that many serfs did not own important capital goods, like cattle, draught animals, tools, seeds for sowing and money. Therefore, in many cases they were not able to bring anything of the new settlement and therefore they may not have been particularly welcome. In some cases settlers even had to pay a considerable sum of money to become citizens, which obligation often must have been hard for serfs.

So, it seems that quite a large part of the new citizens of new and old towns were already free from feudal bonds, at least to some extent. But there are also new towns that were explicitly meant to be settled by the subjects of feudal lords, whether or not they were actually serfs. As we have seen above, Emperor Frederick II forced the Saracen people of Sicily to live in the new town of Lucera in southern Italy. His foundations of Altamura, Petrolla, Melehudi and Ceasarea Augusta were largely settled by force with serfs from Frederick’s domains in southern Italy, the so-called rocati. It is not clear whether the main goal of this was to keep them under firm control, or to boost the urban development. The settlers were given ten years of exemption, but their freedom remained limited.

As discussed in chapter 3, the Florentine new towns were meant to be settled by the (former) subjects of the feudal clans that were the enemies of the city-state, in order to weaken the basis of power of these clans and to take over their territories. Similar policies were followed by other city-states in northern and central Italy, and sometimes also by smaller lords in implicit competition to neighbouring lordships. In the towns of southern Germany, on the other hand, serfs could become citizens and yet remain subject to their former lord at the same time, which could obviously lead to complicated juridical situations.

If one accepts the old image of a country folk which was brutally oppressed by the feudal lords, it would seem logical that subjects of the feudal lords were always eager to settle in towns, where they would have enjoyed greater freedom. This was, however, not always the case. Settlers sometimes had to be persuaded by force.

With the Florentine terre nuove at least part of the settlers had to be forced to move from the countryside to the new towns. Apparently the advantages to move there were too small in their eyes. In Wales, the inhabitants of the Welsh town of Llanfaes were forced by the king to move to the new town of Newborough. Many of them were fined for not obeying the royal command within the limited period of time that was set for it. In these cases the foundation of new towns was specifically aimed at changing the structure of power through the mutation of the structure of settlement; but in other cases inhabitants of the countryside were probably forced to move to new towns because new settlers from elsewhere were simply too hard to obtain. For instance, the inhabitants of Kuno- wice in Moravia were forced to move to the new settlement of Uherské Hradiště in 1257. According to a document, this was ‘because this place is large enough for all’. For a small number of bastides it is also known that settlers were forced to move to them.

Indeed, it is likely that forced deportation was more usual with the creation of new towns than the written sources indicate. Official foundation documents and chronicles often rather give the impression that settlers from nearby and far away were very happy to move to the new towns, but this was not always the case and should be regarded as propaganda, at least to a certain extent.

Some lords may have used force, but despite that there are many examples of towns that did not become as well populated as was planned. The charter of Wiener Neustadt of 1277, eight decades after its foundation, still
mentions that new measures were taken ‘[...] in order to replenish the city with citizens’.209 (see fig.9.18) Large new foundations like Bunschoten in The Netherlands and Marchegg in Lower Austria, never completely filled up. (figs.9.2, 9.6) In the last case this was extra painful since, as described above, the costly stone defences and other infrastructural works were already built at an early time.210

It should be noted here that, apart from serfs, other social groups could also be excluded from citizenship. Many town charters contain bans on settlers from the nobility, as in the Florentine new towns, in many of the foundations by the city-states of northern and central Italy and in many bastides of southwestern France.211 Clerics were also often excluded from citizenship,212 and people of a specific ethnicity or religion, such as Jews or Mores, Welsh, Slavs or Prussians, could also be excluded.213

### 9.10 Later extensions to towns

Many newly founded towns did not become as large as they were planned, and others even perished completely.214 (figs.1.25, 2.29, 2.52-55, 5.2, 9.2, 9.6) But many others were enlarged after some decades or centuries, as more space was needed to accommodate more tenants. Successful towns had to cope with natural growth of the population - at least until the Black Death - and with immigration, as more people sought to take part in the town’s economic success. In particular, the earlier town foundations of the 11th to early 13th centuries were often extended, as they could profit optimally from the population growth and the economic accretion, which was generally very high in the 13th century. Significant extensions from before the 19th century are much less common to new towns of the late 13th and 14th centuries.

In some towns large new areas were added that received their own charters and urban institutions, which means that they might be regarded as new town foundations themselves.215 This happened relatively often in northeastern Europe. The town of Königsberg (present-day Kaliningrad) on the Baltic coast, for instance, was founded around 1255 by the Teutonic Order, and was named after the title of its protector King Přemysl Ottokar II. It was first extended in 1299-1300 with the new town of Löbenicht, and then again in 1327 with the town of Kneiphof on an island in the river Pregel; both of these were more than half the size of the old town.216 (see also fig.9.8)

The urban forms of town extensions could be very different. Some extensions are hard to recognise, as such, from the town plan or from the architecture. The exact identification of respective extensions is a matter of long running scholarly discussion in, for instance, the case of the English town of Ludlow. The main part of this town was still considered as one large Norman new town by the scholars of the first half of the 20th century but, since then, scholars have argued that it is an assemblage of different ‘plan-units’ that were created in various phases.217 In many other towns the extensions are much easier to recognise, as they clearly form distinct units, which may even be separately fortified. (see figs.1.6, 1.24, 2.30, 3.12, 9.16, 9.19)

Sometimes the extensions have regular structures that clearly result from coherent planning, such as in the new town of Elblag in Prussia. (fig.9.8) But in many cases the structures of later additions are less regular in form, as they often were laid out in a piecemeal fashion, following tracks of roads, streams and property divisions in the suburban landscape. (see figs.1.6, 1.25, 2.30, 3.12, 9.4) Commonly, the lord or the administration of the town would sanction this development at a certain moment by officially extending the town, its rights and, if present, its fortifications to a larger area. The extra-urban structures were generally integrated into the town in their existing form, which generally meant that the allotments were rather irregular. Next to these existing structures, new structures could be created if the extension was made larger, in expectation of further growth.218 The town of ñ-Hertogenbosch in The Netherlands, for instance, was extended in this way to a size of about eleven times as large as its original size in the early 14th century, about 120 years after its foundation.219

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209 ‘[..] ut civitas civibus repleatur’ (Fischer 1952, p.89)
210 See par.9.8
214 Regarding the town of Grenade-sur-Garonne, for instance, it has already been discussed in par.2.10.6 how the planners aimed for a total of 3,000 house lots being settled, and that the town remained much smaller than planned.
216 Czacharski 1999, pp.1-8, Gause 1965, p.26, fig.2. Next to the old town of Hildesheim in northern Germany, the Moritz monastery, the guardian (Vogt) of this monastery, and the dean of the cathedral chapter all founded a new town of their own, whereas the bishop tried to found two separate ones, between about the middle of the 12th century and 1246. (Meckseper 1982, p.80)
218 This is clearly visible in the large new extension of Brescia - which was not a new town, however - as discussed and illustrated in Guidoni 1992 (II), pp.354-367.
9 PART II: THE PHYSICAL ELEMENTS OF NEW TOWNS

In the following part of this chapter, the various physical elements that were, or could be, planned with the creation of a new town are discussed in separate paragraphs. These elements make up the architecture of a town. Those elements that are part of every town, which are actually 'necessary' elements, will be treated first, while less common elements follow beyond.

9.11 House lots

The most important part of the towns, as physical entities, were the house lots. House lots were the basic element the town was constructed of. In most analyses of urban plans of the towns under consideration, streets are given primary attention, with only a secondary role granted to the house lots. This conceals the fact that the streets were planned to serve the house lots, and not the other way around.

The urban house lots went under different designations in different periods and regions. In Latin, the terms that were generally employed were *area* and *placea*; less common is the term *curtilus*.220 The lots would commonly be held from the landlord in hereditary tenure (*iure hereditarium* or *burgagium*), in which, in contrast to older systems of land tenure, the tenants remained personally free.221 The rent could vary from (relatively) high to virtually nothing, mostly to be paid in money, but sometimes in natura. Sometimes, the rent would be no more than a tribute to symbolise that the tenant recognised the lordship over the land.222 It was to be paid yearly on a specific day, usually a feast-day. In certain, rather exceptional cases the ground was actually sold.223

The lots in the new towns of the high-period of town foundation, just as in non-newly founded ones, are, with few exceptions, of an oblong rectangular form, with the house standing on the short side which faces the street.224 Often, the renters of the lots were obliged to fence them off from the streets, at least to the extent that

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220 In England the term generally was *burgage* or *placea*, in France local or *agri*, in Tuscany *casolare*, the German word was *Hofstatt* and in Dutch it was *hofstede*. (Strahm 1945, p.22; Beresford 1967, p.147; Lauret, Malebranche & Séraphin 1988, p.85; Abbe 1997, p.310)
221 See par.9.2.
222 Strahm 1945, pp.25, 30, 35; Hammel 1986; Goudriaan, Ibelings & Visser 2000, p.IX.
223 This was the case in Elburg in The Netherlands, founded in 1392. (Rutte, Visser & Boerefijn 2003, pp.122-123)
224 Exceptions to this normal form of the plots are the smallest plots planned for Giglio Fiorentino (Tuscany, see fig. 3.27) and the standard plots mentioned for Fienvilliers (northern France), which were square, and possibly the original plots in Bern (Switzerland) of which the width exceeded the length (see below). Concerning the position of
the house or outbuildings did not do so. Sometimes there were even prescriptions concerning the material and the minimum height of the fences. In low-lying areas ditches could be used to divide the plots or the plots and the streets from one another, while at the same time serving the drainage of surface water and discharge.\textsuperscript{235}

Regarding the size, there are considerable differences, depending upon the regions and periods. In northern Germany, for instance, in the 12th and 13th centuries the general urban plot, as it would initially be issued, was about 15 m. wide and about twice or thrice as long. These plots were not completely built-up along the street front: spaces were left between the houses to allow access to the backyard.\textsuperscript{226} This is rather different from the average Florentine plot in the 13th century, which was about 4-6 m. wide and 10-15 m. long.\textsuperscript{237}

In general, however, the average plot was about 6 to 15 m. wide and 12 to 40 m. long.\textsuperscript{228} But there are quite a lot of exceptions to these general dimensions. Some towns had house lots of very great length, stretching to over 100 m. in extreme cases.\textsuperscript{229} The originally planned lots generally appear to have become smaller over the course of time: in the 12th century they were commonly laid out larger than were those of the 14th century.\textsuperscript{230} This process is most likely related to the increasing value of urban land and to changes in the use of the lots and to a general decrease in area of the normal house through the centuries, owing to the decrease in the social living unit from extended family to core family.\textsuperscript{231}

But there are also differences according to region. In Prussia, for instance, where many new towns were still founded relatively late, in the 14th and 15th centuries, the lots were larger than in southwestern France or in Italy. This can partly be explained by the fact that in the northeast of Europe there were still relatively few towns and there was still a lot of vacant land that had not yet been brought under the plow. So, ground was relatively cheap there and, since it was relatively difficult to attract settlers, the promise of large plots of land could help to lure them. But it is also relevant that there was a difference in building traditions. In the Mediterranean, towns, villages and hamlets were traditionally built very compact, and often in stone, while in northern Europe the more usual sort of house was free-standing, particularly for agricultural use very large, and built of wood, wattle and daub, straw and clay.

In newly founded towns, as well as newly laid out parts of existing towns, the lots often seem to have been planned with standard dimensions, or at least with a standard width along the street. For several towns such standard lot sizes are known from original documentary sources. Appendix C provides a list of standard plot dimensions mentioned in documents. For many other cases the original existence of a standard lot can be assumed as the documents speak of one standard amount of yearly rent for every settler.\textsuperscript{232} And in many cases the standard lots can be reconstructed from later written sources such as sale contracts and tax registers, or from town plans.\textsuperscript{233} Such reconstructed standard lot sizes are separately listed in appendix C.

One must, however, be careful not to automatically assume that the intended lots, as described in foundation documents and charters, were indeed laid out and distributed correspondingly. Research has shown the probability of those standard lots being also issued in quarters, halves, one and a half sizes, or multiples.\textsuperscript{234} In some cases it may have been anticipated right from the outset that the large standard lots would be built on with more than one house and would be divided.\textsuperscript{235} Possibly, in such cases the originally mentioned

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\item the house on the street front, whether it was obliged or not, see par.9.11, n.284.
\item Regarding The Netherlands: Kacken 2004, pp.91, 105-108.
\item Nicholas 1997, p.322.
\item According to Slater (1990, p.76), the most common surface area of the urban plot was about 0.1 acre (0.0405 ha.) in England.
\item Appendix C provides a list of standard plot dimensions mentioned in contemporary documents. Examples of towns with very long plots are Burton upon Trent, Hedon and Thame in England and Sondbeck in Germany.
\item Feilberg 1997. According to Kaspar, writing about Northwestern Germany, it can be observed that the house lots in newly created towns got smaller specifically around the turn of the 12th to the 13th century. Earlier towns still had large plots, much like those in villages, whereas later towns had smaller and narrower plots of a more ‘urban’ character. Around the same time, the most common house type became the typical burgher’s house, with its gabled facade in the unbroken line of buildings, each contiguous to its neighbours. It almost seems like this change had to do with a sort of sudden formation of an idea of what form a town should have. (Kaspar 2004, pp.155-156)
\item See par.9.12.
\item In England and Wales, the standard rent usually was one shilling yearly, and in continental Europe one often finds equivalents such as 12 Pfennig or 6 deniers. (Beresford 1965, pp.62, 68; Frölich 1975, p.206; Leblond 1987, p.56) A standard rent would, however, not always mean that there were standard lots (Schich 1993, p.93), because the rent sometimes was not so much actually for the amount of ground on which the settlers lived, but rather for the prerogative of being granted ‘membership’ in the urban community, with its special privileges.
\item Slater 1981 (1) and (2). In particular the earliest 19th-century cadastral plans may reveal such information.
\item According to the ‘Golden Charter’ of Bern in Switzerland (fig.9.15), the standard error measured 100 x 60 ft. and cost 12 Pfennig rent per year. In Strahms’s opinion these were
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standard lots may only have been a standard unit for the determination of rent for lots of different sizes. In the charter of Dobcyce in Little Poland of 1362, not long after the foundation of the town, it is mentioned that the rent will be calculated for whole, half, and quarter lots. It is not indicated, however, what the dimensions of the whole lot were; but apparently there was some standard size for it. In the case of New Salisbury, the founder, Bishop Poore, granted a charter in 1225, in which it is stated that the standard plot was to measure 7 x 3 perches (c. 115 ft. x 50 ft.), for which a rent of 12 d. per year was due. But it was also stipulated that tenants who held lots of other sizes were to pay more or less according to the area, from which it is evident that, from the very outset, the tenements were to vary in size. This is reflected in the plan, which was partly laid out to accommodate standard plots - although few such plots are still traceable today - but which could not accommodate the standard plots everywhere since the bordering streets are not parallel.

An instructive example is the case of Lübeck. It has long been taken for granted that the house lots of about 25 x 100 ft. (8.1 x 32.4 m.), which can be found in large numbers in the 19th-century cadastral plans of Lübeck, were the original standard lots of the town as it was founded (or, more precisely, re-founded) by Duke Henry the Lion in 1158. Extensive archaeological research, however, has shown that this idea is wrong. It appears that at least a part of the new town was built in an area with an older structure of agricultural plots. These garden plots measured up to 110 ft. in width and 174 ft. in length, or possibly even more. In the early decades of the re-founded town of Henry the Lion the settlement was enlarged considerably, and the garden plots were gradually cut up into smaller house lots. In the 14th century, many of the plots in the central area of the city reached a size of about 8 x 35 m. Apparently, the process of plot division stopped when it reached the optimum for the size of a burgher’s house with back court, which occurred around the 14th century in the most valuable central area and in the 17th century in the more peripheral areas of the town. This process of plot-division by transactions on the urban land market is related to the increasing value of urban land and to changes in the use of the lots.

Despite the process of subdivision - and, in other cases, also amalgamation - of lots, ancient property boundaries and street patterns can, and often do, survive for very long periods of time in the urban landscape. This has been shown by archaeological excavations in many different places; even in locations where redevelopment demands have been high, such as in central London. This innate conservatism in town plans is so strong that even major fires or other grand-scale destructions often did not structurally change the framework of plots. The increase in scale of building projects in the 20th century has generally been the most important factor in the obliteration of ancient urban structures.

Particularly in Europe north of the Alps, the plots in the early foundations were often initially very spacious. The plots were large enough to leave considerable space open at the back and sides of the houses, which was used for gardens, orchards, the keeping of domesticated animals, working space and storage, while cesspools and wells could often be found there as well. This space would be built over with stables, sheds, workshops or extensions to the house. At the same time, the increase of the population, the plots were divided into narrower strips, and new houses were placed between the older ones, eventually resulting in the unbroken building lines that are nowadays regarded as

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236 Meckes 1991, p. 58. In the Dammstadt of Heilsheim, founded in 1196, the taxes were still calculated by relating the actual width of the lots to the original standard size of the lots (6 x 112 Ruten) in 1437. This idea is not certain, however, as the charter was probably only drawn up in the early 1270’s, while the town was founded in the late 12th century, and as this theory could not be proven by archaeological excavation. (Baeriswyl 2003, pp. 89, 92)

237 Similar stipulations are known from a number other newly founded towns in Prussia from the 14th century. (Schich 1993, pp. 110-111)

238 Ancient and Historical Monuments in the City of Salisbury 1980, p.XXXII.

239 See Büttner & Meißner 1983, pp. 40, 46-47; Higoumet 1986, p.288; Schich 2001, p.59. In the Dammstadt of Hildesheim, founded in 1196, the taxes were also calculated by relating the actual width of the lots to the original standard size of the lots (6 x 112 Ruten) in 1437. (Schich 1993, p.85) It is possible that in other places lots were never actually laid out in the standard dimensions. Possibly this was the case with Freiburg im Breisgau, where the standard lot of 50 x 100 ft. was mentioned in the 1152 charter, more than 30 years after the foundation. In the actual layout of the town it is very hard to fit these supposed original 50 x 100 ft. lots. Nitz and others have hypothesised how these lots were laid out, but this remains very much a disputable question. (Schich 1993, pp.81-82; Nitz 1999, pp.79-97)


typically urban. Often, there were building regulations that forbade houses to stand out from the building line, because there was a preference for the straight line. Sometimes, parallel streets were laid out in later stages at the back of the original plots, and new houses were also built on side streets and alleys. In this way, closed building blocks were created, which would be repleted, up to the 20th century, with all kinds of outbuildings or with small tenements or cottages along narrow alleys which were often sub-let.

Amalgamation of plots, on the other hand, also occurred, particularly in places where the original plots were relatively small. In general this happened more often in the peripheral parts of towns. Both plot division and amalgamation are part of the process of diversification in the urban land market. The plots, as they were originally conceived, mostly appeared to offer not enough variation in size for the demand of the land market. Even in towns that originally offered a variation in plot sizes, such as the Florentine new towns, the plots were further diversified in the course of time.

In cases where uniformity of lots was part of the original concept, but where the situation of the site did not permit uniformity, length and width would sometimes be adapted to compensate, so that the area would remain more or less the same. This was done, for instance, in the Dammstadt of Hildesheim, which was founded in 1196. Apart from that, in many cases, the lots may not have been as uniform originally as the documents may suggest. Obviously, measuring was usually less exact than in the present, and tenants may have secretly colonised space from adjoining lots and streets.

In previous chapters the geometrically designed regular distinction into different classes of lot lengths of the Florentine terre nuove has been discussed. In a limited number of other towns something similar did occur, but this was always much less regular. Slater’s analysis of the plan of Lichfield in England (founded c. 1140) has shown that it is likely that originally there were two different standard plot area sizes. The larger

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248 Meckseper 1982, pp.136-137; Meischke 1990, pp.15-16. For some accurately described examples from Alnwick and Utrecht, see Conzen 1980, pp.56-69, plans pp.57, 60, 62, 76, 79; Klick 1990, pp.249-256. In The Netherlands these small tenements along narrow alleys at the back of older houses mostly date from the 15th to 16th centuries and are called sloppen (‘slums’), the word having a strong connotation of poverty and unsanitary conditions. In some towns in The Netherlands there were regulations that forbade the owners of the ground to sell these houses if the alleys were not more than 12 ft. wide. If they measured 12 ft. or more they could be turned from private into public streets. (Meischke 1990, p.15)
249 Meckseper 1982, pp.71, 151; Schich 1993, pp.84-85. See also Slater 1987, p.198, for the example of Lichfield.
251 See pars.3.9.2.6, 6.4, 8.5.2.1.
252 See pars.5.2.1 and fig.6.1.
plots were probably conceived in order to attract settlers for the plots that lay further away from the market place.253 The town charter of Bartoszyce (Bartenstein in Poland), which was founded in 1332, mentions lots of 4 x 7 Ruten (60 x 105 ft.) on the market place and lots of 4 x 8 Ruten (60 x 120 ft.) on the surrounding streets.254 In both cases the higher value of the lots on the market place, due to their higher commercial potential, compensated for their smaller size.255 It is just the other way around, however, in a number of other cases. For instance, in the Florentine terre nuove, where the lots on the main streets are deeper than those on the secondary streets. (see figs.3.6-3.27) An early document concerning Sensburg (Mragowo in Poland), which was founded around 1405, mentions that the lots on the market place were one rod longer than those that fronted onto the streets.256

In some cases it seems likely that initial lots that were relatively large were purposely planned as such, in order to either attract settlers to less attractive sites (for instance at a relatively greater distance from the economic core, as in the abovementioned case of Lichfield), or on ground that still had to be cleared or drained.257 In some cases, larger lots were issued for specific social or professional groups that needed extra space, such as the urban nobility, traders or cloth workers.258 It seems that in central Europe larger plots for the nobility, agents of the lord or for churches or monasteries were sometimes explicitly sited next to the town defences, so that these people and institutions and their solidly built stone buildings could contribute to the defence of the town.259 (figs.5.4, 9.11, 9.18)

For some towns, early documents show that there were variations in rent for lots of similar size. In Cracow and Legnica in present-day Poland, the tax and rent varied according to the value of the site: for lots of the standard size of 36 x 72 ells sited at the market, full price had to be paid, while the amounts due were reduced in two stages for the lots further off. (fig.9.1) The document concerning Legnica explicitly mentions that the reason for the variation is the difference in the commercial potential of the various locations.260
Particularly in the 13th and 14th centuries, in towns in relatively densely settled southern, western and central Europe, the width of the lots was often dictated by the usual form of the house. The optimum span length of the beams that carry the floors in the houses determined the width of the normal house. By optimising between the functionality of the space within the house and the value of street frontage, which especially for shops often seems to have been more important than surface area, the normal house would be one span wide in a well-populated town, or sometimes double that. Since the maximum span of wooden beams was usually between 4 and 9 m., this would determine the standard for the width of the lot.\(^{261}\) In many towns there were alleys next to the houses, to provide for access to the back of the house, for draining surface waters from the lots onto the street, and for the suppression of fires spreading rapidly from house to house.\(^{262}\) These narrow stone buildings were all sited in the corners of the defensive circuit, so that they and their inhabitants could contribute to the town’s defences. The parish church (c. 1200) pre-dated the town and is sited just north of it.

part 9.12.


\[^{262}\] These narrow alleys between the houses can be found especially in those regions where the ridges of the roofs were traditionally oriented at right angles to the street. See par.9.12.
The area and form of the plots were, of course, chosen so that they could optimally serve their functions within the given circumstances. But apart from that, it is clear that normally the length and width of the lots were chosen so that they were related in a harmonious proportion, and often the numbers in feet or ells would be rounded numbers in the decimal or the duodecimal systems. In appendix C it can be observed that there are few exceptions to this rule. Most often, one finds the relation of width to length of 1:2, then 1:3, 2:3 and 1:4. These rational dimensions and relations were easy to handle when setting out the plots or calculating rents and taxes. The importance of aesthetic considerations in the choice for harmonic relations and rounded rational numbers should, however, not be underestimated.

It seems that there were not yet special types of house lots for sites on street corners. House lots were arranged in rows, and those on the end of the rows were originally not different from the others, at least as far as can be known from documents or archaeological research. It is obvious, however, that this often changed rather quickly in successful towns, in the decades after their foundation. Corner plots were generally favoured, because there are more passers-by on street corners and because these plots had much more street frontage than other plots, which meant that wares and crafts could be well exposed to more potential customers. The relative abundance of street frontage meant that the corner plots were often divided in smaller plots along their length, which were sub-let or sold. These factors made corner plots be considerably more valuable than ‘enclosed’ plots of equal size.

In many cases, allotments could not just be laid out at will, since the budget, the time or the technical capability was not sufficient. Hence, the dimensions of house lots would sometimes be partly determined by the form of the existing landscape, just as it also often determined the course of streets, etc. We have seen above how, in Henry the Lion’s town of Lübeck, part of the house lots were created by the division of existing agricultural plots. The same happened in Newborough in Wales, where the two crossing streets were laid out cutting through an older agricultural allotment. (see fig. 1.4.1) In the towns of Vianen, Nieuwpoort and Schoonhoven in The Netherlands the length of a considerable part of the lots appears to have been determined by the pre-urban layout of fields that were divided by ditches. In Stratford-upon-Avon the form and layout of the plots, with slightly bending side boundaries, were also influenced by the structure of pre-urban open field strips. (see fig. 9.7) And in Thame, also in England, the lots in one part of the town are even more clearly recognisable as relics of the pre-urban open field strips because of their great length, measuring no less than c. 60 x 650-700 ft. (fig. 9.12)

To conclude this paragraph on house lots, one well documented exception must be mentioned which shows that the arrangement of the plots was not always as rational and regular as has been described above. This is the case of the town of New Winchelsea, which was founded in 1288 by King Edward I in southeastern England. (fig. 7.1) From the first rent roll of the town, of 1292, in combination with the evidence of later plans of the town, it appears that the plots (placeat) were all more or less rectangular, as were most of the street blocks (insulae). The size of the 716 plots, however, was quite irregular, although the street blocks, most of which are equally deep, could easily have been divided into uniform plots or plots with regular variations in their sizes. Apparently, the urban land market determined the plot division in this new town right from the outset. This also was true for the value of the rents of the different plots. As might be expected, the area around the market place was the most desired location for settlers. There the value of the land was highest; consequently, many of the smallest plots in the town are to be found there.

That the situation at New Winchelsea was so different was probably caused by the fact that the new town was

263 The dimensions of 52 x 100 ft. for the lots in Dießenhofen in Switzerland, for instance, are exceptional in their non-rational proportions. It is quite obvious, however, that the 52 ft. width was derived from the 50 ft. mentioned in earlier documents of the related towns Flumet and Bern. (Schich 1993, p.86) Other exceptions are the extensions of Kleve and the related foundation of Kalkar: 44 x 140 ft.; Soldin: 4.5 x 7 Ruten (r 4.5 x 8 ft.); Ornezan: 12 x 35 coudées (= ells); Bruges: 16 x 62 ells.

264 See par. 8.6.4.

265 A possible exception, however, is Scarperia, where (some of) the corner plots may originally have been 14 or 15 braccio wide instead of 12. (see appendix B, n.86) But the evidence is vague, and even if this were right, it would not result in a significantly different type of corner plots, as those would only be about 1 m. wider, at most.

266 I believe that Jenisch mistakenly has interpreted this development backwards, claiming that the boundaries of the streets (the building lines) of Villingen in southwest Germany were drawn between the higher and (seemingly more prominent houses on the street corners. (Jenisch 1999, pp.303-304)


268 See par. 7.11.

269 The structures of the plans of these towns were partly based on pre-existent field structures, which had parallel ditches more or less at right angles to dyke structures.

270 See par. 7.11.

271 See appendix B, n.86.

created to replace Old Winchelsea, which was prone to flooding by the sea. Probably, the plot size was not standardised in order to be able to cater to the existing variation in social and professional standing within the community. The determination of rent values guided by the urban land market appears not to have been instigated by the desire to maximise the profit. The total yearly rent of the whole town was established in advance, at 14 pounds, 11 shilling and 5 3/4 pence, that being the annual value of the agricultural land that Edward had granted to the commonalty of New Winchelsea. The individual rents of the plots were calculated so that they added up to this total.  

9.12 Houses

One of the most characteristic features of a town is, of course, that there are relatively many houses grouped relatively close together. In many foundation charters it was stipulated that the lots that are taken up by settlers had to be built on with a house within a certain period of time, usually one year. This general rule was further specified in a number of newly founded towns in the region of Bazas in southwestern France, where the settlers were granted the possibility of building a facade in the first year and a second part of the house (by which may have been meant a second storey) in the next year, after which they were free to build on the lot according to their wishes. Normally, the houses were built by, or at the expenses of, the settlers. One of the very few exceptions is Queenborough, which was founded on the south coast of England in the 1360’s by King Edward III. Documents mention that in 1365-67 a sum of money from the crown treasury was spent ‘for building and roofing of 11 houses’. The original houses generally were modest in size and materials. The first houses in newly founded towns often seem to have been adaptations from the common house types found in rural villages of the region. (see fig. 9.10) In the Czech Republic archaeological research has shown that the houses of the first generation in a number of new towns of the 13th century were very modest dwellings that were partly dug into the

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272 Beresford 1967, p.24. It must have been a very complicated operation to calculate the individual rents so that they added up to the pre-established total.
273 Beresford 1967, p.488. In Rhuddlan in northern Wales, founded by King Edward I in 1277, the crown was possibly also involved in the building of houses, or at least in importing timber for their construction. (see par.1.8.3.5) In Kingston upon Hull, which was founded by King Edward in 1293, he commanded his officer Richard Opseel to have houses built (or repaired) for the workers of the mint that he founded there in 1300. (Shillaber 1947, pp.305-307)
274 Büttner & Meißner 1983, p.21. For northwestern Germany Fred Kaspar notes that it was only in the 13th century that the typical town house came to dominate the appearance of towns that already existed for some time and that had a typically urban economy. In the centuries before, there were a number of different house forms, which were related to the various ways of life of the different social groups that were absorbed by the towns from previous non-urban origins. (Kaspar 1994, pp.265-265; also Meischke 1988, pp.251-253 (on The Netherlands); Richter & Velinsky 1993, pp.104-107 (on the Czech Republic); Glaudemans 1999, pp.79-86 (on Maaseik in Belgium); Jenisch 1999, pp.150-156 (on Villingen in southwestern Germany); Schofield 2000, p.372)
ground. 276 Commonly the first few generations of houses in new towns were made with walls of simple and cheap materials like wattle and daub, straw, rammed earth or wood, timber floors and often timber frames in the walls, and thatch roofs. Because of the ephemeral nature of the materials, these original houses have left little trace in the present, and they can only be reconstructed from archaeological and historical sources. 277 From excavations in Malmö in southern Sweden, founded between 1260 and 1275, it appears that the first houses were even partly built from scrap materials such as barrel staves and parts of wrecked ships. Generally, it was only in the next generation, after the establishment of the town was secured, that the buildings came to be more solidly constructed. But, even then, for the most part they were still constructed of timber frames with planks, wattle and daub, pisé, mud bricks and thatch; the first houses of baked brick or stone generally only appeared in the early 14th century. 278 The original houses for which there is more information are mostly those built in stone, which generally were not the common houses but rather the relatively luxurious ones. 279 (see figs. 2.49, 2.50, 3.34)

The first houses in the newly planted towns, or at least the costly parts of them, were often moved from their former place of residence, if that was not too far away. 280 In the cases of Ardres in northern France and Beaumaris in Wales, for instance, at least some of the timber houses were taken from the nearby settlements of Selnesse and, respectively, Llanfaes. 281 In the case of the never-realised Florentine new town of Giglio Fiorentino, it was already foreseen that the houses in the old villages of the settlers should be dismantled. 282 Hence, it was obvious to move these houses to the new town or to reuse their material.

To the extent that old materials were not reused, new ones had to be found. Often, natural materials such as wood, clay and stone were put at the disposal of the new settlers by the founding lords. Thus, the settlers were allowed to cut wood on (certain parts of) the land of the founder, or certain parts of it, to quarry clay and stone, or to collect rocks, for the building of their houses. 283

A typically urban aspect of the first houses was their place on the front of the house lots. Often they were not yet built in an unbroken building line - when the lots were wide enough at least -, but they were set in a row, on the front side of the house lots along the street. It is not clear whether, or in what measure, this was prescribed by building regulations, or whether this was the most economical and therefore most obvious way to use the lots. 284 There are a few exceptions to this situation in Switzerland. In the new towns of Le Landeron (1325) and Hermance (before 1247), for instance, the original houses used the town walls as rear walls, and had open yards to their fronts. 285

Because of the relative narrowness of the house lots (see above), the houses stood close to each other and, in most cases, this eventually resulted in the closed street frontage that is presently known as a characteristically urban element. The houses of traders and artisans often had a semi-open facade with a shop counter, which might even have projected into the street by a few feet. In the Mediterranean and eastern Europe many houses, especially on the main street and market square, had galleries projecting into the street, with a storey extending over it. In the bastides of southwestern

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276 Richter & Velimsky 1993, pp. 104-107. Such houses, in which the living space is dug about 0.5 to 1 m. below ground level, are called Grubenhäuser in German. For outbuilding meant for storage or working space, such simple constructions that were partly dug below ground level, were more common until about the 14th century. (see for instance Villingen: Jenisch 1999, pp. 156-158

277 In the north of Europe the wooden houses often seem to have been replaced or thoroughly repaired within a period of two decades. (Schäfer 2001, p. 421)

278 Reins set 2001, pp. 677-681, 699. An exceptional region in this respect was northern Italy. Particularly in the Po Valley brick had been a relatively common building material since the Roman period. Here houses in newly created towns may already have been built of brick in the 13th or even the 12th century. In documents related to the creation of several new towns, kilns are mentioned for baking bricks and burning chalk for mortar. (Fasoli 1942, p. 205)

279 See Lilley 2002, p. 196. In southern Europe, however, stone was a more common building material, but it still was far from the norm for the average house (see the regulations on the facades in Giglio Fiorentino and Aquila, below in this paragraph).


281 Schwinkenberger 1980, p. 156; Taylor 1953, p. 403. Beaumaris is c. 2 km. from the older, largely deserted, settlement of Llanfaes. (see par. 1.7.10)

282 The people of Pujols are also reported to have taken the materials of their houses with them when they moved about 2 km. to the hinterland of Villeneuve-sur-Lot, after its foundation in 1248. (Lavedan & Hugueney 1974, p. 83). In a document from the chancellery of Bishop Tobiáš z Bechyně of Prague, the burghers of one of his towns promise that they would move to another place with their houses, if he demanded they do so. (Richter & Velimsky 1993, p. 107)

283 See appendix A.

284 This was the case, for instance, with many of the bastides. (Lauret, Malebranche & Séraphin 1988, p. 86)

285 In the description of the project of Giglio Fiorentino of 19 May 1350 (see appendix A), for instance, specifications are given regarding the form of the house facades (see below), but nothing is specified about where, exactly, the facades should stand. In the surviving documents from the other Florentine new towns, even less is dictated about the form of the houses or their facades. (see Friedman 1988, docs. 2, 3, 5, 7, 12-16) It is, nonetheless, clear that all house facades were built on the building line. In the law books based on the laws of Lübeck (circa Lübiens), which were used in many towns in northeastern Germany, northern Poland and on the Baltic coast, the obligation to respect the building line was imposed from about 1240 on (Breslau/Wroclaw). It is not clearly described in the regulations, but from the actual remains of the buildings it seems likely that this meant that the facades had to be built on the building line. (Holst 2004, pp. 108, 114-115)

286 Bujard & Boschung 2001, pp. 30-34, 42; Bujard 1997, pp. 11, 19-23, 29-42. Other examples are Unterseen, Burgdorf, Boudry and Valangin. (Bujard 2001, p. 42; Gutschter 2004, pp. 104-105; Baeriswyl 2004, p. 84). Bujard 2005, pp. 41, 51-52, fig. 4. It is not entirely clear how the yards were originally closed towards the street, but it seems that there was less concern here for straight building lines. After some decades, however, the houses were extended up to the street front.
France these galleries could even be about 3 to 5 m. deep when fronting on the market square, so that the roadway encircling the square would be (partly) covered. (fig. 2.42) Mostly, however, these galleries were not planned right from the outset of the new town, but were added later by individual house owners.  

The specific types of houses varied by region and period, so I will not go into this here. A very general distinction can be made, however, between the tradition of the compact houses, built close together, often in stone, of the Mediterranean, and the often much larger, freestanding houses of the north, which were built of wood, clay and thatch. Another basic distinction that had an impact on the general urban form was the difference between houses with their roof ridges parallel to the street, and those with the ridges at right angles to it. This distinction seems mainly to have been caused by the difference in the traditions of house building in each region. Very broadly, one can recognise a dividing line across Europe: parallel ridges are to be found mainly in the south of Europe, while perpendicular ridges are to be found in the north. This also seems to be connected with the inheritance in the south of the ancient Mediterranean tradition of compact building. It probably was easier for houses with common side walls to have their roof ridges parallel to the street, as the gutters would otherwise have to be constructed at the top of the side walls. Contrary to what one might think, this difference did not necessarily lead to differences in the dimensions of the house lots: houses with ridges parallel to the street can be just as narrow as the transverse type. The latter, however, generally called for narrow alleys between the houses, so that the rain water could drip from the roof into the alley, the so-called ‘eaves-drops’. In northern Europe the rare roofs that lie parallel to the street are generally to be found in towns or areas of towns where building space had not become scarce.

Sometimes, specific forms or materials were prescribed for the houses. This often happened a long time after the foundation of a town, when urban regulations became ever more detailed, among other reasons in order to prevent the spread of fires or to beautify the most important public spaces. But for some towns it is known that specific forms and materials were prescribed already with the foundation or shortly thereafter. According to Fasoli, it sometimes happened in northern Italy that dimensions were prescribed for the houses. In particular

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maximum heights appear to have been dictated. For the new town of Giglio Fiorentino it was prescribed in 1350 that the houses facing the main streets had to have facades 10 braccia high, built out of stone or brick. Although the document does not clearly say so, it is obvious that this was demanded in order to give the main streets a beautiful, wealthy and uniform appearance. For the town of l’Aquila it was specified in the statutes of the late 13th century (about two decades after its re-foundation) that those who had enough capital and who did not yet have a house there, had to build one two canne (rods) high and four long, out of ‘[…] good stones, chalk and sand, and covered with good tiles’. In general, it can be observed how the urban houses, or rather living units, gradually became smaller, just like the house lots. This may have had to do with the type of social unit: the extended family of the Germanic tribes, the Celts and the Romans, gradually changed into the social unit of the core family, with a married couple, some children, and often some grandparents. The time and speed of this change varied with religion, region and social standing, but in general it took place somewhere between late antiquity and the 14th century. In successful towns it often happened, however, that more families or individuals came to live on one property or in one house, as parts of them were let and sublet to subtenants.

At the same time, however, once the economy started to flower in new towns, individual houses were enlarged. Storeys were added, cellars were dug, and the surface area of the house grew into the former open space of the plot. Originally, there usually were some outbuildings at the back of the house, which mostly accommodated storage rooms, stables or workshops. Normally, these were humble structures, often not much more than covered pits or sheds. Later on, these humble buildings may have been enlarged and rebuilt in stone. For the most part, the houses were also extended with new additions towards the back of the plot. Often, this resulted in plots that were almost completely built on, only leaving open an inner courtyard for the access of daylight.

9.13 Street structures

In this paragraph some remarks will be made on the overall structure of streets and street blocks. In paragraph 9.6 it was already mentioned that the street structures of the new towns from the period under consideration generally tend towards regularity in their layout. Different kinds of influences could, however, result in irregularities.

One element that could have a strong influence on the course of streets and the whole urban plan is the course of intra-urban water streams. The street structure in New Salisbury, for instance, was basically a regular grid, but there are considerable deviations from the orthogonal, which seem to have been explicitly planned in order to make the streams that ran through the streets flow in the right direction. But the street structures, or even whole plans, also had to be adapted to another aspect of water management. In most towns the streets only had to carry water away when it rained. In order to make this happen and to lead the water out of the town, the direction and the level of the streets had to be made so that the water was indeed carried away and would not remain in stagnant pools in the streets or the plots. In some towns one can recognise streets or alleys that must have been laid out explicitly for drainage, leading off another street, downward at its deepest point. This is the case, for instance, with specific streets in the bastides of Beaumont-du-Périgord and Monségur and Pembroke in Wales. In many of the new towns in Wales that are treated in chapter 1, one may find streets that were partly dug out, so that they would lead away the water where it otherwise would have stayed.

Elsewhere, especially in low-lying areas such as river valleys and marshland, canals were dug for water...
drainage as well as for naval access. These canals sometimes were the remnants of the pre-urban ditches in the polders, or they were especially laid out so that they would best serve the new settlement. The course of these streams and canals very much influenced the layout of the streets and the over-all plan of the towns. Of course, many other topographical features also had a strong influence on the form of the new town and its street structure. In particular, the form of the relief is an important factor in this respect, but other kinds of pre-existing elements, such as buildings, boundaries and roads are also significant. In paragraph 9.6.2 and previous chapters such cases have already been encountered, but here we might give one more example. The plan of the bastide of Vergt in the Dordogne region has a rather strange, elongated form. (fig.9.15) Sometimes such elongated plans can be found on elevated ridges, as in Pembroke (fig.1.6) or Montréal (fig.2.28), but that is not the case here. In 1285 the count of Périgord founded this town anew, using two older settlements to attach the new settlement to. Two small irregular cores were united by a linear structure. The plan of Vergt took the form of two parallel streets with a number of narrower transverse streets and a market place about halfway between the older cores. The typical elongated layout must have come about, on the one hand, by the desire to connect the two older settlements and leave them more or less intact and, on the other hand, by the natural form of the site with obstacles in the form of a stream on the southeast side and a hill-slope on the northwest side. So here, the cultural as well as the natural conditions of the landscape combined to inspire a rather uncommon street structure.

Another important factor in the layout of street structures was the form and size of the house lots and the type of access to them. The form and size of the lots has already been discussed in paragraph 9.11.

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303 The ditches of the pre-urban polders in The Netherlands largely determined the structure of parts of the plans of Schoonhoven and Nieuwpoort. (Visser 1964, pp.118–120; Henderikx c.s. 1990, p.26) In Nieuwpoort the town was built around a canal, which formed its main axis. This canal drained the water from the town and the polder in which it was sited, and also served as a transport route. Much the same holds true for Elburg, also in The Netherlands, but there it was a matter of a canalised section of a brook. (see fig.7.3)
Concerning the type of access, the basic distinctions are: single or multiple, and via the short side or via the long side. The main access was always via the street-facing front; apparently it was not found desirable to facilitate access via neighbouring lots. Since the normal lot would face the street with its short side, the main access would generally be by the short front side of the lot.\footnote{In highly exceptional cases the lots may have been turned with the long side towards the street, as may have been the case with the original standard lots in Bern in Switzerland. (see par.9.11) Sometimes the house lots had direct access to waterways, mostly by the short back side of the plot.} But in the case of lots that lay at street corners, the longer side could also serve for access. If the planners wanted the backs of the lots to be accessible as well - which was especially desirable if they were relatively narrow so that it would be hard to make room for a passage for large objects, like carts or animals by the front of the house - back streets had to be laid out. These back streets were narrower than front streets, since they were not designed for through traffic or representative functions.\footnote{Additionally, back streets often also served to lead away the rainwater from the back sides of the lots.} In some towns there are secondary streets that serve as back streets for the lots on main streets on the one side, and as front streets for secondary lots on the other side. This arrangement can be found, for instance, in Vianen and Schoonhoven in The Netherlands, Lemgo in northern Germany, and may also have been projected for Giglio Fiorentino in Tuscany.\footnote{Meischke 1990, pp.17-18 (The Netherlands); Kaspar 1985, p.127 (Lemgo). It was also possible that there would only be house lots on one side of the street, if it lay along a watercourse or at the periphery of the town. This could, of course, also hold for front streets.} In the course of time, the original back streets often were gradually turned into front streets, as the house lots were subdivided, and houses were built on the former back sides of the lots facing the back streets.\footnote{For instance in the Florentine new town of Terranuova Bracciolini (fig.3.23) and in Poznań in Poland (Schich 1993, p.107).}

fig.9.15: Plan of Vergt in southwestern France. (From: Lavedan & Hugueney 1974) The town was founded by the count of Périgord around 1285. It has an unusually elongated plan form because it was planned to link, by two parallel streets, two small older settlement cores. The market place lies about halfway in between the streets.

An important question is whether the size and form of the lots and their built-on structure was visualised and decided on before the street structure and general plan were conceived; or was it the other way around? The latter possibility, that the form of the lots resulted from the choice for a particular street structure or plan form, seems illogical. But nevertheless, it appears to have occurred, especially where a certain structure was dictated by the pre-urban situation. As already discussed earlier, the two principal streets of Newborough in Wales were laid out straight and almost at right angles, cutting through an older agricultural allotment of irregular layout. For the new house lots, however, no regular structure was chosen: the old agricultural plots were simply cut up into narrower lots.\footnote{See par.1.7.11.} (see fig.1.43) With towns that were founded on high-lying ridges, the site would give the planners almost no other reasonable possibility than to lay out the new town as a ‘high-street plan’, a single road in the centre of the ridge with lots to both sides, as was the case in Pembroke and the bastide of Bassoues. (figs.1.6, 2.25) In New Winchelsea in England a regular grid of streets was set out, but
the plot structure was left open, to be filled in according to the demand of the land market. Apparently, the structure of the streets was planned largely without a preconceived idea of the form of the plots.\(^{310}\) (fig. 7.1) It seems, however, that this was quite an uncommon procedure.

In most cases, probably, the rough number and dimensions of the lots must have been in the minds of the planners at an earlier stage, forming specific conditions to which the form and dimensions of the street structure had to fit. This was the case with the Florentine new towns. (figs. 3.6 - 3.27) There, as in many other new towns of regular form from the 13\(^{th}\) and 14\(^{th}\) centuries, the specific sizes of the lots and the structure of streets were both predetermined. (fig. 3.27) The distance between the parallel streets was given by the length of the lots, rather than arising from the street structure itself. But the way in which the lots were arranged was a result of the choice for a specific street structure. In this case, this structure was dominated by the parallel residential streets. Other possibilities could be, for instance, with lots arranged along streets perpendicular to the main axis (a ‘herringbone structure’) or arranged in square street blocks (a ‘chequer board plan’). Another choice relating to the street structure would be whether the market place would be a widened street or a rectangular space.

\(^{310}\) This also seems to have been the case at Bunschoten, see par. 9.5.1 and fig. 9.2.
9.14 Streets

With few exceptions, the newly founded towns were fairly spacious, with relatively wide streets. These streets easily served the traffic, which took up much less space than it does now; even in the present day, though, many new towns from the high-period of town foundation offer room enough for modern traffic and parking spaces. Originally, however, many main streets also served as market spaces. They were ‘market streets’, where stalls of a more or less temporary nature could be set up.\footnote{311}

In the towns and cities of the 13th and 14th century, as well as those of earlier and later centuries, streets did not necessarily belong to the public space. There was an administrative distinction between private and public streets. In the towns of Italy, for instance, a distinction was made between public streets (viae publicae), which were under the jurisdiction of the town government; neighborhood-streets (viae vicinalis), under jurisdiction of the parish or the ward; and private alleys (viae privatae) that were used by a limited group of people as access to their houses, workshops, gardens, etc. In the earlier centuries the public streets were rather sparse: this status was often limited to the main streets and the market place, while the rest of the streets were private or semi-private. This distinction between different types of streets basically stemmed from the old Roman law codes.\footnote{312}

It is obvious that, with the building of a new town, the lord or government, as founder, owner of the ground and legislator, had to provide for access to the lots that were assigned, for through roads that linked the settlement to others, and for open space for markets and public ceremony. Therefore, the government had to take responsibility for the laying out of streets and market places, and had to provide for their maintenance. Consequently, street structures are usually more intense and more rational in newly built towns, being closer related to the pattern of the lots. The space taken by streets and market places is relatively larger in newly founded towns than in the older towns and cities, which gradually developed in different stages over considerable time. The width of the streets generally was also more specific in newly built towns, as it was often specified with the laying out of the plan and protected by building regulations that forbade new structures from impinging on the existing building line.\footnote{313} In newly planned towns such streets commonly were public streets.

In this respect, the new towns from the high-period of town foundation seem to have been ahead of the older towns and cities. Streets in newly planned towns generally were not only wider, straighter, and relatively more often paved, they must also have been ‘public’ streets more often.\footnote{314}

The actual width of streets varied with their functions and status. In general, three functional classes of streets can be discerned, which in towns and cities of long standing may have been more or less conformed to the three juridical types of streets mentioned above. The first class concerned the major traffic streets, which was the inner-urban part of a road of regional or super-regional importance. Secondly, there was the residential street. And finally, there was the service street or alley, which originally was meant to provide subsidiary access to the back of the lots, for drainage, or as cross-connections for pedestrian traffic.

In newly planned towns the width of main streets that were used by supra-local traffic could vary from about 6 to no less than 40 m.\footnote{315} Streets wider than c. 10 m. were mostly also planned to serve as market spaces. Such wide market streets can be found relatively often in the British Isles, The Netherlands, southern

\footnotesize{\textsuperscript{311} See ppg.9,16.\hfill \textsuperscript{312} Braunfels 1953, pp.99-93; Friedman 1988, pp.211-218. In the statutes of Perugia of 1242, the minimum width for viae vicinalis is set at 8 feet (c. 2.4 m.); while for viae publicae it is set at 10 feet (c. 3 m.). In these statutes the public street was described as where ‘anyone may pass and which leads to a gate in the wall’; while a via vicinalis goes only to ‘certain places, and has no exit’. Over these latter streets the community could only exercise its authority with the approval of the neighbours. (Friedman 1992, pp.69-70) Other examples of cities where minimum widths were set for public streets are Dooiri (Douai, 1245), Regensburg and Avignon (1243: width set at 2 braccia, which is c. 3.8 m.); Le Goff 1983, p.57) and Leiden (1270: minimum of 11 ft. width) (Gutkind vol. VI, 1971, p.30). In France the larger public streets were often called charitres because they were suited for carted transport. (Leguay 1981, p.52)\hfill \textsuperscript{313} The foundation document of Fontanetto Po in Lombardia (1723), for instance, ordained that the main street and residential streets of the town were to be two trabucchi wide, which is just over 6 m. (Panero 1979, p.197) The foundation charters of bastides sometimes also prescribed the widths of the streets. (Lauret, Malebranche & Séraphin 1988, p.99) For instance, in Lignairolles (1265) and Ribouisse (1271), the width of the main street (carreria major) was laid down at 8 braccia (20 or 24 ft.) and the width of the secondary streets at 3 braccia (15 or 18 ft.). (Leblanc 1973, p.346) See also the project description of Giglio Fiorentino. (appendix A) For the planning of the new extension of Brescia the width of the normal streets was set at 18 braccia, which was relatively wide, about 10 m. (Guidoni 1992 (II), p.563; see par.8.6.3) In Holland there were also regulations that had to guarantee that the urban canals were not made narrower by the dumping of refuse. (Goudriaan, Hollings & Visser 2000, p.130)\hfill \textsuperscript{314} Le Goff 1981, p.24. That is not to say that in later times newly planned towns could also contain private streets. Mostly these would have come into existence in spaces that had remained empty for a long time or on larger lots that were ‘developed’ by the building of additional housing on the back side of the lots along alleys. In the Netherlands old urban regulations often mention that these alleys would become public streets if they were more than 12 ft. wide; and only then would the houses that were built along them be allowed to be sold. (Meischke 1990, pp.15-16)\hfill \textsuperscript{315} According to Gutkind, the average width of the main streets of the new towns in Bohemia and Moravia was 49.2 ft., while the average for secondary streets was 31.8 ft. (Gutkind 1973, p.142)
Germany and the Alps, and in Prussia. (see figs.1.6, 1.11-13, 1.36-39, 9.8, 9.12, 9.16, 9.19) In Spisska Nova (Slovakia) the market street measures even more than 100 m. at its widest point.316 This extreme case seems, however, to have developed from the type of the village green rather than from the urban street or market place.

Secondary streets in new towns were usually less wide, with a minimum of about 3 m. Back streets were still narrower, sometimes no more than alleys, ranging between about 1 and 5 m.

It is hard to draw general conclusions about the original construction of the streets. Archaeological excavations in Freiburg im Breisgau have shown that, before houses were built, streets were constructed by taking off part of the topsoil and replacing it with gravel.317 In the Unterstadt of Burgdorf in Switzerland the street was covered with a layer of gravel before the house lots were terraced.318

Initially, the repair of the streets was mostly the responsibility of the frontagiers, but from about the 13th century on the maintenance of the streets gradually became a public responsibility. More and more streets were paved, with wood, stone or brick, the cost being financed by the institution of special taxes. Most newly founded towns did not have paved streets right from the start, as this was a rather expensive luxury which, in the earlier centuries, only wealthy towns could afford.319

The streets often had gutters in the middle of roadway, to drain away the surface water.320 In many towns small water streams were led through the streets, serving as a water supply and as a drain for surface waters and waste.321 (fig.9.14) In rare cases there even were separate systems for the supply of fresh water and the discharge of dirty water. In Bern for instance, the Stadtbach ran through the three most important streets, probably through conduits of wood, while drainage canals ran through the middle of the street blocks at the backs of the lots. At the eastern end of the town the various canals joined together to drive one or more mills.322 (see fig.9.19) It seems that in some cases fresh water streams on market places also served the fish trade.323 The supply of water was also very important for the fighting of fires, always a great danger to towns and cities in those days. Later on, the streams were often culverted, becoming no more than sewers. In some towns, as for instance Lübeck in the 14th century, there even were closed water-supply systems; but such systems were certainly no part of the initial projects of new towns.324

9.15 Access roads and navigation facilities

Apart from streets within the settlement itself, a town also needed access roads in order to facilitate communication with the surrounding area and other central places. Sometimes, such interregional roads had to be renovated, redirected or newly constructed with the creation of a new town. After King Edward I of England founded Kingston upon Hull in 1293, he had a new road laid out, because ‘(...) no roads have yet been made to our new town by which merchants may bring their goods and merchandise or the men of the town lead away their goods; which is well known to turn to our loss and to the hurt of the town and to men dwelling there and to merchants wishing to come there.’ In the 1263 charter of Newborough in Staffordshire four new approach roads through the forest are described as being ‘profitabiles ad burgum’.325 Old traffic routes were sometimes diverted in order to lead traders and clients to new towns. Often, this must have been part of the original scheme of the new town foundations. The Florentine new towns of Scarperia and Firenzuola, for instance, were explicitly sited so that traders and clients to new towns. Often, this must have been part of the original scheme of the new town foundations. The Florentine new towns of Scarperia and Firenzuola, for instance, were explicitly sited so that they would lie on a new pass-road that was under construction at the time.326 In some cases, as at Bawtry in England, the diversion of the road can clearly be seen in the plan.327 (fig.5.1)
Since towns were often sited on the banks of rivers or streams, bridges often needed to be built to lead the roads to the opposite bank. Often, this must have been envisaged in the original plans for new town foundations. The two parts of the bastide of Villeneuve-sur-Lot, on both banks of the river Lot, must have been planned to be connected by a bridge right from the outset. The importance of the bridge did not just touch the town itself, but went far beyond, since an important interregional road crossed the river here. The project was taken up in 1282, twenty years after the town’s foundation, by the commune with the help of the royal officer of the province. In the new towns of Elburg, Nieuwpoort and Schoonhoven in The Netherlands, bridges that must have been planned right from the outset actually form the very centre of town, with markets being held on and around them. (fig. 7.3)

New towns with illustrative names, like Bridgnorth and Boroughbridge in England and Puente la Reina on the pilgrim’s route to Santiago in Navarre, all appear to have been founded anew in connection with the building of new bridges on deflected traffic routes, and the same goes for Munich in Bavaria.

Just like access roads by land, navigation facilities were of great importance to the success of many towns. Therefore, the construction of such facilities sometimes also formed part of the scheme for new town foundations. In Wales, the river Clwyd was canalised to create an easily navigable connection between the new town of Rhuddlan and the sea. The plan of Elburg in The Netherlands was actually centred on the navigable stream that was canalised and lead right through the middle of the town. (fig. 7.3) With the foundation of Kingston upon Hull in England a new landing place was constructed for the ferry. In many other places, such as Monségur in southwestern France and Rhuddlan and Caernarfon in Wales, harbours and quays for the loading and unloading of ships were constructed with or shortly after the foundation of the towns.

9.16 Market places

In the period of about the 8th to 13th centuries, town markets were often held in churchyards or before the portals of churches. Primarily, this was to guarantee strangers who came to market the immunity of the church and to ensure a heavenly guarantee for the honesty of buyers and sellers. But this may have also been because in the churchyard there was a fair amount of communal space, which otherwise may have been scarce within the urban boundaries. In other cases, especially in the earlier centuries, markets were held in the main street. In larger towns there often were different markets for different products, held in different spaces. For the most part, however, the main market space had a central place within the town. But it also happened that markets were held outside the actual built-up area of town. This was the case in Caernarfon in Wales and it was prescribed in the foundation document for the Florentine new town of Giglio Fiorentino.

For the founding lords of new towns it was important to be able to control the trade in the market for the sake of taxation. In towns with castles, such as in Wales, the market place was often laid out in such a place and form that it could be observed from the castle. If there was no castle, the agent of the lord customarily resided in a house on or near the market place. The place generally also served for public congregation.

There are various theories about how the market square developed and spread over Europe in the 12th to 14th centuries. According to some scholars, the market square developed from the market street. In their theory, the street was widened at the centre, so that a long open space of more or less rectangular form was created,
and in later phases it became shorter and wider, so that the form got ever squarer. This may be true, but in my opinion this development existed concurrently with the autonomous model of the rectangular place, which often was formed by a number of lots or a whole street block that was left open. Generally, this model is younger than the market street model, only to be found from about the mid-12th century on. Nieuwpoort in Flanders and Hann. Münden in Germany are early examples, being founded around 1160 and 1185, respectively. (fig. 10.7)

Meckseper has drawn a preliminary map of plan-types of newly created towns of the 12th to 14th centuries, which is based on a distinction between different forms of market places, within both the German-speaking area and the regions further east. (fig. 9.17) From this map it appears that in this part of Europe there is a clear difference between the south of Germany, Switzerland and the west of Austria on the one hand, where the market street model dominates, and northern Germany, eastern Austria, the Czech Republic and Poland on the other, where one finds plans with square or rectangular market places having a dimensional relationship of the sides of less than 2 : 1. In Meckseper’s map there are clear boundaries between the regions where these types can be found. Closer study suggests, however, that the spread of these types is not so clearly isolated in reality. In Bohemia and Prussia, for instance, both types occur side by side. In other countries, such as France, Italy, the Low Countries and Spain, both types may be found along with other possibilities (such as the triangular place), within the same regions. In the British Isles the quadrangular place was very rare: there markets were mostly held in (widened) streets.

According to Enrico Guidoni the orthogonal plan with central market square was invented and dispersed over Europe by the monastic order of the Cistercians. The specific orthogonality in the plans of the new towns would have been developed from the rational allotments in the relatively advanced agriculture of the Cistercian granges and from the Cistercian monastic architecture, which was often rigorously orthogonal. The market square, particularly with galleries surrounding it, would have been inspired by the cloister. Guidoni’s argument is not convincing, however, because, among other reasons, some of his examples have nothing to do with the Cistercian order, whereas towns that were founded by this order but that do not fit into his argument are ‘overlooked’. Arcaded cloisters are certainly not unique to the Cistercian order, and arcaded piazzas are just as easily found in towns the Cistercians had nothing to do with.

According to Harald Keller the ‘chequer board plan’ with central square was reintroduced in northern Italy around 1180, inspired by ancient Roman examples, from whence it spread northeastward to Austria and Bavaria, then to Moravia and Silesia, and subsequently to Bohemia and Prussia. Keller’s hypothesis is, however, rather weak because of the fact that several of the links of the ‘chain’ which he claims to have discovered, from northern Italy to Prussia, do not fit, in terms of either the form of the plans or the chronology. Besides that, one of the most important aspects which he uses to link the towns together, namely the arcades surrounding the town squares, is not valid, as those arcades were usually later additions. Therefore, Keller’s thesis is more or less generally regarded as invalid.

Some of Keller’s ideas were, however, absorbed in a genealogical hypothesis by Hans-Jürgen Nitz. In search of the origin of the type of the grid plan with central market square, Nitz proposed that there were two areas of origination, one being the Margravate of Meißen in eastern Germany, and the other being Wiener Neustadt (which also played an important role in Keller’s hypothesis, fig. 9.18). This bi-polar model certainly fits in better with the actual urban structures of the newly founded towns than does Keller’s single-source hypothesis. But, in my opinion, its scope is still rather limited. Market places of more or less square form were also created elsewhere, independently, as for instance in Belgium (Grevelingen and Nieuwpoort, c. 1160),

336 For instance: Meurer S.D., pp. 6-40; Friedman 1988, pp. 92-95.

337 Rutte 2002, pp. 55-60; Meurer S.D., p. 52.

338 Meckseper presented this map in his paper: Typologische Vergleiche von Plangrundrisse: Ein systematisches Ordnungsschema von Grundrißmodellen von Gründungsstädten des Mittelalters, presented at the Arbeitstagung zur mittelalterliche Gründungsstadt at the University of Göttingen, 16-3-2001; see also Meckseper 2004, pp. 21-24.


340 Keller 1979, esp. pp. 134-142. On the theory of the urban form of the new towns of the 12th to 14th centuries as having been inspired by ancient Roman models, see par. 10.2.1.

341 See pars. 10.5.5, 5.12. Keller generally assumes that where arcades are still present, or where they existed in the 13th century, they date from the time of the town’s foundation. This assumption is not backed up by historical or archaeological evidence, however. (see Keller 1979, pp. 75-77)

342 Meckseper 1982, p. 85; 1991, p. 85; Higounet 1989, pp. 238-239. Higounet contests Keller’s hypothesis of the diffusion of the motif of the more or less square market place. He argues that the squares at Wiener Neustadt (1194) in Austria (fig. 9.18), and Goldberg (1211), Löwenberg (1217) and Neumarkt (1223) in Silesia, are earlier than comparable forms in Italy, which only began to appear around 1250 (p. 225).

343 Nitz 2001, pp. 81-83. Hans-Jürgen Nitz presented a paper at the Arbeitstagung zur mittelalterlichen Gründungsstadt, March 15-17, 2001, in which his idea was laid out (not published).
France (Beaumont-en-Argonne, 1176) and Spain (Puente la Reina, c. 1121). Of course, it would make things comfortably clear if it was possible to trace the square market place back to one or two sources; but my opinion is that it is more likely that this spatial urban element – like others, such as wide market streets, cross-shape plans or orthogonal plans – was created at various places independently. After all, it was not a far-fetched idea, given that the market played a highly such an important role in urban life in the period.

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345 See par. 1.2.1.
346 See pars. 0.1.4, 1.4.2, 2.5.4.1, 3.5.4.9.1-3.
This relatively large town was founded by Duke Leopold V of Austria around 1193, mainly to serve as a fortress against the Hungarians. The scholars H. Keller and H.-J. Nitz regard the plan of Wiener Neustadt as proof of the spread of the type of the urban grid plan with a central square from northern Italy to the area of the present-day Czech Republic, northeast Germany and Poland. However, this idea may be disputed. The plan shows that residences of monastic orders and of the duke himself were sited in or near the corners and gates of the defensive circuit (marked in a darker shade of red), so that these strong stone buildings and their inhabitants could strengthen the town’s defences. A very peculiar feature in the plan is the fact that the market place and most of the streets are directed north-south and east-west, whereas the directions of the wall circuit and the wall streets are slightly rotated.
There are indications that newly founded rural market fields from before the high-period of town foundation were often also laid out in rectangular form.\textsuperscript{347} In non-urban surroundings, market spaces could be very large, because space was abundant. But in some newly planted towns, the size of the market square was also very large; especially in the bastides of southwest France and the new towns of the present-day Czech Republic and southern Poland one can find very large rectangular market places.\textsuperscript{348} (figs.2.41, 8.7, 9.1) In the town of České Budějovice in Bohemia the market place even measures about 130 x 130 m. (fig.9.4)

In the centre of the market place there usually stood a market cross: a more or less elaborate, often stepped, structure topped by a cross that symbolised the market peace. (fig.8.9) The sign of the cross was primarily adopted to symbolise that the market peace, which guaranteed buyers and sellers immunity from juridical claims during market hours, would be protected by heaven.\textsuperscript{349} But the cross often also stood for the judicial protection of the inhabitants and dwellers, and the administration of justice for the town. Therefore, it often played a role in civil ceremonies.\textsuperscript{350}

It happened quite often that market places, particularly the larger ones, were gradually partially built over by private and institutional buildings until about the 19th century. Market halls, town halls and guild halls were often built on the place, and the ephemeral structures of the market stalls were often turned into permanent buildings of shops and houses. This process has been called ‘market colonisation’.\textsuperscript{351} (see figs.9.5, 9.12, 9.14)

\subsection{9.17 Town defences}

Many (or possibly most) newly planted towns were not initially surrounded with a circuit of stone walls.\textsuperscript{352} Many towns, however, seem to have been delimited with some sort of barrier. This could be a small ditch, a thick hedge of thorn bushes, some sort of fence, an earthen bank, a wooden palisade or a combination of such barriers.\textsuperscript{353}

Defences of this kind may seem rather flimsy, but it should be understood that they not only served to protect the town from enemy armies but, just as well, or maybe even more so, against wild animals and (bands of) vagabond criminals.\textsuperscript{354} There are sources that clearly describe that earthen banks and wooden palisades were initially built, but were planned from the outset to be replaced by stone walls later on, when sufficient manpower and money would have been available. The legislative document for Giglio Fiorentino (1350) stipulates: ‘And the men of the said valley were forced to build and maintain at their own expenses palisades and brattices, until the town was walled in stone all around.’\textsuperscript{355} Newly founded towns were often walled in stone at a later stage, up to about the 16th century. Generally, the gates would be the first to be executed in stone, after which the defensive towers and the walls would follow later on. Many towns, however, never got substantial fortifications at all.

Generally speaking, the town or its lord had to obtain permission to build defences from the sovereign lord, particularly when they were of stone. In exchange for such permission, the sovereign usually had to be paid a sum of money.\textsuperscript{356} The defences themselves were often financed by the settlers in combination with the lord of the town: the latter often paid for the building of the gates, while the inhabitants of the town, and sometimes also of its surrounding countryside, had to take responsibility for the construction of the walls and additional towers.\textsuperscript{357} The building of stone walls must have cost huge sums of money. Probably, it gene-

\begin{footnotesize}
\begin{enumerate}
\item Schwenklopfer 1959, pp.116-117, 135.
\item In Marcus: the market place measures 130 x 75 m., in Wrocław 175 x 200 m., and in Cracow 200 x 200 m. (Meurer S.D., pp.77-78; Lauret, Malebranche & Séraphin 1988, p.101; Morris 1972, p.98; Gutkind 1972, p.143; Schich 1993, p.88)
\item According to Mummford (1961, p.251), the cross was already a symbol of the market peace in ancient Greece.
\item For instance, the cross in the market place played a role in the civil ceremonies of the foundations of bastides and villages in northeastern Europe east of the river Elbe (see par.9.5) See also Muller 1961, pp.202-220; Fischer 1952, p.79 and n.33.
\item For instance, Alnwick (Conzen 1960, pp.34-38) and Salisbury in England (Ancient and Historical Monuments in the City of Salisbury. 1950, p.XII) and several cities in Germany (Meeskeper 1982, pp.152, 181-182, and plans pp.24, 29, 84, 174, 182; Schirmacher 1988, plan p.65),
\item Contrary to what is generally considered to be typical for ‘the medieval town’, this holds just as well for many towns that gradually were promoted to urban status. (Planitz 1954, pp.229-230; Tracy 2000, p.77 and table 3.3) In England and Wales for instance, of the c. 700 settlements with borough status in the period up to 1500, only 146 are known to have had substantial defences. (Barley 1976, p.57)
\item Haase 1956, p.80; see also n.149 above. In the Low Countries and Germany many newly created villages were also provided with such simple defences. (Biermann 2005, pp.91-104)
\item This clearly appears from an anonymous text from Worms in Germany of c. 1210. See Binding 2002, p.610. See also Biermann 2005, pp.104-106.
\item ‘Stichtateque quoque et beatissimae hominum dicte eulalorum sumplibus facere compellentur et manucrent donec terminum munat portum circium circa.’ (Friedman 1988, p.345, doc.20) Giglio Fiorentino was never actually built, but of its sister town Scarperia it is known that it was first surrounded by a wooden palisade, which was later replaced by a stone wall. (see par.3.8.3)
\item Tracy 2000, p.76.
\item This was the case, for example, with the Florentine new towns (see par.3.9.3.1) and with the bastides Paymin and Monlanquin. (Trabat-Cussac 1954; Lauret, Malebranche & Séraphin 1988, p.133)
\end{enumerate}
\end{footnotesize}
ally was by far the most costly among all the projects that were communally financed. 358

The desire for stone defences was, to a certain extent, also a consideration of prestige and symbolism. Stone walls stood for power, wealth, urban independence, unity amongst the inhabitants and civic pride. Especially when provided with many towers, they could also serve as an allusion to other great cities, such as Rome or Constantinople, or even the Christian societal ideal of the biblical heavenly Jerusalem. 359 Although town walls had an important symbolic function and the gates were often named after saints, they were not held to be sacred, as they had been in many ancient civilisations. 360

Apart from giving protection and an aura to the town, the fortifications also served to delimit the area of the town proper, particularly in its juridical aspects. Therefore, the town gates also served as toll stations. Circuits of ditches, banks, hedges or just balks might even have been constructed mainly for such reasons. 361 And in some cases real gates, with or without stone walls or other delimiting structures, were built solely for non-defensive reasons. 362

Fortifications were often laid out in such a form that their defensive capability benefited maximally from the barriers in the natural landscape, particularly the relief and watercourses. From the late 12th century on, however, there was a general tendency for the circuits of defences to become more straight-lined and, in newly planted towns, even more symmetrical, thus tending towards rectangularity. 363 At earlier times, but occasionally also later, the walls had rounded circuits, because in this form there were no vulnerable projecting angles, while a maximal surface was enclosed within. 364 But the bent stretches of urban fortifications were often also, or possibly mainly, dictated by the form of the landscape. 365 (see figs.1.24, 1.20, 2.11, 2.31, 8.5, 9.4, 9.5, 9.19)

Stone walls generally were between 0.8 to 2.5 m. thick and, especially from about the 13th century on, they were often crowned by through-going galleries behind battlements. (fig.3.31) The gates could be rectangular in plan, with a tower on top, or could be flanked by projecting D-shaped towers. (figs.3.30, 3.32, 1.27, 2.16) Along the walls stood towers, preferably at regular intervals, in order to provide high points from which to keep watch and attack enemies with projectiles. In the 13th and 14th centuries the tactics of flank defence became widespread, wherefore the towers had to be built projecting from the walls, which had straight stretches in between them. The walls and towers generally were as high and strong as could be financed.

9.18 Ecclesiastical buildings and cemeteries

It was regarded as of great importance that new urban communities were provided with the required elements for the spiritual life. This was no less important than taking care of the arrangements for the urban economy, administration or defence. It was considered of significant and real importance that God was given a house in the settlement, so that it would enjoy His blessing and protection. Possibly, this was sometimes considered more important than the physical protection provided by the town’s walls. 366 Apart from the fact that Christian spirituality was a dominating aspect in every man’s life, this element was also important for the new town in order to make the congregation of settlers into a real community in which they could feel at home, since the church also served as a sort of community centre. 367

Ideally, the town would form a distinct parish. But often it was difficult to achieve this, because the eccle-
siastical institutions involved often did not want to change the existing ecclesiastical organisation. Many town founders and new town communities came into conflict with abbots and bishops over the foundation of a new church or parish. Sometimes they had to turn to the pope to have the matter settled, or they had to buy off the parson of the old parish with a yearly donation. Hence, small settlements would often be left without a parish church, and towns founded near existing parish churches had to do without a church of their own. In such cases, however, a chapel would often be founded in the town in the decades following the plantation and, in most cases, the town would eventually get its own parish church, be it after centuries.

Sometimes though, small towns may still be dependent on an older church standing remote from it, in a hamlet or alone in the fields. A parish church would normally be accompanied by a parish cemetery, which usually lay in the churchyard. For a community it was highly significant to have a cemetery of its own, since it was found important to have deceased relatives nearby, and preferably also nearby the house of God. In most towns, the church was the major public building and, apart from being a place of congregation for spiritual services, it could also be a place for public assembly, storage, burial and even business and defence.

Town churches were often built at the margins of the urban area. In some cases this location may have been advantageous for the use of the church as a defensive structure. In regions like southern France, Prussia and Austria, for instance, churches were often built into or close to the town defences, in which they may have...

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368 See Mekking 1998.
369 Fischer 1952, p.231; Beresford 1967, pp.169-171. For instance, the king of England intervened with the pope on behalf of the town of La Rochelle in western France, when the bishop of Saintes refused to redraw the parish boundaries and promote the town chapel to the status of a parish church. Another example is New Montgomery in Wales. With its foundation in 1227, a deal had to be made with the church of the old parish of Chirbury: in order to let the new town have its own church with full baptism and burial rights, all the rights of a mother church, 30 shillings had to be paid every year to the church of Chirbury. Likewise, the residents of Scarperia had to pay the canons of the older parish church of Fagna, which lay just south of the town, 45 florins in order to have their own priest at the dependent town church. (Friedman 1988, pp.174-175)
370 See pars.1.7.10, 2.10.5.3; Fischer 1952, pp.229, 237-244; Beresford 1967, pp.169-175; Friedman 1988, pp.173-175; Ammann 1989, p.98. In the new towns of Monthoux and Hermance in Switzerland pope Innocent IV granted the right to build chapels in 1245 and 1247. But the pope only allowed these chapels to be built of wood, probably in order to meet the objections of the existing parish institutions. It seems, however, that in both cases the buildings were reconstructed in stone after a few years, and later on they received parochial rights. (Bujard 1997, p.17)
371 See Beresford 1967, figs.39-41.
372 In some cases there was no room for a cemetery next to the church. This was the case, for instance, in the Florentine terra nuse, in which the churches seem to have been planned to stand right next to the houses. (see figs.3.6-27) Cemeteries do not seem to have been provided for originally.
have served a defensive function.\textsuperscript{374} In Austria, for example, town churches and monasteries often functioned as strongholds, and played a significant role in the defence of the towns. They were often positioned at a corner of the town, next to or within the circuit of defences, as at Retz and Bruck an der Mur.\textsuperscript{375} (fig.9.11) Already existing monasteries were sometimes even moved into a new town, to add to its defensive strength. In a document related to the translation of the collegiate monastery of Badbergen of 1261, it was mentioned that the monastery was moved to the oppidum of Quackenburg because, among other reasons ‘[...] this fortified place will be increased in strength by the residence there of the canons’.\textsuperscript{376}

Another advantage of the siting of the church in the periphery of the town could be that in that location the relatively large area needed for a monastery or a churchyard would not occupy valuable commercial space. In many other cases, however, the church or chapel would be built right in the heart of town, on or at the market place, as often happened in eastern Europe. (see figs.9.1, 9.8) Quite often the church was sited at the highest point of the immediate area, which could be in the centre of town as well as in the periphery. This was the case, for instance, in Monmouth (St. Mary’s; fig.1.3) in Wales, Beaumont-du-Périgord (fig.2.14), Monflanquin (2.31) and Cordes (2.11) in southwestern France and Tábor in Bohemia (fig.8.5). The choice of siting in or at the market place or on high locations was probably determined by the wish to give the building, which was most highly regarded for its spiritual value and which commonly also was the most elaborate and costly in town, a place of extra symbolical importance, where it would also be most visible. An additional aspect for siting in a high location may have been that the church tower was often also used as a watchtower, for which purpose it would be most useful when it was built on a high point. Conversely, it probably also played a role as the building that marked the town and that could be made out from far away, symbolising the importance of the settlement and its ‘godfearingness’. It should also be considered here that the church, as ’house of God’, was commonly believed to give protection, because of the taboo against damaging churches as well as because of divine intervention.\textsuperscript{377}

Apart from parish churches and chapels, monastic houses were highly important for the spiritual life of towns. Real monasteries were relatively rare shortly after the foundation of a new town, because they generally were founded only in towns that already had achieved considerable size and wealth. Lesser houses like priories, friaries, nunneries and hospitals run by monks or nuns were more common but, ideally, real monasteries would be among the standard elements of a town.\textsuperscript{378} In the Florentine terre nuove as well as in many town foundations of the Bohemian king Přemysl Ottokar II, monasteries, mostly of mendicant orders, seem indeed to have been an integral element of the town plantation.\textsuperscript{379} In the bastides of southwestern France on the other hand, this was a rare phenomenon.\textsuperscript{380}

Although ecclesiastical institutions were an essential element in towns, the rulers of the towns were often also eager not to lose too much power, influence and income to these institutions. It was especially important to limit the amount of land that was in the hands of ecclesiastical institutions, since they were exempt from the payment of taxes and rents. And because these lands were not personally owned, they would never be handed down by inheritance, so the lord of the town or the communal administration would not be able to profit from the land.\textsuperscript{381} A further danger was that the ecclesiastical possessions would keep on growing because individuals would make donations and, theoretically, the ecclesiastical institutions were not allowed to sell their property. Therefore, urban regulations were introduced to avoid the uncontrolled growth of ecclesiastical property within towns.\textsuperscript{382}

\textsuperscript{374} See par.2.10.5.3. According to Meckseper, there is an original document which proves that the stone buildings of the monastic orders were explicitly integrated into the fortifications of the new town of Nymburk (Nimburg) in Bohemia in order to make them stronger, right from the moment of its foundation by King Přemysl Ottokar II in 1259. The idea is probably much the same as with the explicit siting of the residences of the lord’s officials and settlers from the nobility next to the town walls, which can be found in various towns in central Europe. (Meckseper 1982, p.228; see par.9.11)

\textsuperscript{375} Fischer 1952, p.84; Sydow 1990, pp.109-111.

\textsuperscript{376} '[...]' Ipsa munera per canonicarum resideniam fortitudinis recipient incrementum'

\textsuperscript{377} Haverkamp 1987, p.137. The taboo against damaging churches was an aspect of what is generally called ‘ecclesiastical immunity’.

\textsuperscript{378} Platt 1976 (1), pp.158-168. Reimout I, count of Gelre in The Netherlands, even centred a number of town foundations on hospitals run by fraternities of crusader knights. (see par.8.3.1) Many other new towns throughout Europe were founded by monasteries, and were often also centred on a monastic house. (Beresford 1967, pp.110-111; for the sauvetés in southern France, see par.2.3.1)

\textsuperscript{379} Friedman 1988, pp.157-159; Gutkas 1977, p.148.

\textsuperscript{380} Parity, this was due to the fact that many bastides were co-founded by monasteries, which would not be happy with the concurrence of other monasteries. (see par.2.4.2, 2.4.3) Often, it would even be stated in the foundation documents, such as the charte de paréage, that religious orders were not allowed to settle in the town. (Saint-Blanquat 1985, p.46)

\textsuperscript{381} In Holland and France ecclesiastical landed property was therefore revered to as being held ‘in the dead hand’ (‘in dode hand’ or ‘dans la main morte’), whence the English legal term ‘mortmain’.

\textsuperscript{382} In the Welsh new town of Conwy, for instance, the abbot of Aberconwy acquired lands within the borough in 1356, about 70 years after the town’s foundation, ‘[...] which
**9.19 Market halls and town halls**

Markets were preferably held sheltered from the climatic conditions. In many towns market halls were built to accommodate at least a part of the market where the more vulnerable products were traded. These buildings also often provided space for the town administration and for civil ceremonies. For the most part, it was only by the 14th to 15th centuries that the building where the administration was housed and where the council met could properly be called a ‘town hall’. Only by then, would many of the newly planted towns of the period under consideration get the autonomy that made this function more important, and only by then would buildings be specially built for the purpose of housing the urban administration.\(^{381}\)

For some towns it is known that market halls and real town halls were planned simultaneously with the town foundation.\(^{384}\) But it seems that in many new towns they were not projected initially. For the most part, the first ‘town hall’ would rather be the house where the lord’s local officer was housed. Early town councils with representatives of the inhabitants often met in such a private house or in a church. In order to build a market hall or a town hall, especially on communal ground, special permission was needed from the lord of the town.\(^{385}\)

When a market hall was eventually built – usually some decades or even centuries after the foundation of the town - it was preferably built right in the middle of the market, if there was enough space.\(^{386}\) (figs.1.7, 1.8, 1.12, 2.42, 2.44, 2.48, 3.15, 9.5, 9.12) The halls were often open arcaded structures built out of wood or stone. If there was a storey above ground level, that would often function as a ‘town hall’ for the urban administration.\(^{387}\) (fig.2.46) Town halls that were not accommodated with the market hall were mostly also located at the market place or otherwise centrally in the town, where they could act as a sort of symbolic core for the town. (figs. 3.21, 3.27)

**9.20 Mills**

By the 13th century, almost every town, as well as many villages and mansions, had one or more water mills. For the town of Fienvillers in northern France, it was determined with its foundation, in 1204, that the knights Hospitaller of Fieffes, who founded the town in parâgé with a secular lord, received the right to build a mill powered by wind or by horses.\(^{388}\) At Conwy in North Wales the building of a new mill was started together with the first work on the creation of the town. Flint received a mill with its foundation, along with the permission to build another town mill, against a yearly rent of ten pounds.\(^{389}\) There does not appear to be much other evidence, but it may be assumed that, at least for part of the newly founded towns, the building of a mill must have been planned right from the outset.\(^{390}\) This is all the more likely since mills were lucrative institutions for the lords of towns. For the new town of Bern in Switzerland, for instance, it is highly probable that it was planned to have one from the very first instance, as it was sited on a location that was ideal for the building of one or more water mills.\(^{391}\) (see fig.9.19) In some cases the choice of location for a town may actually have been influenced by the suitability to locate a mill. The creation of Villastellone by the city-state of Chieri in northern Italy even seems to have been partly motivated by the desire to control a stream and to take advantage of a good site for a watermill.\(^{392}\)

Usually mills were powered by an artificial or canalised stream of water, in which the supply of water...
could be regulated, but sometimes they were placed on ships floating in the river. Windmills were used from at least the 12th century, but only from about the late 13th century did they become more common, at least in the flat lands of northwestern Europe, where wind was more available than water with a substantial fall.393

Most commonly the mills were used to grind cereals, but they could also be used for the grinding of other products, for sawing wood or pumping water.394 If possible, a mill would be located within the town itself. Windmills were used from at least the 12th century, but only from about the late 13th century did they become more common, at least in the flat lands of northwestern Europe, where wind was more available than water with a substantial fall.395

The construction of a mill was a relatively expensive operation, which was probably mostly undertaken by specialist engineers at the cost of the lord of the town.396 The exploitation and the use of a mill was not a free right. In most parts of Europe it was a seigneurial right, and therefore the lord could force his subjects and the free settlers on his land to use his mills, for which, of course, they had to pay a fee. Often, however, he would grant, sell or farm out this right to an entrepreneur or a community.397

9.21 Wells

Every town needs fresh drinking water. Therefore, the construction of one or more wells was probably usually a part of the original urban project. In the description of the project for Giglio Fiorentino, of 1350, it is prescribed that a well was to be made in the piazza.398 Regarding the bastide of Baa, it is known from a document that, with its creation in 1287, two men were paid to look for springs, dig out wells and carve motifs upon the superstructures.399

Wells were constructed anywhere where water was needed and where it could be tapped relatively easily. The preferred location, however, would be in the centre of town, if possible in the market place. (figs.3.13, 3.25, 9.11, 9.18) In some towns, where the water was close to the surface, many wells were dug later on, sometimes so many of them that almost every house had its own, in the backyard or sometimes even within the house.400 (figs.3.34, 9.10)

9.22 Fortresses

A fortress was surely not a fixed necessary constituting element for a new town. But since new towns were mostly founded by feudal lords who used to reside in (and exert their power from) castles, towns were often connected to fortresses.401 Many towns were founded next to existing castles. This was the case, for instance, with many boroughs in Wales, many new towns in the Alpine countries, and the castelnaux of southwestern France, which were distinguished as a separate type of urban settlement by the presence of a castle.402 (figs.1.7, 1.34, 1.33, 2.8-10, 3.4, 9.11) Seigneurial castles could be very large, and newly founded towns could be very small, for which reason it sometimes happened that the castle with its forecourt was even larger than the town itself.403 In other cases castles were built together with new towns. This happened, among other places, in the boroughs of northern Wales founded by King Edward I and in many towns founded in Prussia by the Teutonic Order, the knights of which resided in the castles.404 (figs.1.11, 1.22, 1.31, 9.6, 9.8, 9.18) In Giglio Fiorentino a small fortress was planned at the corner of the town, but in this case not as a residence of

393 Apart from water- and windmills there were, of course, also mills that were driven by manpower or by draught animals, which were generally smaller.
394 Meckseper 1982, pp.165-166.
395 In the town of Villingen in southwestern Germany, six watermills were sited just outside the town at least from the 15th century. (Jenisch 1999, pp.76-80) The mills probably were not sited in the town itself because the streams were divided into many small branches there.
396 Beresford 1967, p.178; Soulsby 1983, pp.43-44.
397 Bartlett 1995, p.143; Beresford 1967, p.178. See also: Fischer 1952, p.52, n.13. In the lands east of the river Elbe mills were often granted to the locatores that organised the new creation of villages and towns there. (see par.7.3)
398 See appendix A.
399 Beresford 1967, pp.177-178.
400 For instance in the bastides of Mirande, Cologne and Montfort-du-Gers. (Lauret, Malebranche & Séraphin 1988, p.113)
401 Fischer 1952, pp.87-88.
402 See par.2.3.2. According to Palliser, Slater & Dennison (2000, p.262) three-quarters of the English towns founded between 1066 and 1150 adjoined castles, as did virtually all Scottish burghs founded up to 1286.
403 This was the case, for instance, in Caerphilly in Wales (see Soulsby 1983, p.92) and Laag Keppel in The Netherlands. (see par.1.8.3.2, 1.7.1-1.7.10; Hamm 1989, p.103; Gutkind 1972 (1), pp.36-39.)
the representative of the lord but purely as a keep.\textsuperscript{405} (fig.3.27) There are also fortresses that were added later onto towns that were already well established.\textsuperscript{406} (figs. 3.21, 9.16)

The fortresses were almost without exception located at the edge of the town, preferably on a point where they could overlook the town. In most cases they had a gate facing the town and another one facing the open country. From this it can be deduced that the castles were not only meant as protecting strongholds, but also as instruments to exercise control over the inhabitants of the town: in the event of popular uprisings the gate from the castle to the outside could be used to supply the castle with victuals and additional troops.

9.23 Extra-urban town land

Apart from gardens within the town, the settlers sometimes had gardens in the area directly surrounding it. It seems that in some cases such extra-urban gardens were regularly distributed by the founders with the initial creation of the town.\textsuperscript{407} (figs. 2.52-55) In other cases the extra-urban gardens may have come about by the cutting up of agricultural fields or common grounds. The residents of the new towns often earned at least part of their income from agriculture.\textsuperscript{408} Hence, many towns had fields of arable and common land which was used as meadow land, pasture and source of firewood. Just as with the gardens it is mostly not clear how these grounds were originally distributed. When towns were newly founded in areas that already were brought into culture and which were well-populated, it would be difficult to distribute new land to the towns and their settlers. But often these towns were populated with people that had been living in the surrounding area, for which reason it was not necessary to distribute land anew: the settlers could just go on to exploit the land that had been theirs before.\textsuperscript{409}

For the bastides and the new towns that were founded in northeastern Europe there is some more information on the subject.\textsuperscript{410} Especially with the latter group the founding of towns (or villages) mostly accompanied new clearing and reclamation or the re-parcelling of existing agricultural land. The towns often were provided with a substantial agricultural area of, say, 40 to 300 hides (hufen, the normal unit of a farm on fertile soil).\textsuperscript{411} Often, these towns were founded in combination with villages, so called Stadtdörfer, that fell under the same bailiwick as the town, sharing meadows and woodland and forming a collective taxation unit.\textsuperscript{412}

9.24 Other physical elements

The most common physical elements that were part of new town creations have been described above. Of course there were also other objects that were built along with individual new towns. For instance, a rare source reports that at New Alresford in England a boulting house, where bran was sifted from flour, and a town oven were built at the expense of the founder, the bishop of Winchester.\textsuperscript{413} The inhabitants were probably obliged to have their bread baked at the lord’s oven, since this was often the lord’s monopoly.

Many other small elements were probably created for new towns, but these have not left traces in the documentation. In regions where brick was a common building material, such as the Po valley in Italy, ovens for baking bricks and tiles were probably among the earliest structures that were built. They were commonly built at the clay pits themselves, outside of town, and they were only meant for temporary use. Small devotional chapels must have been created in many new towns, probably at the expense of the settlers. Furthermore, one can imagine that, for instance, fishponds may have been dug, firehouses may have been built and gallows may have been erected. It is not useful to elaborate on the creation of such objects here, however, since they do not seem to have played important roles in the planning of new towns.

405 See appendix A and par. 3.9.3.1.
407 There are a number of documents concerning bastide foundations in southwest France that provide information about the organised distribution of garden plots outside the towns. (see Abbe 1997, p.311, fig.1; par.2.10.6) There are also documents with similar information regarding the new town foundation at Poznań in Poland (1253) and Tuchola and Bytów in Prussia (both 1246). In the last two cases the size of the garden plot outside the town is related to the size of the settler’s house lot in the town. (Schich 1993, pp.112, 186, no.64, 65)
408 See par.0.4.1.
409 This was the case with the Florentine new towns, see par.3.6.
410 For the cases of organised distribution of fields with bastide foundations, see par.2.10.6.
413 Beresford 1985, p.52. New Alresford was founded in 1200.
PART III: HISTORIOGRAPHY

Part III of this dissertation (ch.10 and 11) deals with the way the town building of the 11th to 14th centuries has been treated in the historiography of town building in the past 150 years or so. For these chapters material from different parts of Europe is used. In chapter 10 the European new town foundations of the high-period of town foundation are placed within a wider temporal and geographical perspective. Finally, chapter 11 goes into the traditional perception of the form and formation of the ‘medieval town’, the question why that perception does not correspond with the material treated in this study, and how this conflict could be solved.

10 THE NEW TOWNS OF THE 13TH–14TH CENTURIES WITHIN THE GENERAL HISTORY OF TOWN PLANNING

In the previous chapters many newly created towns have been encountered. Many of these have plans with a more or less regular orthogonal layout, and generally they appear to get more regular as the towns were created later. In order to try and get a better understanding of this development, the present chapter is devoted to the newly founded towns of the 13th and 14th centuries within the larger perspective of the history of town planning. The focus will be particularly on the period of about the 9th to 16th centuries, mainly with regard to questions related to the development and spread of the orthogonal town plan in this period.

10.1 New town planning in previous eras

In the fourth millennium B.C. the first cities were created in Mesopotamia. A concentration of power and a high level of organisation made it possible to concentrate various functions in one place where many people lived, fed by the surpluses that were imported from the surrounding area. These first cities were not yet completely newly created, as would often happen later on.

Traditionally, the Greek philosopher Hippodamus of Miletus (5th c. B.C.) is regarded as the first town planner and ‘inventor’ of the orthogonal urban layout. Aristotle called him ‘the father of city planning’, and until well in the 20th century he was indeed regarded as such. This is, however, only partly justified. The Hippodamian plan that was named after him, is an orthogonal urban layout with more or less square street blocks. Archaeological finds have demonstrated, however, that Hippodamus cannot truly have been the inventor of this layout. The oldest towns and cities that had a planned layout with largely orthogonal plans were built in ancient Egypt from around the early third millennium onwards. It regards among others the royal residence Memphis. Traces have also been found of settlements that were built to settle the labourers that built new cities or pyramids. These settlements are even more regular in layout than are the new towns and cities.

In roughly the same period, new cities with regular planned structures were also built in the Indus valley in northern India. Among others Mohenjo-Daro, Harappa and Lothal were built there between 2500 and 1900 B.C.

Other early planned cities were for instance the ceremonial imperial capitals in China from the second millennium B.C.; royal residences in Mesopotamia and Assyria dating back to the early

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1 I have given relatively much attention to the plans that clearly show regularity. This is because this study is about town planning: since there are so little written sources, the urban form often is the main source on the early history of towns (apart from the still largely unexploited archaeological sources), and it is mainly in the regularity of urban form that spatial planning can be recognised.
2 Jericho, Byblos, Erido, Uruk and Çatal Hüyük are among the oldest known cities. (Egli 1959, p.73; Mumford 1961, pp.6-35; Kolb 1984, pp.18-20)
4 Morris 1972, p.9.
5 Aristotle, Politica II, 1267b; VII, 1230b.
6 Mumford 1961, p.191; Pierotti 1972, p.236; Kolb 1984, p.115; Kostof 1991, p.105. Among others Gantner (1928, p.65) already acknowledged this quite early, but many later authors still held on to the old idea, mainly because it was so attractively simple.
7 Egli 1959, pp.33-47; Morris 1972, pp.13-14; Benevolo 1980, pp.49-53; fig.97; Kolb 1984, pp.38-40. Up to the present day it is common that such quickly-built temporary settlements for workmen or soldiers were much more regularly structured than real towns and cities.
8 Fischer, Jansen & Pieper 1987, pp.106-118; Possehl 1982, passim; Morris 1972, pp.14-18. The largest of these cities probably contained no less than 35,000 inhabitants.
9 See Wu 1963; Wheatley 1971; Skinner 1977, pp.3-101; Liangqiang 1986.
In the late second millennium B.C. the culture of ancient Greece took shape under the influence of various cultures in Egypt and the eastern Mediterranean. Since around the late 8th century, Greek city-states founded colonies along the coasts of the Mediterranean, which were centred on newly created towns and cities with more or less regular orthogonal plans. Gradually, the new layouts became more regular. After the city of Miletus was destroyed by the Persians in 494 B.C., it was rebuilt in a regular form that according to tradition was determined by the ideas of the Hippodamus of Miletus. (fig.10.3) Regular orthogonal plans particularly appear to have been laid out for new colonial cities and cities that were rebuilt in a short period of time after destruction.

The ancient Romans also employed regular orthogonal structures to mould their colonies on. They probably were inspired by Greek and Hellenic examples, as well as by regularly planned cities that were built by the Etruscans in Italy. (fig.10.4) Hundreds of towns and cities were built by the Romans throughout their empire. In fact, many of the towns and cities that revived in Europe around the 9th to 12th centuries had a past as a Roman colonial settlement.
The development of Greek and Roman urbanisation is relatively well known, as there are relatively many written sources and there has been much attention for the subject since the Romans and Greeks are generally regarded as the main ancestors of modern western culture. It should not be forgotten, however, that there were also other cultures with cities, as for instance in ancient China, India, Africa and Central and North America. And in Europe there were also urban settlements in the Iron Age, primarily of Celtic origin. There were also urban centres in prehistoric times in the parts of Europe that were not conquered by the Romans, which were rooted in different cultural traditions.

After the gradual disintegration and fall of the West-Roman Empire in the 5th century, and the devastations by the invasions of Huns, Germanic peoples, Byzantines, Mores, Magyars and Normans in the next five centuries, little remained of urban culture in western and central Europe. The old economic structures largely declined, and by the late 9th century most communities were largely self-sufficient and almost completely agricultural in their economic activities.

In the 10th and 11th centuries, however, there appears to have been a general improvement in the political stability and economy. A milder climate, new agricultural inventions and a higher level of organisation helped to create a new town foundation in the 9th to 14th centuries

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18 See Egli 1962, vol.II.
19 Demandt 1998. In fact, many sites where the Romans created towns, such as Paris, Vienna and Bratislava, had previously been Celtic settlements of more or less urban character.
22 Schmiedt 1974, pp.606-607; Mumford 1961, pp.233-236; Enciclopedia dell’arte medievale 1994, Lemma Città, Vol.V, p.20. An area that was anomalous in western Europe in this respect was Islamic Spain (711-1492), where the classical urban civilisation was partly maintained under Muslim rule. The situation in more northerly parts of Europe has been designated as an ‘economy of no markets’ by Pirenne (1936, p.31), but this appears to be overstated. (see McKitterick 1995, ch.15)
growing surplus from agricultural yields. This made it possible for trade and crafts to grow and for the monetary economy and urban culture to revive.\textsuperscript{23}

Initially, urban culture recovered particularly in existing settlements, often in remnants of Roman towns and cities, but later on ever more towns were created anew. Meanwhile, the population of western Europe increased rapidly and the utilised agricultural area grew with it. The agricultural areas of existing villages were extended and new villages and towns were created in uncultivated areas as cores for new reclamations. This happened in the core of West and Central Europe, but also along the edges, in a process of outward colonisation.\textsuperscript{24}

\subsection*{10.2.1 On the origin of the orthogonal town plan of the high-period of town foundation}

Little is known about the origin of the new movement in settlement creation.\textsuperscript{25} Probably there was not one origin, but there were several.

In any case, settlements with a more or less urban character were newly created in England in the 9th century, in Norway and Sweden in the late 10th century and in Italy and Spain in the 9th century and possibly earlier.\textsuperscript{26}

Various German scholars believed that Freiburg im Breisgau (1120) was the first real newly planted town in Europe since the Roman period.\textsuperscript{27} This would have formed the example, directly or indirectly, for the other town foundations of central, western, northern and eastern Europe. Some scholars even tried to reconstruct a kind of genealogy to determine the way that the one foundation influenced the next.\textsuperscript{28} This idea is based, however, on poor information on a limited number of town foundations and an over-simplified view of complex developments.\textsuperscript{29} Reality was, of course, much more complex: new town creations may have been inspired by models from neighbouring territories or from further away, indigenous traditions may have played a role and similar solutions may have been developed independently in different places.

\textsuperscript{23} See pars.0.1.2, 0.1.4.
\textsuperscript{24} Bartlett 1993, pp.5-60, 106-157; Gutkind 1964 (vol.I), pp.13-20, 63; Hall 1978, pp.16-103, see also pars.0.1, 10.3.1. For example: in 1203 margrave Henry of Moravia gave the monks of the Premonstratensian order the right to reclaim the forest of Streina ‘and to establish villages, hamlets and towns’. (Gutkind 1964 (vol.I), p.65)
\textsuperscript{25} On early urban centres in Europe from around the 8th to 11th centuries, see Clarke & Simms 1985; Hodges & Hobley 1986; Verhulst 1996; Verhulst 1999; Jarmut & Johanek 1998.
\textsuperscript{26} On early town foundations in England, see below in this paragraph. Early foundations in Norway are Nidaros/Trondheim (997), Bergen and Oslo (c.1000), and in Sweden Sigtuna (c.980) and Lund (1019). These were all royal foundations. (Gutkind 1965, Vol.II, pp.346, 403; Tesch 2001, pp.723, 733-735; Sandnes 1995) In Spain Burgos was founded in 884 by Alfonso III of Castile as part of the early reconquista on the Moors. (Gautier Dalché 1979, pp.27, 300-305) Early examples in Italy are Otricoli (early 9th century), Leopoli (or Centocelle, founded by pope Leo IV in 854 to protect the inhabitants of Centocelle against Saracen incursions) and other ‘incastellamento’ towns in the 10th and 11th centuries in central Italy. (Enciclopedia dell’arte medievale 1994, Lemma Città, Vol.V, p.20; Schmiedt 1974, p.580; Guidoni 1978, p.163; Toubert 1973, passim and esp. pp.313, 315, 355, 356, 340; Chapelot & Fossier 1985, pp.113, 180) See also below, n.34.
\textsuperscript{27} Among others: Planitz 1954, pp.102-117; Feger 1963, pp.44-47; Rörg 1978. See also Mayer 1978, I. Freiburg was believed to have been founded in 1120 by Duke Berchtold III of Zähringen in association with a group of 24 traders (mercatores pseudot), after the example of Cologne.
With regard to the history of spatial planning of the new urban creations, much has been written about the origin of the orthogonal layout. Various scholars have tried to find an origin, but none of them came to convincing conclusions. Some believe that the origin lies in 12th-century Italy, while others seek it in Flanders or England in the 11th or 12th century. Several of them believe that the model of Roman colonial towns or military forts was revived, whereas others think that the model of the orthogonal settlement plan may well have been newly ‘invented’ independently in different places and different periods, by planners who were searching for solutions to similar problems. An argument for the latter idea is that regular orthogonal settlement plans were, long before, also created independently in Egypt, eastern Asia, southwestern Asia and Central America. The adherents to this idea try to explain the return of the orthogonal plan from its inherent advantages: many villages and towns came into being on a road, an intersection of roads or a road and a river, which often may have provided a basic structure that favoured an orthogonal layout; furthermore, it was more or less obvious to give a planned layout a straight main street, rectangular lots and perpendicular side streets. When lots of equal size and secondary streets were made, that almost ‘naturally’ led to rectangular street blocks. Lots were most easy to set out at a specific size when they were rectangular, and this form also provided the most practical form for houses, as they generally were rectangular as well. In this trend of thought, planning almost automatically leads to more or less orthogonal layouts.

By lack of clear sources it is impossible to establish precisely when for the first time since the Roman colonial foundations more or less regular orthogonal layouts were created again for new settlements. It is obvious that

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30 According to Keller (1979), for instance, the main source of the regular orthogonal plan in eastern Europe was Austria and ultimately northern Italy, where it was inspired by the forms of the existing towns of Roman origin. (pp.116, 125-127, 135, 142) But he also admits that in the same period there were also other areas where similar forms were created. (p.86) Hall (1978, p.126), however, holds forth that the Italian orthogonal plans of the second half of the 13th century were inspired by the French beside. Schwinke (1980) believes that the origins of the regular orthogonal plans that were created in Germany by the late 12th century may be found in Flanders or England. (pp.104-106, 145-146, 169, 171, n.153)

31 For instance: Hamm 1932; Lang 1955, p.67; Horns 1956, pp.71, 97; Keller 1979, p.135; Johnston 1983, p.8; Isaacson 1999, pp.1-21-24; Mat 1985, p.8; Higouret 1989, p.221. With respect to the terrain usage in the Etruscan colony of Surrentum, Richter (1940, p.353) Pozzana (1983, p.75) and Merlino (1983, pp.5, 60). According to Stanislawski the grid was never re-invented; it was always taken over from older cultures since its initial invention in the cities of the Indus valley in the 3rd millennium B.C. (Stanislawski 1946) Gutkind (1964, pp.111, 120) and Benevolo (1980) point at the correspondence with the Roman model, but leave aside the question whether there was an actual connection between them. On the supposed influence of the Roman agrimensor literature, see below in this paragraph.

32 Gantner 1952, p.94; Gutkind 1964, pp.463; Gutkind 1967, p.211; Beresford 1967, p.146; Morris 1972, p.82; Lavedan & Hugueney 1974, pp.10-11; Franchetti Pardo 1982, p.47; Hamm 1989, pp.77-78; Higouret 1989, pp.138-139 (explicitly contradicting Keller’s hypothesis that the orthogonal plan with central market square found its origin in northern Italy); Kolb 1884, p.288 with respect to ancient Greek orthogonal town planning. Steegh (1988, p.140) holds the rectangular outline form and orthogonal structure for an archetype that could hardly be omitted, but in his opinion it is a typical of the ‘middle ages’.

33 Among the cities that were built in Central and South America by the Aztecs, Mayas and Incas in pre-Columbian times, there are some with very regular orthogonal plans. (Egli 1963, pp.403-427; Morris 1972, pp.251-254) It is highly unlikely, that they had the same origin as European or Asian settlements with orthogonal plans. This suggests that the orthogonal structure was ‘invented’ as a good way to order settlements independently in different places. (see Castagnoli 1956 and vat.16.4)

34 I explicitly write ‘more or less’ here. According to Lilley there is an essential difference between true orthogonal plans that could only be laid out with the help of a thorough
especially since the first half of the 13th century many orthogonal plans were created, and in general it can be observed that the layouts of the 13th century commonly were considerably more regular than before.\(^{35}\) However, there are also examples of fairly regular orthogonal plans of earlier centuries, as for instance Empoli (1119) and Cascina (1141) in Tuscany, which were founded by Count Guido Guerra and the bishop of Pisa. Bardolino in northern Italy, has a less regular but still orthogonal plan, and was probably already created between the late 9th and 11th century.\(^{36}\) In the 830’s, Capua in southern Italy was re-founded and moved to another location and rebuilt on an orthogonal basis by Sicone, duke of Benevento.\(^{37}\) In Flanders, Grevelingen and Nieuwpoort are towns that were founded relatively early with regular orthogonal plans (c.1160).\(^{38}\)

Knowledge of geometry (which would only have been available since the second half of the 12th century) and what he calls ‘quasi rectilinear plans’, which were already created in the previous centuries. (Lilley 1998, pp.83-88) It may be doubted, however, whether this is correct: see par.10.2.2.

\(^{35}\) See par.10.2.2.

\(^{36}\) Empoli and Cascina: Lang 1955; Siemone & Frati 1997, p.10; Detti, Di Pietro & Fanelli 1968, p.96; Pirillo 1989, p.13. It has been claimed that Bardolino was a Longobardian creation, but that seems to be based mainly on an association of the name that has no historical basis. The place was mentioned already in 807, but only around 1100 it known to have been a settlement with urban character. (Cipriani 1964, pp.10-13)

\(^{37}\) Pane & Filangieri 1994, pp.15-36. In this case it seems well possible that the the form of the plan was inspired by the example of the ancient Roman town of Capua, from which the new town was moved away. Campobasso, in southern Italy, probably also was a Longobardian foundation from the 9th century (Zaccarelli 1994, p.17), and Lanciano, in the Central Italian Abruzzo region, was probably also founded by a Longobardian duke, but only in the 11th century. (Zacca 1980, p.406) Other early town foundations in Italy with traces of regular planning are: Ferrara (Castrum Ferrariae, founded in 604 by a Byzantine lord) and Chioggia (probably 7th century) in the Estuary of the river Po, Monterotondo, founded close to Rome in the 11th century, and Cerreto d’Esi in Le Marche (first mentioned 1090). (Morini 1963, p.158, fig.6; Pallottini 1951, tav.XIX; Enciclopedia dell’arte medievale 1994, vol.V, p.20, lemma Città) In the north of Spain there were also new towns founded already in the 10th and 11th centuries, for instance Jaca, founded by King Sancho Ramirez of Andorra in 1065, which seems to have had a fairly regular plan in its early stages. (Plitz 1998, p.381)


**fig. 10.5**: Plan of the Roman colonial town of Venta Silurum (Caerwent, Wales), as excavated. (From: Morris 1972) This town was founded about AD 75 as the capital of the Silures tribe. This plan is a representative of the basic model of the Roman colonial town, which essentially consists of a more or less rectangular outline with one gate in every side and a more or less orthogonal street plan with a central forum. This basic model was used for many newly founded towns around the empire.
Still earlier examples of planned urban settlements with more or less orthogonal structures are known from England. Bury St. Edmunds probably was re-founded in the late 11th century, Saxon Hamwih (Southampton) seems to have been laid out already in the early 8th century, while Hereford was founded by King Offa of Mercia in the second half of the 8th century. In the last quarter of the 9th century, King Alfred the Great of Wessex and his successors founded various forts and fortified settlements with a more or less urban character, in answer to the threat of the Danes. Some cases regarded fortifications of existing settlements and others were new creations. These places, circa thirty in number, were designated with the term *burh*. Wallingford, Wareham (fig. 10.8), Cricklade and Oxford had rectangular outlines and fairly regular patterns of streets and lots. Twelve other *burhs* had regular plans that seem to have been adapted to the topography of the hills on which they were built. Nottingham and Winchester probably also had more or less regular orthogonal layouts in the 9th century.\(^{39}\)

With regard to the provenance of the regular plans in England, it has been suggested that the Danes may have provided models, but this is highly speculative.\(^{40}\) Another possibility that has been suggested is that the Roman colonial cities of England acted as models. Both Winchester and Hamwih occupied sites of or near to former Roman towns. Winchester even lay within the remnants of Roman walls and its gates lay on the same spots as the Roman gates. (fig. 10.9) Winchester’s street pattern, however, was largely laid out anew in the 9th century when it was re-founded by King Alfred the Great. It had a rather irregular orthogonal structure on the same basic directions as the Roman streets had had, but only the central High Street really coincided with one of the Roman main streets. Nevertheless, the orthogonality of the new structure appears to have been determined, at least partly, by the basically rectangular layout of the Roman walls and the place of the four ancient gates therein.\(^{41}\) It seems unlikely, however, that Roman colonial towns actually formed the model after which the forms of these new towns were moulded.\(^{42}\)

But still, the new urban culture can be regarded as successor to the colonial urban culture of the Romans in various respects. The social, political, economic and juridical situation in the new towns may have been very different from the situation in the Roman era\(^{43}\), but many ideas on urbanity and civility had survived,

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\(^{39}\) Biddle 1974, pp.218-225; Biddle 1976, pp.22-28; Biddle 1976 (II), pp.122-137; Aston & Bond 1976, pp.65-69; Beresford 1979, pp.195-197 (Wallingford), 199-200 (Lydford); Brisbane 1988 (Hamwih); Statham 1998, pp.89-91 (Bury St. Edwards). For Winchester, see below in this paragraph.

\(^{40}\) Biddle 1976, pp.27. Archaeological excavations have shown that the 9th-century town of Haitabu (or Schleswig) in Denmark already had a more or less regular plan. (Biddle 1976, p.27) Not far from there, 9th-century extensions to Hamburg and Emden in northern Germany also had regular layouts. (Lobbedey 1977, p.140) However, these layouts do not show highly significant correspondence to the new layouts in England of the period.

\(^{41}\) Biddle 1976, pp.21-22; Biddle 1976 (II), pp.106-109. According to Gauthiez (1993) and Le Maho (1993, p.29) much the same happened in the town of Rouen in Normandy. Inside the Roman walls, the streets are supposed to have been largely laid out anew in the second half of the 10th century, on a symmetrical scheme with the double cathedral as the central focal point. The evidence for this hypothesis is, however, rather scant.

\(^{42}\) Biddle 1976 (II), p.122.

\(^{43}\) Pitz 1991, passim. In this respect, the situation in the towns of Western Europe contrasted with that in the Byzantine empire. In the city of Rome with all its imperial connotations, however, the great concentration of ancient civic heritage, in material as well as in ideological form, meant that the resemblance to the ancient situation remained stronger than elsewhere in the West. (Schartmann 1929, s.w.)
whether or not in direct connection to Christian religious ideas and the ecclesiastical organisation. It regards among others the consular system in urban administration that was revived in Italy and southern France (Pitz 1991, pp. 246-252); references to Roman citizenship in the privileges that the settlers received, for instance in the new town of Piverone in northern Italy in 1202 (Fasoli 1942, p.165); references to and comparisons with the greatness of Rome in urban panegyrics (Hyde 1965-66; Palliser 2000, pp.151, 168); Sils 1990, pp.118-137) and descriptions (Villani ed.1823, vol. I, III, 2, pp.137-140). The most important channel through which knowledge of ancient urbanity had flown to the centuries under consideration, was, of course, literature. For instance in the highly authoritative encyclopaedic work of Isidore of Sevilla (early 7th century), which was largely based on ancient written sources, most entries that have to do with urbanity come from, and are explained in the context of, the Roman tradition. (Isidorus ed. 1957, s.v.) Also, in historical references it was always proudly mentioned if a town or city had a (supposed) Roman origin (in which respect there is no difference to the present day). (Duby 1980, p.369)

Still other scholars, however, only state that the orthogonal town plan was taken over from the Romans, without making clear how and through which channels: Gantner 1928, p.98; Stanislawski 1946, pp.117-120; Koller 1978, pp.51-52; see also Pujol 1990, p.364.


Knowledge on ancient military forts was provided by the classical works of Polybius (Historiae, Polybius ed.1996), Josephus (De Bellum Judaicum), Vegetius (Epitoma rei militae ri) and Pseudo Hyginus (De munitionibus castrorum). See Morris 1972, p.39; Sherwood 1980, pp.22-51; Polybius ed.1996.


44 It regards among others the consular system in urban administration that was revived in Italy and southern France (Pitz 1991, pp. 246-252); references to Roman citizenship in the privileges that the settlers received, for instance in the new town of Piverone in northern Italy in 1202 (Fasoli 1942, p.165); references to and comparisons with the greatness of Rome in urban panegyrics (Hyde 1965-66; Palliser 2000, pp.151, 168); Sils 1990, pp.118-137) and descriptions (Villani ed.1823, vol. I, III, 2, pp.137-140). The most important channel through which knowledge of ancient urbanity had flown to the centuries under consideration, was, of course, literature. For instance in the highly authoritative encyclopaedic work of Isidore of Sevilla (early 7th century), which was largely based on ancient written sources, most entries that have to do with urbanity come from, and are explained in the context of, the Roman tradition. (Isidorus ed. 1957, s.v.) Also, in historical references it was always proudly mentioned if a town or city had a (supposed) Roman origin (in which respect there is no difference to the present day). (Duby 1980, p.369)

45 See for instance: Flint (figs.1.11-12), Caerwys (1.36-37), Aigues-Mortes (2.15), Monpazier (2.20), Grenade-sur-Garonne (2.22), Bretenoux (2.33), Sainte-Foy-la-Grande (2.21), Viannes (4.3), Pietrasanta (4.4), the terre nuove fiorentine (5.6-27), Leoben (5.4), Santa Fe (1.0.13), Elburg (7.3), Bientina (9.3), Reetz (9.11), Wiener Neustadt (9.18).

46 See above, n. 31.

47 Still other scholars, however, only state that the orthogonal town plan was taken over from the Romans, without making clear how and through which channels: Gantner 1928, p.98; Stanislawski 1946, pp.117-120; Koller 1978, pp.51-52; see also Pujol 1990, p.364.


Gerbert of Aurillac, Vincent of Beauvais and Leonardo Fibonacci. But there are no concrete indications, as far as I know, that the knowledge from these sources was actually used for surveying. In fact, the techniques needed for the laying out of orthogonal town plans generally were so simple that they certainly need not necessarily have come from these theoretical sources. It should also be considered that the centuriatio, the orthogonal structure by which the Romans ordered the fields in many colonies, was indeed treated in some of the tractates on land-measuring, but unlike what many scholars seem to assume, these texts are about the allotment and measurement of agricultural fields, but not of towns.

So, many scholars have assumed that the orthogonal town plan must in some way have been inherited from the Romans. But their assumption was hardly based on evidence; it rather seems that many of them could not believe that the orthogonal town plan could have been autonomously created in the 'middle ages'. This problem of a preconceived view of the period of the 'middle ages' will be considered in more detail in chapter 11. For now, it must be acknowledged that there is, as far as I know, no evidence that the town founders and planners of the period under consideration actually knew what the typical plan form of the Roman colonial town was.

In my opinion there is not just one source of the orthogonal town plan in Europe in the post-Roman period. Early towns with more or less orthogonal plans can be found in Italy as well as in England. In some occasions, these may have been inspired by older Roman layouts, as is likely in the case of the Longobardian re-foundation of Capua in southern Italy; but the assumption that has been stated by many scholars, that the orthogonal town plan in general was inspired by knowledge of typically Roman sources, whether physical or theoretical, is unlikely to be correct. Much as, on world scale, the orthogonal plan was invented independently in the ancient Near East, China and Central America, it seems to have been created independently on different occasions in post-Roman Europe as well. After all, it is a fact that when the human mind seeks to create order on a two-dimensional plane – and the idea of order is, of course, fundamental in town planning –, the orthogonal scheme is no farfetched solution. In fact, it is the most obvious solution.

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51 See pars.9.6.1 and 10.2.2. There can be no doubt, however, that the agrimensores manuscripts were held in high esteem. They even were regarded as worth copying when they just described boundary stones or specific but unidentifiable pieces of land. (Dilke 1971, pp.227-230; Josephson, 1930, pp.1-72)
52 This system is often regarded as the general system of Roman land organisation; but in fact it was far from general. And when it was used, it was often less uniform as it is commonly assumed: there was a considerable variation in the dimensions of the fields and blocks of fields, and in the orientation of the grid. Even when different centuriators lie right next to each other, their orientation may vary. (Dilke 1971, pp.84-87, 94-95; Müller 1961, pp.19-20)
53 Dilke 1971, p.141.
54 See above, n.31. In quite a number of cases, towns that were built on a regular orthogonal plan in the 13th and 14th centuries, have even been held for Roman foundations since about the 18th century, since it was thought that this urban structure was typically Roman and, conversely, a-typical of the 'middle ages'. (For instance: Pennant 1783, p.77 on Bala in Wales; Durand 1919 on the bastide of Carcassonne)
55 Villani 1832, vol.I, pp.53-54 (cap.I, 38); Friedman 1988, pp.82-86) In the 14th century Opicinus de Canistris, wrote a laudatio on his mother town of Pavia, the plan form of which is presently regarded as a well-preserved typical Roman town plan structure. Opicinus clearly mentions that the plan is regular, rectangular and having two main streets in the mode of a cross, and he also writes that inscriptions at the gates claim that it is a second Rome, but nevertheless, he holds its foundation for Gallic, and strangely enough he gives more attention to the historic presence of the Longobards than of the Romans. (Opicina ed. 1995, passim, and esp. pp.8, 16, 56, 71, 112)
56 See pars.6.4, 8.5.1, 8.6. It should be reminded that, wherever the regular orthogonal plan came from, by the 13th and 14th centuries the regularity and order of the straight street and the grid had also acquired overtones of a symbolic nature. (see pars.6.4, 8.5.1, 8.6)
10.2.1.1 The planned village

In the present context it should be considered that the spatial planning of towns cannot be completely isolated from the planning of villages and rural allotments. In most parts of Europe, there are clear signs of the nucleation of formerly dispersed agrarian settlement patterns, mainly since the 6th century but foremost between the 10th and 13th centuries. It should be noted that this is largely the same period as the great surge in town creation. It is not clear to what degree this nucleation was deliberately planned, but often it seems at least to have been stimulated by landlords and in many cases traces of planning can be recognised. Probably already in the 7th to 9th centuries, villages with regular plans were laid out in northwestern Europe.\footnote{Chaplot & Fossier 1985, pp.60, 134-137, 167-168, 327. At large, the creation of villages seems to have been linked to the general establishment of the ‘feudal system’.} In the parts of Europe roughly north of the Alps, villages that were created as cores of new reclamations often had plans that corresponded to the allotment of the reclaimed fields.\footnote{Biddle 1976, p.31. In England, regular plans have been found of Anglo-Saxon villages of the 7th and 8th centuries. On the continent, villages with planned regular plans were created in the Frankish period (6th–9th centuries) together with large-scale new clearings. It regards among others the so-called Kurzwaldhufen. (Nitz 1974, p.358; 1991; 1994 (II); Schuyf 1988, p.24)} Reclamations were often undertaken systematically and at a significant scale. The landlords or the people they employed often seem to have organised the works and the spatial layout, to which the settlers had to conform.\footnote{Schuyf 1988, p.19.} The basis generally was a partition into fields of equal size, for which a specific rent or yield was established. This commonly resulted in fairly regular spatial order. Sometimes this order was radial, but mostly it worked with principally straight and parallel boundaries, often at more or less right angles, leading to orthogonal structures. Particularly in the many cases where reclamations were directly related to water management (drainage, diking or irrigation), central planning was almost inevitable. This generally led to regular spatial order, which often also influenced the structure of the villages.\footnote{See par. 10.4. See for example, the reclamation of the peatlands in The Netherlands on the regular scheme of the cope: Van der Linden 1956. There are various specific types of villages that are related to the specific sorts of reclamations, varying with the type of soil, altitude, method of reclamation and regional tradition. In Germany, for instance, among others the Waldhufendorf, Angerdorf and Rundling are distinguished, largely on the basis of their plan structure. (see Roberts 1987; Roberts 1996; Schuyf 1988; Westermann großer Atlas zur Weltgeschichte 1988, p.70)} (figs.10.10, 10.11)
It is well possible that the planned and often more or less orthogonal forms of villages and allotments of newly reclaimed or reorganised fields had some influence on the layouts of new towns, particularly smaller ones probably. In this context it should be considered that often there was no clear distinction between larger villages and smaller towns with regard to the spatial structure. Unfortunately, it is not possible to draw hard conclusions as to whether, or in what amount, there was a connection between village planning and town planning, by lack of sources.

**10.2.2 Increasing regularity in the plans of new towns**

As appeared in the previous chapters, many hundreds of towns have been newly founded in Europe, mainly from the 12th to the 14th century, with a peak in the second half of the 13th century. Looking at the period at large, one can recognise a general development in the town plans towards greater spatial regularity, which tended to work towards true orthogonality. This tendency was especially evident during the 13th century. Various possible reasons are imaginable for this growing regularity. Increasing experience with the creation of new settlements most probably played a role. Various cases are known in which persons who had experience in creating new towns or other large-scale building operations were employed by a founder. The status of these persons is not always clear, but they could be general organisers (hired or as entrepreneurs), legal experts or sometimes surveyors or engineers. To what degree these people were involved in the spatial planning of the settlement is unclear, but it is most likely that the growing experience of persons and organisations with creating new settlements led to optimisation of the organisation. This probably meant that the creation process took less time and was better directed, regulated and controlled, so that the initial plans were followed more closely and the spatial layout became more regular.

Keith Lilley suggested that the increasing geometric regularity of the town plans must have been fed by a growing theoretical knowledge of geometry, especially through knowledge of antique sources. In his opinion the grid plan in the postclassical period was not necessarily inspired by antique models, but the geometrically regular plans, which according to Lilley started to appear in the second half of the 12th century, would have been made possible only by the antique knowledge of theoretical geometry, as provided by Euclid’s...
classical treatise the Elements. This work was translated from Greek into Latin around 1140, by Adelard of Bath. The importance of Euclid’s Elements and Adelard’s translation for the knowledge of theoretical geometry in Europe from the 12th century could hardly be underestimated, but it must be doubted whether it would be necessary to know the contents of the Elements in order to be able to set out a regular grid plan. Euclidean geometry is something quite different from the simple ‘practical geometry’ needed for laying out a grid plan, no matter how regular it is. The knowledge for setting out straight and parallel lines at right angles had been present for a long time already, most probably ever since the Roman period, at least among schooled men.

The crucial factor, however, is accuracy. And the amount of accuracy depends on the tools that were used, the experience the surveyor had, and most of all, the importance attached to geometric accuracy (by the commissioner, the planner, and the surveyor). As Slater points out, it seems likely that many of the ‘quasi-rectilinear’ plans, as Lilley calls the less regular plans, were in fact laid out with an ideal of a regular orthogonal plan in mind, but since practical considerations relating to the existing natural and cultural features of the site were taken into account, the ‘ideal’ would be adapted considerably. Apparently, this pragmatic attitude in laying out new settlements changed in the course of the 12th to 14th centuries. In my opinion this is not difficult to imagine. In a landscape where land became ever more scarce as the population grew, and in a society in which the process of quantification developed rapidly, changing the perception of time, space, movement and matter, this must have resulted in the ‘pecuniarisation’ of the land, which in its turn must have stimulated the accurate quantification of it and thereby the regularity of its spatial partition. But it was not only a question of economics, symbolic values also played a role: the striving for cosmological order was a factor behind the process of quantification of which the importance may not be underestimated, and the regular order of inhabited space was also seen as a mirror image of societal order.

Another factor that must have played a role in the higher level of regularity, at least in the structures of the towns as we presently know them, is the increasing number of ordinances with regard to urban form. These ordinances regarded new towns as well as existing ones. Particularly since the 13th century, the number of regulations that saw to hygiene, security (especially from fires) and a beautiful and regular appearance of public space in towns and cities increased considerably.

fig.10.11: Plan of a relatively regular example of a so-called Angerdorf, Lichtenhagen (presently Yablonovka) in Prussia (presently Russia-Kaliningrad). (From: Kuhn 1973) This village was probably created in the second half of the 13th century, following the rather usual pattern, which is presently called Angerdorf, with farm houses built on both sides of a central green, the Anger, and fields stretching out behind them. The other blocks of fields were probably reclaimed in later phases.
10.3 New towns with regular plans after the high-period of town foundation

Since the 15th century, much more is recorded of urban design and the people who were involved. In this period, theoretical treatises on architecture and urban planning start to appear in which theoretical questions are addressed and designs of towns and cities are described and depicted. The appearance of these treatises was mainly based on a strongly increased interest in, and imitation of, the antique Roman architectural treatise of Vitruvius, *De Architectura libri X*, of circa 30 B.C. The subject of town building is treated in chapters IV to VII of book I of this treatise. In these chapters, directions are provided for the creation of the various physical elements of the city.

Up to some decades ago it was almost commonly thought that Vitruvius’ treatise had been lost until it was rediscovered in the 15th century. This is not true though. Vitruvius manuscripts were always held in high esteem in the previous centuries, and were often copied in monasteries. It is, however, only in written sources of the late 14th century that a renewed interest in town building theory can be noticed. The particular case in point is the entry ‘Which form should the beautiful and well-built city have’, in the encyclopaedic work *El Crestià*, written by Francesc Eiximenis between 1381 and 1386. In the 15th century, quite many theoretical works were written on architecture and town building, largely influenced by Vitruvius. The first treatise that was written after his example is Alberti’s *De Re Aedificatoria*, which was completed in 1452. After that, various other treatises followed in which town building theory was described, whether or not as an element of the wider discipline of architecture in general. Dozens of designs were published of towns that, under the influence of a misunderstanding of Vitruvius and the contemporary method of fortification, had perfectly regular...

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77 The designs have often wrongly been called ‘ideal cities’; see par.8.4.
78 Vitruvius ed.1962, editor’s introduction, p.XIV.
79 Krinsky 1967, p.36. See also ch.11, n.69.
80 Krinsky 1965.
81 See par.8.2.1.
In the study of town building history of the 15th century and beyond, the theoretical literature has commonly received much more attention from scholars than did the practice of urban creation. Hence, the designs of the treatises of the 15th to about the 18th century have become more well-known than most of the works that were actually realised, and the general image of the practice of the period is often too much coloured by what is known of contemporary theory. In fact, the actually realised towns that have received most attention, such as Pienza (from 1459) and Palmanova (from 1593), fig.10.12 in Italy, Versailles (c.1670) in France and Karlsruhe (c.1720) in Germany, can be regarded as proto-typical exceptions that are strongly influenced by the designs from the theoretical literature.

Hence, there is a strong contrast between the high-period of town foundation and the period of roughly the 15th to 18th centuries. In the first period many new towns were built in Europe, but the designs behind them are hardly ever known. The many designs that are known from the theoretical literature of the late 14th to 18th centuries, on the other hand, were relatively rarely actually realised in practice. So, from the period between antiquity and the late 14th century, we only know practice, and it may be assumed that there was little theorisation, while from the 15th to 18th centuries we know the theory well, and there is relatively little attention for what was actually built. In fact, relatively few new towns were created in Europe in comparison to the period of the 12th to 14th centuries. In chapter 11 this discrepancy will be considered in more detail.

### 10.3.1 Colonial towns and cities

In paragraph 10.1 it is described that the newly created towns and cities of the ancient Greeks and Romans, often having orthogonal layouts, were mostly created in a context of colonisation. For the period of reviving urban culture in Europe, roughly the 10th to 14th centuries, it generally was not much different. It has already been described in detail that the new towns in Wales and southwestern France were mainly created as elements in colonisation processes. In the first case it regarded external and in the second case internal colonisation.

In England, Ireland, along the coasts of Scandinavia and the Baltic new towns were founded in processes of external colonisation as well. In the parts of central and eastern Europe roughly east of the river Elbe external and internal colonisation combined, although the general phenomenon of town foundation and concentration of settlement in villages broadly moved from west to east. On the Iberian Peninsula new towns were founded in the context of the external colonisation that followed the reconquista on the Muslims from the north. Apart from the colonisation in these specific areas, there also was an ongoing internal colonisation in many regions of western and central Europe in which new land were reclaimed and new settlements created.

The new towns in northern and central Italy were mostly built in areas that had already been cultivated since a long time, and that also happened elsewhere, as for instance in the Rhineland. In these cases, too, the principal goal generally was to gain control over a specific area in political, economic and military sense, and therefore the goal can also be regarded as colonial in a certain sense. Particularly the towns that were founded by the city-states in Italy are colonial, in the sense that they were satellites of the mother cities.

At the end of the 15th century, the transatlantic colonisation started. The first colonial town in America, Santa Domingo (Hispaniola), was founded in 1496 in the present Dominican Republic. Its original form is not known, but in 1502 it was rebuilt on an orthogonal grid plan. Most other new colonial towns were also laid out on orthogonal plans. Many scholars have regarded this a feature that was ‘typical of the Renaissance’: the orthogonal

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83 This radial street structure was based on a misinterpretation of Vitruvius. From the 15th to the 20th century it has almost generally been accepted that Vitruvius meant that the urban plan ideally had a regular polygonal outline and streets that radiate from the centre. (Hesberg 1989, p.135; Germann 1976, p.17) But actually he only wrote that the outline should not have sharp or right angles; instead it should have a convex curve with protruding towers. With regard to the streets he just wrote that they should not be oriented towards the eight winds (the four main winds from the cardinal points, and the four half winds). (Vitruvius ed.1962, book I, ch.5, 2; ch.6, 4-8)

84 See pars.1.1-1.4.1 and 2.3-2.5.


Town plans of colonial cities of the antique period were imitated in the new colonial towns, which would have been possible particularly due to the rediscovery of the classical treatises on architecture (Vitruvius) and layout of military camps (Vegetius, Polybius, Hyginus). This image is, however, based on an oversimplified view of history: on the basis of the material of towns that were actually built, one can recognise an ongoing development through the centuries rather than a sudden rebirth. This development started in Europe around five centuries before, and now it was suddenly ‘exported’ to America. Later on, it was also to move to other continents.

Particularly in Spain one can clearly recognise continuity in urban creation, because the reconquista continued from the 8th century to the end of the 15th century. A process of colonisation, involving among others political, administrative, social and economic integration, was connected to the re-conquest. This meant among others that new settlers were lured to the newly conquered parts and accommodated in new towns or new additions to existing towns. A good example is the town of Santa Fé (fig. 10.13), which was founded by King Ferdinand and Queen Isabella of Castile as a military fort during the siege of Granada in 1491. Although its initial purpose was different from that of most other newly founded towns in Europe, it is clear that in its form it basically follows the same principles as many of the new towns of the previous centuries. In fact, the creation of the town formed part of a tradition that was centuries old. Subsequently this tradition was to be continued in the Indies and elsewhere.

fig. 10.13: Aerial photograph of Santa Fé, in southern Spain, founded in 1491 by King Ferdinand and Queen Isabella of Castile, as a fortress during the siege of Granada. (From: Reps 1965) After Granada had capitulated, plots were given out to knights, soldiers and clergymen. The house lots that the knights received were twice as large as those of the soldiers. (See Nitz 1996 (3))

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90 See pars. 10.2.1, 10.3.
91 It should be noted, however, that in Asia there was also an old and ongoing indigenous tradition of settlement planning on strictly orthogonal basis. (see Marco Polo’s description of Dadu (Beijing) in par. 8.6.4, and the subsection following it) In America, older indigenous settlements had also been built with orthogonal layouts, but this does not seem to have been an ongoing tradition. (Egli 1962, pp.400-437)
93 Reps 1965, pp. 12-16, 31, 72; Guarda 1965, pp.18-24, p.46, n.72; Nitz 1972, esp. pp. 389-391; Kostof 1991, pp.113-124. On the margins of Europe, however, the tradition also went on with further colonisation in northern Ireland, Scandinavia (see Ahlberg 2005) and eastern Europe. In Ulster, for instance, Londonderry was newly founded in 1611 by a London-based development company. Its plan bears reminiscence to the structure of the term nunc frontier. (see: Reps 1965, p. 15; Beresford 1967, p. 312; Morris 1972, pp.94, 282, 290)
In 1573, King Philip II of Spain ordained that the towns that were founded in the transatlantic Spanish colonies, had to be built and organised according to the Leyes de Indias (‘Laws of the Indies’). Among others it was ordained that the towns and cities were to be laid out by use of chord and rod and that the public places were to be rectangular, with galleries going around and four streets giving access. Nothing is explicitly mentioned about orthogonality, but the rules as well as the built results clearly indicate that orthogonal order was essential. Many authors have represented these Leyes de Indias as ‘a genuine product of Renaissance thought’, because they believed that many of the rules for new town planning were directly copied from Vitruvius’ De architectura libri X. This idea is, however, largely wrong. It seems to stem from an inherent urge to link historical events to what have generally come to be regarded as typical ideas of the period, in this case ‘the renaissance’. In fact, a number of the rules in the Leyes seem to have been based directly on Vitruvius’ treatise, but most of them rather stem from the long tradition of new town planning in Europe.

Eventually, not only the colonial towns of the Spanish were laid out on orthogonal plans: those of other colonial powers, in America as well as on other continents, were commonly built on orthogonal grids from the 16th to 20th centuries. Moreover, non-colonial administrations also chose for the orthogonal grid as most suitable spatial structure. One of the most rigorous applications of it was the Land Ordinance, which was instituted in the United States in 1785. This ordinance did not only regard urban structure, but the whole spatial structure of newly colonised lands, which were divided in pieces of six mile square, the townships, that were subdivided in 36 smaller squares for the module of private property.

10.4 Some considerations on the historic use of the orthogonal grid in space design

Since many centuries, the grid has been used for ordering urban and rural space in situations of colonising and reclaiming new territories. With the grid, the authorities enforced their spatial order on existing cultural and natural structures. In this way, this spatial order could work as a symbol of dominion, of man over nature or of one authority over society.

Iso-morph as it is, the orthogonal grid equalises what is unequal; it brings regular structure to unordered space. In this sense, it can be seen as the counterpart of the objectivation of time through a systematical conception, quantified by the use of calendars and clocks. The spatial grid is essentially un-natural, or even anti-natural. Natural landscape is always irregularly differentiated. Laying a grid over it, in reality or in the mind, not only ‘equalises’ the land, it also becomes possible to determine specific place, and it makes the land dividable, no matter which form the natural landscape has.

In a sense, man makes the land his own, when he is able to orientate in it. When one knows the landscape from experience, its irregularity serves as reference by the remembrance of specific points. But when one does not know the landscape from experience, abstract systems of spatial order facilitate orientation. It is therefore that authorities that strive for control over indigenous nature or man, such as colonial and totalitarian regimes, use regular systems of spatial ordering, particularly the orthogonal grid. By erasing the irregular and differentiated space with which the local people identify, and replacing it by absolute and ‘universal’ order, this space and its inhabitants are incorporated within the larger structure of the state or the empire. Orientation thereby becomes equally easy for the newcomers as for the indigenous, for the controlling powers as for the local-born. These principles can be seen at work in, for example, with the re-foundation of the Chinese imperial capital of Chang’an in the 6th century, with the regularisation of the streets of Florence around 1300, and with the restructuring of the street plan of Paris in the 19th century by

94 Reps 1965, pp.28-31; Morris 1972, p.214. 95 For instance: Kostof 1991, p.114; Nitz 1972, p.339 (see Guarda 1965, pp.18-19). Likewise, many authors, such as Rahmsdorf (1999, pp.51-52), hold new towns of the 16th and 17th centuries in Europe, such as Sabbioneta (northern Italy, mid-16th century) or Vitry-le-François and Richelieu (France, resp. 1545 and 1630) for being typically inspired by the Roman towns and military camps, while in fact, the resemblance is much closer to orthogonal towns with rectangular outlines of the 13th and 14th centuries. 96 Reps 1965, pp.30-31. According to Guarda it was not primarily Vitruvius who was copied, but rather Saint Thomas’ De regimine principum of the late 13th century, as far as the rules for the siting of new towns were concerned. With regard to the foundation of Bora (Chili) in 1606, the chronicler Rosales even explicitly refers to this source. (Guarda 1965, pp.33-43, 50) Thomas, in his turn, was inspired by Vitruvius on this point, as well as by Vegetius’ Epitome rei militaris. (Thomas van Aquino ed.1997, pp.39-40) However, the rules on the siting of new towns of Vitruvius, Saint Thomas and the Leyes de Indias remained very much of a theoretical, or even topical nature, because in actual practice they mostly not appear to have been followed closely. (Guarda 1965, pp.34, n.40).

97 Reps 1965, p.216; Dilke 1971, p.204; Morris 1972, p.220; Kostof 1991, pp.116-121, 134-135. 98 See also Nitz 1972; Kostof 1991. 99 See Crosby 1997, pp.30-31, 73-82. 100 Lynch 1960, pp.123-139. 101 Apart from orientation by morphological order in space, this is also true for toponyms. New regimes often changed toponyms in order to identify features, particularly settlements, with the new rather than with the old regime. (see par.3.4)
Most probably it also played a role in the forced re-settlement of rural dwellers in new towns in the high-period of town foundation, and certainly in other projects of forced resettlement in more recent times.\textsuperscript{103} Spatial order has always been an important instrument in forcing culture and control upon ‘wild’ nature and otherwise hostile territory, thus facilitating control by the authorities and strengthening societal and cosmological order.\textsuperscript{104}

The orthogonal grid as a system of spatial organisation has been used by oppressive governments, removing elements of personal or local identification, and thereby equalising the landscape and its inhabitants. But, ambiguously as it may be, since the regular grid essentially divides into equal parts, it can also be seen as reflecting equality among the people living in it, and therefore as a symbol of democracy.\textsuperscript{105} In paragraph 8.5.1 it has been suggested that it is possible that the regular orthogonal grid had a similar connotation of ‘ideal equality’ in the new towns of the 12\textsuperscript{th} to 14\textsuperscript{th} centuries.\textsuperscript{106}

No matter, however, what its meaning or intention was, the regular orthogonal grid plan is always a sign of planning and centralised (political) control, and it clearly demonstrates a desire for the measured apportionment of the land.\textsuperscript{107}

Up to this very moment, many new towns are built on orthogonal grid plans. In the 16\textsuperscript{th} century the radial layout became a favoured subject to theorists of urban planning and in the 18\textsuperscript{th} century the picturesque irregularly ordered spatial layout became widely appreciated. Around 1900, the orthogonal urban layout was much detested, and the same holds for the period around the 1970’s.\textsuperscript{108} But despite all that, the orthogonal grid remained the basic structure on which many, or probably most, new towns were built.

\textsuperscript{102} Chang’an: Kostof 1991, p.99; Florence: Friedman 1988, pp.211-218 and par.8.6.2; Paris: Benevolo 1993, pp.834-847. The restructuring of the street plan of Paris by Haussmann was an example that was followed in countless other cities over the world.

\textsuperscript{103} For instance, in the 16\textsuperscript{th} and 17\textsuperscript{th} centuries in the Spanish colonies in the Americas, in the 20\textsuperscript{th} century in Nazi-Germany, the communist DDR, Rumania under Ceausescu, Guatemala in the 1980’s and, more recently, with the suppression of the Kurds in Iraq under Saddam Hussain. (see AlSayyed 1992; Denecke 1992, pp.319-327)

\textsuperscript{104} See AlSayyed 1992. Lefebvre considers the colonial town and orthogonal spatial organisation mainly as instruments of production. (Lefebrvre 1991, pp.151-152)

\textsuperscript{105} The grid has, for instance, been taken as a symbol for democracy with regard to the Greek colonies, which were in fact much less democratic or egalitarian than has often been thought. (see Kostof 1991, p.39)

\textsuperscript{106} Later politicians and designers, such as Thomas Jefferson and Ildefonso Cerda (architect of Barcelona’s famous grid plan in the 19\textsuperscript{th} century) also considered the undifferentiated structure of the orthogonal grid to reflect social egalitarianism. (Hayden 1979, p.20; Kostof 1991, p.100; Miller 1977, p.12.)

\textsuperscript{107} Stanislawski 1946, p.108; Carter 1975, p.154. Planning and centralised control can also be read, of course, from other geometrically regular spatial structures, such as the radio-concentric plan.

\textsuperscript{108} For the radio-concentric structure, see pars.8.4, 10.3, and for the picturesque, see par.11.1.
11 THE PROBLEM OF PERIODISATION:
THE PERCEPTION OF TOWN PLANNING IN THE 13TH-14TH CENTURIES
IN RELATION TO THE TRADITIONAL VIEW ON EUROPEAN HISTORY

In various of the previous chapters I have challenged specific existing ideas and theories concerning the founding and planning of new towns in the period under consideration. In these cases, the material that I found was clearly not in agreement with the existing ideas and theories. Reviewing these cases on the whole, it appears that a number of the biggest problems are more or less connected to a basic problem in the understanding of history and the development of the practice of town planning. In this chapter this problem will be analysed.

In the 12th to 14th centuries, particularly between c. 1250 and 1350, many more towns were newly founded and planned than in the centuries before and after. Despite that fact, the general idea that people have (the public as well as many scholars) is that real town planning only came to be practiced from about the middle of the 15th century. It is believed that the art of town planning was reborn from recovered knowledge of antique theory and practice, during the so-called ‘(Italian) renaissance’.

So, since about the 19th century, the general idea is that the straight street, the orthogonal town plan and spatial regularity in general, are typical aspects of ‘renaissance’ or ‘modern town planning’; and, conversely, ‘the medieval town’ is regarded as an irrational and irregular (albeit picturesque) ensemble of winding streets and narrow alleys within a tightly fitting town wall, the whole having grown spontaneously. Despite the more recent publication of various studies that clearly show that this image is wrong, it is still generally adhered to.

These misconceptions are due to the selective non-representative choice and over-generalising treatment of examples of historical urban structures and axiomatic ideas concerning ‘rationality’ in the periods of the ‘middle ages’ and the ‘renaissance’ (or ‘modern times’), which are traditionally viewed as contrasting temporal entities. In this chapter the problem of periodisation, as it has been used in traditional historiography, will be discussed in the context of the history of town building. The object is to demonstrate how much the imperative vision of history as a sequence of different (style-)periods has forced the writing of history into a pattern of clichés which are largely wrong, thus distorting our knowledge of real developments. At the end of this chapter I will try to give an alternative interpretation that does more justice to those actual historical developments.

11.1 The cliché image of the ‘picturesque organic medieval town’

With the rise of ‘romanticism’ in about the late 18th century, a largely new attitude towards nature and history became widely influential. In this context the irregular layout of old towns, which mostly dated back to about the 10th to 16th centuries, became more and more appreciated as the ‘picturesque beauty’ of ‘organic growth’. These ‘picturesque’ ensembles came to be regarded as the typical examples of ‘the medieval town’, and, with this, irregularity and picturesque nature came to be seen as the main characteristics of ‘medieval’ urban form.

In this way a cliché-image was created of ‘the medieval town’.

The most famous towns and cities which have been thought of as typically ‘medieval’ since the 19th century (like Siena, Toledo, Bruges, Carcassonne, York and Prague) actually fit the cliché-image of the irregular and picturesque ‘medieval town’. In actuality, these places are particularly famous as ‘medieval cities’ precisely because of the irregularity and picturesque nature of their appearance, which invokes a sense of romanticism or historical exoticism, which has, among other things, made them very popular tourist attractions.

In the 19th and early 20th century, the many towns from about the 12th to 14th centuries that have regular layouts, were almost completely disregarded. Besides that, documentary evidence of town planning in the 12th to 14th centuries had not yet been studied. Even though this situation has changed in the past few decades, many scholars still believe in the old, basically 19th-century, view of ‘medieval’ town building, and so does the general public.

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1 For that reason I have used the term ‘high-period of town foundation’. See pars. 0.1.2, 0.2.2, 10.2, 10.3.
According to various scholars, town building was no real art in ‘the middle ages’, because they believe that it was not guided by abstract principles. But others, who were directly or indirectly influenced by 19th-century ideas on ‘the medieval town’, such as those of the highly influential authors John Ruskin (1849) and Camillo Sitte (1889), did think of it as an art, precisely because of the irregularity and picturesqueness. In a reaction against what they saw as the ‘mechanistic coldness’ of the industrial era, ruled by machines and by too much rationality, they perceived ‘medieval town building’ as still being an artistic enterprise, because they believed that in their own time it had become too much a question of purely technical considerations.

Camillo Sitte and his followers believed that the ‘picturesque beauty of the medieval town’ was a goal which was consciously being strived after, driven by an unconscious ideal of beauty in town design, one which was not personally but rather culturally defined. What Sitte and followers tried to do was to uncover the (implicit) rules lying behind this historical ‘picturesque’ town building, and to revive this ‘city planning according to artistic principles’ – which was the title of Sitte’s highly influential book. So Sitte and his companions studied old, often ‘medieval’, towns in order to find the ‘principles’ of ‘picturesque’ town building. These principles were not written down by ‘medieval man’ because (so they thought) he did not need a written theory, since he unconsciously followed the artistic tradition of his time. Although this vision has been cast off by many others since the end of the 19th century, the basic idea has survived up to this very day.

In many of the writings of the Sitte-followers one can recognise a certain sense of horror for urban plans that are too regular, but also for plans that are too irregular, as well. Following in Sitte’s footsteps, many historians of town building appear to have had some vague ideal concept of regular planning adapted to the conditions of the natural topographical situation, which seems to have been connected to the idea of man living in harmony with nature.

Another ideologically aspect of the appreciation for the ‘medieval picturesque town plan’ was that it was often more or less explicitly linked to the idea that the ‘medieval town’ was formed by some sort of socialist commune of labourers who were united by their freedom. This idea was almost generally adhered to in the second half of the 19th and first half of the 20th century. ‘Medieval’ irregularity and informality were regarded as an expression of democracy, communal culture and the resulting fine taste for art of that period: the ‘organicism’ of urban form stood for the organic form of society and social cohesion, in contrast to the regular plan form, which could only come about by being enforced by a higher institution with power over society and the landscape. Although this view has been proven
largely wrong by thorough research in more recent times, the basic idea still seems to have survived in some minds, consciously or not.

That the conception of ‘the medieval town’ as an irrational, irregular organism is certainly not representative for towns in general in what is called the period of the ‘middle ages’, has been shown in the previous chapters. For many cases the argumentation can even be turned around. One can clearly recognise a desire to give towns an orderly appearance and structure in, say, the 12th to 15th centuries. This desire for order and clarity in urban space may be seen as a reflection of the search for order in the universe and the striving for order in society as well.13

11.1.1 Confusing concepts: ‘organic’ and ‘gothic’ town building

Since the end of the 19th century it has become quite customary to use the biological term ‘organic growth’ for towns that have expanded through time in a fashion that is believed to be unplanned or ‘spontaneous’. Consequently, plan forms that look irregular, especially when the lines in the plan are not straight, have been labelled ‘organic’. This term is not only used because of the way the urban form is believed to have ‘grown’, but also because irregular and curved lines are associated with vegetable forms. This metaphor is used by (among others) Karl Gruber, according to whom ‘The medieval city-organism builds itself up like an organism of nature, like an object that grows in cells, a plant [...]’.16

The idea of Sitte and his followers, that ‘the medieval town’ was purposely built irregular and ‘picturesque’, is just as untrue as it would be to state that cities from other periods like Rome, Rabat or Rio de Janeiro were built with an irregular ground-plan on purpose. But the belief that the irregular town was not planned at all - the organic metaphor of the city that grows unguided or spontaneous - is, on the other hand, just as wrong. Cities, towns and villages are always to a large degree ‘planned’ - although it may not have been a case of integral or all-over planning. An individual house did not need to be built because the settlement had to grow; it was built because people wanted to build it. And in building it they had to obey rules, in a juridical as well as a social sense. For instance, they could not just build anywhere they wanted. The very idea of ‘organic’ urban growth overlooks the fact that land was owned, or that some lord had rights over it. Owners or holders of rights would mostly not sit passively watching a settlement grow into a town on their land. In this respect there is no difference between the ‘middle ages’ and the ‘renaissance’, as some scholars claim. And even when private persons or institutions were allowed to build at a certain place, the new building could not just be made in any possible form, since there were regulations (whether written down or not) and rules of decorum that were to be respected.19

Man builds the town, and although he may not always do this according to an over-all plan, he builds consciously. It is, nonetheless, true that town plans are influenced by the form of the pre-urban landscape: the natural relief and the course of streams have a great influence on the form of town plans. But the landscape is not just the natural landscape, it is also made by man, who took possession of the land, partitioned property and rights, made boundaries, built structures, dug canals, built dikes and so on. Towns built in this landscape must have been influenced by the natural as well as the man-made structure of this landscape in their spatial form. This goes for towns with irregular plans, but also for towns with regular plans, since their location, orientation, inclination and probably various other aspects or elements are also determined by the older topographical situation.20 In most cases, this is no different at present: when a town is planned and built its structure will always be determined by the existing landscape, at least up to a certain extent.

12 Although before the 19th century a town was a defined space of relatively great freedom for its citizens, its social structure remained very much hierarchical and it certainly was no proto-communist egalitarian society - apart from a special case like the Hussite town of Tabór in 15th-century Bohemia. (See Mumford 1961, p.216; Heers 1990, p.495; pars.0.4.1, 9.9, 8.3.2)
13 See pars.6.5, 8.6.
14 The word ‘spontaneous’ has been used by many authors since the late 19th century. (for instance Lavedan & Hugueney 1974, p.1)
16 ‘Der mittelalterliche Stadtzustand baut sich auf wie ein Organismus der Natur, wie ein in Zellen wachsendes Gebilde, ein Pflanze [...]’ (Gruber 1952, p.44)
18 For instance: Lefebvre 1991, p.272.
19 Meckseper 1982, p.64.
20 See pars. 5.1, 9.6.2.
The idea of organic growth is also elementary in Enrico Guidoni’s use of the term ‘città naturale’ for the ‘curvilinear city’ of the 12th-13th centuries, in his 1970 book Arte e urbanistica in Toscana, but here it is associated with the flowing forms of ‘gothic’ visual arts. According to Guidoni, the ‘città naturale’ is formed by something that may be regarded ‘[…] as a natural law of development and growth, in a certain sense analogical to that which rules some natural phenomena.’ This would apply especially to the curvilinear aspect of the streets of the ‘città naturale’, which are compared to the curvilinear lines of gothic painting and sculpture. The landscape, the relief and pre-existent paths play a role in the layout of the curvilinear streets, and so do concerns of traffic and defence; but what would be most important is ‘the collective emotional sense of urban space’. Guidoni considers the curvilinear lines as willfully designed, just as in the arts of painting and sculpture, but not rationally so. The curvilinear forms are like the emotions of the artist, who does not just design a personal document, but who follows the spirit of the society he lives in. Taking society as an organism, and the form of the city as illustrative of its structure, the planner would think of the ‘città naturale’ as an organic entity.

The chapter with the title ‘La città naturale’ in Guidoni’s book is, revealingly, followed by a chapter titled ‘L’intervento razionale’. For, according to Guidoni, it was in the 13th century that, following the new rational Aristotelian thought of St. Thomas, the intuitive and emotional was won over by the rational. He claims that by that time urban form became theorised and consequently planned on a more grand scale.

A similar idea has been expressed by Spiro Kostof: ‘And whereas its neighbour and mighty rival Florence had begun to campaign for streets that were ‘pulchra, amplae et rectae’ -beautiful, wide and straight- in proto-Renaissance solicitude for visual clarity, and also in the hope of re-establishing the orthogonal lines of Roman Florentiae, Siena cherished the aesthetic of gothic curves. […] it aestheticized the flowing curves in an equivalent of tracery or the rhythmic drapery folds of the gothic artist.’ So, the town plan of Siena is compared to the curvilinearity of ‘gothic’ tracery or the folds of sculpted or painted drapery, whereas the straightness of streets is believed to be something typically proto-renaissance. Curvilinearity, organicism and ‘gothic’ are thus contrasted with rectilinearity, rationality and ‘renaissance’. This idea is not the invention of Guidoni or Kostof, but is in fact at least a century old. Joseph Gantner, for instance, used the term ‘Roman tradition’, for town plans with straight lines, while in his opinion ‘gothic town building’ could never be straight-lined or regular, because the ‘gothic town’ was essentially ‘irrational’ and determined by the landscape.

Since the 19th century, many scholars have thought that they could discern a typically ‘gothic’ sort of town building. It appears, however, that there were very different ideas about just what the typical aspects of ‘gothic town building’ would be. The problem of different views on ‘gothic town building’ has already been encountered in chapter 2. In reaction to the romantic ideas of (among others) Victor Hugo, who was a great lover of what he thought was ‘medieval Paris’, Félix de Verneilh, one of the first students of the regular bastide, wrote in 1909 that ‘the theory that asymmetry and irregularity were deliberately incorporated into architectural design in the 13th century: it is more a matter of gradual development, rather than of revolution. (see par.10.2.2)

Guidoni 1970, pp.85-102. It remains unclear why Guidoni thinks the emotions of the individuals and the collective led to curvilinear forms instead of other possible forms, but similar theories have been propounded by other authors for ‘gothic’ sculpture and painting. The general idea of the forms of art works following feelings that were collectively held in a certain period comes from the idea of a so-called ‘Zeitgeist’, which was especially widely accepted in the 19th century. (see below, n.91)

Since the 13th century, the structure that can also be found in the ‘gothic cathedrals’. (Brinckmann 1920, pp.11-12) Gantner used the term ‘romanesque’ for irregular urban structures. (Gantner 1925; 1928.

Kostof 1991, pp.75-77. The same idea is formulated by Guidoni. He writes that the willful rectifications of Senese streets, which are known from contemporary communal documents (see par.8.2.2; Braufer 1953, p.102, n.32), can be disregarded because they concern only minor adjustments. (Guidoni 1970, pp.90, 252)

On the metaphorical comparison between gothic and natural organisms, see Niehr 1999, pp.145-157. 29

Gantner 1945; 1928.

De Verneilh, L.V. (1875), p.29. See par.2.10.3; Pujol 1970, p.96.

One of the few exceptions was the German art historian A.E. Brinckmann, who followed De Verneilh in this, arguing that the bastides have the same clear and regular spatial structure that can also be found in the ‘gothic cathedrals’. (Brinckmann 1920, pp.14-17) Brinckmann used the term ‘romanesque’ for irregular urban structures. (Brinckmann 1920, p.9, and ch.1) Lavedan and Hugonnet (1974, p.6) also used this term, but specifically for pre-12th-century towns with more or less round outlines.
towns’ and that the ‘irregular places of the Middle Ages were definitely designed on sound, artistic lines’.32

There were also other individual opinions of what the typical ‘gothic’ town would look like. According to Werner Müller for instance, the gothic town plan is divided into four quarters by the central crossing of its two main streets. In his opinion, this implicitly followed from the ‘gothic cosmology’ and ‘gothic planning rules’.33

The examples discussed above clearly demonstrate that there is no agreement between the various scholars on what ‘gothic’ town building is. Therefore it is only sensible that the term should no longer be used by most scholars with regard to urban form. There are, however, still exceptions. Pleßl and Koter and Kulesza, for instance, use the label ‘gothic’ for the regular geometric town plans of the late 12th to 15th centuries.34 All in all, the ‘gothic’ case clearly illustrates the confusion over the history of town planning and its classifications into style periods.

11.2 The cliché image of ‘renaissance town building’

The cliché image of urban form of the ‘medieval town’ has come about as it is contrasted to urban form in ‘the modern period’. This ‘modern period’ is considered to have begun in Italy in the 15th century with the ‘renaissance’. An example of the influence of this vision on historical writing may be seen in this quote from the well-known art historian Giulio Argan: In the ‘middle ages’ ‘the city appeared as a closely packed aggregation of houses and craftsmen’s shops situated around an area of common interest, where the cathedral and the municipal palace were to be found, and where markets and fairs were held. The streets were usually narrow and crooked, with a concentric or radiocentric pattern.’ But ‘by the end of the 16th century the city had acquired a totally different order and appearance’ according to ‘the humanist concept of the city.’ Argan does not explain what this concept was, but he does describe its supposed consequences for urban form: ‘The great innovation in the process of urban development was that, beginning in the 15th and 16th centuries, structural changes in the city were brought about by the will of the prince and the carefully studied plans of architects.’35 From now on, so he writes, new towns were built, existing cities were rationally enlarged and existing structures were regularised. Argan presents this as though it were all very new and typically based on the ‘humanist concept of the city’. However, as has been demonstrated in previous chapters, this is simply not correct.36

Argan even goes so far as to write that: ‘The idea of the value of the city, which began and was affirmed during the Renaissance, explains the ex novo rise of certain urban communities.’37 This statement is very problematical, because it suggests rather the opposite of the historical reality, at least as far as is known. As has been described above, hundreds of towns were newly founded and newly built in the high-period of town foundation. Due to deteriorating economic circumstances and such factors as plagues and wars, the founding of new towns became much less frequent after the first half of the 14th century. For Europe in general, it would take about five centuries before a comparable level of activity in new town building was to be seen. So, notwithstanding the new attention paid to town planning in the theoretical writings of the 15th-17th centuries, the actual practice of town planning lagged behind considerably.38 Apart from that, it must be considered that many a town was actually newly created in this period, just like many new town extensions, was not planned according to the famous radio-concentric models given in the theoretical treatises (see fig.8.6), but rather followed the simple grid plan that was also used in the new towns of the preceding centuries.39 (fig.11.1) Sometimes, new towns even came to be built following quite irregular patterns.40 (fig.11.2)

33 Müller 1961, pp.53-92.
36 The same misconceptions can be found in countless other publications (for instance: Gutkind 1971 (vol.VII), pp.31, 222; Stereh 1968 (see par.11.4); Broadbent 1990, pp.3-49; Pearson & Richards 1994, p.38), but much to my amazement the case is no different with a recent and important standard work like The Dictionary of Art (1996, vol.31, p.712)
37 Argan 1966, p.104.
40 For instance: considering their regular orthogonal structures, Vitry-le-François in France (1545), Londonderry and Coleraine in Ulster (early 17th century), Oslo in Norway (Christiana, 1624) and Göteborg in Germany (rebuilt after 1786) could just as well have been built in, say, the 13th century. (see par.10.1.5 and 10.3; Koster 1991, p.111; for Britain: Bell & Bell 1965, pp.46-49. See par.s 1.5 and 10; Koster 1991, p.111; for Britain: Bell & Bell 1965, pp.46-49.
41 For instance: considering their regular orthogonal structures, Vitry-le-François in France (1545), Londonderry and Coleraine in Ulster (early 17th century), Oslo in Norway (Christiana, 1624) and Göteborg in Germany (rebuilt after 1786) could just as well have been built in, say, the 13th century. (see par.10.1.5 and 10.3; Koster 1991, p.111; for Britain: Bell & Bell 1965, pp.46-49.
42 Müller 1966, p.104.
43 Müller 1966, p.104.
44 Müller 1966, p.104.
46 Müller 1966, p.104.
Such irregularities in town building projects from about the middle of the 15th century on are, however, often described as ‘medieval’ relicts in architectural practice. For instance, Nils Ahlberg wrote about Swedish new towns of the 16th century: ‘The early town plans were irregular, medieval in type, and adapted to the topography of the site.’ Similarly, Spiro Kostof wrote: ‘Even after the entrenchment of Renaissance design theories, a backward-looking urban aesthetic stayed close to the surface, especially in the colonial experience. The first Spanish towns in the New World [...] were not gridded [...] The French tolerated cities like Quebec which grew, as John W. Reps put it, ‘like a replica of some medieval city’. 

In this way the ‘middle ages’ are still blamed for any non-rational or non-geometrical planning in later centuries and even on other continents. This example demonstrates clearly how persistent the old ideas of ‘medieval’ and ‘modern town building’ are: Kostof certainly knows of rational and geometrical town planning in the ‘middle ages’, as can be read in his interesting book The City Shaped, but despite that he keeps adhering to the old cliché images.

The cliché images of ‘medieval’ and ‘renaissance’ town building are so strongly impressed in the minds of many people that they sometimes require the strangest logical twists in order to keep them intact. A good example is the case of the well-known passage in Leon Battista Alberti’s De re aedificatoria (1452) in which the ideal layout of streets in cities and towns is discussed. Alberti wrote, ‘when the road reaches a city, and that city is renowned and powerful, the streets are better straight and very wide, to add to its dignity and majesty. But with a settlement or a fortified town [...] it is better when the roads are not straight, but meandering gently like a river flowing now here, now there, from one bank to the other. For apart from the fact that the longer the roads seem, the greater the apparent size of the town, no doubt it will be of great benefit in terms of appearance and practical convenience, while catering to the requirements of changing circumstances.

And it is no trifle that visitors at every step meet yet another facade, or that the entrance
to and view from every house should face directly onto the street’.46 This passage has been commented on many times in writings about the history of town building. Scholars have always found it strange that Alberti advocated winding streets for towns, because winding streets are regarded as typically ‘medieval’ (as opposed to ‘renaissance-like’) and Alberti is generally considered to be one of the very first ‘renaissance men’. According to the cliché-images, Alberti should only have advocated the straight street. Alberti’s vision was explained, however, by postulating that he was striving for renewal, but couldn’t help being influenced by the art of his time, which was still largely ‘medieval’.47 The same goes for Alberti’s recommendation for a labyrinthine street-system of narrow, short, curved and dead-end streets, which follows the passage on the winding street: this too has been interpreted as a ‘medieval relic’ in Alberti’s theory on town building, which is otherwise considered as being typical for a ‘renaissance’ work.48

This explanation is, however, wrong. Of course Alberti was inspired by what he could see around him in his time; but advocating the winding street for reasons of decorum, aesthetics and spatial sensitivity was actually something very new, and possibly may have even been his own invention.49 Many new towns and

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48 When these passages are considered in the literature it is mostly in this way (see the previous note), but many (probably most) scholars who have treated Alberti in an art historical context seem to rather have disregarded these problematical passages in the De Re Aedificatoria, so that their vision of Alberti as a revolutionary renaissance theorist would not be disturbed or get too complicated. (cf. Germann 1976, pp.13-14)
49 With regard to the relevant passages, Alberti may have been inspired by Aristotle’s Politics, however. Aristotle advises the combining of straight streets and winding streets
town extensions were laid out with straight streets in the centuries before Alberti. In the 13th and 14th centuries, existing urban streets were sometimes even widened, straightened and regularised. 51 So, it is clearly wrong to conceive of the ‘medieval street’ as being essentially un-straight. Crooked and winding streets certainly existed, but there is no proof at all that these streets were intentionally planned as such. 52 Hence, one should consider Alberti’s plea in favour of the winding street as something new, and his recommendation of straight streets for cities must be regarded as a traditional element, i.e., the precise opposite to what most scholars have argued up to now. 53

The same misunderstandings based on the cliché-images of ‘medieval’ and ‘renaissance’ town building can be recognised, but then the other way around, when scholars label regularity and ratio in pre-15th-century town building as ‘a sign of the coming renaissance’. For instance, the terre neuve fiorentine (see ch.3) are mostly regarded as not really being a product of their own time. In the literature, the design of the regular orthogonal plans of these towns is often described as being either based on examples of the Roman past, or as proto-types of the coming ‘renaissance’. Many scholars have opted for the latter option: the spatial layout and the basic idea of satellite-towns of the city of Florence were considered to be essentially foreshadowing the ‘artistic revolution’ that was to come later on. 54 Of course, this also has to do with the fact that this ‘renaissance’ is generally considered to have begun in Florence, albeit about a century later.

This ‘proto renaissance’ idea is, however, nonsensical and quite useless for the study of history. The regular orthogonal planning of newly founded towns was not just a phenomenon typical of the Florentine sphere of influence, but could be found almost anywhere in Europe, although generally not in as regular a form as we see in the terre neuve. Moreover, more or less similar new towns and even cities were also created outside Europe, especially in Asia. 54 (see fig.8.10)

Similarly, scholars have tried to connect the regularity in many other town building projects of the 12th to 15th centuries (as well as in town building of that period in general) with ‘renaissance theory’, thus expanding the idea of a ‘proto-renaissance’. 55 This idea is, of course, a teleological construction a posteriori, which cannot possibly be a reflection of contemporary thought, essentially denying to the ‘middle ages’ any sense of order and regularity, rationality or even the ability to plan. 56 Therefore, the concept of ‘proto-renaissance’ or of historical events or artefacts foreshadowing the ‘renaissance’ is of no use for arriving at a better understanding of history. Actually, it only blurs our view of historical development.

Another aspect that should be considered in this context, is that ‘the closely packed aggregation of houses and craftsmen’s shops’ which Argan, following the picturesque cliché, describes as typical for ‘the medieval town’, often has largely come about only in later centuries. The ‘close packing’ and the congestion often occurred from the 16th to 19th centuries. The vast and expensive fortifications, which were built in this period, often acted as a strait-jacket within which the cities and towns became more and more densely populated and built over. This led to high land values, speculation, high rents, overcrowding, slum-housing and bad hygienic conditions. While standards of living-space and hygiene often had been relatively high in the previous centuries, they could often no longer be maintained by this time. 57

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51 For instance: Stanislawski 1960, pp.117-118; Franceschetti 1959, pp.53. See Braunfels 1953, pp.245-265; Kruft 1985, pp.380-383), Reinhard Baumeister (Stadt-Erweiterungen in technischer, baupolizeilicher und wirtschaftlicher Beziehung. Berlin, 1876) and most of all Camillo Sitte (1889, see par.11.1; Collins 1965, passim, esp. pp.26-34, 46, n.38)

52 As discussed in par.8.6.3, the written sources clearly prove that, in the centuries before Alberti’s time, straight streets were highly admired and non-straight streets were despised.


### 11.3 An alternative vision of the historical development of town building

As described in the Introduction, the number of new town foundations decreased strongly after the middle of the 14th century and, as Leonardo Benevolo put it, ‘The mysterious art of designing a town, unlike that of designing a building, was forgotten before it could be theorised in drawings and in books.’ What did come to be theorised in ‘renaissance’ writing was, on the one hand, the utopian community, mostly in the form of a city, in the tradition of Plato and Aristotle, and, on the other hand, the physical city, with particular attention paid to new fortification techniques. The early treatises by Alberti (De re aedificatoria, 1452) and Filarete (Trattato d’architettura, 1460–64) combined these two genres up to a certain extent, but later the genres became clearly separated. Treatises like those by Francesco di Giorgio Martini, Leonardo da Vinci, Pietro Cattaneo and Vincenzo Scamozzi have strongly contributed to the formation of the cliché of the ‘renaissance city’ as a regularly laid out structure with a polygonal outline and a radial pattern of straight streets. But it should be considered that there are also less famous treatises, like those by Albrecht Dürer (1527) or Simon Stevin (1548–1620), that contain model town plans that are much more pragmatic and stand much closer to the regularly laid out new towns of the 13th to 15th centuries. Especially the Dutch theorist Stevin may have had a considerable influence on actual town building practice in northern Europe in the 17th century, possibly more so than the Italian authors who have become so famous in art history.

As mentioned above, few new towns were actually built following the radio-concentric plans that dominate the cliché image of the ‘renaissance’ or, for that matter, the ‘baroque’ town. Most of the new towns that were built from the mid-15th century onwards, actually had an urban form that is closer to the new towns of the previous centuries than to the famous illustrations to be found in the theoretical treatises. The new theories put forward in the treatises did influence the new layout or restructuring of urban units within existing cities, such as the cathedral piazza in Pienza, the Strada Nuova in Genova, the Campidoglio in Rome or the Place des Vosges (formerly Place Royale) in Paris, but the main influence they actually had on practice concerned the construction of fortifications of a completely different type than those built in the previous centuries. On other points, the actual Western town-building-practice from the 15th to 17th century is often not in agreement with the most famous examples found in the contemporary theoretical treatises.

Alberti’s treatise De Re Aedificatoria from 1452 is the first source that explicitly speaks of the architectural principles of its time. Indeed, it is the first known treatise on the subject since Vitruvius’ De Architectura libri X (its main model), which is systematic in the treatment of different elements of architecture, including town planning. This is, in fact, the main reason why Alberti came to be regarded as the herald of the ‘renaissance’. However, it should not be forgotten that Alberti’s ambitions with this work, as with his other writings, were mainly literary. The subject matter was very theoretical and not very practical, and the style (in Latin) was very sophisticated. So for actual architectural practice the book would not have been very

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58 See paras.0.15 and 10.3.
59 Benevolo, 1980, p.478. Significantly, this is in almost complete opposition to the old idea of (among others) Gantner, who, some decades earlier, was still completely fixed on the ‘picturesque’ in ‘the medieval town’ and therefore had a different point of view: ‘...just the coming of the Renaissance, the irrational in town-building died under the new theorization.’ (Gantner 1988, p.95)
60 Rahmsdorf 1999, pp.48–50.
61 Bauer 1965, pp.24–131; 133; Rahmsdorf 1999, pp.9–63; See par.8.4.
65 See above, n.39 and par.10.3.
66 Gutkind (1972, pp.26, 56) for instance, writing on town building in East and Central Europe, puts it as follows. From the second half of the 16th century, the planning of new towns, particularly many of which were built in eastern Europe, was increasingly coming under the influence of Italian ‘theoretical designs’. This was partly caused by the migration of Italian craftsmen and engineers to the north. ‘However, the number of new cities actually modeled on theoretical schemes was relatively small. It may be more appropriate to speak of the introduction of Renaissance features into traditional medieval layouts.’
67 Benevolo 1993, pp.578–581, 615–617, 654, 703–705; Morris 1972, pp.135–131, 138–143; Gutkind 1970 (vol.V), pp.262–274. Pienza has often been described as ‘a typical renaissance new town’ built ‘by the humanist pope’ Pius II. (for instance: Mack 1978; Chant & Goodman 1999, p.173) In reality, however, only part of the town, most notably the piazza on which the cathedral stands, was redesigned, more or less according to the new architectural forms that were current at the time, by the Florentine architect Bernardo Rossellino, in 1459–64.
69 It is also often regarded as a typical ‘renaissance’ aspect that Alberti was strongly inspired by Vitruvius. This was, however, not so new as is often thought, since Vitruvius’ manuscripts were already held in high esteem in the previous centuries and were often copied. (Klimsky 1967) In fact, the idea of the ‘renaissance’ as opposed to the ‘middle ages’ was partly inspired by the belief that Vitruvius’ treatise was only rediscovered in 1416 by the humanist Poggio Bracciolini (who, by the way, was born in the Florentine new town of Terracina). In fact, he did not really rediscover the treatise, but his contribution is that he drew the attention of the Florentine humanists to the various Vitruvius manuscripts that were held in different libraries. (Klimsky 1967, p.36)
helpful. To understand this, it should be considered that Alberti belonged to the circle of humanists, mainly based in Florence in the 15th century, whose main interest was in ancient literature and, particularly, in the classical Latin language. This has often been the case throughout history: many a time theoretical works are not written in order to contribute to actual practice, and therefore practice often does not follow written theory.

Nevertheless, the theoretical treatises on town building are mostly taken as the main source of information on the subject in general. Historians of town building often seem to have attached more importance to the written sources than to the actual towns that were created. I believe that this has led to the problem we are dealing with here: the theoretical treatises containing town planning theory of the 15th to 17th centuries have led to the idea that rational reflection on town building was both innovative and typical for that time; while vague notions, romantic misconceptions and the absence of written sources on contemporary town building principles in the previous centuries have led to the idea that town building had been irregular, irrational or even unguided in that period, notwithstanding all evidence to be seen to the contrary in the actual towns themselves.

In my opinion, the concept of a true ‘renaissance’ in town building is only based on the fact that scholars began to write theoretical treatises on architecture (and particularly town building and fortification) in the 15th and 16th centuries. The emergence of these treatises does not mean, however, that there had not been a rational practice of town building in the centuries before or, for that matter, in other parts of the world where there was no ‘renaissance’. And the absence of clear written sources for town building theory in the previous period, apart from Eiximenis’ ideal city, certainly does not mean that the rational town building practice in that time was a mere ‘proto-renaissance’, as it has often been typified.

When the actual practice and the actual landscape of towns that Europe has become are considered, it is rather senseless to make a sharp distinction between ‘medieval’ and ‘renaissance’ town building. In reality, there was a continuous development rather than a revolution.

Regarding the material itself, there is, however, one important aspect of discontinuity in the history of town building in Europe. This break, however, does not mark a difference in ‘style’, but only in quantity. Looking at the sheer numbers of newly built towns, it is plain to see how the founding of new towns halted in most regions of Europe by the middle of the 14th century, when economic depression and great disasters like the Black Death combined to cause a drastic decrease in population and wealth, the effects of which would last for several centuries. Eventually, the number of new towns created in the 13th and first half of the 14th centuries would only be equalled in the 19th and 20th centuries. Looking at the actual material, this discontinuity in quantity is infinitely more relevant than the supposed differences of ‘style’, the fixation on which is mainly the product of what we might call ‘art historical tunnel vision’.

11.4 The problem of periodisation into style periods

The cliché concepts of ‘medieval town building’ and ‘renaissance town building’ are problematic because they are, basically, constructs of a hundred years or more ago, and were largely founded on ideologies of their time rather than on thorough historical research. The vision of history as a sequence of different periods with their own particular character or style, such as ‘medieval’, ‘gothic’ and ‘renaissance’, tends to force our perception of historical events and developments into a pre-determined form. This can lead to prejudices, like the one expressed by the Dutch scholar Arthur Steegh: ‘With many medieval settlements that could be seen as expressions of planning, I get the feeling that we should see the regular form, in case of absence of written sources that prove planning, as efficiency [rather than planning]. This might be an expression of rationality, a label which we are supposed to put on our settlement-types only after the breakthrough of the Renaissance.’ Steegh then goes on to claim that the rectangular outlines and orthogonal grids laid out in the ‘middle ages’ are inherent to human...
settlement, as opposed to being wilfully planned, and concludes that ‘Planning in advance seems [...] mainly to be an idea applicable to our post-Renaissance [...] way of thinking. For the Middle Ages we should [...] try to place ourselves in the medieval world of thought. From there we should reconsider if ‘planning in advance’ could possibly have a place in it.’ Obviously, the old clichés of ‘middle ages’ and ‘renaissance’ make it very difficult to look at the evidence without prejudice.77

In reality, however, there is not such a sharp distinction between ‘medieval’ and ‘renaissance’ (or ‘modern’) town building practice: it was rather the new theoretical treatises and the new techniques in military fortification that made up the main difference.78 The problem here is that the history of the planning and building of towns has been incorporated unreflectively into the study of general history, and especially that of art, architecture and the philological study of art theory. In this way, a periodisation has been forced on the history of town planning, although the periods barely fit its actual development. So, the description of the actual developments had to be forced into the strait-jacket of the presupposed periods, by which they have lost their original shape. The periods have been presented as being contrasting and progressing towards the goal of our present situation (as we like to see it). Thus, it had to be invented (or rather was it just taken for granted) that ‘medieval town building’ was irrational, unguided or even accidental, while town building since ‘the age of humanism’ was in fact town planning: rational and well-founded in a philosophical and aesthetical sense.79

11.4.1 The concept of ‘the renaissance’ as a period

In the traditional writing of Western history, there have been many ‘renaissances’. Most important amongst these is the ‘Italian renaissance’, which was centred in Florence and, secondarily, in North and Central Italy in the 15th and 16th centuries, and which is regarded to have touched just about every aspect of human existence. But adapted from the Italian ‘model’, other ‘renaissances’ have been recognised by scholars. To name just a few, we have a Constantinian renaissance, a Byzantine, a Carolingian, an Ottonian renaissance, a Florentine proto-renaissance, a renaissance of the 12th century, various regional renaissances like the Irish, the French and the northern European, but also wider concepts like the Christian renaissance or the scientific renaissance, or, on the other hand, personally inspired revivals like the Arnolfian renaissance, etcetera. At first sight, it seems as though ‘renaissance’ is just a general historiographic term, rather like the word ‘revolution’. But when the use of the term is regarded more closely, it becomes clear that it just about always refers back to the ‘main event’, the Italian renaissance: the concepts of the renaissances just listed are mostly related in some way or another to ‘the renaissance’.80

The Italian renaissance, however, is a concept, or rather a collection of concepts, that has come into being in the course of time and which is rather complicated. When the term ‘Italian renaissance’, or just ‘renaissance’, is used, it mostly is not explicated exactly what it stands for: the configuration of ideas is often implicitly assumed to be generally known.

The basic point in the concept of the ‘Italian renaissance’ is that there was a feeling among Italian artists, patrons and authors in the 15th and 16th century that the arts were ‘restored’ in their home city or region, after having been in a bad state for several centuries. The metaphor of rebirth in the arts was introduced in the 1550’s by the biographer of mainly Florentine artists, Giorgio Vasari, who came up with the term rinascità in the 15th and 16th centuries, and which is regarded to have touched just about every aspect of human exist-

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77 ‘Bij vele van de middeleeuwse nederzettingen die als uitingen van planning beschouwd zouden kunnen worden, bekruipt mij steeds het gevoel dat we de regelmatige vorm, bij absenteie van schriftelijk bewijs voor planning, eerder kunnen zien als een uiting van doelmatigheid. Dit is wellicht een uiting van rationaliteit, een eitje dat we geacht worden pas na het doorbreken van de Renaissance op onze nederzettingssystemen te kunnen plakken.’ ‘Planning vooraf lijkt [...] vooral een idee te zijn dat van toepassing is op ons post-Renaissancestisch [...] denken. Voor de Middeleeuwen zouden we ons [...] moeten proberen te verplaatsen in de middeleeuwse denkwêrld. Van daaruit moet bezien worden of een begrip als ‘planning vooraf’ er überhaupt u iter plaat- in kan hebben.’ (Steegh 1988, pp.140-141)

78 Similar examples of how the idea of history as a sequence of style periods shapes the interpretation of historical matter, in this case architecture, can be found with, among others, Bucher (1972, p.44) and Müller who has problems understanding the highly regular forms of Viking forts (see fig.8.4) because, in his opinion, ‘[…] diversité, irregularity and motleyness are the typical features of the Middle Ages, and not mathematical regularity.’

79 For instance: Argan 1965, p.15; Rahmsdorf 1999, passim.

80 As well many of the critical terms have been found in the still popular vision of architectural planning in general, as brought forth most of all by Rudolf Wittkower in his Architectural Principles in the Age of Humanism. (1949). He contrasted ‘medieval’ and ‘renaissance design’, as the former’s being based on irrational, geometrical proportions, against the latter’s rational, arithmetic (musical) proportions. At present, however, this vision of contrasting periods in design methods seems no longer valid, or is at least highly exaggerated. (see par.6.5; Mitrowicz 2001)
that Vasari despised.\textsuperscript{81} This period, lying between the period of classical civilisation and the ‘modern’ period, was later identified as ‘the middle ages’, a term first used by Cellarius in the 17th century.\textsuperscript{82} Since then, the ‘renaissance’ has come to be seen as a period in history, generally characterised by the conscious effort to revive (elements of) the classical culture of the Greek and Roman civilisations, which is contrasted with the previous period of the ‘middle ages’.\textsuperscript{83} With that, the periods of the ‘middle ages’ and the ‘renaissance’, (or, for that matter, ‘modernity’) have come to be regarded as historical truths.\textsuperscript{84}

Originally the idea of the ‘renaissance’ was limited to the history of art. But gradually, the concept of the ‘renaissance-period’, has come to embrace many more elements of other disciplines in historiography: historians have made the whole history of European culture fit within the widened concept. Sometimes, these historians have had to distort either their subject or the general concept in order to make things fit. Rather than challenging the concept, adaptation was sought in order to keep things clear and not too complicated, and to make their point acceptable. Thus, historical material was interpreted in the light of the concept, rather than being approached with a more open mind.\textsuperscript{85} As I have tried to show, the historians of town building have, for the most part, also sought to confirm the traditional concepts of the different periods, because they started out, often unconsciously, with the idea of distinct periods, and therefore tended to disregard or distort elements that do not fit in to that idea, rather than to question the basic premises of it.

The supposed sudden rebirth of rational town planning is a fiction that is part of the general concept of the ‘renaissance’. Instead of this sudden rebirth, there actually was a long development, sometimes rapid and sometimes slow, with setbacks and dead ends along the way. This is no different with the other aspects that are traditionally ascribed to ‘the new civilisation of the renaissance’: there was no sudden rebirth of individuality, rationality, science or art, nor even of the fascination for ancient civilisation. It was all a question of gradual development. And although the cultural life in Florence in the 15th and 16th century certainly played a very important role in this development, modernity was not invented there and then, as many tend to believe or implicitly assume.

In reaction to the cliché image of ‘renaissance’ town building, Mumford wrote that the ‘renaissance’, especially when it comes to town building in practice, is more of a period of transition between the ‘middle ages’ and ‘baroque’ planning, than a period in its own right. In his opinion the real renascence was rather in the 12th century.\textsuperscript{86} I believe that this is partly right, but it does not solve the problem, because the problem is, in my opinion, the very periodisation into style periods itself.

\textbf{11.5 Conclusion}

In their need for order and clarity, people have constructed a vision of history in which the ‘middle ages’ are magical, superstitious and irrational (or even barbaric, dark and chaotic), up until the revolution of the ‘renaissance’ brought rationality, order and human self-awareness.\textsuperscript{87} This is more or less what Jacob Burckhardt wrote in 1860, and in fact this is what many teenagers are still being taught in school.\textsuperscript{88} And

\begin{itemize}
\item It is significant that Vasari, having nationalist Florentine ambitions, gave all credit for the salvation of the arts to Florentine artists of the 15th and first half of the 16th century. (Medema 1989, pp.37-39).
\item Van Kesteren 2004, p.388.
\item So, ‘renaissance’ became the label of a period of time, rather than the term for the reintroduction of specific aspects in the arts, which was the original meaning of the term. This is particularly the result of the momentous influence of Jacob Burckhardt’s Kultur der Renaissance in Italien, which was published in 1860. In this book the ‘renaissance’ is described as the starting point of modern western society. In the ‘renaissance’ man would have rediscovered his individuality, doing away with the naive and savagery of the ‘middle ages’, and thus achieving a secular and objective worldview. (Van Dorp 1983, pp.2-5). Since its publication, Burckhardt’s concept of the ‘renaissance’ as a coherent historical period has received severe criticism on just about every possible point but, despite that, the idea is still almost generally accepted.
\item Van Dorp 1983, pp.5-59; Medema 1989, p.185.
\item It appears that the concepts of separate periods of different character and ‘the renaissance’ as a period of great change are attractive to many people because they find it pleasant to think that ‘the renaissance’ ended the ‘barbarous middle ages’ and returned to all people of the Western world the light of ancient civilisation and faith in man rather than in higher powers and rationalism instead of tradition and superstition. ‘The renaissance’ is regarded as separating ‘the modern world’ from the uncivilised past.
\item Of course one should be aware of the fact that this can only be relative: history cannot speak for itself and no man has an entirely ‘open mind’.
\item Mumford 1967, pp.345, 347-348. For more or less similar views, see also: Max Ehler, cited in Tavenor 1978, p.24; Morini 1963, p.124.
\item It must be acknowledged, however, that there have also been alternative trends in Western thought since the 19th century in which the ‘middle ages’ have been regarded positively because they are identified with (supposed) proto-communism, naturalness, mysticism, magic and, of course, the picturesque town. An ideal, containing many of the aspects that people miss so much in modern society, is projected onto the past; back then, when everything was simple and in harmony, and nature was still pure and unpoluted (the nostalgic paradisical component), when there were still mysteries, adventure and heroism (the component of historical exoticism). The basic belief is that the world was not yet ruled by cold, mechanistic rationality: the people were happily united in their religion and culture, and intuitively acted accordingly, thus creating harmonic and unaffected beauty.
\item On Burckhardt, see above, n.83.
\end{itemize}
higher level in many regions of Asia than in the West until about the 18th century. This process has brought us, among many other things, writing, canonised language, money, law, bureaucracy, nation-states, democracy, mathematics, science, standard measures of time, weight, distance, etc., and the ordering of urban space. All these things have gone on in the ‘middle ages’ as well as in ‘modern’ times, and all have undergone more or less radical changes and had interruptions along their path. But it is of no concern to give all, or so much, of the credit for progress to a short period or movement (active in a very limited region) which has been baptised the ‘renaissance’, and to deny it to the preceding centuries. In a certain sense, the vision of the ‘middle ages’ is comparable to the old denigrating view of non-western cultures: they too did not develop into a ‘modern’ civilisation. But in these cultures urban form could also be regular and intentionally planned, so that is not comparable to the old denigrating view of non-western cultures: they too did not develop into a ‘modern’ ‘renaissance’, and to deny it to the preceding centuries. In a certain sense, the vision of the ‘middle ages’ is comparable to the old denigrating view of non-western cultures: they too did not develop into a ‘modern’ civilisation. But in these cultures urban form could also be regular and intentionally planned, so that is not comparable to the old denigrating view of non-western cultures: they too did not develop into a ‘modern’ ‘renaissance’, and to deny it to the preceding centuries. In a certain sense, the vision of the ‘middle ages’ is comparable to the old denigrating view of non-western cultures: they too did not develop into a ‘modern’ civilisation. But in these cultures urban form could also be regular and intentionally planned, so that is not comparable to the old denigrating view of non-western cultures: they too did not develop into a ‘modern’ 

Above I have limited the problem to the (style-)periods of ‘middle ages’, ‘gothic’ and ‘renaissance’. But the same actually also goes for other terms, like ‘mannerist’, ‘baroque’ or ‘modern’, whether specifically in the context of town building or not. Many scholars use the terms, but do not make clear what they precisely mean by them and, if they do, it often means that most of the actual town-building practice from the periods they have in mind would not be covered by the term they choose to use. The terms for the different periods have become ‘contaminated’ with connotational meanings. Meanings which are often not explicitly expressed, and which are therefore very subjective. Thus, people in general and historians of town building as well, may understand very different things by the terms ‘romanesque’, ‘gothic’, ‘mannerism’, ‘postmodernism’, etcetera.

My argument is that there are great misconceptions with regard to the development of town building through history, which are caused by a fixation on the clichés inherent in the canonical historical periods. I believe that our view of real developments is actually blurred by the careless use of period-classification. Instead of being the classifying system that originally was meant as a tool, a model, for the study of (art-) history, the classification into historical periods has increasingly come to be seen as a historical reality.

Basically there are four different objections to the use of the canonical style-periods, in the history of town building as well as in history in general. The first problem is that in between the different supposed periods ruptures in time tend to get emphasised at the expense of continuities, and differences are emphasised at the expense of agreements. Secondly: people tend to give more attention to the features that are believed to be typical for a certain period, rather than to look at the whole or to a-typical features. Within periods unity of style is presupposed and demanded. This often brings with it the idea of a Zeitgeist, which is a concept created to justify the casting out from the human mind of anything divergent, obscuring rather than clarifying historical developments. Thirdly: the classification into the canonical (style-)periods is based on our values and our way of looking at history and its relics; it has barely anything to do with the way people in the past thought about their own time or their own works of art. The fourth objection, finally, is that the terms for the different periods are contaminated with so many conscious and unconscious connotations that they are far from objective. In fact, most of the terms, such as ‘romanesque’, ‘gothic’, ‘mannerism’, ‘baroque’ and ‘rococo’, started out as mockeries of styles that were found distasteful, wherefore they have never been really neutral terms.

91 The concept of a Zeitgeist was introduced by Wilhelm Friedrich Hegel in the early 19th century, and was adopted for art historical use especially by Heinrich Wölfflin in the early 20th century. (Möbius 1984, pp.14-19; Miedema 1989, p.36) According to the Zeitgeist idea, there are separate periods in history, with a typical kind of man, formed by a typical worldview and trend of thought. At present, the Zeitgeist concept is no longer taken seriously, but only too often one can still find references in scholarly literature to vague conceptions, such as ‘medieval man’, ‘the humanist mind’, and ‘the renaissance spirit’, which are believed to be typical in their thought and behaviour for a certain period. (Van Dorp 1983, pp.19-22) I want to cite one example here, which was written by Gutzkow in order to represent the history of urbanism as a sequence of different periods. ‘For Renaissance men, the world was a mechanism, no longer the organism it had been to medieval man. Fundamentally, the urban dwellers in the Middle Ages never completely lost the innocent simplicity of their early peasant existence, while the city dwellers of the Renaissance began to be drawn into the vortex of the emerging sophistication of urban civilization [...]’. (Gutzkow in 1970 (vol.V), p.12)
92 Möbius 1984, pp.13, 19; Janson 1970, pp.119-121; Gombrich 1966. The term ‘gothic’ for instance, was originally used in 15th-century Florence to describe the architecture of the 11th to 14th centuries, which was believed to have been created by the ‘barbaric’ Goths or, at least, to have been influenced by their style.
Despite those problematical aspects, periodisation has become such an important handle for scholars as well as for the general public that it is often not recognised that the canonical periods are later inventions and represent no historical truth. In my opinion, the fixation on style-periods is responsible for worsening the general understanding of historical developments. For as far as I know, non-art-historical periodisations, for instance in geologic eras, evolutionary phases of man and his ancestors, of the main material man used for his tools, political systems or rulers, or even style-periods of pottery, have not caused so much damage to the conceptions people have of the history of culture. The terms for the styles and style-periods of art-historical origin apparently were such attractive concepts that they have found their way into general history, and there too they have led to a lot of undesired connotations and confusion.93

Therefore, we should try not only to let go of the traditional art historical style-periods; we ought to try to use a more neutral temporal terminology, and try not to immediately classify history into periods or styles. We should keep an open mind, and we must try to use the historical matter, event or thought under consideration itself to teach us about history, instead of forcing it into our view of history before it can tell us its story.

It certainly is possible to classify historical matter, thought and behaviour into certain ‘modes’, or ‘styles’, but we must be very careful in formulating the discriminating elements, and we must try to constantly be aware of their relative importance within the larger complexes. Sometimes, we can also identify a specific period of time in which a specific mode was current. With this, however, we ought to be very much conscious of the fact that temporal continuity (rather than ‘historical development’ or ‘progress’) is not a sequence of such periods. Different modes or styles may exist side by side, or may shade off into one another without clear limits.

This is clearly also the case for the subject of town building in the period of about the 12th to 16th centuries. If this would be accepted, it would probably be much less difficult for many people to apprehend the significance of new town creation in the 13th and 14th centuries, which has played such an important role in the formation of the present pattern of settlement in Europe.

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93 For instance in the history of literature. See Möbius 1984, pp. 17-18.
12 ABSTRACT AND CONCLUDING REMARKS

12.1 Abstract

In the introduction to this study a rough sketch is given of the dramatic cultural transformation in Europe in the period of the 11th to 14th centuries and of how urbanisation was an important part of these events. The structure of settlement in Europe, as it is presently known, was created to a considerable degree in the period from about the 11th to the 14th century. The European landscape changed dramatically, as new land was brought under the plow and many new villages, towns, and cities were created. At present, these settlements, with their old structures and buildings make up the clearest visible reflection of the transformations that took place in this period. Therefore, they serve as a rich and very important source of information for the cultural history of Europe. (par.0.1)

Many of these settlements were explicitly newly created as towns. This means that they were meant to have central functions, resulting in a diversified socio-economic structure, a relatively dense population and concentration of plots and buildings. This last aspect, the density of plots and buildings, is generally the most important in this study, as it primarily focuses on the creation of urban form. And because this study specifically deals with the planning of the spatial structure of newly founded towns in the early phase of their existence, it will also consider newly created settlements that may have been very small, consisting of no more than about twenty house lots, or where the inhabitants relied on agriculture for a large part of their income - Ackerbürgerstädte (‘field burghers towns’) they are aptly called in German. (par.0.3.1)

All in all, at least 1500 towns were newly created in Europe in the 11th to 14th centuries. It was particularly in the period roughly from the 12th to the middle of the 14th century that most towns were newly founded. Therefore, I refer to this period as the ‘high-period of town foundation’. This study focuses particularly on new towns that were created in the second half of the 13th and the first half of the 14th centuries, since this was the absolute peak period of new town creation. It would last several centuries - indeed, until the industrial revolution, when the structure of settlement, and thereby the landscape, again underwent such great alterations as in this period. (par.0.1.1)

The towns were created by the lords of the land: by great lords as well as small lords, by lay lords as well as ecclesiastics. It is obvious from the number of town foundations that, especially from the 12th to the 14th centuries, more and more landlords were convinced of the idea that the privileging of nucleated settlements - and thereby making the inhabitants relatively free - could be an effective instrument for the consolidation and expansion of their power. It seems almost paradoxical, but landlords could actually enlarge their power and income by granting special privileges of an economic, fiscal and juridical nature to their subjects in specific settlements. These privileges could be granted to existing rural settlements; but often, and in increasing numbers, it was given to settlements that were largely newly created. Sometimes they were completely newly created, from tabula rasa one might say; but, for the most part, the new towns were attached to some kind of existing settlement-core, such as a hamlet, a monastery or a castle.

The procedure for the founding of towns seems to have gradually become more standardised. Obviously, the founding lords often made use of previous experiences that had been demonstrated to be successful, until gradually a sort of ‘concept’ was developed. By the second half of the 13th century or so, this resulted in considerable similarities among new town foundations in most parts of Latin-Christian Europe. It seems that by this time, the creation of towns had become a ‘fashionable’ political activity, one which was considered profitable by the landlords as well as by the settlers, who eventually were to become burghers in the successful foundations. (par.0.1.1)

In the past decades a considerable amount of research has been done on newly planned towns of the 11th to 14th centuries. But in comparison to town planning from the 15th century on, the subject is still relatively little studied, and there is hardly any overview of Europe in general, since most studies are concerned with specific towns, regions or founders. Therefore, the intention of this dissertation is to look at the subject of new town planning in the broader perspective of the Latin-Christian part of Europe in general, in order to create an overview. The research is qualitative and explorative in character. The main goal is to reconstruct and describe the process of town foundation from the first idea to the actual realisation, primarily in respect to the spatial layout of the project. Probably, this process was more or less different for every town; but by considering the material of many different new town foundations, in different regions of Europe, a general
description of the process will be formulated. Subsequently, this dissertation discusses the 19th and 20th century historiography of (new) town planning in the period under consideration, in order to explain why important results of our research do not agree with a number of current ideas and theories.

The main sources of this study are the forms of the towns as they presently are, as they are found in archaeological excavations, or as they are depicted in old and modern town plans. The urban plans are explicitly not approached in a typological way, as has been done in earlier research on urban form in the 11th to 15th centuries, since that approach has not lead to historically relevant results. Other very important sources are written texts, either from the period under consideration, such as administrative documents and chronicles, or from the past 150 years or so, in the form of scholarly literature dealing with history, geography, architecture and archaeology. (par.0.2, 0.4)

This study consists of three different parts. In order to get an impression of the politics and processes of urban creation in the 13th and the first half of the 14th century period, part I (ch.1-4) describes and compares three groups of towns about which relatively much is known, that were founded in this period in different regions in Europe. In part II (ch.5 to 9), a number of important aspects of the planning of new towns will be studied from a thematic point of view, after which a synthesis will be given. Part III (ch.10 and 11) then deals with the way that town building in the 11th to 14th centuries has been treated in the historiography of urban creation in the past 150 years or so, specifically concentrating on some points in which this historiography contradicts the material that has been encountered during the research.

Chapter 1 treats the newly founded towns of the country of Wales, which were created from the period of the Norman conquest in the late 11th century to the end of the period of town plantation in the early 14th century and, more specifically, the towns founded by King Edward I of England (1272-1307) in the late 13th century. There is relatively little original documentation as to the creation or the original form of these towns. They have suffered a lot of damage through the ages and have been depopulated a great deal in many cases. Therefore, relatively little is left of the buildings and allotments from the first centuries of their existence. But the outline forms and street plans generally appear to have remained pretty much the same until the time they were first drawn in plans, and even up to the present day. (pars.1.1, 1.2, 1.7)

Colonisation is the keyword with respect to the towns that were founded in Wales. Shortly after the Normans invaded England in 1066, they also conquered Wales. As in England, the Normans founded manors and built castles, often with new towns at their gates. The difference is that in England there already had been many towns, whereas in Wales there were only very few, so new ones were created. (par.1.1.1) The period from about the middle to the end of the 12th century brought success for the native Welsh rulers, who managed to reconquer large parts of their country, particularly in the north and west, including the towns the Anglo-Normans had founded. (par.1.1.2) Under King Henry III (1216-1272) the Anglo-Norman policy of town foundation, as well as deliberate town expansion and fortification, was re-vitalised especially in the west and south, in a process of reconquest. (par.1.1.3) Eventually, northern Wales was reconquered by King Edward I in two military expeditions, in 1276-77 and 1282-83, in reaction to rebellions led by the Welsh Prince Llewelyn ap Gruffydd and his brother Dafydd. Linked to these expeditions, Edward founded nine new towns that were sited at the gates of newly built or newly conquered castles. Two more new towns were founded in northern Wales under Edward I without any military motives; these towns only served economic motives, as market centres. That is not to say that the castle towns did not serve economic motives as well: they were regional market centres and some of them became fairly successful in an economic sense, but they were planned primarily as service-settlements for the castles. (pars.1.4) There were also towns founded by Welsh lords, probably largely after the Anglo-Norman example, but these were relatively rare. The main motive for them must generally have been to generate more income from the lordly domains, by way of rents, taxes and tolls. (par.1.1.2)

The earlier Anglo-Norman towns show a wide variety in their plan forms. (par.1.2) The Edwardian towns that were founded primarily with military motives were often sited on, or right next to, locations that were effectively defendable. Their sites were determined by the strategic quality of the location rather than by the question of economic viability or suitability to the spatial layout of a new town. (par.1.8.1) This had its effect, of course, on the form of the towns, which show a great variation, despite the fact that the Edwardian towns were all founded in the same period and by the same founder. The shape of the landscape at the sites of the new foundations appears to have had much influence on the forms of the town plans. (pars.1.8.2-1.8.2.1)
Among the Edwardian towns, solely Caerwys and Newborough are more or less similar, both consisting of a simple cross of streets. (pars.1.7.9, 1.7.11) Only the most important towns with strategic importance were given town walls; just six of the eleven Edwardian towns were provided with them.¹ (pars.1.8.3.1, 1.7) Apart from Bere, the original plan of which is unknown, the plans of the Edwardian towns show clear signs of planning, although their overall forms may be quite irregular in some cases.² (pars.1.8.2, 1.7)

Many of the towns in Wales were quite small, some of them counting only about a dozen taxpayers. These settlements may have been small or they may have shrunk to nothingness, but originally they were intended to take on urban functions and to serve as real centres with a significant importance relative to their surroundings, in an economic as well as an administrative sense. Many towns suffered from military and economic crises in the 14th and 15th centuries and some of them were completely abandoned consequently. (pars.1.7, 1.10) But, all in all the colonisation was quite successful, and by 1300 Wales was almost as urbanised a country as England. Less than one-fifth of the urban dwellers, however, were indigenous Welsh by that time, as most of the settlers had been deliberately attracted from England and some even from continental Europe. But the Welsh share would grow considerably in the following centuries. At present, the most important urban centres of Wales are still largely towns that were newly created in the 12th and 13th centuries. (pars.1.7, 1.10)

From the 12th to the first half of the 14th century many towns were created in the region of Aquitaine in southwest France. Chapter 2 specifically deals with the towns known as bastides, which were founded from c.1230 to c.1350 by various lords of different ranks. In the 11th century the region was still rather thinly populated and to a large extent uncultivated, despite its relatively fertile soils. Until the 13th century the area was largely in the hands of the counts of Toulouse (in the east) and the Plantagenet kings of England as dukes of Aquitaine (or Gascony, in the west), while many small lordships lay strewn more or less in between. With the Albigensian Crusade (1208-29), however, the French king gained control of the county of Toulouse, while the duchy of Aquitaine would follow in the 15th century. (par.2.1-2.3)

In the 11th to 13th centuries many settlements were newly created in this area. Monasteries and other ecclesiastical lords founded so-called sauvetés; while worldly lords created so-called castelnaux next to their castles. (par.2.2.3) A third group of new settlements, which are known from contemporary sources as bastides, was created from about 1230 to 1350 by various landlords. This group consists of more than 350 new towns, many of which were quite small, meant for about fifteen families, while some were quite large, planned for up to 3,000 families. (par.2.2) For the most part they were founded in cooperative agreements (paréage) between one or sometimes two local landlords, who contributed the land, and a superior lord, like a count or a king, who contributed military protection and special privileges, which were generally laid down in a charter. Some bastides, however, were founded by single lords on their own. (par.2.4.2)

Unlike what is generally thought, the motives for the foundation of a bastide appear to have been primarily of an economic character. Because many bastides were surrounded by town walls and lay in areas that were heavily contested, they have come to be regarded as fort-towns. But, for a large part of this region, the real military conflict only started in the second quarter of the 14th century, with the Hundred Years War between the French and the English crowns (1337-1453). This meant that many of the more important towns were walled several decades after they were founded. (par.2.5.1) The bastides were generally founded because landlords sought to increase the income from their land, by having it cultivated more intensely by renters who could bring their produce to market in the new towns, via which they were connected to the regional and international trade network. In particular, wine was a product that increasingly found its way to the international market. The lords profited from the economic activity by way of rents, taxes and tolls. (par.2.5.4) The settlers were partly newly attracted from elsewhere, but for the greatest part they seem to have been drawn together from villages and hamlets in the region. (par.2.8) Additional motives for the foundation of a new bastide might have been to create administrative centres and to increase the effectiveness of taxation. (par.2.5.3) But territorial and political strategy also played a role. Some bastides were founded in border areas over which the rights were not clearly defined, so that the founding lord could enlarge his territory or gain specific rights over the area by appropriation. (par.2.5.1) Another motive, which we know played a significant role in the foundation of a number of bastides, was to provide protection to travellers on through roads and to the inhabitants of a region from bands of robbers and possibly also from hostilities by the inhabitants of neighbouring settlements. (par.2.5.2)

¹ Of these six, Beaumaris was only given a town wall in the early 15th century, though it is quite likely that a town wall was already planned with the original creation of the town. Flint and Rhuddlan were not surrounded by stone walls, but by large ditches and earthen banks. (pars.1.7.1-5, 1.7.10)
² The original plans of Harlech and Criccieth are not exactly known, but they appear to have been rather irregular, largely following the irregular form of the relief of the site. The form of the house lots and their arrangement (and probably also their original size), however, probably were quite regular. (pars.1.7.8, 1.7.7)
Many foundations failed eventually. The 14th century brought economic crisis, poor harvests and the bubonic plague. These misfortunes were felt almost anywhere in Europe; but an important factor more specific to this region was the devastating effect of the Hundred Years War. In particular, the smaller bastides located on marginal lands often did not manage to survive these misfortunes. (par.2.4.7)

As to the form of the bastides, the generally held idea that they largely are of the same type is wrong. Since the 19th century it has become a common idea that the bastides are all fortified towns with highly regular orthogonal town plans, outlines that mostly are rectangular, and a central square that is surrounded by four streets passing underneath galleries. (par.2.10.3.1) It is indeed true that some of the bastides took this form, but they are relatively few and the fortifications were generally built only in a secondary phase, after their foundation. Many other plan forms exist, from very irregular to more or less circular, linear or gridded. There are almost too many varieties to describe, and there does not seem to be a clear link between specific types of urban structure and specific founders or areas. (par.2.10.3.2) In many cases, however, there is a clear link between the form of the pre-urban landscape and the sort of plan chosen but, for the most part, this does not allow us to say that the plan form can be directly explained by the topography. In general, the plans are quite regular in the layout of their streets, piazzas and allotments, which suggests that they were planned more or less precisely. (par.2.10.4)

In various publications the bastides are presented as though they, or at least many of them, were planned as an integral spatial part of the allotment of the agricultural fields that surround them. This idea appears to be based only on a few cases in which the grid system of the town’s streets extends outward into the surrounding area. In only one case, that of Saint-Denis-de-Saissac, does it appear that the town and an area around it, which may have been intended for gardens as well as for fields, are actually part of one large spatial grid system; but even there the layout is urban rather than agricultural in character. (par.2.10.6)

The so-called terre nuove fiorentine, a group of six towns in Tuscany, are studied in chapter 3. These towns, Castelfranco di Sopra, San Giovanni Valdarno, Scarperia, Firenzuola, Terranuova Bracciolini and Giglio Fiorentino, were all founded by the government of the city of Florence between 1299 and 1350. Although the last of these was never actually built, probably due to changing political circumstances, it is relatively well documented. Its original documents even include a description of the project and the town plan, which is a quite unique and very important source. (see appendix A). The towns were all located on main routes into the Florentine territory, at a distance of about 25 to 45 kilometres from the city, in the Valdarno di Sopra in the southeast and on a pass route through the Apennine mountains to the north of the city. It is likely that at least four of the six new towns were founded on the sites of older villages, which were removed in order to make a place for the new urban structures. (pars.3.8, 3.9.1)

The main motive for the founding of the terre nuove was the struggle of the Guelph city government against a revolt of the Ghibelline nobility in the Florentine countryside. The city authorities tried to regain control over the territory which had nominally belonged to the city since the Roman period, the so-called contado, in order to secure the flow of victuals and raw materials into the city. In addition to that, the new towns also served to control two of the most important routes into the contado, to secure their use for trade purposes and to block them for use by enemy forces. (par.3.5)

The new towns were mainly settled with people that previously lived in villages and hamlets in the surrounding areas. Although living in the new towns had advantages in the form of privileges and protection as Florentine subjects, and proximity to the main trade routes and the markets that were founded with the towns, it appears that these people sometimes had to be forced to take up their new place of residence, by the levying of fines and even by the destruction of their old houses. The terre nuove must be regarded as satellite towns of Florence, the more so because they only had limited autonomy. (pars.3.5.2, 3.6)

Looking at their urban form, it is immediately striking that the ground plans of the six towns show significant similarities. They have strictly orthogonal street structures, based on a main street as a through route with parallel residential streets, a central rectangular piazza with a cross street extending from it, and narrow secondary cross streets (or alleys). Originally the outlines of the towns were rectangular, surrounded by wide ditches, stone walls with four gates and a wall street all along the inner side of the town walls. A very peculiar feature of their plans are the house lots, which originally were all of the same width, but which are progressively shorter the further they are from the central main street, which therefore really forms the axis of the urban structure. (pars.3.8, 3.9.2.1)

Firenzuola, however, does not share all these aspects, but it appears that its structure was considerably changed in the 15th or possibly already the late 14th century. Its original form must have been much more
similar to the other terre. (par.3.8.4) Despite the fact that there are also considerable differences in plan form, such as in their dimensions and the number of streets, alleys and house lots, the similarities in urban structure mark the terre nuove as a group which is clearly different from other new towns of the period, including other Florentine foundations. (par.3.9.2) The way in which the dimensions of the plans, and particularly the variation in the lengths of the house lots, are designed is treated in chapter 6.

Right from the outset of their foundation churches or chapels were built, and monastic communities settled in the towns not much later. (par.3.9.3.2) Every town had a ‘town hall’ where the representative of the Florentine government resided, overlooking the central piazza and in San Giovanni even standing right in the middle of the square. In most towns there was also a public loggia in the piazza, serving as a ceremonial space and probably also as a covered market space. In Scarperia the official residence was a castle-like stronghold, which also housed the garrison, while in Giglio Fiorentino a keep was planned in one of the corners of the town. (par.3.9.3.3, 3.9.3.4) From the document which describes the project for Giglio Fiorentino, it is known that the houses on the main street were to have stone facades, two storeys and ceramic roof tiles. It is possible that there were similar regulations in the other towns. (par.3.9.3.5)

The terre nuove fiorentine were fairly fruitful projects. Giglio Fiorentino was never actually built, but the other town foundations were more or less successful. Three of the towns became the centres of administrative regions (vicariati) in the 14th century, and all five of the realised towns actually became market towns of some regional importance. Since the beginning of the 20th century, however, only San Giovanni is a town of economic significance with a really urban character; the other terre nuove are more like large villages. (par.3.5.3, 3.5.4, 3.8, 3.10)

In the next chapter a comparison is made between the three groups of towns treated in the first three chapters: the Edwardian foundations in northern Wales, the bastides of southwest France, and the Florentine terre nuove. It appears clear that there are considerable differences in the sort of founders, their motives and the consequent functions that the towns had to fulfil, the sort of locations, as well as in (aspects of) their urban form.

The new towns of Wales in general were mainly founded by feudal lords from Normandy and England, and the towns treated in chapter I particularly by King Edward I of England. The bastides of southwest France were founded by great feudal lords (such as the French and English kings, including Edward I, and their local representatives) as well as by local lords, such as knights, counts, bishops and monasteries. For the most part, local lords and more mighty lords worked together, in parage, as town founders. The terre nuove in Tuscany were founded as satellite towns by the government of the city of Florence, which was the nominal lord of the countryside around the city. (par.4.1)

Apart from Caerwys and Newborough, the Welsh towns were sited next to castles that were either pre-existent or built contemporaneously with the towns. An important motive for their foundation was to serve the provisioning of the castle. The towns that were walled also had a military function themselves, which also holds true for the terre nuove. These latter towns were created in order to increase the control of the Florentine government over the countryside, and were aimed against the rebellion of the Ghibelline nobility, while the new towns of Wales were largely founded to gain control over the indigenous Welsh lords and population. But both the Welsh and Florentine new towns also served economic functions, which made them into regional centres. Part of the produce of the land was tapped via their markets, and the founders profited directly from it by way of taxes and tolls, as well as by rents from the house lots and the agricultural land in the surrounding countryside. The foundation of the bastides was, contrary to what is often thought, generally motivated by considerations of an economic character, rather than by military intentions; landlords sought to increase the income from their land by having it cultivated more intensively, by renters who could bring their produce to market in the new towns. Therefore, the bastides were originally rarely fitted out with defences of any significance (though these were often added later, in the 14th and 15th centuries). (par.4.2, 4.5.2)

The settlers of the Edwardian towns in Wales were largely attracted from England. Only the two non-military foundations of Caerwys and Newborough were meant to be settled with Welshmen. The bastides and the terre nuove were mainly populated with the inhabitants of villages and hamlets of the surrounding countryside. (par.4.3) In view of this, the Welsh towns clearly are colonial towns, distinct from the two other groups. The terre nuove were also colonial towns, for they were satellite towns of Florence in the countryside, which was still largely to be brought under control of the city-state. But, in a different sense, most of the bastides can also be regarded as colonial towns, since they ‘opened up’ the areas of which they formed the principal nodes to
reclamation, more intensive cultivation and interregional trade, and thereby to more intensive exploitation. (par.4.2)

The rights bestowed on the new towns of Wales and the bastides were in many aspects quite similar, as they were in most regions of Europe. But the specific formulations and the form of the charters were different in the three regions, since they were based on models that were already more or less current in those regions, or on specific examples of other towns founded by the same lord. The inhabitants of the terre nuove, however, became subjects of the commune of Florence. These towns did not receive separate charters and only had limited autonomy. (pars.4.3, 4.6)

Between the three groups of towns a general variation can be discerned in the choice of sites for the new towns, which were related to the functions that the towns were planned to fulfil.1 The terre nuove were all laid out on flat sites in valleys, on the main access routes, and in the periphery of the Florentine territory, in order to serve the defence of the territory as well as the economy. Bastides were founded in valleys, on hillsides, but also on hilltops. Some of them were sited strategically on sites which were easy to defend, but most of them were laid out where economic goals would be served best, on trade routes or in areas where new agricultural ground could be reclaimed, mostly on fairly flat and open terrain.4 The new towns of Wales were mostly sited on strategic sites with uneven terrain, largely following the choices for the locations of castles. (par.4.4)

Considering the form of the three groups of newly founded towns, it is clear that there is a great variation. Only the terre nuove fiorentine are all distinguishable by the same basic morphological traits. However, it must be noted here that the terre form a comparatively small group, following one and the same consistent policy and all located on similar flat valley sites, all of which helps in realising forms that follow a more or less consistent model. Some relevant general differences between the three groups of new towns can be noted. The terre, limited as this group is, clearly are the most regular in layout. Amongst the bastides there is a great variety of forms, regular as well as irregular. Although there is a considerable variation in regularity among the new towns of Wales, none of them comes close to plans as regular as those of the terre nuove or among the bastides. This was to a large extent due to a greater influence of the form of the landscape on the forms of the towns in Wales. The terrain on which these towns were built was mostly much more uneven, because the sites were often chosen for their strategic qualities, and it was of course far more difficult to lay out a regular urban structure on steeply sloping terrain with rocky outcrops or with the irregular outline of a peninsular site, than on flat and open land. Another possible reason for the general difference in regularity between the groups of towns is a difference in the stability of the urban structure through time. In general, it seems that the actual substance and structure of the towns in Wales have changed more than in the bastides and the terre nuove. This has to do with the durability of building materials and, probably more importantly, with the fact that the towns of Wales were heavily damaged in the wars and rebellions that the Welsh waged against their conquerors, and with the relatively strong depopulation they experienced, due to the economic and demographic depressions in the second half of the 14th and 15th centuries. Consequently, there is relatively very little architecture from before the 15th (or even the 18th) century preserved in the old towns of Wales, apart from (parts of) churches, castles and town walls. This is a further difference with the other groups of new towns, which have preserved considerably more of their old structure and material. Possibly, there was also a difference in the regulation of the maintenance of the boundaries of urban property, which might have resulted in more change in one region than in the other. But unfortunately there are not enough sources to prove this speculative argument. An important cause for the difference in variation of regularity in the urban layout must be the effort that was taken to make a structure regular (as well as to keep it regular). Apparently, with the terre nuove and the more regular among the bastides, such as Monpazier and Grenade-sur-Garonne, a much greater effort was made to give the towns a regular layout than with other bastides and most of the new towns in Wales. In the one case it was probably found much more important to realise a highly regular urban form than in the other. As the great variation in the form of the bastides shows, this cannot always be ascribed to a specific regional model or to a specific founder, as many scholars would have it. But for the case of the terre nuove fiorentine it is obvious that the relatively great regularity in their urban structure has to do with a certain ‘taste’ concerning urban form that lived in Florence and many of the cities of central and northern Italy at the time.6 (par.4.5.1)

1 The choice for certain sites or types of sites is considered more closely in chapter 5, not only with regard to the groups of towns treated above but also regarding other cases elsewhere.

4 It should be noted, however, that for southwest France I have made a distinction between planted towns with and without a castle, the castellans and the bastides, while I have not treated these groups separately for Wales. This difference in treatment is justified because in southwest France there is a general distinction in generations as well as in contemporary terminology.

5 See par.4.2.10.3.2.

6 See par.8.6.
A clear difference in urban form between the three groups is that the _terre nuove_ were all meant to be walled right from the outset of the projects, whereas only six of the eleven Edwardian towns in northern Wales were planned to be walled and few _bastides_ seem to have been intended to be walled in first instance. (par.4.5.2) The Welsh towns originally had, on average, the largest house lots; the average original lots in the _bastides_ were smaller and in the _terre nuove_ they were considerably smaller still. The _terre nuove_ were quite unique in having a systematic variety of lot sizes, with long lots at the central main streets and ever shorter ones in the rows nearer to the margins of the towns. (par.4.5.3) A remarkable difference in layout between the new towns of Wales and the other two groups is the role of the market place. While market places form central elements in the plans of the _terre nuove_ and many a _bastide_, it seems that they were of lesser significance as an element within the urban layout in the new towns of Wales. In the latter, the markets were mostly held in the main street, and if there was a real market place, it clearly did not take on an important central role within the preconceived layout of the town. (par.4.5.4)

In comparing these three groups of newly founded towns, one is easily tempted to put the stress on the dissimilarities between the groups. It should be considered, however, that from a general historical perspective the coincidences between them, as well as with other new towns that were founded elsewhere in Europe, are far more important. These three groups of towns only concern specific regions and periods within a general development in Europe in the period of about the 11th to 14th century, in which many hundreds of towns were created in more or less similar ways, with comparable forms and legal statuses, and with largely similar motives. (par.4.6)

In part II (chapters 5 to 9) important aspects of new town creation in the period under consideration are discussed from a thematic point of view, after which a synthesis is given. The aspects that are treated follow more or less specifically from the material studied in part I. They are: the choice of sites (ch.5); the methods of design, specifically the use of geometry (ch.6); the persons involved in the planning or design of the towns and their professions (ch.7); the ideological aspects of new town creation (ch.8). Chapter 9 contains a synthetic reconstruction of the process of town creation as it would generally have taken place, and also describes the various physical elements that usually formed part of a new town. For the study of these themes, the material of the three groups of towns treated in chapters 1 to 3 plays the main role, but is used together with material from other newly founded towns elsewhere in Europe in order to get a more inclusive general picture, particularly because there are valuable sources elsewhere that give information on aspects that are not, or only barely, covered by the sources regarding the three clusters of towns.

For the success of a town, it was of crucial importance that it was located on an auspicious site. Chapter 5 goes into the sites that were chosen for new towns in the period under consideration. Many of the newly founded towns were never successful simply because they were founded on sites that were badly chosen. The location had to offer at least some basic favourable conditions: there should be drinking water available and the area should offer the inhabitants the possibility to produce food products and raw materials sufficient to their making a living. For economic success, however, a town preferably had to be sited well within the larger system of settlement, so that it would profit from its location within the regional or interregional transport network. But not every lord that wanted to found a town could dispose of such good sites. And in some cases the goals of the foundations were not so much economic success but rather political or military strategy, which was often in some way bound to a particular area, thereby more or less precisely determining the location of the new town. (par.5.1)

It was generally a welcome factor if the site was easy to defend due to its specific location with respect to relief and water. For towns that were founded with military motives or which were sited in hostile regions, like the Anglo-Norman towns in Wales, this generally was an important consideration. But for most new towns this does not seem to have been so important, as they were sited on open land. Accessibility by road and water was an important factor, particularly for towns that were created with the main aim of attracting trade. (pars.5.1.1-5.1.3)

In order to attract enough goods and people to the market, a new town would normally best be located at a considerable distance from other market towns, generally at about 8 to 16 kilometers. Sometimes minimum distances were set out in law books or agreed on between lords and urban communities in the form of market monopolies. In areas of great importance for transport, on rivers or sea coasts, or in areas
of extreme fertility or a wealth of minerals, towns could be set much closer to one another than elsewhere. But if towns were spaced too closely the general result would be that the ones with the least advantageous geographical position and the fewer tenurial privileges would not develop well. (par.5.1.4)

Of course, it was always necessary that the lord-founder could dispose of the site. Therefore it had to be in his own domain, or he could try to obtain the land by purchase, trade or simply by force. Another possibility was to seek collaboration from a local lord, in order to found a town in cooperation with him. Such collaborations of founding lords can be found in many regions of Europe, but they were particularly common in southwest France: the so-called paréages.7 (par.5.1.5)

Many new towns were located on the sites of older settlements, such as hamlets, villages, abbeys or castles. Sometimes these older settlements were cleared away to make a place for new urban structures, as in the case of the terre nuove, but often they were (partly) incorporated into the new settlements. (par.5.1.6)

The settlers of the terre nuove mainly came from villages and hamlets in the surrounding countryside, as decided by the Florentine authorities. Most of these older settlements were located higher up in the hills and mountains. In the period from about the 12th century onward, this phenomenon of settlement moving from hilltops and mountain sides to plains can also be detected in many other European regions with hilly or mountainous terrain. (par.5.2) In earlier centuries it had been very important for settlements to be sited on sheltered locations that could be well defended, often right next to a castle; but in this later period accessibility became more important in order to stimulate regional and inter-regional trade in the town. Therefore, towns were preferably located at sites which were advantageous for traffic, on interregional roads and navigable rivers, which usually were to be found in the valleys. For the terre nuove and other new towns that were founded in the territories of powerful lords it is also significant that they formed part of developing territorial states, for which reason the maintenance of close contact to other nodes in these states, particularly the centre of power, by way of the traffic routes, was essential. (par.5.2)

Quite a number of the new towns of the 13th and 14th centuries in Europe were actually transplanted settlements. The lords of these settlements decided that other locations would be better suited. Particular reasons arguments made for these could be, for instance, that towns were damaged by floods, earthquakes or landslides and therefore had to be moved to safer places; that existing sites were too cramped, lacked drinking water, or that they were hard to defend. A more common reason for transplantation, however, was that the town, and particularly its market, was moved to the main traffic route or node of the area in order to profit from the growing regional and inter-regional trade. These routes and nodes may have already existed for a long time or may have been newly created in the period under consideration. It is also possible that important routes or nodes shifted from one road or port to the other, whether or not under the influence of natural conditions. A common new location for towns was the valley bottom, where (new) roads and navigable rivers were to be found. (pars.5.2, 5.3)

From the groups of towns treated in chapters 1 to 3 it clearly appears that the layout of most newly founded towns was largely planned. But unfortunately there are hardly any contemporary sources that provide information on how this was done. In the scholarly literature since the late 19th century many authors have, however, proposed theories concerning the methods of the design of new town plans. Many of them suggest that, particularly in the 12th to 14th centuries, complex geometric methods were used. Some of these theories are discussed in chapter 6.

In most of the plans of newly founded towns of the period, one can recognise an inclination towards regularity and orthogonality. It is obvious that there must have been a very basic idea of geometrical order behind this, involving straight lines, right angles, equality of distances and often even symmetry. Some scholars believe that plans which are more or less regular have been laid out by use of very simple geometry, by setting out straight boundaries at regular distances that were determined as rational, mostly rounded, numbers of the then current units of measurement. This is called ‘arithmetic design’ or ‘simple geometric design’. Scholars have tried to reconstruct specific cases of this method of design on the basis of measurements taken from specific town plans (either in reality or in more or less accurate plans on paper). This has led to various reconstructions, not all of which appear to be very reliable, however, as the accuracy of the measurements that have been taken varies greatly and the probability varies with the deviation that is accepted between measured dimensions and hypothetical original dimensions. (par.6.1)

Other scholars, however, believe that urban plans were designed by the use of more or less complex.

7 See par.2.4.2.
geometrical methods. From contemporary sources it is known that geometry was regarded as a crucial means for architectural design. Not much is clear, however, on how geometry was precisely used in the design process of buildings, and almost nothing is known of whether and how it played a role in urban planning. Since the mid-20th century, a number of hypothetical design methods have been reconstructed, proposing complex geometric figures underlying the designs of the plans of specific towns. After close examination it appears, however, that many of these are quite implausible. In some cases the dimensions of the geometrical hypotheses clearly do not correspond well with the actual dimensions of the plans; while in other cases the supposed process of design is highly unlikely because it is anachronistically complicated or because it contradicts the inherent logic of the process. (par.6.2)

In this chapter a number of reconstructions, particularly concerning town plans of bastides and the Florentine terre nuove, are examined critically. It appears that theories by Higounet and Lauret et al., regarding the use of pythagorean triangles in the design of the bastides of Vianne and Villeneuve-sur-Lot are unlikely. (par.6.3.1) A theory put forward by Guidoni regarding a number of bastides that would have been dimensioned by the use of rotated squares also appears to be improbable. (par.6.3.2) The same holds true for a theory of complex geometric design by Bucher regarding Grenade-sur-Garonne. With respect to this town, metrological analysis actually suggests that it is far more likely that the relevant dimensions were rationally chosen as rounded numbers of the traditional local unit of measurement, the brasse. (par.6.3.3)

The pythagorean triangle also plays a role in reconstructions of design methods for the town plans of many European towns of about the 11th to 14th centuries by Humpert and Schenk. In their opinion the use of these triangles was combined with many other geometrical manipulations in highly complex design systems, which not only serve to explain regular elements in town plans but particularly irregular elements, such as curved streets and irregular outlines. The proposed design methods are, however, highly implausible because they are very complex and they lack logic and any consideration of possible motives. In addition to that, many of them were probably impossible to execute on the scale of the actual town plan, which makes them even more unlikely. (par.6.3.4)

Regarding the plans of the Florentine terre nuove seven authors have proposed different geometrical methods by which the most important dimensions would have been arrived at, while two authors have proposed simple arithmetic methods. Close examination of these hypotheses suggests that most of them are highly unlikely and that the hypotheses of Guidoni, Friedman and Pirillo, and an adjustment to Friedman’s theory by Van den Heuvel seem more plausible. (pars.6.4.1, 6.4.2 and app.B.2-B.3) In order to find out to what degree these proposals correspond to the actual existing urban structures, they are compared to the modern town plans of the relevant towns by graphic verification and metrological analysis. (pars.6.4.2 and more detailed in appendix B) From this analysis it appears most likely that relevant dimensions in the plans of San Giovanni, Castelfranco, Scarperia and Terranuova were arrived at by the use of geometrical figures underlying the plan, more or less as the theories of Guidoni and Friedman (and the suggestion by Van den Heuvel) claimed. The design method would have worked using regular polygons with 6, 12 or 24 sides, in order to determine the distance between alignments of street blocks and streets that lie parallel in the longitudinal direction of the plan. In the case of Terranuova this geometry probably also determined the placement of the transverse streets and the dimensions of the perimeter of the town. The town plan of Giglio Fiorentino, however, appears not to have been dimensioned in this complex geometrical way, but rather by simple arithmetic design, which most probably was also the case for a considerable part of the remaining dimensions in the plans of the other terre nuove. (par.6.4.2 and app. B)

This design method using regular polygons may have been derived from a contemporary method of dimensioning palazzo-facades, and the underlying geometric figures may have been inspired by compass roses, geometric figures on astrolabes or circular models of the cosmos that were radially divided into twelve parts. Unfortunately, however, there are no clear indications in this matter. (par.6.4.3.1) The designs were most probably first made in drawings. Probably, the regular polygons were set out, either on a reduced scale on a drawing board or a floor (from which the dimensions were measured and multiplied), or on the ground of the site itself. In the last option, the figures may not have been set out at full scale since that was probably quite difficult for the long ropes that were needed. It is likely that the figures were set out at a reduced scale - most probably half size - from which the relevant dimensions were geometrically multiplied. (par.6.4.3.2)

Many scholars who have proposed hypothetical reconstructions of geometrical methods of urban design silently pass over the crucial question of why such methods would have been used. From philo-
sophical writings of the 11th to 13th centuries it is known that great importance was attached to geometry and arithmetic as a means of understanding the Divine creation and to create beauty and order in harmony with the universe. It seems likely that many of the scholars who have proposed hypotheses for geometric design methods for town plans in the period under consideration tacitly believed that this inspired the use of these methods. In fact, this also seems to have been the reason for the geometric design method of the terre nuove: it was to bring the towns into auspicious harmony with the order of the Divinely created universe. The fact that the geometric figures bear likeness to circular or polygonal cosmic symbols and depictions of the Heavenly Jerusalem may also be interpreted as an indication of this meaning. An additional motive may have been that the designer aimed for personal reward and fame or the advancement of his profession, as geometry was such a highly valued art. (par.6.4.4) Unfortunately, it is impossible to discern what the relative importance of the different possible motives was and to what degree people - planners, settlers and the public - were conscious of them.

In conclusion, it is highly likely that four of the terre nuove plans were dimensioned by the use of complex geometric methods. This seems to be quite unique, however, as I know of no other new town plans of the period that are likely to have been designed by use of complex geometry. Many seem to have been planned by the use of relatively simple straight lines, right angles and arithmetical dimensioning. Moreover, one should also keep in mind that there are also newly created urban structures that were laid out with rather irregular non-geometric plans. Nonetheless, many scholars appear to have favoured the idea of complex geometric design over other possible methods, such as dimensioning by arithmetically determined distances and proportions. The plan of Grenade-sur-Garonne, for instance, has been featured prominently in literature on ‘geometric design of town plans in the middle ages’, although it appears quite clear, both from plan analysis and from a contemporary document which specifies the dimensions of the house lots, that relatively simple arithmetic design is a far more likely probability. Many scholars just assume that ‘medieval architectural design’ involved more or less complex geometric methods. Although these scholars often do not explicitly write so, this assumption seems to be largely (and often indirectly) based on contemporary texts that mention the importance of geometry for the understanding of Divine creation and texts that indicate that geometry was regarded as a very important element in architectural design. Furthermore, the assumption appears to be based on erroneous ideas about the ‘medieval mind’ thinking symbolically or mystically, and therefore not rationally, and of ‘medieval masons’ using ‘secret methods’. (par.6.5)

Geometry was a highly valued art and it surely was important in architectural design, but this does not mean that urban structures could not be designed on the basis of the simple geometry of the regular orthogonal grid and arithmetically determined dimensions. For a long time scholars have generally assumed that in ‘the middle ages’ geometry was the basis of architectural design, and that it was displaced by arithmetic in the ‘renaissance’. In our opinion, however, the supposed contrast between geometry and arithmetic as being completely different design methods of necessarily different periods, is wrong. I believe that this idea sprang from the more or less explicit view of history as being divided into different periods, in this case especially regarding the difference between ‘the modern period’, as essentially characterised by rationality and clarity, and ‘the middle ages’, which are regarded as mystical, dark and mysterious. This view is a gross simplification that obstructs a clear view on historical reality.8 (par.6.5)

Chapter 7 addresses the questions of who the planners of the spatial forms of the new towns were and what their profession was. The contemporary written sources generally do not mention anything about the planners of new towns, but it is obvious that with the creation of a new town a plan would mostly have been thought out in more or less detailed form, before the work on the site actually began. In modern literature on newly created towns from the high-period of town foundation, many authors - particularly scholars with a background in the discipline of architecture and urban planning, rather than in history - ascribe the spatial planning to professional architectural designers, or even to professional town planners. This, however, appears to be a retro-projection of the modern situation, which is not justified by the evidence of the sparse sources. Various persons who are known by name from historical documents, such as Elias of Dereham and mansionarius Lambertus, are taken to be professional architects or ‘building masters’ who planned new towns, in these cases New Salisbury and Fribourg. But in every case I investigated it appeared either that the person involved was not a professional from the building trades but rather was a kind of general organiser, or that the mentioned person may have been a professional but that he cannot be positively identified as the designer of the urban layout. (par.7.1)

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8 See ch.11.
In ancient narrative sources, which are usually from some time after the town foundation, the design of a new town is often ascribed to the founding lord. It appears, however, that this is a topos that must not be taken literally. Probably, the lord generally assigned an officer to oversee the job, who may have assigned someone else to design the spatial layout. **(par.7.2)**

To the extent that contemporary written sources mention specific people involved in the planning of new urban structures at all, they are almost always concerned with persons who were responsible for the general organisation and administration of the project: clerics, clerks, notaries, officers and notable citizens, such as the men in the committees that were responsible for the planning of Giglio Fiorentino in Tuscany and Berwick-upon-Tweed in northern England. **(par.7.2)** The sources also mention entrepreneurs who were engaged in the planning of villages and, less often, towns. They are particularly numerous in the lands east of the river Elbe, where they were generally designated as locatores. **(par.7.3)** For all these officials and entrepreneurs it is not known in what measure they actually were involved in the spatial planning of the urban structures but, given the lack of sources that suggest otherwise, they must be held responsible. Various scholars have wrongly labelled these men as professional town planners, whereas other scholars suppose that they must have hired others that were experienced specifically in spatial planning. It would seem likely, indeed, that the experience was used of men who had been doing the same job previously elsewhere in the time before. It seems particularly likely that, when several towns were created for the same lord, he set the same men to work at the different towns. But there are no written sources to confirm this, apart from the notary Pons Maynard at the bastides of Montréal-du-Gers and Castillionès, the committee that was involved in the foundation of Castelfranco, San Giovanni and a third town in the Valdarno di Sopra in Tuscany, the ordenadors and stabildors that were to create fourteen new towns on Mallorca, and a number of locatores that were involved in the planning of several villages and towns east of the river Elbe. In a certain sense, one might call these people (part-time) town planners, but with this it is essential to note that the most important part of their job probably was to organise and oversee the operation of the creation of new towns, rather than to design their urban form. **(pars.7.3, 7.5, 7.6, 7.9)**

Regarding the new towns of Wales, there are no concrete indications of who planned them, but for the new towns that were founded there in relation to military campaigns and that were laid out in relation to new castles (for instance Flint, Conwy, Caernarfon and Beaumarais), it seems logical to ascribe the spatial planning to military architectural designers, such as the ‘master of the king’s works in Wales’, James of St. George. Elsewhere in Europe, military architectural designers or engineers may also have been involved in the spatial planning of towns if they were planned with military motives. **(pars.7.2, 7.4)**

Concerning the Florentine terre nuove, Giorgio Vasari’s *Vite* of the 16th century identified the architects/sculptors Arnolfo di Cambio and Andrea Pisano as designers. These attributions appear not to be very reliable, however. That Andrea Pisano was involved is most unlikely; Arnolfo’s involvement is not unlikely but can not be verified and, given Vasari’s intentions, may well be a fabrication. According to surviving documents, the realisation of the town of Scarperia was given over to the administrative and military officer of the region, and the other towns were realised under committees made up of officials that were chosen from the politically active citizenry of the city. According to the main authority on the terre nuove, David Friedman, professional architectural designers who acted as advisors to the committees must have designed the layouts, but this seems to be unwarranted, as there are no concrete sources that confirm this view. **(par.7.6)**

For new towns of the 12th to 14th centuries in general it seems valid, given the lack of sources, to assume that surveyors who were involved in the setting out of spatial structures may also have designed those structures. There are only a few references to the involvement of professional surveyors in the laying out of new towns, but it is a fact that someone had to mark out the planned layout on the land, and it is likely that this was often done by surveyors. These surveyors may have been full-time professionals, or they may have been notaries, monks, teachers of geometry or people from other professional backgrounds who did the job on the side, as we know from a small number of written sources. Actually, there is one contemporary text which identifies a ‘geometrician’ by the name of Symon, probably a surveyor or part-time surveyor, as the planner of the layout of an urban extension at Ardres in northern France. **(par.7.7)**

Since the organisation of society is a very important aspect in the human world-view, the landscape of settlement, which is the artificially created stage of human society, must necessarily reflect ideology, and particularly ideas about the organisation of society. One would expect that this must be even more true when explicit planning, which is implicitly aimed at order, is at issue, as in the planning of new towns. In chapter
8 the subject of ideology relating to the phenomenon of the town and its society is studied, for as far as it is relevant to the creation of new towns in the period.

The chapter first deals with ideologies relating to civic society, both in general as well as concerning its spatial form. In Christian thought, the ultimate ideal of society is heaven. In the bible, this Christian heaven is described in the form of the Heavenly Jerusalem, which is a city on a mountain with a square outline and having a city wall with three gates in every side. The contemporary Christian ideal of the earthly city was the Civitas Dei, as described by the church father St. Augustine. The spatial form of the Civitas Dei is not described by Augustine, but it was usually depicted in the form of a circle or a polygon. One would expect that the form of newly founded towns of the period would have been inspired by these ideals. There are, however, no clear signs of this. Elements of these ideals can be found in churches and monasteries, and even in towns, but they are not reflected in the urban layout, for as far as known. (par.8.1)

In various texts, however, real cities are compared to the ideal Christian cities. (par.8.2) In the late 14th century the Aragonese cleric Eiximenis was clearly inspired by the form of the Heavenly Jerusalem when he wrote a chapter entitled ‘Which form should the beautiful and well-built city have’. (par.8.2.1) There were new towns which we know to have been founded with ideological motives, such as the towns founded by the Hussite sect and other religious movements with eschatological expectations, and the (projects for the) foundations of Count Reinoud I of Gelre. In the latter case the urban forms do not appear to have been influenced by the ideology, but the Hussite town of Tábor may owe its highly irregular form to the fact that private property was initially renounced by the sect. (par.8.3) It seems likely that other societal ideologies - though also essentially Christian in character - were relevant for the Florentine terre nuove, where different classes of lot sizes were created, and for many other new towns where the house lots were initially all meant to be of equal size. But, unfortunately, there are no sources that clearly confirm this. (pars.8.5.1-8.5.2)

The conclusion of the first paragraphs of this chapter (pars.8.1 to 8.5) is that, with the vast part of the newly founded towns from the high-period of town foundation, there are no concrete indications that ideological motivations in the sense of societal ideals played an explicit role. It may well be, however, that the fact that so many towns were newly created was, to some extent, motivated by Christian societal ideals, but in an implicit way. I believe that it is illustrative in this respect that St. Thomas claimed, in his De regimine principum, that the city is the ‘[...] best form for the material and moral existence of man’, and that he wrote that the foundation of cities is one of the most important functions of a king, comparable to the foundation of the world by God.9 (par.8.2)

So, societal ideals seem to have influenced the foundation of new towns and their shapes, at least to a certain extent. But it remains very vague to what extent precisely this was the case. The final part of the chapter considers aesthetic ideologies in relation to the urban form of newly planned towns and newly planned urban ensembles in existing towns. It appears that order and regularity were sought after in urban form because, apart from various practical considerations, they were experienced as beautiful and formed an aesthetic ideal that was related to the symbolism of moral righteousness and philosophical ideas concerning order in urban society and the structure of the Divine creation.10 In fact, ideas about spatial, societal and cosmic order appear to have been linked to each other up to a certain extent in the field of urban planning. This resulted in public streets that were preferably straight, wide and with regular facades along them, and urban structures that were preferably regular and orthogonal, and thereby easily comprehensible and surveyable. (par.8.6)

In chapter 9 a reconstruction is attempted of the process of town creation as it would generally have taken place in Europe in about the 12th to 14th centuries (pars.9.1-9.10), and in the second part of the chapter the various physical elements of the towns under consideration are discussed (pars.9.11-9.23).

Most of the new towns that were created in Europe in about the 12th to 15th centuries can be described as ‘colonising centres’. Their main goal was to enable the founding lords (whether king, abbot, seigneur or civic administration) to get a stronger hold on the land, people and capital of a specific spatial area.11 The essence of the foundation of any new town was to gather settlers at a specific place. But the concrete motives for town foundation may have varied from case to case. New towns may have been aimed at the defence of a region or the guarding of the rural population or of a trade route. Connected with such military motives is the town’s role as an intended administrative centre, especially of newly conquered territories: new towns could be very effective instruments for surveying and taxing populations. Very important for the founding of new towns are motives of an economic nature. These can vary from facilitating the exploitation of (newly

10 See also pars.6.4.4, 6.5.
11 See also pars.6.1.3 and 10.3.1.
created) agricultural land or mines, stimulating trade, creating new markets and transport facilities (bridges, harbours), to attracting craft production.

Eventually, the prime motive of practically every town foundation was that the founder would gain some advantage from it, be it by collecting more rents and taxes, by a stronger military position, by having tighter administrative control or by enlarging his territory. The founding lords sought to enlarge or consolidate their power by using the growth of the population and the economy as their instrument. However, this was only very rarely explicitly mentioned in the documents related to the foundations, and sometimes the prime motives may have actually been veiled behind stated charitable formulations. \(\text{(par.9.1)}\)

In the traditional historiography of town building the motives for the foundation of new towns in 'the middle ages' have mostly been described as being primarily, or at least strongly, military in character. It seems that deliberate economic policy generally has not been taken seriously by modern scholars to have been part of contemporary politics. This is fundamentally wrong, however.\(\text{12}\) It is clear that economic policy was part of the politics of dominion over territories and subjects in the period, and that it played an important role in settlement policies. Although it is quite impossible to adequately and objectively set off the one motive in relation to the other, it is our opinion that economic exploitation was a far more important motive than was military strategy for town plantation in general. \(\text{(par.9.1.6)}\)

The rights bestowed on the new towns were in many aspects quite similar, but the specific formulations and the form of the charters were different, generally being based on older models from the same region or the same dominion. The basic legal principle of town plantation was always more or less the same: the lord of the land exempted the people who took up residence in the specific area of the town (and who agreed to the contract of settlement) from the normal legal regulations of the countryside. The lord rented out plots of land within the specified area, giving up part of his rights in favour of the settlers of the new town. He allowed the establishment of a market and he gave the settlers who rented plots some degree of personal freedom and the right to freely dispose of their possessions and their rented plots of land. In this process, these 'burgesses' were bound by their common rights, which set them off against the people living in the surrounding area and other towns, making them into a community. \(\text{(par.9.2)}\)

It seems that new towns were not always given a specific name; often they just took the existing name of the location, and sometimes the terms which are used in the documents are rather like short descriptions, as for instance Novus Burgus. \(\text{(par.9.4)}\) We cannot be sure, as sources are scarce, but it seems likely that many new town foundations were symbolically inaugurated at a specific moment by a consecration ritual. For instance, we know that in some cases the new settlement's outlines were traced with a plough, as in antiquity, while in others a cross was put up in its centre. \(\text{(par.9.5)}\)

Regarding the laying out of the spatial structures of new towns, it is obvious that there were considerable differences among them. Nonetheless, it is possible to make some general remarks. Most newly founded towns were created on the sites of existing settlements. Farms, hamlets, castles and villages were favourite places for the siting of new towns, which could be laid out either over or next to the existing settlements. Later on in their history, the newly founded towns would mostly form the core of further expansion themselves. It is likely that with the actual foundation of a new town, there must always have been some kind of scheme, however vague, for the division of space. The founder destined a specific piece of land for the new settlement, which was often marked out by poles, crosses or ditches, and within that piece of land different areas had to be designated for different functions, such as roads, markets, moats and house lots, or for different users: the various settlers, ecclesiastical institutions and the founder himself. These elements had to be put together into a general plan, which may have been very basic or may have been more elaborate. It might have been an 'ideal' orthogonal plan made up in the mind of the planner, irrespective of the actual circumstances; or conversely, a plan set out more or less clearly on the ground with consideration for the conditions of the site, like existing roads, properties, water courses, slope, etcetera. It is obvious that the first kind of plan would be more regular in form than the second, but there are several other important factors that would influence the amount of regularity of the eventual layout: the amount of effort and costs the founder would want to invest in the regularity of the layout; the accuracy of the method of setting out the plan structure and marking it on the ground; the amount of time it took between the setting out of a plan on the ground and the actual occupation; the strictness of supervision over the distribution of lots; and the presence of building regulations and their maintenance. Of course, many layouts also changed in the centuries after they were first occupied, which mostly (at least until the 19th century) lead to their progressive loss of regularity. \(\text{(par.9.6)}\)

\(\text{12}\) See also pars.2.5 and 3.5.
There are various possibilities as to what would have been done to prepare for the allocation of the house lots. In some new towns the regime of spatial order may have been more or less free, as long as the size of the lots that was agreed on would be respected, and old or newly set out roads would not be intruded on. In this way, the number of settlers would largely determine the eventual form. (par.9.6) In other cases, considerable works may have been executed in advance, for instance the raising or levelling of the ground surface, the laying out of a drainage system with ditches, or the laying out of defences, such as banks and ditches, palisades or even stone walls. (par.9.7) In most cases, so it seems, the founding lord or his officer would have determined the number and size of the house lots (as well as the lots for gardens and arable fields) that were to be issued. Sometimes all house lots would be set out initially, while in other cases only the lots that could be issued immediately, for which new settlers were present, would be marked out. In documents we can often read that the house lots were of a standard size, but various instances show that this was only so on paper: lots would also be issued in multiples or parts. Maybe the standard size was just for the purpose of the calculation of the rents or was used to attract settlers. (pars.9.6, 9.11)

The founders of new towns often took the responsibility of building a number of edifices for communal or public use, such as a church building, a house for the administrative officials, a market hall, a well, a mill, a bridge or a quay. The founder often also took care for the creation of a monastic house of some sort and, when fortifications were planned, the lord would see to the construction of (at least) the gates, while the construction of walls and moats might have been given over to the community. (pars.9.8, 9.14-9.22)

With the foundation of a new town, the founder must have had an idea of where the future settlers of the town would come from. Generally, there were two possibilities: people from the nearby territory of the lord would be resettled in the new town, or settlers were attracted from further away. Until well into the 20th century, the general idea has been that the growing urban population of the 12th to 14th centuries was mainly made up of fugitives from feudal oppression in the countryside. It appears, however, that this idea is largely wrong, and may be even more wrong when it comes to newly planted towns in particular. It seems that quite a large part of the new settlers already enjoyed considerable freedom from feudal bonds, and they must also have had some money to spend, as they often had to pay a specific sum to become citizens. Serfs were often explicitly excluded from citizenship. In many town charters one can also find bans on settlers from the nobility, clerics and people of a specific ethnicity or religion, such as Jews, Mores, Welsh or Slavs. (par.9.9)

For the most part, the recruitment of new settlers, whether from nearby or from far away, would probably have begun soon after the decision to found a new town. Once again, there are no sources that clearly describe how this happened, but we may assume that in most cases it was announced orally that a new town was to be founded, praising its attractions and advantages, such as its appealing location and the many privileges to be granted to its settlers. The settlers were all assigned a house lot, on which they had the duty to build a house, usually within one year, in order to make sure that the foundation would actually become a town in a physical sense, and to limit the possibility of speculation with the property. To meet the costs and efforts of moving, building a new house and a new living, new settlers were freed from the duty to pay rents and taxes during their first years in the new settlement. (pars.9.9, 9.12)

Finally, part III of this dissertation (ch.10 and 11) deals with the way the subject of town building of the 11th to 14th centuries has been treated in the historiography of town building in the past 150 years or so. More specifically, it deals with some particular problems with this historiography that have been encountered during the research.

The European new town foundations of the 13th and 14th centuries are placed within a wider temporal and geographical perspective in chapter 10. New towns were already founded long before the period of this study. Archaeologists have found urban centres that were most probably newly created according to more or less accurate planning from, among other places, the ancient Egyptian empire, the Harappan culture in the Indus-valley, the ancient Chinese empires and the pre-Columbian civilizations of central America, and in Europe from the ancient Greeks, the Lausatian culture and, of course, from the Roman Empire. (par.10.1)
After the fall of the Western Roman Empire many urban settlements in Europe succumbed to invasions of foreign peoples and the collapse of trade. In this period very few towns were newly founded. From about the 10th-11th centuries on, improving conditions meant that the population and the economy started to grow again. This resulted in, among other things, the growth of settlements and of the area of cultivated land, as well as in the creation of new villages and towns. Many of the newly created settlements are clearly recognisable as planned structures by their relatively regular and basically orthogonal plan structures. Many scholars have tried to identify a common source of these urban orthogonal plan structures. It has often been suggested that Roman colonial towns or forts were taken as models. This does not seem very likely, however, as there are no concrete indications that support this idea. Other scholars have suggested that the source of the orthogonal town plans of the post-Roman period can be found in town foundations in 12th-century Italy, 11th-century Flanders or England in the 8th century. In our opinion, however, there is no one and only source for the orthogonal town plans in Europe in the post-Roman period. Much as, on a world scale, the orthogonal plan was ‘invented’ independently in the ancient Near East, China and central America, it seems to have been ‘invented’ on different occasions in post-Roman Europe as well. After all, it is a fact that when the human mind seeks to create order on a two-dimensional plane - and the idea of order is, of course, fundamental in town planning - the orthogonal scheme is the most obvious solution. (par.10.2, 10.2.1)

Looking at the plans of the newly founded towns of the period of about the 11th to 14th centuries, one can recognise a general development in the town plans towards greater spatial regularity, which tended to work towards true orthogonality. This tendency was especially evident during the 13th century. It seems to have been caused by a growing experience with town foundations and an increasing striving for spatial order. This increasing interest in the regularity of spatial partition had to do with the pecuniarisation of the land due to its growing scarcity relative to the increasing population, as well as with the general trend of quantification, which changed the perception of time, space, movement and matter. Apart from that, the desire for a regularized spatial urban order also had to do with symbolic values.13 (par.10.2.2)

After the high-period of town foundation, in most regions of Europe ending about halfway through the 14th century, relatively few new towns were created until the 19th century. Curiously enough, however, we are much better informed on the theory of town building from about the 15th century on by theoretical writings, and on actual projects by documents. The theoretical works were mostly treatises. These were initially inspired by the architectural treatise De Architectura libri X of Vitruvius, from about 30 B.C. This work had been copied ever since antiquity, but by the 15th century it inspired authors to write architectural treatise of a more or less similar sort. Therefore, there is a distinction to be drawn between the period of about the 12th to 14th centuries and that of about the 15th to 18th centuries. In the first period many new towns were created in Europe; but we barely know anything about town building theory in this period, presumably because there was not much explicit theorisation in this field. In the second period it was the other way around. So, from the first period we mainly know practice, and from the second we mainly know theory.14 (par.10.3)

In the second period, many new towns were built under European rule, but this happened mainly in the overseas colonies. Like the Greek and Roman colonial towns, these new settlements were mostly laid out on orthogonal grid plans. Various scholars have claimed that the planners of the new colonial towns, particularly the Spanish, were explicitly inspired in this by Roman examples and by Roman theory and that, therefore, the new towns formed a genuine product of ‘renaissance’ thought. This idea is, however, largely wrong. It seems to stem from an inherent urge to link historical events to what have generally come to be seen as typical ideas of the period, in this case ‘the renaissance’. Actually, the layouts of the new colonial towns rather appear to be the product of the tradition of new town planning in Europe in the previous centuries, as were most of the relatively few new towns that were still being created in Europe. In fact, the new towns that had been created in Europe were also ‘colonial towns’ in a certain sense: particularly those that were built in newly conquered territories, such as those founded by the English in Wales and those founded in Spain after the reconquista from Muslim rule. But in another sense it also holds for those that were created in territories that were newly reclaimed and opened up to interregional trade, as with many of the bastides and towns in Eastern Europe and the Baltic. Even the Florentine terre nuove can be seen as colonial towns, in the sense that they were colonial foundations of the city of Florence in a rather hostile countryside. (par.10.3.1)

13 See par.8.6.
14 This dichotomy is treated in more detail in chapter 11.
The regular orthogonal grid was used over and over again through history, for creating new spatial order on the land and, particularly, in nucleated settlements. This is not so strange, since it is the simplest system for regular allotment and orientation that we know. With this system, authorities could enforce their spatial order on existing natural and cultural structures. In this way, it could function as an instrument and symbol of dominion, of man over nature or of one authority over society. (par.10.4)

As already noted in chapter 10, many more towns were newly created in the 12th to 14th centuries than in the centuries before and after; for that reason we have used the term ‘high-period of town foundation’.15 Despite that fact, the general idea that people have (the lay public as well as many scholars) is that real town planning only came to be practiced from about the middle of the 15th century. The idea is that the art of town planning was reborn under the influence of recovered knowledge of antique theory and practice during the so-called ‘(Italian) renaissance’. Since about the 19th century, scholars have thought that the straight street, the orthogonal town plan and spatial regularity in general, are typical aspects of ‘renaissance town planning’; and, conversely, ‘the medieval town’ has been regarded as an irrational and irregular ensemble of winding streets and narrow alleys within a tightly confining town wall, which has grown more or less spontaneously. Despite the more recent publication of various studies that clearly show that this image is wrong, it is still adhered to by many scholars. Chapter 11 goes into this traditional perception of the form and formation of the ‘medieval town’ and how it came about, the question of why that perception does not correspond with the material treated in this study, and how this conflict might be solved.

The misconceived cliché images of ‘medieval’ and ‘renaissance town building’ are due to the selective non-representative choice and over-generalising treatment of examples of historical urban structures (Siena, Bruges, etc.) and to axiomatic ideas with regard to non-rational and rational thought in the periods of ‘the middle ages’ and ‘the renaissance’ or, for that matter, ‘modern times’. In general history, and maybe more so in art history, the periods of ‘the middle ages’ and ‘the renaissance’ are traditionally viewed as contrasting temporal entities, and this view has also been forced on the history of town building. Concluding from the material treated in the previous chapters, it is obvious that the cliché image of ‘medieval town building’ is incorrect. (pars.11.1, 11.2, 11.4)

And the same holds true for the cliché image of ‘renaissance town building’, since it is based largely on the theoretical writings of the 15th to 17th centuries and the few towns that were built according to their principles, and not on the general practice of town building in the period. Considering the actual practice of town building, it clearly appears that the idea of the antithetical juxtaposition of ‘medieval town building’ to ‘renaissance town building’ is largely nonsense. In fact, there was an ongoing development rather than a sudden change. There surely were more or less sudden changes, but these concerned town planning theory (the new theoretical treatises) and fortification techniques (polygonal circuits of earthen walls and ditches with projecting bulwarks instead of stone walls with towers), and these new elements had only a limited impact on the actual practice of new town building. (par.11.3)

The misconceptions considering the development of town building through history appear to have been largely caused by the historiographical practice of classifying history into distinct periods, in this case ‘middle ages’ and ‘renaissance’. This classification into periods was originally meant as a model, a tool, for the study of (art) history. But little by little the canonical historical periods have come to be seen as an historical reality. The imperative vision of history as being divided into the separate periods of ‘middle ages’ and ‘renaissance’ or ‘the modern period’, has blurred our view of real developments in the history of town building, and has led to the distorted cliché images of ‘medieval’ and ‘renaissance town building’. The careless use of period classification easily leads to the confirmation of the model, at the cost of a proper view of continuity and gradual developments. (par.11.4)

Periodisation can be a very useful tool for the study of history, particularly specific aspects of it. For instance, periodisation in geologic periods, in cultural eras (such as the paleolithic or the industrial eras), in political-administrative eras or ruling dynasties can be very sensible and helpful, as long as we do not take the periods as absolutes. It seems, however, that the classification into art historical style periods, such as roman-esque, gothic, renaissance, mannerism, baroque, etc., which in itself is quite subjective (as the distinctions are not very clear or generally accepted), has led to a lot of confusion and unwanted connotations being associated with the period-terms. This confusion has become even greater as the terms for the styles and style-periods of art historical origin have found their way into other historiographical disciplines. (par.11.4)

15 See pars.0.1.1, 0.2.2, 10.2, 10.3.
Based on the study of the history of town building one can conclude that it is obvious that the classification into the traditional art historical style-periods or even the more general historical periods of ‘middle ages’ and ‘the modern period’ is, for the most part, quite senseless. In my opinion we should be very careful with periodisation, and particularly with the traditional art historical style-periods. This goes for the study of the history of town building, but also for other historical disciplines. In general, it would be wise to use more neutral time indications than the terms applied to the traditional (art) historical periods with all their connotations, and we should not immediately classify history into periods or styles without there being a concrete necessity to do so. We should keep an open mind, and we must try to use the historical matter, event or thought under consideration to teach us about history, instead of forcing it into our view of history before it can tell us its story. (pars.11.3, 11.5)

12.2 Concluding remarks

After the foregoing summary of the introduction and chapters 1 to 11, this study will conclude with a number of remarks following from what has been discussed before. A number of aspects and outcomes of this study will be highlighted and examined in a wider context than was possible in the foregoing chapters. Finally, some suggestions for further study will be offered.

12.2.1 Creating an overview of complex history: how historical generalisations led to erroneous ideas about the history of town building

Our view of history is, to a large extent, determined by our present-day situation and our experience of it. But, conversely, what we know of our history determines for a large part the vision of ourselves and our world. This is also true for the present subject. The view of historical town building in Europe in about the 12th to 16th centuries, as expressed in many publications, is not just based on the historical material and written sources, but often also, to a large extent, on mental images of the present and of history in general, and in this case more specifically the periods of the ‘middle ages’ and the ‘renaissance’.

Thus, many people over the last two centuries or so believed that really purposeful and rational town planning could not have existed in the ‘middle ages’, since it is generally supposed that ‘the ideal city’ and the sense of the society as something which can be ‘constructed’ only came with the ‘renaissance’ and that real rationality only came with the ‘enlightenment’. According to other historians, however, the creation of new towns from about the 12th century on could be seen as a typical example of anti-feudal politics on the part of the commercial class. In this view ‘the medieval town’ was regarded as a sort of prototype of the bourgeois society of the 19th and 20th centuries. Another example of an idea which has been strongly influenced by a general view about a historical period at large, is that town planning of the 12th to 14th centuries was mainly determined by considerations of a military nature, thus reflecting the idea of the ‘middle ages’ as a period of almost constant armed conflict, within a chaotic and violent world. These ideas are essentially wrong: though all of them may be partly true, they clearly fail to give an accurate impression of the situation in general.

I believe that the general view of the structure and creation of urban form in the past has been too greatly influenced by constructed visions regarding contemporary (i.e. ‘modern’) society on the one hand, and the idea of the course of history as a succession of distinct periods on the other. People generally want urban form to reflect those constructed visions. That is why many people find it hard to believe that there actually was such a thing as town planning before the 15th century: they often think that towns grew haphazardly or ‘organically’. The problem here is that when we do not know historical facts, we mostly fill in the hiatus according to a holistic view. It is even worse than that: when we do know the facts, we often disregard them if they conflict, or are difficult to fit in, with our holistic view. The point is, of course, that we generalise too much and we do not like conflicting evidence that contradict the categories which we divided our world into: to all too many people the ‘middle ages’ are dark and superstitious, whereas the period of the ‘enlightenment’ is luminous and rational, penetrating into the deepest corners of society. Such bluntly generalising

16 See pars.11.1, 11.2, 11.4.1.
17 See par.9.1.6.
views are very static and are cherished by the general public because they make the world and its history easily comprehensible. At least, that is what people silently hope; but in actuality such over-generalisations merely provide a largely false impression of things.

12.2.2 Individual cases versus general conclusions and classifications

Hundreds of new towns, or possibly even thousands, were created in Europe in the period of about the 12th to 15th centuries, and particularly in the period of about 1200 to 1350, which I have called 'the high-period of town foundation'. This was the main period of urbanisation in Europe before the industrial revolution. Of course, I could not include all the new towns created in this period in this study. Instead, I have given closer attention to three groups of new towns of the period in three specific regions, and I have tried to give an impression of the differences and the similarities between them. In chapters 5 to 11 other towns from other regions in Europe were also considered, at least to the extent that they could provide information relevant to the specific subjects treated in these chapters.

It clearly appeared that all the towns were (and are) different, despite the fact that there are many parallels. No two have identical plans, and their three-dimensional form and history are even more different. This even holds true for the time shortly after their creation. Among the towns there are various significant differences, and there are various cases that are quite unique in certain aspects. This does not mean, however, that we cannot make general remarks about the group of newly founded towns as a whole or phrase conclusions that are valid for the vast majority of the towns: that is precisely what this study is about. Nevertheless, we have to be very careful with approaching the creation of new towns in the period under study as a 'standard model' or even a set of standard models: it should always be kept in mind that there are exceptions and variations.

For that reason, I have explicitly chosen not to follow the typological approach that has become more or less common for the study of urban form in the 11th to 15th centuries, and for that reason the conclusion in the last chapter was negative in its appreciation of the traditional scholarly approach of 'medieval town building' as opposed to 'renaissance town planning' or 'modern town planning'. These approaches are remnants of typically 19th-century scholarship that are not, or no longer, helpful for a good understanding of the history of town building. In the 19th century systematisation became the essential program in the fields of science, philosophy and politics. It was believed that systematisation could order, explain and improve the world. One of the most influential examples of this was the systematic classification of living creatures by Carl Linnaeus. Other examples, some of which were inspired by the Linnaean system, are the systematic classifications of chemical elements (the periodic table), climates, soils, languages, races, and human skulls. Systematisation also became a primary aim and instrument in the new academic disciplines of history, art history and geography, and this resulted in, among other things, the systems with which we are concerned here: the town plan typologies and the periodisation of (art) history put forward by architects, geographers and (art) historians.

In various disciplines, this preoccupation with systematisation has led to negative or even disastrous results (e.g., in psychological typology, phrenology, and ethnology), and by now it is clear that many facets of reality are impossible to capture in simple systems or classifications. This also largely holds true for the classifications of newly created towns of the 12th to 14th centuries on the basis of formal plan types. It is possible to propose such a classification in order to come to an overview of the subject, but it is of very limited use for the study of history, and sometimes it even obstructs the understanding of history.18 In chapter 11 I argued that this also holds true for the periodisation of the history of urban planning, and (art) history in general, into (style) periods like 'medieval', 'romanesque', 'gothic', 'renaissance', 'baroque' or 'modern'. These classifications are based on rigid generalisations of complex history, and should not be confused with historical reality.

I believe that it is often wise to try and strike a balance between an individual approach and generalisation. This depends, of course, on the specific aim of the research; but with respect to the study of urban planning in Europe in the period under discussion, a subject of which relatively little is known, it seems by far the best option.

18 See pars.0.4.2, 2.10.3.2.
12.2.3 Different perceptions of urban design in the 12th to 15th centuries

The period of our concern is commonly called the ‘middle ages’, or more precisely the ‘late middle ages’. As has become clear in chapters 10 and 11, this period is generally viewed as essentially distinct from the centuries which preceeded and followed it, and this is particularly the case with regard to the historiography of town building.

In the past 150 years there have been four basic perceptions of urban design in the ‘middle ages’, which span a spectrum between completely opposing ideas, varying from ‘no design’ to ‘very complex design’. At one extreme is the idea that there was no design, but only ‘organic growth’. This idea developed as students of ‘medieval town building’ focused particularly on the irregular structures that were appreciated so much as ‘picturesque’ since the 18th century, and as they supposed that people did not yet think rationally in the ‘middle ages’ and were not yet able to shape their environment through coherent planning.19 The second perception is that there was, indeed, design, but that it was purposely irregular and picturesque. Since the late 19th century architects and town planners searched for common principles behind the forms of the ‘picturesque’ urban structures of the ‘middle ages’, in order to be able to apply these principles to their own work. They actually managed to formulate such principles, but they mistakenly assumed that these were the principles the ‘medieval town planners’ had worked from: they believed that the irregularities had been wilfully planned.20 The third perception of urban design in the ‘middle ages’ is that it was simple and largely pragmatic: it was based on the simple geometry of straight lines at right angles, which was often adapted to the form of the landscape.21 The fourth perception, finally, is that the design of the urban plans was highly ordered by the application of complex geometry, largely underlying the design and therefore not directly visible in it. Since the 19th century, scholars have claimed - sometimes explicitly in line with the second perception - that architectural design in the ‘middle ages’ was based on more or less complex geometry. This idea was augmented by various texts of the 10th to 15th centuries which made clear that the art of geometry was very highly valued in philosophy and that it played an important role in architectural design; but it was also, in part, founded on the idea that ‘medieval masons’ used secret methods for their designs. Based on this idea, scholars have tried to reconstruct all kinds of geometrical design methods for specific buildings and town plans. For the most part, these reconstructed design methods are highly complex.22

The various perceptions of urban design in the ‘middle ages’ often have much to do with ideas people have (and have had) of town building in their own time. For instance, Camillo Sitte and particularly his followers, from the late 19th century up to the present, believed that irregular plan forms and curved or crooked streets make for better and more beautiful cities. Almost conversely, the modernist Le Corbusier and his followers from the 1920’s on, believed that highly rational and regular structures with straight lines and right angles are a sign of human rationality and civilisation, on which good and orderly cities are built, whereas the curved streets of the middle ages’ are only variations of ‘the donkey’s path’.23

In connection with the last three perceptions, all kinds of meanings have been attached to urban form, ranging from the irregular forms giving expression to ‘the medieval soul’, to adaptation to the landscape expressing a sensibility for nature, to an implicit meaning in the striving for regularity and order, to the expression of more or less explicit (though not directly visible) meaning through the underlying geometrical figures being used as symbols, for instance of the holy cross, the divine trinity, the imperial eagle or the cosmos.24

The idea that there was no urban planning at all in the period under discussion is very wrong, although it is true that there were towns and urban units, commonly the most irregular, that were created without a coherent plan. The second idea of urban design in the ‘middle ages’, namely that planning was deliberately irregular and ‘picturesque’, is also wrong. Order and regularity, involving straight lines, right angles and equality or proportionality, were the aesthetic standards that were commonly aspired to.25 Therefore, the third perception, of urban design making use of simple geometry and rational dimensions, ideally regular but for the most part adapted to the form of the existing natural and manmade landscape, provides us with

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19 See par.11.1.
20 See par.11.1. Alberti’s praise for the curved street and the labyrinthine street structure in the 15th century was erroneously taken as an important source for this idea. (see par.11.2)
21 See pars.6.1, 6.5, 11.1.
22 See pars.6.2-6.5.
23 See par.11.1; Sitte 1965 (orig. 1889); Le Corbusier 1971 (orig.1927); Lilley 1999.
24 See pars.6.4-6.5, 8.6.4, 11.1. See also Boekefijn 1999 (2).
25 See par.8.6.
the most adequate view of the practice of town planning in the period under consideration here, the 13th and 14th centuries. But this probably also holds true for the preceding centuries, from about the 11th century on, and in the following centuries, indeed, up to the present time. As for town planning theory in the following centuries, however, this is different, as radial planning (from the 15th century on) and ‘picturesque planning’ (starting with Alberti in the 15th century, but particularly from the late 19th century on) were very important, actually having a considerable - but not decisive - influence on practice. Regarding the fourth perception of urban design in the ‘middle ages’, that it was generally based on complex geometrical methods, our opinion is that this is wrong. However, there appear to be exceptions: from our analysis it seems likely that the plans of four towns, founded by the city republic of Florence in the first half of the 14th century, were indeed designed with the help of complex geometrical methods. Therefore, it seems quite possible that other urban structures were also designed in similar ways, but I have no concrete clues that suggest this being true. As of now, I consider this group of towns to be an anomaly in this respect.

In the development of a newly founded town there were always aspects that were not planned. Many of these were not planned because they were not found to be relevant or they were simply overlooked. Other aspects could not have been planned, as they were the result of circumstances that changed in the course of time. This happened in the period under discussion, just as it still happens in the present (though mostly concerning other aspects). Of course, present-day planning is much more comprehensive, supported by more inclusive projections, which are largely scientifically based. But nevertheless, planning can never be completely comprehensive, because projections can never be all-inclusive and correct, not even in a dictatorially governed state. Thus, there always is a complementary play of planning and spontaneity in the realisation of a new town, or even a new urban extension. In reality there are no completely planned towns, just as there are no towns that have come about completely spontaneously. No matter how random they may seem, distinct elements are always planned, as the land is partitioned consciously and houses are built consciously, although existing structures in the natural and manmade landscape may exercise great influence in the creation of the eventual urban form.

In the 20th century we have learned that meticulous, all-comprehensive planning of new towns can never cater to the change of circumstances over time - and as we probably all know, circumstances of decisive influence can change considerably and unexpectedly within a short period of time. In view of that reality, various town planners have drawn the lesson that it is better to leave many aspects open for detailed planning until the time of realisation of the proposed new urban unit is actually there: flexibility has become a virtue in town planning.

12.2.4 General motives for town foundation and the international system of market trade

In many parts of the world, since at least the third millennium B.C., towns were newly founded and planned by rulers and governments, because it served their needs in one way or another. In Europe, it was particularly in the 13th and 14th centuries that many new towns were founded. The founders were landlords who ranged from those of very high stature, such as emperors or popes, to those of quite limited importance, such as knights or abbots, and, in Italy, civic administrations also founded new towns. These landlords sought to make use of the population growth, the economic prosperity and the developing economic structures of the time, in order to consolidate and increase their power and income. To accomplish this, they used towns as their instruments. In some cases it is known that the local population actively stimulated the creation of a town, while in others it is known that people had to be forced to move from the countryside to a new town.

Beyond this generally formulated goal of the founders – to consolidate and increase their power and income – there are a variety of concrete intended functions of the towns. For instance, some were specifically founded to serve as a fortress, to defend a region or to guard a trade route; whereas others were founded mainly to act as market towns, port towns or administrative centres. But in the end, the prime motive for town plantation was always that the founder gained some advantage from it, be it by collecting more rents

26 See pars.6.3.3, 6.5, 9.6.
27 See pars.10.3, 11.2.
28 See par.11.1.1.
29 A good example of this flexible approach to (new) town planning is the city of Almere, which is built on the newly reclaimed land of the Flevopolder in The Netherlands. (see Brouwer 1999)
30 See par.9.1.
and taxes, by a stronger military position, or by enlarging his territory.

It was not just the towns themselves from which the founders hoped to profit. A town was always planned as central place within an area. Many towns appear to be founded in order to make more profit from a specific area within a lord’s domain and from the people living there, or to get a firmer grip on the area and its inhabitants. Almost all newly founded towns can be seen as ‘colonial towns’ in that sense. The towns ‘opened up’ the adjacent areas of which they formed the principal nodes to more intensive cultivation and interregional trade and, thereby, to more intensive exploitation.31 By way of these urban nodes the areas could communicate with other centres, through markets and fairs, but also through administrative and religious institutions, and sometimes schools.

Thus, the land and the people living on it could be effectively colonised by the lords. But, on a different level, we can also speak of colonisation by a new system: the international system of market trade, which, with increasing speed, opened up local economies. That is not to say that the economies had been completely closed before: there had always been some trade over longer distances. But in the 12th to 14th centuries, with the foundation of many hundreds of new towns in most parts of Europe and the growth of towns and cities in general, interregional contact intensified dramatically: people, goods, techniques and ideas increasingly travelled the roads and waterways in all directions. The concentration of people, activity and capital in urban centres led to domination over the surrounding areas, and through these nodal points the areas became connected to the network of the larger world of Europe, and eventually, via central places of a higher order like London and Venice, even to regions beyond Europe.

12.2.5 General remarks on the results of this study

Looking at the results of this study in general, we have to conclude that, in many aspects, they are refuting in character. Some of the conclusions of our research are:
- The idea that the new towns of the period were primarily founded or designed to serve considerations of military tactics is wrong.
- Almost all of the theories according to which town plans were designed or set out by the use of complex geometrical manipulations are wrong.
- Contrary to what often is assumed in the scholarly literature, there are no concrete indications which suggest that there were professional town planners in the period under discussion.
- The common tendency to classify the towns under consideration into typologies on the basis of their plans generally has not lead to a positive enhancement of our historical understanding.
- The almost generally accepted classification into historic (style-)periods does not make sense for the present subject.

In some sense these conclusions all refute older theories and methods. I hope this will contribute to a better understanding of new town planning in the 13th and 14th centuries, and also in the wider context of the history of urban creation. Partly, I have been able to suggest alternatives for these older theories and methods, but I am aware that these alternatives often are not as straightforward as the older ones. There are, however, also many new results that do not refute older ideas, but contextualise them or focus, enhance or develop them.

In historical scholarly research, it is often hard to draw generally valid conclusions or even very solid conclusions for particular cases. For example, our investigations have lead to the conclusion that it is highly likely that complicated geometrical design was used in the planning of the Florentine terre nuove, but that it is very unlikely to have been used in the other cases where such a method has been suggested in earlier literature, as for instance the case of Grenade-sur-Garonne.32 These are things of which we can not be completely certain.

Something we can be more sure of, however, is that basic geometrical regularity was the general ideal of (urban) spatial order in the period under consideration. This appears quite clear, not only from the streets that were actually built, but also from contemporary texts which speak of straight and winding streets.33

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31 See par.10.3.1. According to Anthony King (1990, p.15) the city is always an instrument of colonisation, because cities control the hinterland, need the hinterland’s surpluses for their existence, and function as gathering points for surpluses that are exported to other cities.
32 See ch.6.
33 See par.8.6.
Nevertheless, many new towns of the period under discussion have streets that are not straight. In many cases this can be explained quite well from the form of the landscape as it previously existed, but often the actual reasons are not clear, and cannot be known due to the lack of sources. So, in a number of places throughout this book where I actually wanted to explain why a certain street is not straight (or other formal irregularities) I could only hint at circumstances the specific nature of which is not presently known.

This is just an example to show the difficulties of historical research on a subject for which there are so few clear sources. One often has to carefully formulate assumptions that cannot be supported by absolute evidence, but only by analogy or logical reasoning. This is inherent to the study of history. We try to unearth what happened in the past, with the explicit knowledge that we can never know everything, since sources are scarce, often hard to interpret and not always reliable. And therefore we sometimes have to fill in obscurities and hiatuses with surmises. I deliberately made many such surmises, and I hope they are right; but if they are not, I hope that they will be contested in future scholarly publications that contribute further to the understanding of the creation of our world.

12.2.6 Suggestions for further research

Many aspects of what I have been dealing with in the foregoing chapters deserve more detailed research. In this section some of these aspects, which seem especially interesting or full of potential, will be briefly pointed out.

With so many similarities in the politics of founding and planning of new towns in many different regions of Europe, one of the most interesting questions is: did these similarities come about? I feel that I have not been able to give this problem the amount of attention it deserves. It seems most likely that the similarities were largely the result of imitation and, to a certain extent, of the actors independently arriving at the same solutions to given problems. Concerning the aspect of the town charters, which in many cases are our oldest written sources concerning new towns and which have been studied relatively well, this is quite clear. The regulations described in the legal charters, and often even complete charters, mostly appear to have been taken over from the example of an older town.34 But regarding the question of where the inspiration for the creation of a new town and the method of realising it came from, there is much less clarity. Most likely, new towns were inspired by successful examples. Sometimes, or possibly often, the source of inspiration was the same town as the one from which the legal charter was taken over.35

But, in order for there to have been inspiration from other towns there must have been communication. The creators of new towns must have seen successful examples or they must have been informed about them. It would be very interesting for us to know how this worked: to what extent were examples followed and how was the information about those examples communicated? These questions are very hard to answer, however, because, once again, the contemporary sources barely shed any light on this matter.36

With so many newly founded towns throughout Europe in the 13th and 14th centuries, one would expect more evidence of communication about the subject of ‘new towns’, or more precisely ‘founding new towns’ or possibly even texts on the subject of ‘how to found a successful new town’. For instance, I would expect that there were more written descriptions of newly created towns, as possible sources of inspiration.37 Do they not exist, or have I overlooked them? I also wonder if there are other texts that advise lords to found

34 See par.9.2. It must be mentioned, however, that it is still not completely clear to me how it is that urban rights and laws over almost the whole of Europe showed so many similarities, as I have not been able to find any literature that gives a clear overview of the development of urban rights in Europe in the period.

35 For instance, it has often been suggested or claimed that towns in the regions around the Baltic Sea were strongly inspired by, or even copied from, the example of Lübeck. In various cases it is clear that this (partly) holds true, at least for the legal aspects of the charters. Apart from that, however, these suggestions and claims must be regarded critically, as it appears that various scholars have too easily thought in terms of ‘example’ and ‘imitation’, on the basis of more or less superficial correspondences. (see Hammel-Kiesow 1995)

36 As described in chapter 7, various scholars have suggested or claimed that professional town planners travelled around and created towns in different places, and these people would have been important in spreading knowledge of examples. But apart from very sporadic information on a very limited number of people who worked on the realisation of more than one new settlement, there is no evidence for this assumption. (see pars.7.1, 7.9) Comba (2004) suggests that podestà’s of city-states were important in spreading knowledge of town foundations among north-Italian city-states in the 12th to 14th centuries. The evidence of their involvement in new town planning is, however, very thin.

37 The only examples I know are Marco Polo’s description of Dadu (Tai-Tu), nowadays Beijing, where he stayed in 1275, only about a decade after it was created (see par.8.6.3; Yule & Cordier 1975, pp.374-375) and Fra Salimbene’s description of Manfredonia (southern Italy), which he wrote about 30 years after its foundation. (Guidoni 1992 (II), p.81) But these texts are much more than just descriptions of newly created towns, as they are parts of an account of a personal adventure and a chronicle respectively.
towns, such as St. Thomas Aquinas’ ‘mirror of princes’ De regimine principum. Although this text was never finished, it was copied and it seems to have been fairly influential on other political treatises. I have no idea, however, if this text, and possible other texts of the same genre, actually influenced lords to found towns, directly or indirectly. It would be very hard to investigate, but it surely seems like an interesting subject for further explorative research.

Here, I also want to draw attention, once more, to Francesc Eiximenis’ late-14th century description of what form ‘the well-built and beautiful city’ ought to have. The text was originally written for the councillors of the city of Valencia as part of a political treatise. In fact Eiximenis describes a sort of ‘ideal’ urban form, most probably partly modelled on the Heavenly Jerusalem as described in the bible. Being written in the 1380’s this text is too late to have influenced the form of the majority of the newly created towns of the period under consideration. But it is quite possible that Eiximenis was not completely original in the treatment of this subject as such, or that he did not create this text entirely by himself. He may have been influenced by earlier texts on ‘ideal’ urban form. If this assumption is right, it is quite possible that such texts had an influence on lords or planners in their ideas about town planning in the period of the 12th to 14th centuries. In our opinion it would be an interesting, though demanding, direction for further research to try and find out if there actually were such texts. Even small positive results in this direction may lead to important conclusions.

This is not to say that written texts were all-important. Whether or not we have these sources, I think we can be quite sure that much, or probably most, of the information about urban creations was transmitted orally and that much of the inspiration for them came from direct knowledge of successful examples. But still, contemporary written texts are vital to our understanding of how people thought about things. Therefore, I hope that medieval historians will engage in explorative research on this subject in the future.

Another subject that deserves further research is the question of why some new towns have very regular and others very irregular structures. In this study various possible reasons are already given in paragraphs 8.6 and 9.6. It might be especially fruitful to do more research on one specific aspect of this issue: whether it is actually true that towns that were created in a short period of time had more regular structures than those that took much longer to get filled in with settlers and buildings. In other words: can it be positively demonstrated that there is a relation between the duration of the realisation process of a new town and the regularity of the urban structure? Detailed archaeological data will be essential for research in this direction.

It would also be interesting to do some more research on the analysis of the design geometry of the terre nuove fiorentine. Particularly intriguing would be to confirm whether or not our conclusions on that subject remain valid, after accurate measurements are taken in reality instead of from paper plans. And if so, it would also be interesting to do some more research on Guidoni’s theory of the proportioning of palazzo facades in 13th century Tuscany by way of the quarto di cerchio and its possible relationship to the design method of the town plans.

Of course, if there are other possible cases of town plan design by way of complex geometrical constructions which are not known to me, these should also be examined closely. All the more so if the suggested measurements in reality would leave our conclusions regarding the four terre nuove correct, as it is strange and unlikely that these towns would be the only ones designed by use of such complex geometrical methods.

The material treated in this study is primarily concerned with western and southern Europe. This is mainly because of a pragmatic consideration: for these regions there is relevant literature which I can read. It is a fact, however, that hundreds of new towns were created elsewhere in Europe, particularly in Central-Eastern and Eastern Europe. This is a very large area with many different countries at present, from Poland

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38 The book was probably written around 1265 for the king of Cyprus, but it was never finished. In this work it is claimed that towns and cities are the best place for man to live, and that the foundation of cities is therefore one of the most important functions of a king. The text deals extensively with the foundation of towns, among other things, with respect to their siting and political organisation. Not much is said, however, about the actual creation of a new town or about urban form. It is not impossible, however, that this was planned but not realised, as the book remained unfinished. (Aquinas 1980; Aquinas 1997, pp.117-140). St. Thomas also wrote other interesting things on the organisation of society, above all of urban society, which influenced many others, like Peter of Auvergne in his Politica (from the late 13th century; Lanza 1994), Egidius Romanus in his De regimen principum (from the second half of the 13th century) and Bartolo da Sassoferrato’s De regine citatiarum (from the first half of the 14th century). (Gaudiani 1992, p.16).

39 See par.8.6.3.1. The book was originally written in 1290-1294 as Regimen de la cosa pública (edited by P. Molins de Rei, Regimen de la cosa pública, Barcelona, 1927) for the councillors of the city of Valencia (Garcia y Bellido c.s. 1968, p.152), and was re-edited in the twelfth book of Eiximenis’ encyclopedic work, El Cristià, under the title The Princely Government: of the cities and the public cause. The specific description occurs in chapter 110: Which form should the beautiful and well-built city have (Quina forma deu haver ciutat jelle e ben edificada). (re-edited: Puig i Cadafalch 1936)

40 See par.8.2.1. The book was originally written in 1382-1384 as Regimen de la cosa pública, and was re-edited in the twelfth book of Eiximenis’ encyclopedic work, El Cristià, under the title The Princely Government: of the cities and the public cause. The specific description occurs in chapter 110: Which form should the beautiful and well-built city have (Quina forma deu haver ciutat jelle e ben edificada). (re-edited: Puig i Cadafalch 1936)


42 See par.9.6.3.

43 See par.6.4.3.1 and fig.6.25.
to Greece to Russia, for which I have not been able to find or read much relevant literature. In part this is because I do not read the languages and in part because the literature has not been available to me, because these countries have long been more or less isolated from Western Europe. It is also possible that there has not been much research into the subject under consideration in these countries. This may also hold true for other regions which are of great interest, but on which I have not found much relevant literature, such as the Iberian Peninsula and Scandinavia. But nevertheless, it would surely be worthwhile to do research on the foundation and planning of new towns in the 13th and 14th centuries (and probably also in the preceding and following centuries) in these regions of Europe. Such a study should preferably be published in English. Possibly, the results could complement the present study; but it is also possible that they would not be in line with our conclusions, which would not make them any less interesting, however.

So, there is still much to be researched. And we should also be aware of the fact that there is also still much interesting material in Western Europe, hidden in archives, behind the younger facades of buildings or buried under the ground. It is possible that some of this material might hold information that could be vital to our understanding of the creation of new towns in the period under consideration.

Finally, I would like to suggest an instrument for gaining a better overview of the creation of new towns in the period under consideration, and in the earlier and later periods as well. Throughout this book I have claimed that hundreds, and probably thousands, of towns were newly created in Europe in the 13th and 14th centuries. But these numbers are very vague and are mainly founded on research in Great Britain, southwest France and Central Europe.44 It would be very helpful to have an instrument that would bring together more information on urban creation in the past. I am thinking of a database with basic information such as names, places, founders, plans and sources, coupled to a map (of Europe or, better still, the world) and available through the internet.45 Preferably, scholars from different countries should contribute to it. With the help of such a database we could get a better view of the spread of newly created towns and of different sorts of towns, for instance when grouped by period, founder, main function, or type of location. This could also facilitate quantitative research into specific aspects of new town creation.

There are, of course, many more aspects, regions and methods that deserve to be given more scholarly attention with respect to urban creation in the past, but I believe that the suggestions given above may specifically lead to results that would help to gain a better understanding of the subject. These are mainly suggestions for research in history, more specifically architectural history. In addition to that, however, I expect that very important results may be gained by archaeological research. There are thousands of sites in cities, towns and former towns which are likely to contain, just below the surface, valuable information on the early stages of the formation of the towns. I hope that many of these sites will be investigated by archaeologists in the future, and that their results will blend with the results of historians, historical geographers and architectural historians in order to reveal a better picture on the creation of towns in the past.

44 See par. 0.2.2, esp. n.44.
45 A good initiative for such a database coupled to a map is to be found on the internet site of the international New Town Institute. (www.newtowninstitute.org) This database is still very limited, as it was only initiated in 2006, and is still particularly oriented on The Netherlands and the 20th century (like the institute itself), but it has the potential to develop into a more complete source of information, particularly when more scholars would contribute, when the data would be defined more precisely and when the metadata would be provided.
APPENDIX A

DESCRIPTION OF THE PROJECT FOR THE NEW TOWN OF GIGLIO FIORENTINO, 19 MAY 1350

This document is very important because it gives a good insight into the project for this town in the stage after its plan was designed but before it was built. In fact, the town was never actually built, because the project was aborted for reasons that are not precisely known. The document is all the more important because it is the only clear source providing solid and detailed information about the spatial planning of a town that was to be newly created in Europe before the 15th century. The document also contains important information on other aspects of the planning of the new town, such as the forced population of the settlement, the ritual of invoking the proper saints and the apparent importance of the proper denomination of the gates.

The document was drawn up on 19 May 1350 by the Ufficiali della Castella, a committee which, only a short time before, was made responsible for the fortifications in the Florentine countryside. It is kept in the Archivio di Stato in Florence, in the archive of the Ufficiali della Castella (Uff. Cast.) under the code Roche 1, fols. 15v.-18r. The document was published by David Friedman (1988, pp. 337-343) in its original language (Italian and the final sections in Latin) with a translation in English. The text below is largely copied from Friedman’s translation, but some sentences have been slightly changed in order to stay closer to the original Italian/Latin text as published by Friedman.

“And the said officials, establishing in the Valdambra where would be a site that would be most useful, appropriate and ample for the placement of the town which has been ordered for them to delineate, place the said town in the Valdambra on the site which is called Selva Piana. They place it, and mark it, and fix the stakes and organize it in this way: so that it shall have a length of 470 braccia and a width of 246 braccia. And that the said town shall have four gates of which one will face towards Florence and be called Porta Fiorentina, another shall face towards Arezzo and be called the Porta San Pietro, another shall face towards Siena and be called the Porta San Quiricho, and another which shall have to face towards Laterina and it shall be called the Porta San Giovanni.”

[In the margin opposite the preceding sentence: “The commune of Florence will help to build these gates and the officials of the city shall pay that amount which shall be established by the office of the Signori and the officers of the Castella.”]

“And the said town shall be surrounded by ditches and for the present be enclosed with palisades and turrets and a the right time be walled.

“And at the said place [are] invoked the name of God and of the Blessed Virgin Mary and the glorious apostles Saint Peter and Saint Paul, the blessed Saint John, Saint Zenobius, Santa Reparata and the other saints of paradise. In honor and celebration and support of the popolo and commune of Florence and the Parte Guelfa and for the honor and growth and maintenance of the said town [the officials] they gave it a name and they called it Giglio Fiorentino. And the device and the arms of the said town shall be a blue lily on a yellow ground with a rastrello above and on one side of this lily shall be a shield with the arms of the popolo of Florence and on the other shall be another with the arms of the commune of Florence.

“And in the middle of the town shall be a piazza 90 braccia long and 70 braccia wide. And in this piazza shall be a well. And flanking this piazza, on one side, shall be a house of the commune with a loggia in which the official of the town shall reside for the commune of Florence. And on the other side, flanking this piazza, on the upper side, shall be and will be built the church of the parish of Saint Peter. Above the corner of the town facing Montuotii [= castello di Montozzi] shall be built a tower high 40 braccia, with a projecting machicolated gallery of stone at its summit and the tower shall be solid for four braccia above the ground. And the said tower shall have two vaults, the one at a height of ten braccia and the other in the upper part of the tower. The tower shall have a length +including the walls* along the length of the town ten braccia and along the width of the town eight braccia wide. And it shall have a battered base all around and [*"lat..." = canceled] And the walls of the tower shall be as wide as the walls of the tower of the keep at Laterina, and the tower shall be surrounded by a ditch and moat inside and outside of the town with a drawbridge and a small doorway which provide an entrance and an exit to the town.

“And inside the tower there shall be two floors of wood, covered with brick as is appropriate. The tower shall be well founded and at the foot of the tower a well shall be made. And around the tower there shall be made a walled enclosure wide and spacious ten braccia all around the tower with a small gate toward the town and another toward the countryside. And the ditches of the town shall be 20 braccia wide at the mouth and 10 braccia deep. And at the bottom the ditches shall be ten braccia wide.

“Inside the said town there shall be nine streets. One shall be inside along of the walls of the town, 10 braccia wide ["above..." = canceled] alongside this street and flanking it shall be houses 10 braccia wide and long. Then there shall be another street eight braccia wide and alongside and flanking that street shall be houses long 20 braccia and ten wide. And subsequently there shall be another street ten braccia in width on which shall be houses 20 braccia long and 10 braccia wide. And then there shall be another street ten braccia wide, which runs into the piazza of the town and on this street shall be houses twenty-eight braccia long and 10 braccia wide which extend to the main street. And subsequently there shall be made a main street which will be fourteen braccia wide and subsequently in the other part of the town houses and streets shall be made just as it is designated and written above. *And this main street shall run the length of the town. And another street similar to the said street shall be made in the middle of the town across it.

“And on each corner of the town shall be made a false tower [this is a tower that is open at the backside].

“And outside the town the market shall be held on the Saturday of every week."* [In the margin, next to the sentences between the asterisks: “If all the houses which are built on the main streets shall have at least one enclosed upper storey when they are finished, covered with stones and tiles. And that the front walls shall be of stone or brick and shall rise 10 braccia above ground.”]

“And in the said town must come and live permanently all the men and persons of these communities and places with all of their families, houses, equipment and things ["below..." = canceled] by the middle of August” = canceled) “this coming September" [in the margin: “note concerning extension of deadlines"] “or face a fine of C/V (= five hundred) lire; and so [the officials] command. That is: the men and persons of Castiglione Alberti with their possessions; the men and persons from the Badia of Agnano with their possessions; the men and persons from the Pieve a Prisciana [in the margin: “note about the establishment of prices, note about the distribution of lots of land”]

“And by the end of this coming November these men and persons will similarly come to live in the said town, as said and with the same penalties, that is:

“the men and persons of the village of Campanolle and of San Lorentino

“the men of the comune of Monte Lucci

“the men of the comune of Cacciano

“the men of the comune of Cornia

[in the right-hand margin next to this list: “This deadline may be extended by the lords priors and the officers of the Castella”]

“And the houses of these villages shall be dismantled.

“And the bell tower of the Badia of Agnano shall be reduced in height.

[The following is an addition in another hand:]

“And whoever moves into the town within these deadlines, if he is from one of the above places, shall have a [tax] exemption for five years. And if he is from outside the contado and distretto of Florence he shall have that exemption once he had lived in the town III -n/I- [=years].

[The following is added on a separate page in Latin]

“And the land for this town shall be bought for the comune of Florence for a price not exceeding ["CC lire" = canceled] C florins by the aforesaid officials or any of them or anyone appointed by them; which price be paid as above.

“And anyone who receives permission ["vol..." = canceled] to build [in the town] shall have a perpetual rent of one ["denari" = canceled] chicken annually ["dando" = canceled] to the officials of the lords priors on the feast of Saint John. And it is sufficient when one man presents (the chickens) of all. And he may bring them (into the city) without paying the gate tax.

“And the [houses before the streets and squares = canceled] may be

“And those who shall make these front houses must raise them at least one story above ground by the first day of May 1351 or be penalized XXV lire.

“And the podestà and vicarius of the Valdarno with -1- man from each of the said communes, shall distribute the aforementioned lots. And the podestà shall see that this is done and punish disobedient persons [with fines] of up to X lire.”
In this appendix, the theories of geometric design that are very briefly discussed in paragraph 6.4.1.4 are considered in more detail (par.B.2), and subsequently the three theories that remain as plausible options are compared to the modern town plans in detail, discussed per individual town. (par.B.3) The final paragraph contains an overview and comparison of the basic dimensions of the plans of the terre nuove.

B.1 Method of analysis of theories concerning the design method

In the following paragraphs various theories of geometric design are critically discussed. Additionally it is checked to what degree they correspond to the plans of the terre nuove. In order to do this, the optimal method would be to take all relevant measurements of the present-day town plans, as well as of older accurate plan drawings, verify that they stem from the original situation, and compare them with the essential numerical values that are given by the hypothetical methods of design. However, for practical reasons it is impossible to take and compare all those hundreds, or probably thousands, of measurements. A good alternative is to use existing accurate plan drawings, and compare them to the theoretical design methods by overlaying them. This is done in the various figures depicted below and in paragraph 6.4.2.1

For an accurate analysis of the supposed design methods of the terre nuove it is necessary to compare them to the actual plans. In doing this, it is necessary to use plans that are as accurate as possible and that optimally reflect the original situation, in order to get significant results. The best plans are, of course, those that are most scrupulously drawn on the largest possible scale, on the basis of most accurate and detailed measuring. Obviously, modern plans are best suited, because of their larger scale and greater accuracy. But a problem is that modern plans show a more recent situation, which is probably more removed from the original urban plans. So, when working with these modern plans, one must always bear in mind that elements might be different from the original design. Fortunately, it is possible to check the age of architectural elements by dating them from sight, by looking at the building material, technique and style, and to check the age of plan elements by comparison with older plans.

The most accurate town plans appeared to be found at the offices of the municipal works of the respective towns. These plans are all drawn in scale of 1:500. But they are rather diverse as to the matter of the quality of the plans, since the one is obviously measured and/or drawn more accurately and more detailed than the other.

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1 These figures are created digitally, by digitising the most accurate paper plans that I could get hold of (see the following paragraph), and overlaying these with the geometric figures of the theoretical design methods by use of Computer Aided Drafting (Autocad). For a more detailed description of the advantages and possibilities of computer aided drafting in reconstructing design methods, see Stenvert 1991.

2 This terminology is explicitly related to non-digital mapping, which is already becoming quite obsolete at the moment. Unfortunately, I have not been able to get hold of digital maps of the towns in question, although that would be preferable.

3 I am very grateful for the helpful service of the staff of the respective uffici urbanistici for putting at my disposal copies of those plans. The plans that I have used are: San Giovanni: Variante del P.R.G. per il centro storico. Tav.2: Destinazioni d’uso ai piani terreni, made by Prof. arch. Gianfranco di Pietro and arch. Grazia Gobbi, scale 1:500. Castelfranco: Programma di Fabbricazione. Tav.7, by arch. Pier Lodovico Rupi and arch. Mario Maschi, scale 1:500. Scarperia: town plan by Studio Tecnico Bertini, Firenze, 1985, scale 1:500. Terranuova: town plan 1:500, which is used by the municipal works and made by the provincial cadastre, no title, plotted from a digital map.

The plan of San Giovanni is most detailed and accurate, followed by the Scarperia plan, and then the Terranuova and Castelfranco plans. The authors of the respective hypotheses on design geometry do not give information on the plans they used, but judging from their illustrations they only used (schematised) cadastral plans (1:1000 or 1:2000), for which reason it seems that the plans that I obtained are more accurate. Friedman is exceptional in having measured the real dimensions on-site in San Giovanni. (Friedman 1974, p.242; 1988, p.254, n.18)
B.2 Description and analysis of various theories of lesser importance

B.2.1 Higounet

Charles Higounet proposed that the dimensions of the outline forms of the terre nuove plans are simply made up of large squares with sides of 100 or 150 brachiata (162.5 or 243.75 m.) length.\(^4\) San Giovanni originally would have measured 100 x 300 brachiata, for Scarperia and Terranuova it would have been 100 x 200, and Castelfranco would have measured 150 x 150 brachiata. Analysis of the present-day plans, however, shows that these dimensions are largely incorrect, with deviations from the actual dimensions of up to 20%.\(^5\) Besides this considerable flaw, Higounet’s theory is also rather unlikely because of the fact that contemporary Florentine documents show that, instead of the brachiata, the braccia (c. 0.5836 m.) was commonly used as the standard unit of measurement in Florentine building operations in the concerned period.\(^6\)

B.2.2 Buselli

Another theory was published by Franco Buselli, in his book on the history of the town of Pietrasanta, which was founded by the city-state of Lucca in 1255 in northwest Tuscany.\(^7\) In the general sort of plan, which is rectangular with relatively long parallel rows of rather narrow house lots, this town is likely to have been a model for the terre nuove fiorentine.\(^8\) According to Buselli the plan design was made on the drawing board by use of a highly complicated geometric method, based on an 11-braccia module, connected squares, ‘golden section proportions’ and circle-geometry. (fig.b1)

\(^4\) Higounet 1962.
\(^5\) For instance: San Giovanni measured 462.50 x 190.44 m. (see below, n.14), while according to Higounet it would be 487.5 x 162.5 m., which gives deviations of 5.4% and 17.2% (of the smallest values) respectively. Higounet does not explain on what his dimensions are based, but they clearly are wrong. For the dimensions of the other towns, see par.3.9.2.2.
\(^6\) See par.6.4.1.3, n.74.
\(^7\) Buselli 1970, pp.45-66.
\(^8\) See Friedman 1988, pp.87-90.
I have tried to check Buselli’s hypothesis on Pietrasanta in an accurate modern plan.9 My analysis need not be elaborately discussed here: the general conclusion is that the hypothesis is largely wrong. In Buselli’s hypothetical design method various dimensions are adopted which deviate too much from the actual dimensions.10 Another objection is that according to Buselli’s theory modular and geometric methods would have been used at the same time, in order to determine specific dimensions by two or three different methods. This is highly unlikely since there are considerable differences in the resulting dimensions, and, more importantly, it is completely against the logic of design. A further problem is that the relation of the ‘golden section’, which would have been fundamental according to Buselli, cannot be shown to have been known in the period under consideration.11 Apart from all that, Buselli’s hypothesis is also unlikely because of its extreme complexity and internal ambivalence.

In the context of this appendix Pietrasanta is not of primary interest, but it is important that Buselli claims that the Florentine new towns, except for Scarperia, were also designed by use of certain elements of the theoretical Pietrasanta design system.12 Unfortunately these claims regarding the Florentine towns are not clarified by illustrations or dimensions, so it is not easy to comprehend what Buselli exactly means. Only with regard to the plans of San Giovanni and Terranuova he gives concrete indications as to how he thinks they were designed. In figures b2, b5 and b8 the basic elements of Buselli’s theory are depicted, and in figures b3-b4, b6-b7 and b8 these elements are visually compared to the present-day town plans.

According to Buselli, the proportions of the perimeters of both towns would have been determined by the geometric relation of the so-called ‘golden section’.13 According to this theory the numerical value of the relation of the short side of the perimeter rectangle to the long side would be approximately 1:0.4045.

The original perimeter of the San Giovanni plan, and although it conforms better to the plan of Terranuova, the difference here still is circa 3.5%, for which reason this theory does not seem very likely.16

Furthermore, Buselli claims that the exact place of the parallel front streets in the Terranuova plan is, just like in his design system for Pietrasanta, determined in relation to the positions of the central town axis and outer town walls by golden section proportions. If the distance from the town axis to the town wall is the maior, then the distance from the axis to the back street would be determined by the minor. Buselli does not mention whether the inside, the centre or the outside of this street was to be determined by this dimension; from figure b8 it becomes apparent, however, that none of these come close to the hypothetical position.17

It can be concluded that four out of five of Buselli’s concrete assertions regarding the hypothetic design

9 This plan in the scale of 1:1000 is titled Provincia di Lucca, Comune di Pietrasanta, foglio n:17, levata anno 1951, riprod. anno 1954. I obtained this plan from the Ufficio tecnica of the commune. This cadastral plan seems to be quite accurate. I checked Buselli’s theory by calculating the “theoretical” dimensions given by the proposed geometric method, and comparing these to the dimensions that I measured in the plan.
10 For instance: Buselli takes the width of streets and lots as the module of 11 braccia lucchese (6.494499 m.) and the length of the lots and the width of the piazzas as manifolds of it (Buselli 1970, p.45, 48), although the actual dimensions diverge rather strongly from these theoretical dimensions (up to 10.79% for the house lots).
11 See ch.6, n.38. Buselli is conscious of this problem, but in his opinion the antique knowledge of the golden section may have returned to Italy via contacts to the Arabic world. (Buselli 1970, p.56) He also argues that the arithmetic relation between minor and maior of the ‘golden section’ was actually known in another form in the relation of the following numbers in the ‘numerical series of Fibonacci’. (Buselli 1970, p.58) Although this is basically correct, the Fibonacci series has nothing to do with the geometric manipulations Buselli proposes for the design of the Pietrasanta plan.
12 Buselli 1970, p.34.
13 According to Buselli the golden section proportions were constructed by taking the short side of the perimeter rectangle of the town as the basis of a right-angled triangle with catheters in a 1:2 proportion. (fig.b2) In this triangle the golden section was constructed by rotating the short side to the oblique side around point E, and rotating back the other part of the oblique side to the long cathetus, which is thus cut in two so that the short part (minor) relates to the long part (maior) in the same proportion as the long part relates to the whole. According to Buselli’s theory the length of this minor doubled, should have given the total length of the town perimeter.
14 The original perimeter of the San Giovanni plan must be reconstructed by mirroring the north half of the town, because the southernmost part of the town was destroyed by a flooding in the 16th century. It is known that the plan was symmetrical from among others the 16th-century plan of Piero della Zucca. (fig.3.13) The original dimensions of San Giovanni consequently amount to circa 150.44 x 462.50 m. (based on my measurements in the modern plan (see above n.3), which gives the proportion 0.4118, diverging from the calculated theoretical value proposed by Buselli 1.80%. By mirroring the indicated dimensions in the north half of Della Zucca’s plan, the whole town would measure 358 x 930 braccia. (see fig.3.13) These dimensions relate as 1:0.4152, diverging 2.5% from the calculated theoretical value. For Terranuova the dimensions I measured are 158.65 x 332.70 m., which gives the relation 1:0.4706, resulting in a difference of 12.8% with the calculated theoretical value.
15 The width of the piazzas would have been determined by the rotation of the long side of the 1:2 rectangle over to the other long side of the town perimeter, as shown in fig. b5. The width of the piazza would thus be generated by the long side of the rectangle (x) minus the cosine value of 30 degrees, so the width of the piazza would theoretically be related to the short side of the perimeter rectangle as 0.2679.
16 The difference between the real width of the piazza, according to my measurements and the calculated theoretical value in San Giovanni (77.11 b. at most, versus 87.44 b.) is 13.40%, and in Terranuova (68.37 versus 72.48 b.) it is 5.09%.
17 The relative difference is circa 2.5 - 6.5% from the closest actual dimension, which is the distance from the central axis to the outer side of the parallel street.
method of the terre nuove plans are found incorrect. The remaining one, concerning San Giovanni’s perimeter proportions, is more or less in agreement with the actual proportions. However, since this agreement appears to be an incident, not being part of a larger system of proportioning, and since the golden section is not likely to actually have been a proportioning method in the 13th century, this agreement must be discarded as being coincidental.\footnote{18 I have also checked Buselli’s theories on the proportioning of the perimeter and the piazza on the plans of the three other towns, but there too, they clearly do not agree with the actual proportions.}

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{golden_section_diagram.png}
\caption{Figure representing the way in which the dimensional relationship of the golden section may be found by manipulation with compasses or ropes, starting from a right triangle with cathetes in a relationship of 1 : 2. The minor relates to the maior in the same proportion as the major relates to the total of the two (c. 0.6180339 : 1). (From: Naredi Rainer 1982)}
\end{figure}

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{buselli_proportion_diagram.png}
\caption{Graphic verification of the geometric method of determining the relation between length and width of the perimeter of San Giovanni according to Buselli, superimposed on the digitised modern plan. From the golden section construction with the 1 : 2 rectangle, of which the short cathetus is the width of the perimeter (along the original town wall), the maior is found, marked L. (as in fig.b2). Twice the length of this maior is set out along the main street of the town, starting from the northern perimeter side. From this it appears that the difference between this double maior length and the actual length of the perimeter is about 1%, which suggests that the theory is acceptable.}
\end{figure}
fig. b4: Graphic verification of the geometric method of determining the relationship between the length and width of the perimeter of Terranuova according to Buselli, superimposed on the digitised modern plan. The principle is the same as in figure b3. From this figure it appears that the difference between the double maior length and the actual length of the perimeter is very large, almost 17%, which suggests that Buselli’s theory is highly unlikely in this case.

fig. b5: Figurative depiction of the geometric method of determining the width of the piazzas of Pietrasanta, San Giovanni and Terranuova, according to Buselli. (Based on Buselli 1970) By the rotation of the long side of the 1:2 rectangle over to the other long side of the perimeter, the width of the piazza would be generated. This would be the long side of the rectangle (=r) minus the cosine value of 30 degrees.

fig. b6: Graphic verification of the geometric method of determining the width of the piazza of San Giovanni according to Buselli, superimposed on the digitised modern plan. By the rotation of the long side of the 1:2 triangle over to the other long side of the perimeter, the width of the piazza would be generated. In this figure the distance which is supposed to mark the width of the piazza is depicted twice: once in the place where it is actually constructed from the 1:2 triangle, and once transplanted to the actual place of the piazza, from which it clearly appears that the width according to Buselli’s theoretical method varies considerably (over 15%) from the actual width.
fig.b7: Graphic verification of the geometric method of determining the width of the piazza of Terranuova according to Buselli, superimposed on the digitised modern plan. (cf. figs. b5, b6) It appears that the width according to Buselli’s theoretical method varies from the actual width by about 5%.

fig.b8: Graphic verification of the geometric method of determining the placement of the street line of the parallel-streets in relation to the axis of the main street and the perimeter of the town wall at Terranuova, according to Buselli, superimposed on the digitised modern plan. The four triangles are basically the same as the one in fig.b2, so the long cathetes are divided by the golden section. It appears that the outer street lines of the parallel streets cannot be arrived at using this theoretical method. The difference is about 2.5 to 6.5%.
In 1980 Eugenio Baldari proposed a hypothetical geometric design method for the plan of San Giovanni.\textsuperscript{19} Baldari’s theory is largely based on Guidoni’s design system for San Giovanni. (fig. 6.1.2) But Baldari propounds a second ‘executive model’ next to this ‘theoretical model’. (fig. 6.1.6) Unfortunately, he does not explain clearly what he means by this distinction, but it seems likely that he means that Guidoni’s ‘theoretical model’ was only used in the design stage, on the drawing board, while the ‘execution model’ was used as the method for the actual laying out of the town plan by the surveyor.\textsuperscript{20}

The ‘theoretical model’ is described in paragraph 6.4.1.1; the only difference with Guidoni is that Baldari has not adopted the proportioning of the perimeter by means of the two connected hexagons. Instead of this, he explains the perimeter proportions from his ‘execution model’, which seems to proceed from Guidoni’s theory of the three squares that regulate the proportions of the market place. Directly connected with the two outer of these squares, are the diagonals of two larger squares that enclose the street blocks between the market place and the halfway transverse streets. The outer sides of these squares, that is the sides that mark the inner alignment of the transverse streets, are at the same time, according to Baldari’s text, sides of an octagon that is centred on the centrepoint of the town.\textsuperscript{21} From here, Baldari’s scheme determines the angle points of the town plan by doubling the radius of the octagon or the distance from the centre point to the outer angles of the larger squares that comprise the street blocks (which is, in fact, the same). Thus, the perimeter of the town would be determined by a large octagon, which has twice the size of an inner octagon that would determine the outer alignments of the inner street blocks.

In Baldari’s illustration this all seems to fit quite well, but if one regards fig.b9, in which this theoretical ‘execution model’ is lain on the present-day town plan, one may conclude that this theory is not as obvious as Baldari would have it. The angles of the town wall, which can only be located exactly on the north side of the town since the south side was destroyed in the 16\textsuperscript{th} century (see fig. 3.13), but of which the southern ones can be reconstructed, appear to be accurately determined by the larger octagon.\textsuperscript{22} But the octagon with half the radius does not coincide accurately with the outer corners of the two block-comprising squares that Baldari proposed. (fig.b9) The corners of the octagon which are supposed to mark the inner alignments of the transverse streets lie circa 1.5% closer to the centre point of the supposed ‘executive model’. Looking closely at Baldari’s figure of the ‘execution model’ (fig.6.16), one can see that he had the same problem in his drawing, and therefore he has actually distorted the geometric figure in order to make the two squares comprise the house blocks to both sides of the piazza, by enlarging the circle that encompasses the imaginary inner octagon.\textsuperscript{23} Baldari’s idea of squares that comprise the street blocks on both sides of the market place fits rather well on the plan.\textsuperscript{24} (fig.b9)

But the squares are located circa 1.5% too close to the central transverse axis of the plan, since their place is theoretically determined by the corners of the inner octagon, and therefore they do not mark the inner alignments of the transverse streets and the building lines along the piazza well.\textsuperscript{25}

The three squares that Guidoni proposed as proportioning method of the piazza, can be fitted on to the modern plan of the town in such a way that they correspond to what could be assumed to be the piazza as it originally would have been. (fig.b9) The piazza is, however, not very symmetrical or regular in detail, so the agreement is not very clear. More problematical is the fact that this construction with the different sizes of squares is not logical, or geometrically defined, since the size of the middle square is not related to the size of the other two squares in any logical way. Therefore, it seems unlikely that this was the method of design or of laying out the dimensions of the piazza.

\textsuperscript{19} Baldari 1980.

\textsuperscript{20} This idea of a twofold design method also seems to stem from Guidoni, who writes that the design geometry often forms a starting point in the design, but that the actual dimensions may be much more pragmatically chosen. (Guidoni 1970, pp.215, 219, 222) In connection with the terre nuove (and the designs of Arnolfo di Cambio) he does, however, not suppose such a procedure. (Guidoni 1970, p.233)

\textsuperscript{21} In Baldari’s illustration this does not show very clearly, since it does not depict a real octagon, but only these two sides and the encompassing circle with the other angle points.

\textsuperscript{22} According to my measurements the town perimeter would measure 326.32 x 792.49 b. According to the 16\textsuperscript{th}-century plan of Piero della Zucca it would be 328 x 790 b. Calculating from the length of the town, the relative side of the theoretical octagon would be 328.26, resp. 327.32 b., giving divergences of 0.59% resp. 0.24%.

\textsuperscript{23} The inner circle should cross through the intersection point of the diagonal lines in order to make the ‘executive model’ coherent.

\textsuperscript{24} In the width of the street blocks from one parallel street to the other, these squares do not comprise most of the original porticoes that fronted the houses on the parallel streets (particularly on the south side; on the northwestern side one of the porticoes is included). The porticoes are on average 2.57 braccia deep. It is possible that this was originally regulated as 2.5 b. Many of the porticoes were closed during the centuries in order to enlarge the interior ground floors of the houses. (see par.3.9.3.5)

\textsuperscript{25} The porticoes along the piazza, to both sides of the town hall in the market place, are comprised by the squares, which is illogical, as the porticoes along the parallel streets are not.

\textbf{B.2.3 Baldari}
So, Baldari’s theory is not as coherent as it might seem at first sight. The difference of about 1.5% in the radius of the inner octagon may be explained by inaccuracies. But all in all, it does not seem likely that Baldari’s ‘execution model’ was actually used for the laying out (or for that case, the design) of the town plan of San Giovanni. The three diagonal squares that would have given the proportions of the piazza are most unlikely, as they do not have dimensions that are logically explainable. The two larger block-comprising squares may fit onto the street blocks quite well, but it does not seem logical that these street blocks would have been dimensioned as squares, and that the rest of the proportions of the plan do not seem to be determined by squares in any way. The same holds true for the octagons. Baldari is not very clear in his explanation of the ‘executive model’, but his figure seems to suggest that the octagons were not really constructed: a netlike structure of isosceles triangles with a sharp angle of 45º and two angles of 67.5º was constructed. The relevance of this structure is, however, rather limited: it gives the proportions of the perimeter of the town. According to Baldari it also determines the inner building lines of the transverse streets and the parallel streets. In reality there is a 1.5% deviation, but a more important objection against this idea is, that it is much more logical that the planners would have determined these building lines by simply taking half the distance of the centre point of the town to the sides of the perimeter, for which there are much easier ways.

This all makes that Baldari’s theory does not appear very likely. Only the geometric explanation of the perimeter proportions is in itself plausible. But since the geometric construction apparently does not determine other relevant proportions in the plan in a logically coherent way, the agreement between the perimeter proportions and this geometric construction might well be a coincidence.

In fact, Baldari’s theory is still more complicated, also taking in consideration numerical values of distance, derived from proportions in the octagon. It would take too much space, however, to discuss this complicated theory. In my opinion, it is far-fetched and, moreover, almost impossible to handle for the designer in combination with the ‘theoretical’ and ‘execution’ models.

I have also checked the ‘execution model’ on the plans of the other terre nuove, but this has given no positive results.

I have tried to fit other squares and other octagons on the plan, but I have not found relevant coincidences.

An octagon consists of eight such triangles in radial arrangement. The triangles are not arranged radially in Baldari’s figure, but in netlike fashion, but nevertheless this results in the essential proportions of the regular octagon, as the long isosceles sides of the triangles implicitly have the length of the radius and the short side has the length of the sides of the octagon.
B.2.4 Van den Heuvel

In an article of 1983 Charles van den Heuvel suggested some further applications of Friedman’s basic theory.\(^{29}\) He claims that a polygon with a 30-degree division (that is just like a dodecagon) would show significant correspondence with a number of relevant lines in the design of the Scarperia plan. Van den Heuvel gives no exact verifications or illustrations of his suggestion; he only gives short indications in which way Friedman’s ideas could be applied differently in order to get more relevant results. In paragraph B.3.4 (and more briefly in 6.4.2) these indications will be checked in comparison with an accurate plan of the town. Van den Heuvel also proposes some adjustments to Friedman’s geometric schemes so that they would fit better on the plan of San Giovanni and also on the plan of Firenzuola. I have checked these two proposals, but no positive results have been found and therefore they will not be discussed here.\(^{30}\)

B.2.5 Bartoli

Giglio Fiorentino had so far escaped becoming subject of theories of geometric design, since the dimensions mentioned in the document of 1350 appear so straightforwardly arithmetically determined, as round numbers of the current unit of measurement, the braccia fiorentina.\(^{31}\) In fact, this is what probably inspired Pirillo to propose that the most important dimensions at Terranuova and San Giovanni were designed in the same way. In 2003, however, Maria Cecilia Bartoli proposed that Giglio’s plan was partly proportioned by a complex geometric method.\(^{32}\)

According to Bartoli the basis of the design was the piazza, which measured 70 x 70 braccia. In the document of 1350 the piazza is described as measuring 90 x 70 braccia. However, this probably was including the two lateral parallel streets that were 10 b. wide, so if these are subtracted from the space of the piazza it would indeed measure 70 x 70 b.\(^{33}\) From this square the length and width of the town, described as 470 x 246 b. in the document, would have been determined by geometric manipulation. The length was determined as the length of the piazza plus four times its diagonal, with which the √4 relation of the ‘rotated squares’ is once again proposed as a method of determining proportions. This would theoretically lead to a length of 495.98 b., but according to Bartoli the diagonal of the 70 x 70 b. square was approximated as 100 b., so that a length of 470 b. was the result. Apparently Bartoli does not mean that the geometric manipulation as depicted in her illustration (fig.6.17) was actually carried out as such: the dimension of 470 b. would have been determined arithmetically as the width of the piazza plus four times the ‘common’ approximation of the diagonal of the 70 x 70 square.

The width of the town would subsequently have been determined by taking twice the diagonal (200 b.) as the height of an equilateral triangle. The sides of this triangle would theoretically measure 230.94 b. According to Bartoli this was approximated as 232 b., to which 14 b. were added for the width of the main street, thus providing the 246 b. width of the town. The other dimensions that were mentioned in the 1350 description would have been determined arithmetically, according to Bartoli.

In my opinion, this way of determining the length and width of the town are quite unlikely. If one is ready to accept the approximations as tolerances, the dimensions may be taken for fitting, but the method is inconsistent and illogical. The subsequent steps in the process are not logically related. Also, the idea that the square piazza was the basis of the whole plan is difficult to reconcile to the description of 1350, in which the piazza is described as measuring 90 x 70 b. Furthermore, it seems most illogical that the width of the main street is to be added to the side of the equilateral triangle to arrive at the width of the town. All in all, Bartoli’s proposed proportioning method for Giglio Fiorentino does not appear to be a valuable contribution to the discussion on the design of the terre nuove plans. It remains more likely that the dimensions given in the description of the Giglio project of 1350, were determined arithmetically, largely based on practical considerations, symmetry of layout and preferably numbers rounded off at tens.

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\(^{29}\) Van den Heuvel 1983, p.42. Van den Heuvel actually reacted to Friedman’s article of 1974, in which he already made some rather vague suggestions about possible further applications of the hypothetical geometric design method. (Friedman 1974, p.242)

\(^{30}\) I have checked Van den Heuvel’s suggestions concerning San Giovanni and Firenzuola for my doctoral thesis on the terre nuove fiorentine. (Boerefijn 1994, pp.152-154)

\(^{31}\) See appendix A.

\(^{32}\) Bartoli 2003, pp.36-37.

\(^{33}\) With these dimensions, not all traffic space is subtracted from the piazza, as the two intersecting main streets (both 14 b. wide) are still included.
In the same book in which Bartoli proposed her theory, Stefano Bertocci suggested a proportioning method for some aspects of San Giovanni’s plan.\(^{34}\) (fig.6.18) As many others did before him, Bertocci postulates that the proportional relation of the side and the diagonal of the square (\(\sqrt{2}\)) are crucial in ‘gothic’ architecture. Hence, in his opinion, the outer perimeter of the town must have been proportioned by taking the short side as the side of a square to which the diagonal of the square was added to get the long side of the perimeter.\(^{35}\)

According to two 16th-century plans the town wall was 1.5 b. wide.\(^{38}\) So the inner perimeter must have been proportioned by taking the short side – he does not mention how this was related to the outer perimeter, but one would guess that it was the short side of the outer perimeter minus twice the width of the town wall – making a square of it and rotating the diagonal in two opposite directions, thus creating overlapping rectangles (with proportions a : \(\sqrt{2}a\)) of which the diagonals were rotated in order to reach the length of the inner perimeter.\(^{2a}\)

According to two 16th-century plans the town wall was 1.5 b. wide.\(^{38}\) So the inner perimeter must have been 459.50 x 187.44 b., based on the outer dimensions that I measured. Starting from 187.44 b. as the side of the square, the long side of the inner perimeter theoretically must have been 461.87, which gives a deviation of just 0.60%.

Bertocci’s third figure is meant to illustrate the way the wall towers were spaced along the perimeter. (fig.6.18C) It’s basis is the same square that formed the basis of the supposed method of determining the inner perimeter, which is divided into nine equal small squares. Both diagonals of each of the four corner squares are rotated outward, by which they are supposed to mark the place of eight of the 24 original wall towers. In this way the side-length of the small squares is transplanted along the long sides of the town perimeter. This method seems very unlikely to actually have been used to determine the place of the towers, since it only regards eight out of 24 towers. It seems much more likely that they were simply spaced evenly along the perimeter sides. This is not a known fact, however, since the towers along the long sides have all been torn down long ago, and their place is not exactly known. For this reason it is also impossible to check whether Bertocci’s proposed method actually marks the place of the eight towers in question.

All in all, Bertocci’s proposed design method is not convincing. The third element (fig.6.18C) is least likely and cannot be checked with the real plan. The first two elements are harder to judge. The deviations of theoretical and actual perimeter dimensions are small enough to be tolerated. A big problem, however, is that this method of design seems most illogical from a designer’s point of view. If the walls had the same dimensions on all four sides, which they appear to have had, it is most unlikely that outer dimensions had been determined in such a complex way apart from the inner dimensions, which were determined in another, even more complex, way. It is much more likely, therefore, that only one of the two methods had been used, and the first of the two would seem more probable then, since it is less complex. However, this method for determining the outer perimeter dimensions still does not appear very probable, since this design method had no other significance to the structure of the town plan, the square not appearing to have played a role in the design process other than providing the dimension of the diagonal, and the same holds true for the method for determining the inner perimeter. In my opinion it is, therefore, only coincidental that the proposed methods for determining the outer and inner perimeter correspond so well to the (partly reconstructed) actual dimensions.

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34 Bertocci 2003, pp.84-85. The book was published as a supplement to the exhibition Città e architetture. Le metri di Arnolfo (San Giovanni Valdarno 29-11-2003 – 14-3-2004), in commemoration of the death of Arnolfo di Cambio, the supposed designer of San Giovanni and Castelfranco, 700 years earlier.
35 The four small rectangles in the figures are probably meant to indicate that the original Palazzo Pretorio, the church of San Giovanni and double house lots on the main street had the same dimensions. This is not wholly correct, since the church was considerably longer.
36 See above, n.14.
37 The figure may also contain elements that are meant to indicate how the place of the innermost alleys and the inner boundary of the lateral wall streets were determined. This is not mentioned in Bertocci’s text or captions, however, and therefore it will not be discussed in detail here. Even when this method would appear to mark the relevant lines in the plan accurately, it would not seem very likely, since it is only determines a limited number of the parallel lines that mark the alleys and streets.
38 It regards the plans by Della Zucca and mastri Gentile and Batista, in which various dimensions are inscribed in numbers of braccia. (Friedman 1988, pp.10, 11, 347-350. Archivio di Stato di Firenze, Ponte dei Capitani di parte, cartone XVIII, no.28 ; Archivio di Stato di Firenze, Cinque conservatori del Contado, 258, fol. 602 bis). I measured 1.87 b. on average, but it is obvious that with such a small dimension, their measurements must be more accurate than mine from the 1:500 plan.
B.3 Detailed analysis of the theories of Guidoni, Friedman and Pirillo in comparison to the terre nuove plans

The theories of Guidoni, Friedman and Pirillo, which are described in paragraphs 6.4.1.1 to 6.4.1.3, remain as possible methods of design for the terre nuove plans. Below, they are compared to the modern town plans in figures as well as in measurements. I have measured the relevant dimensions in the modern plans and listed them in tables, in order to make it easier to compare the measured dimensions and the dimensions according to the different theories. In the following paragraphs, the comparison between theoretical figures and modern plans and between theoretical and measured dimensions is discussed per individual town. The text in paragraph 6.4.2 is a brief summary of this detailed analysis.

B.3.1 Terranuova Bracciolini

Regarding the case of Terranuova, there is a strong correspondence between the modern plan and the design system proposed by Friedman. This is demonstrated by figure 6.19, in which the theoretical figure is laid over the digitised modern plan. Friedman’s theory, which is an adaptation of Guidoni’s roughly worked out proposal, fits the plan very well, unlike the other relevant theories of design methods by Higounet and Buselli. 

Below, the graphic representation of the hypothesis (fig.6.19) is supplemented with numerical data of the various dimensions that play a relevant role in the theory, which are compared to the dimensions of Pirillo’s theory of arithmetic design, in order to establish which theory is more likely.

Friedman’s hypothesis is that the design of the plan of Terranuova is determined by a geometric figure that lays down many relevant dimensions in the plan. As explained in paragraph 6.4.1.2 the idea is largely based on Guidoni’s rather rough hypothetic figure of 1970. There are some differences, however. Guidoni’s figure seems to suggest that the piazza originally was square, being somewhat wider, and having been proportioned by a diagonal square. There is however, no reason whatsoever that the piazza was indeed square, and even when it would have been square, it is most unlikely that a diagonal square was used for its design or for setting out the plan. Another difference is that Friedman describes the theoretical geometry as a circle with a radius of 142.91 braccia (83.4 m.), the circumference of which is divided into 24 equal parts with arcs of 15 degrees. The relevant dimensions would have been calculated as sine-values of manifolds of the 15-degree angles of this circle. The length of the town (from town wall to town wall) would have been determined by taking two times the radius of the circle.

Friedman has taken measurements on the spot, which he compared to the dimensions calculated from his theory. He did not take measurements from a plan or try a graphic check by overlaying the theoretical figure on a plan. Therefore, I checked his measured dimensions and his theoretical dimensions with the dimensions that I measured in the paper plan, in order to establish whether the plan that I obtained corresponds with Friedman’s measurements and his theory.

In order to check Friedman’s conclusions, I have measured the relevant dimensions around twelve times each, in different places in the plan, from which the averages were calculated. These averages are recorded in the first row of the table below. In this table they can be compared to the dimensions that Friedman

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39 Additionally, a suggestion by Van den Heuvel as to the application of Friedman’s theory on Scarperia (see par.B.2.4) is also still to be considered.
40 I have measured every individual theoretically relevant dimension in several places in the plan, since dimensions, such as for instance the width of a street, may vary slightly along its course. In most cases I have taken eight measurements for the width of every street and the width of every row of lots (that is the length of the lots), and two to four measurements of other relevant dimensions. From these, the averages are calculated.
41 See pars.B.2.1 and B.2.2. See also Boerijing 1994, pp.141-173.
42 The fact that he depicted the diagonal square may well have to do with the idea of rotated squares as a common principle in ‘medieval architectural design’. (see pars.6.3.2-6.3.3)
43 Friedman, 1974, pp.242-243; Friedman 1988, pp.122-123. See par.6.4.3.2.
44 Friedman took his measurements on the ground, for which reason I believe they must be relatively accurate. His measurements were probably taken in the streets, so actually measuring the width of streets and the length of blocks on the outside of the walls of the various buildings. My measurements come from a paper plan, so there is more chance that they are inaccurate, because the plan was probably made by taking measurements on the ground, probably combined with graphic information from aerial photography, after which the data were drawn in the plan, which necessarily means a loss of accuracy. Subsequently this plan was copied, and then I took the measurements from it. Therefore, it is probable that my measurements are less accurate than Friedman’s.
45 These are the distances from the centre-line of the plan, in the middle of the main street, to the parallel boundaries of house lots and streets, which the theoretical geometric system (fig.6.14) is supposed to lay down.
measured and the theoretical values according to Friedman’s hypothetical design method.

It appears that Friedman’s measured values diverge 0.82% on average with the theory (with a radius of 142.91 b.), while the dimensions that I measured diverge 0.59% on average. The difference between measured and theoretical dimensions can even be reduced, when the theoretical radius is chosen 143.75 b. (83.89 m.) instead of Friedman’s theoretical radius of 142.91 b. (83.4 m.). This would reduce the average percentile difference between theoretical dimensions and my measurements to 0.43%. Similarly, for Friedman’s measurements the difference between theoretical dimensions and actual measurements are reduced from 0.82% to 0.71% when the theoretical radius is adjusted to 143.75 b. The theoretical relevant dimensions calculated with this radius are given in the fourth row of the table.

Table I: distances from centre of main street to outer alignments of rows of lots and longitudinal wall streets (all values are in Florentine braccia of 0.5836 m.)

<table>
<thead>
<tr>
<th></th>
<th>1st lot</th>
<th>2nd lot</th>
<th>3rd lot</th>
<th>4th lot</th>
<th>wall street</th>
</tr>
</thead>
<tbody>
<tr>
<td>measurements Boerefijn</td>
<td>37.23</td>
<td>71.44</td>
<td>101.71</td>
<td>125.65</td>
<td>138.18</td>
</tr>
<tr>
<td>measurements Friedman</td>
<td>37.53</td>
<td>71.28</td>
<td>101.64</td>
<td>125.65</td>
<td>137.59</td>
</tr>
<tr>
<td>theoretical with r=142.91 b.</td>
<td>36.99</td>
<td>71.45</td>
<td>101.05</td>
<td>123.76</td>
<td>138.04</td>
</tr>
<tr>
<td>theoretical with r=143.75 b.</td>
<td>37.2</td>
<td>71.87</td>
<td>101.65</td>
<td>124.49</td>
<td>138.85</td>
</tr>
</tbody>
</table>

This adjustment of the theoretical radius also fits well with one of the basic assumptions of Friedman’s theory, which is that the theoretical radius, stretching from the centre point of the town in the middle of the piazza, also determines the length of the house rows and the whole town along the axis of the main street. (see fig. 6.14) Friedman measured 83.4 m. from the centre point to the halfway cross streets, 168 m. to the point where the southwest gate must have been, and 167.05 m. to the northeast gate. From the last two dimensions one could calculate an average radius of 83.76 m. = 143.52 b. This dimension is actually closer to the theoretically ideal radius of 143.75 m. (difference 0.16%) than to the 142.91 b. radius which Friedman proposed (difference 0.59%). So, on this point the longer radius also fits the actual dimensions better.

It seems illogical, however, that the radius, as theoretically generative value of the whole design, would be 143.75 b. or, for that case, 142.91 b. It would be more logical that the length of radius was determined at a rounded number in braccia. Therefore, it seems more likely that the radius was chosen to be 144 braccia (which is only 0.17% more), since that would actually be a very obvious number. The number 144 was a very self-evident number back in those days, because it is 12 times 12 and because the duodecimal system was as common in quantification and calculation as the decimal system is now. Even today the number 144 stands for a more or less commonly used quantity as the ‘gross’. Apart from that, the number 144 also bore important implications of a symbolic nature, and the dimension of 144 braccia may even have referred to the biblical description of the Heavenly Jerusalem.

When the radius of 144 b. is accepted, Friedman’s idea that the radius also determined the place of the secondary transverse streets and the length of the whole town becomes a little less likely: the difference would become 0.33% with Friedman’s average measurements and 0.55% with mine. The theories of Friedman and Guidoni also propose that the place of the secondary cross streets and the length of the town were determined by the diameter of the circle (or polygon). The distance between the cross streets would be equal to this diameter, and the length of the town would be equal to twice the diameter.

47 This difference could be reduced further to 0.55%, if it is assumed that the 75-degree sine value did not pinpoint the inner alignment of the town wall, but the outer one, 81.15 m. from the axis of the main street according to Friedman’s measurements. (Friedman 1988, p.123).
49 In my measurements the difference between the relevant values is somewhat larger: I measured an average of 144.79 b. for the relevant dimension along the axis of the main street, which makes a difference of 0.33% with the adjusted radius. But, as explained above, I consider Friedman’s measurements to be more exact than mine.
50 With this theoretical radius the difference between Friedman’s measurements and the theoretical relevant sine values would even be reduced to 0.74% (0.53% if the 1.46 b. of the town wall is included). The average difference with my measurements would be 0.48%.
51 The number twelve had a high symbolic value in contemporary numerology (see par.8.1.2), so 12 x 12 would have it just as much or even more. The dimension of 144 braccia may have referred to the Heavenly Jerusalem, as described in the bible in the Revelations of St. John (21:17), where an angel measures the walls, which are 144 ells (whether this is the width or the height is not mentioned). This dimension must already have been a symbolical dimension in the bible, since it is unlikely that the height or the width of a real city wall would have been 144 ells.
This part of the theories is not included in table I. From fig. 6.19 it appears that the theory fits quite well for the distance between the cross streets, but that the length of the town is not marked with great accuracy, the difference being circa 2%. However, if Friedman’s measurement of the length is accepted, as it is likely to be more accurate than the digitised plan, the difference is considerably less. 53

In conclusion, one can confirm, on the basis of the measurements from the plan drawing of Terranuova, that Friedman’s theory (and with that Guidoni’s) seems likely indeed, all the more so with the small adjustments made to the length of the radius.

But, with that, this hypothesis of geometric design cannot be unconditionally accepted yet. First, Pirillo’s hypothesis of arithmetic proportioning in rounded numbers of braccia still needs to be checked. The dimensions from Pirillo’s hypothesis can easily be checked by comparing the dimensions that he postulates with the averages of the measurements that I took in the plan, and, for extra comparison, with Friedman’s measurements. 54 The relevant dimensions of width of streets and length of lots are given in table II.

Table II: widths of streets and lengths of lots (in Florentine braccia)

<table>
<thead>
<tr>
<th></th>
<th>main street</th>
<th>1st lot</th>
<th>1st back street</th>
<th>2nd lot</th>
<th>2nd back street</th>
<th>3rd lot</th>
<th>3rd back street</th>
<th>4th lot</th>
<th>wall street</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pirillo</td>
<td>15</td>
<td>30</td>
<td>25</td>
<td>20</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boerefijn</td>
<td>14.53</td>
<td>30.3</td>
<td>8.35</td>
<td>25.58</td>
<td>10.18</td>
<td>20.53</td>
<td>8.53</td>
<td>14.5</td>
<td>13.05 incl. wall*</td>
</tr>
<tr>
<td>Friedman</td>
<td>14.06</td>
<td>30.5</td>
<td>8.05</td>
<td>25.7</td>
<td>9.97</td>
<td>20.39</td>
<td>8.02</td>
<td>15.9</td>
<td>11.99 excl. wall</td>
</tr>
</tbody>
</table>

* I could not measure the width of the town wall separately from the plan, but according to Friedman (1988, p.123) the town wall is 85 cm. (1.46 b.) thick.

It appears that the differences between my measurements and Friedman’s, are relatively greater than in the measurements of the larger dimensions in table I. In fact, this is well explainable, since the relative inaccuracy in drawing a plan and measuring it gets larger as the separately measured elements get smaller. 55

Looking at the values in the table, it may seem at first sight that Pirillo’s theory is largely right. Regarding the width of the main street it seems more likely that it was 14 b. instead of 15, as he assumes, but the depths he suggests for the respective house lots, seem acceptable. My measurements for these four dimensions diverge on average 2.28% (three times larger and once smaller), while Friedman’s diverge 3.2% (all his measurements being larger). The difference between my measurements and Friedman’s is 3.39% on average.

So, it seems possible that the lots in Terranuova were 30, 25, 20 and 15 b. deep. Since the lots were 10 b. wide, these dimensions of the lots would be chosen very rationally, with all dimensions taken as multiples of five braccia. The width of the streets, on the other hand, would seem to be less ‘logical’ in this context.

52 The relevance of the diameter to the distance between the cross streets is clearly marked by Friedman’s figures (figs. 6.14, 6.15), but less clearly so by Guidoni’s (fig. 6.13).

53 Since Guidoni does not describe his theory, it is not clear whether he meant this element to be relevant. The relevance of twice the diameter marking the length of the town is clear from Guidoni’s figure and from Friedman’s text (Friedman 1988, p.122). The difference is, however, that according to Guidoni’s figure the distance between the inner alignments of the wall streets is marked, while according to Friedman’s text it regards the distance between the outer alignments. In fig. 6.19 the theoretical distance appears to mark places somewhere in between, more or less halfway the wall streets.

54 For the reliability of Friedman’s measurements in comparison to the digitised 1:500 plan of fig. 6.19, see n.45 above. According to Friedman’s measurements the distance between the outer alignments of the wall streets would have been 334 m. (twice 167 m.). (Friedman 1988, pp.122-123) This measured length fits very well with Friedman’s proposed radius of 83.4 m., which would make a theoretical length of 335.6 m., thus giving a difference of only 0.1%. The adapted radius of 83.89 m. would make a theoretical length of 335.56 m., giving a difference of 0.5%, and the radius of 144 b. (84.9384 m.) would make a theoretical length of 336.51 m., giving a difference of 0.6%. All these relative differences are within reasonable limits of tolerance.

55 Not all relevant dimensions are given directly by Friedman. It is only by combining the information from his article (1974, p.239) and his book (1988, pp.122-123) that I was able to calculate all relevant dimensions from his measurements.

56 A large part of this rather great difference lies in the measurements for the fourth row of lots and the wall street. This outer row and the longitudinal streets by the town wall are difficult to measure because this street was built-over and annexed by the holders of the lots in the fourth row. Actually, the fourth row was only partly occupied by houses, as can be seen in the 19th-century cadastral plan. (fig. 3.23) So, the greatest part of the present houses in the fourth row must have been built relatively recently, with immediate use of the town wall as back-wall for the houses. Consequently, there are only few places where the original building line, separating the fourth row from the wall street, still clearly shows. The measurements at different places of these two elements showed relatively great deviations of up to 30% for the outer blocks and 40% for the wall street. This may be due to less accurate measuring of the relevant former boundary between the fourth block and the former wall street by the surveyors for the plan drawing, as well as by Friedman, which is explicable because these former boundaries are built in the private structures.

If the length of the fourth lot and the width of the wall street are taken together as one measurement, it would be 27.16 b. according to my measurements and 27.93 b. according to Friedman’s, which would make the average difference between the two come down to 2.0%.

It is striking to see that my measurements are larger when it comes to the width of streets, but smaller when it comes to the length of house lots, with a maximal difference of 0.76 b. (0.41 m.). Obviously, this is at least partly due to the difference of measuring in reality (from outer edge of house lot or wall to the next outer edge) and measuring from a plan with ink lines representing these outer edges (I measured from the centre of the one line to the centre of the other).
The main street would be 14 b., the back streets 8, the parallel streets 10, and the longitudinal wall streets 12 braccia wide. These different widths also form an arithmetic series (although not arranged accordingly in the plan): 8, 10, 12, 14.

In order to check this hypothesis, one can consider the total width of the whole town. If these hypothetical dimensions would be right, the total would measure 270 b., from the inner edge of the town wall to the opposite inner edge. My measurement in the plan is 276.34 including town walls, which are 85 cm. (1.46 b.) thick according to Friedman, so that would give a difference of 1.16%. Friedman measured 276.04 b., excluding the town walls, so this makes a difference of 2.24% with the hypothetical total dimension and 0.98% with my measurement.

However, when a choice must be made between Friedman’s theory or Pirillo’s on the basis of the correspondence with the measurements, then Friedman’s would be most obvious to choose. My measurements differ 2.47% on average from the five dimensions according to Pirillo, whereas Friedman’s diverge 3.91%. Disregarding the 15 b. width that Pirillo suggests for the main street, this would be 2.28% respectively 3.2%. But the divergence of the five relevant dimensions in the geometric theory compared to my measurements is only 0.48%, and 0.74% to Friedman’s.

So, from this it may be concluded that the hypothesis of complex geometric design of Friedman (and Guidoni) fits better with the actual dimensions measured in Terranuova. Therefore, it seems more likely to be right. That is, if one accepts that the ‘designer’ did not simply choose for the easiest and most obvious method. It would be too easy, however, to conclude from this that the theory of arithmetical dimensioning in rounded numbers of braccia is completely wrong.

Friedman’s (and Guidoni’s) hypothesis does not explain all relevant dimensions: it only pinpoints the inner alignments of the streets parallel to the main street, as well as the position of the longitudinal parts of the town wall. This geometric method determines dimensions that contain the length of the house lots together with the width of the streets. So, the exact place of the other lines of division between these must have been determined in another way. Here it would seem likely that dimensions were chosen in round numbers of braccia. If this is right, it is possible that the planners chose the lengths of the house lots in the series of 30, 25, 20 and 15 b., so that the width of the streets would be the ‘rest value’. In Friedman’s measurements, as given in table III, however, the street widths are closer to rounded numbers of braccia than are the lot lengths. In my measurements there is no clear contrast between the two in this respect. Thus, it seems as though the widths of the streets in Terranuova were determined in whole numbers of braccia, and the lengths of the house lots were given by the rest values.

Assuming that the hypothetical 144 b. radius was used, the relevant dimension would be: 37.27 b. for the half of the main street and the length of the adjoining lot; 34.73 for the back street and the second row of lots; 29.82 for the next street and lot; 22.88 for the next street and lot, and 14.39 b. for the wall street (and possibly also the wall itself; which is difficult to determine since Friedman’s and my measurements contradict each other on this point). This would result in the next possibilities: division in dimensioned lot and rest street, and division in dimensioned street and rest lot. Table III shows the resulting dimensions.

| Table III: widths of streets and lengths of lots (in Florentine braccia) |
|-----------------|-------------|-------------|-------------|-------------|-------------|-----------|-------------|
| main street     | 1st lot     | 2nd lot     | 3rd lot     | 4th lot     | wall street (and wall?) |
| with lots dimensioned | 14.5 | 30 | 9.73 | 25 | 9.82 | 20 | 7.88 | 15 | 14.39 |
| with streets dimensioned | 14 | 30.27 | 8 | 26.73 | 10 | 19.8 | 8 | 14.88 | 14.39 |
| measurements Friedman | 14.1 | 30.5 | 8.05 | 25.7 | 9.97 | 20.4 | 8.02 | 15.94 | 11.99 no wall |
| measurements Boerefijn | 14.5 | 30.27 | 8.35 | 25.58 | 10.18 | 20.5 | 8.53 | 14.53 | 13.05 incl. wall |

56 That is, with the ‘adjusted’ theory, with r=144 b.
Analysing these numbers, it appears that the difference between the dimensions in the first row with Friedman’s measurements is 6.70% on average. But if the measured dimension of the wall street would be increased with the 1.46 b. for the town wall (the width according to Friedman), this dimension would be 13.45 and the average difference would be reduced to 5.25%. The difference can be further reduced by taking Friedman’s measurements for the fourth lot, the wall street and the wall together (cf. note 56 above): 4.25%.

If the same is done for the second row, compared to Friedman’s measurements, the average difference comes to 4.04%, and with the 1.46 b. for the town wall 2.60%, and with the fourth lot, the wall street and the wall together 1.21%. It is clear that these percentages are considerably lower, with the widths of the streets dimensioned in whole braccia, than with the lots dimensioned in rounded numbers. Therefore, it appears more likely that the design was made accordingly.

Finally, when my measurements are compared to the first row, the difference is 5.05%, which is reduced to 4.81% if the entries in the last two columns are taken together. Comparing my measurements to the second row, the difference is 4.15%, respectively 3.85%. So, here too, it seems more likely that the street widths were dimensioned in whole braccia. In my measurements (and somewhat less in Friedman’s if the width of the town wall is added) it is obvious that especially the dimensions in the last column diverge rather strongly from the theoretical value. In Friedman’s measurements there is also a rather great difference with the theoretical dimension regarding the fourth lot. It seems likely that this is due to the difficulty of measuring these dimensions, because of the building-over of the wall street.

Thus, it seems as though the widths of the streets of Terranuova were laid out in rational numbers of braccia, and that the lengths of the house lots were given by the rest values. In fact, this is more logical, because by taking a fixed width in a specific number of braccia, it is easier to lay out the street with the two building lines completely parallel, which is important for the aesthetic of the street as well as for guarding public space from being encroached upon by private structures.

B.3.2 San Giovanni

For the design of the plan of San Giovanni Friedman suggested a geometric design method which is based on the same principle, but which is less advanced. According to Friedman only the lines determining the inner side of the parallel streets and the inner side of the longitudinal wall streets are pinpointed by the cords of the sines of 30 and 60 degrees of the radius of 96.68 m. (165.66 b.). (see fig. 6.15) This theoretically results in dimensions of 48.34 and 83.72 m. In reality Friedman measured 48.34 (on which he based the theoretical radius) and 84.05 m. on average, which makes a difference of only 0.39%. My average measurements come to 48.94 and 84.37 m., diverging 1.24% and 0.78% respectively. With a slightly larger theoretical radius of 97.65 m., however, the resulting differences would be just 0.23% and 0.23%. It is not possible to say whether the differences between my measurements and Friedman’s stem from faults in the paper plan I measured, from faults in my measurements, or if it is because I measured on different spots in the plan than Friedman did. In any case, it seems very well possible that this geometric method of proportioning was indeed used in the design, all the more so since the same principle fits very well on the plan of San Giovanni’s sister town of Terranuova.

When a small adjustment is made to this geometric system by shortening the polygon radius (or hypotenuse in Friedman’s geometric description) so that the angle-points mark the lines between original house facades and porticoes (or street, where porticoes are absent), the outer angle-points of the dodecagon mark the alignments of the original longitudinal town walls. However, when Friedman’s system is adjusted in this

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57 See n.56. It is obvious that Friedman’s measurements fit better to the theoretical values, with street widths dimensioned in rational numbers, than mine. Nonetheless, the accuracy is less than in the comparison with just the relevant sine values that are given directly by the theoretical geometric system, which pinpoint five of these nine relevant lines in the plan (see table I). This is quite natural, however, since it regards much smaller dimensions and because the average percentile divergences are not calculated according to the relative weight of the individual dimensions within the set of dimensions, but by just taking all percentages and calculating their average.

58 Although it may be that the numbers of braccia for the street widths were chosen so, that the dimensions of the lots are at least close to the arithmetic series.

59 For the contemporaneous aesthetics of the street, see pars. 8.6.2, 8.6.3.

60 The oldest documented regulations of building lines and fixed widths of streets are from Strasbourg in the 12th century. (see Braunfels 1953, pp.88, 99-104, 110-115; and pars. 8.6.2, 8.6.3)

61 Friedman 1988, pp.121-122.

62 Those two outer points of the dodecagon would in Friedman’s description be termed the 90-degree-sine or total hypotenuse-length. While with Friedman’s hypotenuse-length the outer points would be circa 1.4 - 3.2% outside the outer wall-alignment, it would be only 0 - 1.4% in the reduced form.
way, it becomes basically the same as a part of Guidoni’s geometric system for San Giovanni, because the angle-points in this dodecagon mark the same spots in the plan as the intersection points of radiuses and hexagon sides in Guidoni’s figure.

Friedman’s hypothesis for Terranuova is practically similar to Guidoni’s. His theory for San Giovanni, however, is a strongly reduced version of Guidoni’s. (compare figs. 6.12 and 6.15). Friedman does not explain why he made these changes, but it is likely that he assumed that the rest of Guidoni’s theory did not correspond with the plan very well.

Nonetheless, it seems worthwhile to compare Guidoni’s theoretical figure with the town plan. It is already explained in paragraph B.2.3 that the three diagonal squares, which would have determined the proportions of the piazza according to Guidoni, make no sense at all. From figure 6.20, in which the theoretical figure is laid over the digitised modern plan, it appears that there is quite a strong correspondence between the modern plan and the design system proposed by Guidoni. The geometric figure seems to mark the centre of the main street, the inner and outer alignments of the parallel streets, the backside of the third and fourth rows of lots from the main street and the outside of the longitudinal sides of the town wall. The figure also seems to mark the relation between length and width of the town, just like Guidoni suggested. But this is not entirely logical, as will be explained below.

It appears, however, that an addition can be made to the geometric figure so that it also comes to mark the backside of the house rows right next to the main street. (see fig. 6.21) This addition is made up by the lines that cross through the centre point and through the four intersection points of the sides of the two rotated hexagons closest to the main street. The four points where these lines touch the outer circle mark the backsides of the first rows of lots. Actually, these points can be seen as the corners of a 24-sided polygon, as at Terranuova. This polygon is not depicted as such in the figure, but it would have the same radius as the hexagons, in this case 189 b.

In order to make a more accurate comparison between theoretical and actual dimensions, I measured the relevant dimensions in the plan, of which the averages are listed in the first row of table V. The distances are measured from the axis of the main street to the outer alignments of the elements mentioned in the headers of the columns. It is to be noted that I measured the distances to the original ground floor building lines of the house rows, whereas Friedman measured up to the line of the porticoes, which were often filled in on ground floor level afterward. These porticoes are generally circa 1.4 m. deep.

From the dimensions that I measured in the plan I calculated that the best fitting theoretical radius would be 189 b. The theoretical dimensions calculated with this radius are given in the second row of the table, while the third row displays the relative differences between actual measurements and theory.

<table>
<thead>
<tr>
<th>1st lot</th>
<th>2nd lot</th>
<th>parallel street</th>
<th>3rd lot</th>
<th>4th lot</th>
<th>wall street</th>
<th>town wall</th>
</tr>
</thead>
<tbody>
<tr>
<td>measured by Boerefijn 48.92</td>
<td>81.47</td>
<td>95.56</td>
<td>119.91</td>
<td>142.16</td>
<td>161.62</td>
<td>163.16</td>
</tr>
<tr>
<td>theoretically with r=189b. 48.92</td>
<td>81.84</td>
<td>94.5</td>
<td>119.74</td>
<td>141.75</td>
<td>163.67</td>
<td></td>
</tr>
<tr>
<td>divergence 0%</td>
<td>0.12%</td>
<td>0.91%</td>
<td>0.14%</td>
<td>0.29%</td>
<td>0.31%</td>
<td></td>
</tr>
</tbody>
</table>

From these numbers one may conclude that there is a strong agreement between the measurements and the theoretical dimensions. It is unlikely that this agreement is coincidental. The biggest difference is the divergence of 0.91% for the distance from the centre of the main street to the outer building line of the parallel streets, which does not seem to be problematically large. But it appears that there is an objection with respect to this element, as this divergence makes that the theoretical width of the parallel street relatively far removed from the width I measured. This is shown in table VI, which does not give the ‘sines’, as Friedman calls these dimensions, but the individual dimensions of the different elements (which add up to the sines). 63

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63 These average dimensions are calculated from my measurements of the individual elements of the plan, not from my measurements of the cumulative dimensions (or ‘sines’). Although they ought to be the same when the individual elements are cumulated, they are not in practice, because of small inaccuracies in taking dimensions from the plan.
It is clear that the width of the parallel street disagrees strongly with its theoretical value. The inner alignment is 0.37 b. further inward, while the outer alignment is 0.86 b. further outward. It is possible that this difference is made by inaccuracies in the design or the laying out of the plan. On the other hand, however, it might be that the designers or surveyors of the plan did not use the outer building line of the parallel street which is given by the geometric system, but chose instead, to make the street wider, possibly 14 b. If this theoretical line is discardeed and the measured dimensions of the street and the third lot are added up, they cumulate to 38.37 b., which is much closer to the two added theoretical dimensions: 37.90 b., giving a divergence of 1.24%.

Thus, it seems that the designers had five relevant building lines that were pinpointed by this rather complex geometric system. Four more building lines and the width of the town wall were, just like in Terranuova, established in another way, probably by just taking rounded numbers of braccia in a pragmatic way, so that width of streets and length of lots would be convenient. So, following my measurements, the first theoretical dimension of 49.92 b. was divided in half the width of the main street (9.5), and the length of the first lot (39.42). The second theoretical dimension (32.92 b.), was divided in an alley (3.75) and the second lot (29.17); the third dimension (37.9 b.) was divided in the parallel street (14) and the third lot (23.9); the fourth dimension (22 b.) was divided in an alley (2.75) and the fourth row of house lots (19.25); the fifth dimension (21.93 b.), finally, was occupied by the town wall (1.5 b. wide) and the wall street (20.43).

In this way the different theoretical dimensions given by the geometric system show strong correspondence to the added dimensions of: half the width of the main street and the length of the first lot; the width of the alley and the length of the second lot; the width of the parallel street and the length of the third lot; the width of the alley and the length of the fourth lot; the width of the wall street and the width of the town wall.

This is analogous to the geometric design of Terranuova according to both Guidoni’s and Friedman’s theories, although there are back streets instead of alleys there.

The radius of 189 b. is not determined by an obvious symbolical number, as at Terranuova. The only special dimension of this number, as far as I can see, is that it is three to the fifth power.

A further element of Guidoni’s theory regarding San Giovanni, considers the proportions of the perimeter of the town, which would be determined by two hexagons of the same radius as the central two rotated hexagons. (see fig.6.12) In this theory it is not very logical that the width is taken from town wall to town wall, whereas the length is taken on the inner alignments of the transverse wall streets. It is difficult to check this theory, since the original structure at the southern end of the town has been washed away by a flood in the mid-16th century. It is most likely, however, that the plan was symmetrical, so that the southern half of the town was just as long as the northern half. According to my measurements the town perimeter would measure 326.32 x 792.49 b. then, while according to the 16th-century plan of Piero della Zucca (fig.3.13) it would be 328 x 790 b. I measured a width of the transverse wall street of 13.36, Della Zucca of 14 b. So, subtracting this dimension twice (one for either of the sides of the town, the length would be 765.77, resp. 762 b. If one calculates the theoretical length of the town from the width, it would be 753.60, resp. 757.48 b., so the difference between measurements and theory is 1.61%, resp. 0.60%. These divergences are not too great to make the theory implausible, but it is problematic that the principle is rather unobvious, since the related dimensions reach the outer side of the town wall in the one direction, but only reach the inner side of the wall street in the other direction. In my opinion, this objection is serious enough to make this element of Guidoni’s theory rather unlikely to be correct.

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64 I will return on this problem below.
65 According to two 16th-century plans (see below) the wall was 1.5 b. wide, while I measured 1.87 b., but it is obvious that with such a small dimension, their measurements must be more accurate than mine from the 1:500 plan.
66 The plan by the surveyor Piero della Zucca was made after he was assigned to assess the damage caused by a flood in 1553. (Friedman 1988, pp.11, 348-350. Archivio di Stato di Firenze, Cinqe conservatori del Contado, 298, fol. 602 bis)
Pirillo’s theory concerning San Giovanni is that the house lots are 40, 30 (including the width of the back alley), 25 and 20 braccia (including the back alley) deep. The main street and the cross street would be 20 b. wide.\footnote{Pirillo 1989, p.18.}

Fortunately, the 16th-century plan of Della Zucca and another 16th-century plan of maestri Gentile and Batista\footnote{The plan by maestri Gentile and Batista is probably from the first half of the 16th century. (Friedman 1988, pp.10, 347-348. Archivio di Stato di Firenze, Piante dei Capitani di parte, cartone XVIII, no.28)} are of help for the case of San Giovanni, since they give contemporary measured values of the relevant dimensions. In both plans, measured dimensions in braccia are inscribed. The relevant measurements from these plans are given in table VII, which also contains Pirillo’s hypothetical dimensions, Friedman’s measurements and my measurements.\footnote{Friedman 1988, pp.70, 75. The dimensions Friedman cites are in rounded numbers. It is not clear whether they come from his own measurements, and to what degree they are rounded off.} In the last row of the table the dimensions are given that can be formed from the theoretical dimensions with $r=189$ b., as calculated above.

Table VII: widths of streets and lengths of lots (in Florentine braccia)

<table>
<thead>
<tr>
<th></th>
<th>main street</th>
<th>1st lot</th>
<th>alley</th>
<th>2nd lot</th>
<th>parallel street</th>
<th>3rd lot</th>
<th>alley</th>
<th>4th lot</th>
<th>wall street</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gentile &amp; Batista</td>
<td>19.83/20</td>
<td>38</td>
<td>3.5</td>
<td>29.33</td>
<td>15.4</td>
<td>24.5</td>
<td>2.5</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Della Zucca</td>
<td>21</td>
<td>39</td>
<td>4</td>
<td>28/28.5</td>
<td>15.33/15.66</td>
<td>24</td>
<td>3</td>
<td>20</td>
<td>17.875/18</td>
</tr>
<tr>
<td>Friedman</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td>14.16</td>
<td>24.47</td>
<td>2.68</td>
<td></td>
<td>19.34/19.44</td>
</tr>
<tr>
<td>Pirillo</td>
<td>20</td>
<td>40</td>
<td>30</td>
<td>25</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>theoretically</td>
<td>19</td>
<td>39.42</td>
<td>3.75</td>
<td>29.17</td>
<td>14</td>
<td>23.9</td>
<td>2.75</td>
<td>19.25/20.43</td>
<td></td>
</tr>
</tbody>
</table>

It may be deduced from this table that either one or both of the 16th-century plans are not very accurate, as their measurements diverge rather strongly.\footnote{It is difficult to determine whether Batista and Gentile’s, or Della Zucca’s measurements are more accurate. Comparing their measurements with mine, the indications are rather ambiguous, but over all, the first come slightly closer to my measurements than the second. One would expect, of course, that those plans reveal dimensions that are closer to the original situation than my measurements because of their early date. However, comparing with my measurements, one might ask if their measurements are as accurate as mine, because I believe that I have taken more measurements in different places. From the differences between their measurements it seems obvious that, then as well as in the present day, different dimensions were measured in different places. On the whole, all differences per column in the table added, the measurements between Gentile and Batista’s plan and Della Zucca’s diverge circa 6.25 b., while the first diverge 5.41 from mine, and Della Zucca’s 6.12 from mine (which is 3.66%, 3.16% and 3.58% respectively, of the cumulative of my measurements). The cumulative dimensions are, respectively, 171.14, 172.69 and 170.96 (and 171.67 for the last row). This makes a difference of 0.91% between the two 16th-century plans, 0.10% between the first and mine, and 1.01% between the second and mine.} It appears that Pirillo is not too far from the real dimensions with his hypothesis. But still, the dimensions that he suggests are round numbers, and the 16th-century surveyors did not measure the same round numbers, although they also tended to round off their measurements. Only the width of the main street according to Gentile and Batista, and the length of the fourth house lot according to Della Zucca correspond to Pirillo’s dimensions. Therefore, it does not seem very likely that Pirillo is right. The lot sizes given by the ‘theoretical’ last row are closer to my measurements than to Pirillo’s theoretical dimensions (of course, while the division of these theoretical dimensions given by the ‘sines’, is inspired by my measurements, as explained above). These lot sizes, however, are on average also closer to the dimensions given by the 16th-century surveyors, than to Pirillo’s. This would be even more true when the dimensions from the two old maps would be taken instead of mine, and when it is supposed that the main street would be 20 b. wide, which would theoretically leave 38.92 b. for the first lot.

It is obvious, however, that there are two rather problematical elements in this theory. The first one concerns the width of the parallel street, which was measured more than a braccia wider in the 16th century compared to my measurement. Making it wider in theory would mean, however, that the third lot became
too short to fit the length that I measured. The second problem is the width of the wall street, which was at least a braccia narrower in reality than in theory.\textsuperscript{71} I have no explanation for these divergences.

Hence, it is difficult to come to solid conclusions on the basis of these different dimensions. It does not seem very likely, however, that Pirillo is right with his theory that the lots were dimensioned in a series of fivefold numbers of braccia. Friedman’s theory of geometric proportioning of the distances from the town-axis to the inside of the parallel street and the wall street corresponds well with the actual dimensions, but its significance for the dimensions of the various constituent elements is rather limited. Therefore, Guidoni’s theory has more significance, pinpointing eleven (and in slightly extended version thirteen) relevant lines in the plan, against five for Friedman’s theory. The drawback is, however, that its geometric principle is rather complicated, and although it is not too difficult to make the geometric construction, it does not seem to be a very obvious method of designing an orthogonal town plan.\textsuperscript{72} A further weak point is, that the resulting individual dimensions are not always close to my measurements (as is the case with the width of the wall street) or the measurements on the 16th-century plans (as is the case with the widths of the wall street and the parallel street).

Nonetheless, the small divergences in the dimensions of the ‘sines’ (the overall dimensions from which the dimensions of the individual elements can be calculated by subtraction) strongly suggest that this geometry does indeed underlie the design.\textsuperscript{73} Another argument that speaks for this theory is the analogy to Terranuova, where the geometric figure is different but the basic principle is quite similar, and two more of the terre nuove, as will be described below.

\textbf{B.3.3 Castelfranco di Sopra}

For the plan of Castelfranco di Sopra Guidoni proposed a simple geometric figure underlying its design.\textsuperscript{74} (fig.6.11) He assumed that the piazza had been designed as a geometric square, and not as the rectangle that it presently is.\textsuperscript{75} It may safely be assumed, indeed, that symmetry was sought after in the design. It seems more likely, however, that the piazza was longer (c.102 b.) instead of shorter, as it generally was more common that public space was made smaller, being encroached upon, instead of larger.\textsuperscript{76} In any case, even if the piazza was originally planned square, it is most unlikely that a diagonal square, as depicted in Guidoni’s figure, was used for its design or for setting out the plan.\textsuperscript{77}

Guidoni also proposed that the inner blocks of the town were laid out as a square, or rather as a parallelogram because the angle between the main axes of the town is not 90° but circa 88/92°. Comparison with the 1 : 500 plan of the town shows, however, that even when this irregularity is taken in consideration, the square does not fit the actual dimensions very well, because it gives differences of circa 2 - 5%. (fig.6.22) Therefore, it does not seem very likely that this square was part of the geometry underlying the design of the plan.

Apart from that, Guidoni proposed a hexagon that describes the relation between the width and the length of the perimeter of the town, as it originally must have been. Unfortunately, this cannot be verified in the northwestern half of the plan, because there the original perimeter form has become blurred during the centuries, as the town wall has largely been demolished since the 17th century. It may safely be assumed, however, that the part to the northwest of the main street was symmetrical to the other half, in which more of the old structure is preserved, especially in the southern quarter. (see fig.3.6) It appears that the hexagon does indeed mark the perimeter proportions quite accurately, just as Guidoni suggested. It can be objected, however, that this is not very logical, as the length of the town is given between the outer alignments of the walls streets on the northeast and southwest sides, whereas the width is given between the inner alignments of the wall streets on the other two sides (theoretically; only on the southeast side still verifiable).

\textsuperscript{71} From the dimensions in table V, it may be deduced that, according to my measurements, the wall was built on average about half a braccia closer to the main axis of the town, than it would be in theory. The outer alignment of the fourth row, however, was built 0.41 b. further outward.
\textsuperscript{72} In this context, the consistency of the geometric principle is weakened by the fact that the 30°-sine value of the 189 b. radius, with the relatively large divergence of 0.91%, was obviously not used directly in laying out the plan, while the parallel street was made considerably wider than the theoretical width of 12.66 b. according to the hypothetical geometric system. (see above)
\textsuperscript{73} It should be noted, however, that the entry in the third column of table V, the sine of 30°, probably was not taken as a relevant dimension by the designers. (see above)
\textsuperscript{74} Guidoni 1970, fig.116.
\textsuperscript{75} This was already suggested by Richter (1940, p.369). See also the comparison of the terre nuove piazzas in par.B.4.
\textsuperscript{76} Friedman 1988, p.342, n.34.
\textsuperscript{77} The fact that he depicted the diagonal square may well have to do with the idea of rotated squares as a common principle in ‘medieval architectural design’. (see par.6.2-6.3.3)
The distance from the axis of the main street to the outer alignment of the lateral wall street in the southern quarter is 201.98 b. If this outer alignment would be taken as relevant line for the side of the hexagon to mark, the length of the hexagon along the axis of the main street would be 466.43 b. In fact, the length of the town between the outer alignments of the northeastern and southwestern wall streets is 451.16 b., resulting in a difference of 15.27 b., or 3.38%, which is more than would be tolerable on this scale. But when the dimensions in the plan closely are studied closely, there appear to be other remarkable dimensions that ask for attention. The outer building line of the second parallel street is at 117.46 b. from the main axis, and the outer building line of the wall street near to the southeast gate is at 201.98 b. from it. This suggests that these dimensions might have been designed as the sines of 30˚ and 60˚ of a dodecagon with a radius of 234.07 b. (fig.6.23) This would be similar to the situation in San Giovanni and the other terra nuova of Scarperia, as will appear in the next paragraph.

Table VIII: distances from centre of main street to outer alignments of longitudinal streets (in Florentine braccia) and divergence between measurements and theory

<table>
<thead>
<tr>
<th></th>
<th>outside of 2nd parallel street</th>
<th>outside of wall street</th>
</tr>
</thead>
<tbody>
<tr>
<td>measurement Boerefijn</td>
<td>117.46</td>
<td>201.98</td>
</tr>
<tr>
<td>theoretically with r = 234.07 b.</td>
<td>117.04</td>
<td>202.71</td>
</tr>
<tr>
<td>difference</td>
<td>0.36%</td>
<td>0.36%</td>
</tr>
</tbody>
</table>

Thus, it seems quite well possible that this geometry was used in the design of the plan for Castelfranco. There are not many relevant dimensions given by the geometric figure of the dodecagon - it regards just two dimensions that are related in this way - but the similarity of this geometry to that found for San Giovanni, Scarperia (see the following paragraph) and Terranuova appears to confirm that this geometry really played a role in the design of the dimensions.78

If a special significance is to be found in the number 234 (rounded from the dimension of 234.07 b.) for the length of the radius, the only option I can think of is that the figures of 2, 3 and 4 follow one another as in the elemental numerical series.79

Apart from the geometrically determined dimensions in the plan of Castelfranco, it may be helpful to consider other dimensions of streets and house lots or street blocks, in order to compare them later on, to the corresponding dimensions in the other terre nuova. (see par.B.4) Most probably, the lots were 10 b. wide originally, as in San Giovanni and Terranuova. Further measurements taken from the plan have lead to the average dimensions shown in table IX. In this table the first row contains the width of the complete blocks, while the second row has this element cut up in the separate dimensions of depth of lot / width of alley / depth of lot. These last three cumulated, diverge somewhat from the complete street block dimensions, because the alleys are only left in some places, for which reason the three could not be measured separately in the same places where the complete width of the block was measured. A further difference is made by the fact that in this way the inaccuracy from measuring is tripled. The third row contains rounded values, derived from the measured dimensions. These are significant, while here, where a smaller number of relevant lines seem to be determined by the design geometry than in San Giovanni and Terranuova, it seems more obvious that these dimensions were chosen as numerical values in whole braccia.

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78 See par. B.4.
79 The number of 234 can be subdivided as 2 \times 3 \times 3 \times 13, which does not seem to be significant in any way.
Table IX: widths of streets and lengths of lots (in Florentine braccia)

<table>
<thead>
<tr>
<th></th>
<th>main street</th>
<th>1st lot</th>
<th>alley</th>
<th>2nd lot</th>
<th>3rd street</th>
<th>4th lot</th>
<th>2nd street</th>
</tr>
</thead>
<tbody>
<tr>
<td>measurements</td>
<td>12.17</td>
<td>56.8</td>
<td>7.41</td>
<td>39.95</td>
<td>39.95</td>
<td>7.21</td>
<td></td>
</tr>
<tr>
<td>rounded</td>
<td>12</td>
<td>30</td>
<td>2</td>
<td>19</td>
<td>2</td>
<td>19</td>
<td>7</td>
</tr>
<tr>
<td>5th lot</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>measurements</td>
<td>37.18</td>
<td>8.5</td>
<td>33.76</td>
<td>5.53</td>
<td>208.51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>rounded</td>
<td>18</td>
<td>2</td>
<td>18</td>
<td>8</td>
<td>16</td>
<td>16</td>
<td>6</td>
</tr>
</tbody>
</table>

The alley is no longer present here, and therefore it cannot be measured.

The most remarkable conclusion to be drawn from the dimensions in this table, is that the diminution of the lot length is very gradual between 3rd/4th, 5th/6th and 7th/8th row. A further remarkable feature is the fact that the 3rd parallel street is a little wider than the 1st and 2nd parallel streets.80 There is no arithmetic system recognisable in the relation between the different dimensions.

B.3.4 Scarperia

For the terra nuova of Scarperia I have also checked to what degree the theoretic geometric design methods encountered above correspond to the plan. Guidoni, Friedman and Pirillo did not extend their theories to this town. According to Guidoni this town is much less interesting because of an unspecified ‘loss of tension’ in comparison to Castelfranco, San Giovanni and Terranuova, and Friedman assumes that similar methods of design as he proposed for San Giovanni and Terranuova were not used here because only the house lots on the main street are larger than the three rows of lots behind them.81 Nonetheless, it seems possible that a similar method of design was used here, as suggested by Van den Heuvel.

The plan of Scarperia is rather less regular than those of Terranuova and San Giovanni, and of Castelfranco as it was until about the 17th century. Particularly the outline is less regular.82 On the west side the plan came to follow the irregular contour of the steep ridge on which the town was built. This allowed for additional plots to be laid out there, for which reason the plan is much less symmetrical than the other terre nuove. On the other three sides, the circuit of the town wall was at least since the 17th century made up of straight stretches that, however, did not make up a real rectangular form. (fig.3.19) The irregular contours of the town, together with the fact that the fourth row of lots was left largely vacant on the eastern side and in the southwestern quarter, make that the second parallel street, or what would have been the wall street had the town got a regular rectangular outline, is not recognisable as such. Only in the northwestern quarter it is clearly present, apart from a very small tract of dead end street in the southeastern part of the town. Further irregularity in the plan is caused by the fact that there are no clear continuous boundaries dividing the house rows at their backsides. Therefore, it is difficult to find the original length of the house lots. In fact, the backside boundaries of the rows of lots facing the main street are so irregular, that no clearly relevant dimension has been found directly. The other rows have more lots

80 I suspect that this feature was not really intended in the original design, because this third parallel street does not seem to have had a special function, nor is it located in a place where it could have had some higher symbolic importance as an axe of symmetry.

81 Guidoni 1970, p.229. According to Friedman, the lots on the main street were circa 13 to 16.6 m. (22.27-28.44 b.) deep, while the other three originally planned rows contain lots of circa 11 m. (18.85 b.) deep. (Friedman 1988, p.120) This is confirmed by cadastral plans of the 19th and 20th centuries. The 18-braccia lot is still quite close to the hypothetical originally planned lots of 18.85 b., and its reduced length may be due to unclear lot boundaries or inaccurate measuring. The 16-braccia lot is more problematic in this context. Possibly, it lay on the western side of the town, in the area between the ridge and the outermost street, where the depth of the lots varied according to the irregular contour of the ridge.

with more or less consistent dimensions. But still, the various dimensions show stronger variation than in the other terre, for which reason the averages are less likely to reflect the original dimensions accurately.

Looking at the average measurements of the relevant boundaries in the plan, it appears that the outer alignment of the parallel streets is on average at 62.33 b. from the main axis, while the outer building line of the ‘wall street’ is at a distance of 109.75 b. This suggests that these dimensions may have been designed as the sines of 30° and 60° of a dodecagon with a radius of 125.68 b. (see fig.6.24 and table X)

Table X: distances from centre of main street to outer alignments of longitudinal streets (in Florentine braccia) and divergence between measurements and theory

<table>
<thead>
<tr>
<th>distance from centre of main street to:</th>
<th>outside parallel street</th>
<th>outside wall street</th>
</tr>
</thead>
<tbody>
<tr>
<td>measurement Boerefijn</td>
<td>62.33</td>
<td>109.75</td>
</tr>
<tr>
<td>theoretically with r = 125.68 b.</td>
<td>62.84</td>
<td>108.81</td>
</tr>
<tr>
<td>difference</td>
<td>0.82%</td>
<td>0.86%</td>
</tr>
</tbody>
</table>

As at Castelfranco, this geometry is relatively limited in its relevance for the plan as a whole, but the method corresponds closely to it, and thereby also to the design systems of San Giovanni and, less directly, of Terranuova. of 234.07 b. (cf. figs.6.23, 6.21, 6.19)

The radius of 125.68 b. is calculated as best fitting to the measurements, but actually 125 b. would be the logical dimension to suppose for this radius. Although the number is not known for any specific symbolic meaning, it may have been relevant for the choice of this radius that 125 is $5 \times 5 \times 5$.

Considering the other relevant dimensions of plan elements in Scarperia, it appears that, unlike the other terre nuove, the width of the lots was 12 b. This is evidenced by two 14th-century documents regarding the assignment of lots to settlers83, as well as by the width of many present-day lots.84 Other relevant dimensions are listed in table XI.

Table XI: widths of streets and lengths of lots (in Florentine braccia)

<table>
<thead>
<tr>
<th>width main street</th>
<th>length 1st lot</th>
<th>length 2nd lot</th>
<th>width parallel street</th>
<th>length 3rd lot</th>
<th>length 4th lot</th>
<th>width ‘wall street’</th>
</tr>
</thead>
<tbody>
<tr>
<td>measured as blocks</td>
<td>12.77</td>
<td>47.63</td>
<td>8.57</td>
<td>39.58</td>
<td>6.92</td>
<td></td>
</tr>
<tr>
<td>measured</td>
<td>12.77</td>
<td>undeterminable</td>
<td>20.31</td>
<td>8.57</td>
<td>19.19</td>
<td>19.28</td>
</tr>
<tr>
<td>rounded</td>
<td>13</td>
<td>27.5</td>
<td>20</td>
<td>8.5</td>
<td>19</td>
<td>ally 1.5</td>
</tr>
</tbody>
</table>

The existence of alleys dividing the two rows of lots within a block is proven by the statutes from the 1420’s.85 Only in the northwestern block one can find relics of such an alley. It is difficult to determine how wide it originally was (particularly because it is only a small dimension which is difficult to measure in a plan drawing in this scale), but it seems that it was circa 1.5 b. The alleys between the first and the second rows have completely disappeared in the present-day as well as in the 19th-century cadastral plan, so one of these two rows of lots, or both, must have been less deep, possibly also 1.5 b.

The totals are as follows: from the axis of the main street to the outer alignment of the ‘wall street’, it is 109.75 b. when the average total is measured; 108.81 b. theoretically with r = 125.68 b.; 109.08 b. when the average measurements of the individual elements are added up; and 109 b. when the hypothetical rounded dimensions are added up. These divergences are negligible.

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83 See Friedman 1988, pp.314, 317, docs.5 and 7.
84 It seems, however, that a number of the corner plots may have been 14 to 15 b. wide, as may be observed in 14 out of 47 possible cases. Only in five of the remaining 33 corner plots the width is circa 12 b.; in the rest of the cases the lots have been subdivided or amalgamated.
85 Romby & Diana, 1985, p.34 (A.S.F., Statuti Comuni Soggetti 831 - Lega di Scarperia (1423-1427)).
B.4 Comparison between the terre nuove

Now that the individual terre nuove plans have been examined, it is time to compare the dimensions found in the various plans. In order to make them easily comparable, they are listed in the tables that are depicted below.

Considering the basic layout of the towns, it is a very obvious difference that Castelfranco had 16 rows of houses while the other four towns had just eight in the original designs. Another relevant difference lies in the width of the original lots (not included in the table) which is ten braccia at Castelfranco, San Giovanni, Terranuova and Giglio, and 12 b. in Scarperia. Table XII contains the length of the lots in the distinct rows in the different towns. For easy perception of the data, the values are rounded off from my measurements, which does not imply that they were actually laid out as such.

Table XII: lengths of lots (in Florentine braccia), rounded off from measurements

<table>
<thead>
<tr>
<th>Town</th>
<th>1st lot</th>
<th>2nd lot</th>
<th>3rd lot</th>
<th>4th lot</th>
<th>5th lot</th>
<th>6th lot</th>
<th>7th lot</th>
<th>8th lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Giovanni</td>
<td>39</td>
<td>29</td>
<td>24</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Castelfranco</td>
<td>30</td>
<td>26</td>
<td>19</td>
<td>19</td>
<td>18</td>
<td>18</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Scarperia</td>
<td>26*</td>
<td>20</td>
<td>19</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terranuova</td>
<td>30</td>
<td>26</td>
<td>21</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Giglio</td>
<td>28</td>
<td>20</td>
<td>20</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*not measured but following from the length of the block minus the length of the 2nd lot and alley

Analysing the numbers in table XII, it appears that the first lot was in most cases circa 30 b. long, the second twice 20 and twice 26, the third circa 20, and the fourth lot circa 19 b. in three out of the five towns. San Giovanni is the obvious exception with much longer lots in the first, second and third rows. The 15 b. lot in Terranuova and the 10 b. lot in Giglio in the fourth row are clearly smaller than the rest. The intervals between the different lots are most regular in Terranuova.

Table XIII contains the measured widths of the longitudinal streets and alleys.

Table XIII: widths of streets (in Florentine braccia), rounded off from measurements

<table>
<thead>
<tr>
<th>Town</th>
<th>main street</th>
<th>alley/ back-street</th>
<th>parallel street</th>
<th>alley/ back-street</th>
<th>2nd parallel street</th>
<th>3rd parallel street</th>
<th>wall street</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Giovanni</td>
<td>19</td>
<td>4</td>
<td>14</td>
<td>3</td>
<td></td>
<td></td>
<td>19</td>
</tr>
<tr>
<td>Castelfranco</td>
<td>12</td>
<td>2*</td>
<td>7</td>
<td>2</td>
<td>7</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Scarperia</td>
<td>13</td>
<td>1.5</td>
<td>9</td>
<td>1.5</td>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Terranuova**</td>
<td>14</td>
<td>8</td>
<td>10</td>
<td>8</td>
<td></td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Giglio</td>
<td>14</td>
<td>10</td>
<td>10</td>
<td>8</td>
<td></td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

* All alleys in Castelfranco are taken to be about 2 b. wide. The alleys in the third and fourth block are not separately entered in this table.
** For Terranuova these dimensions are rounded from Friedman’s measurements, since they are probably more accurate than mine.
A clear difference is that Terranuova and Giglio have back streets, while there are alleys at the rear of the lots in the other towns. In San Giovanni the alleys actually were accessible (and recently opened up again), whereas at Castelfranco and Scarperia they seem to have been not much more than narrow gutters. Just like with the lots, the streets are by far the largest in San Giovanni, while they are narrowest in Castelfranco. The differences between these two towns are the more remarkable, since they were founded in the same instance and were built in the same period, quite near to each other, for which reason one would expect a greater similarity. Such chronological logic is, however, difficult to find in the ground plan designs of the terrane. There is no clear evolution in the plans; only between the last two towns of Terranuova and Giglio one may recognise certain similarities that more or less set them off against the rest, among which the phenomenon of the back streets is most obvious.

Another significant similarity between Terranuova and Giglio are the dimensions of the piazzas. It was explicitly stated in the foundation document for Giglio, that the piazza was to measure 70 x 90 b., which is almost the same as what I measured in the plan of Terranuova (90.52 x 68.97 b.). These almost equal dimensions are, however, made up by different sub-dimensions of the plan elements that flank the piazza, and that actually determine its dimensions, considering the piazza as a space left open by leaving lots vacant. The 90 b. length of the piazza is made up out of a 14 b. main street, two 30 b. lots and two 8 b. back streets at Terranuova, while in the case of Giglio it is made up out of a 14 b. main street, two 28 b. lots and two 10 b. back streets. Thus, at Giglio the lots were made a bit shorter and the back streets a little wider. The same is true for the width of the piazza: in Giglio the cross street was probably planned 14 b. wide, while at Terranuova I measured 11.39 b. on average, whereas Friedman claims that it was 10 b. wide.

It is possible that the similarity between the dimensions of the two piazzas is accidental. After all, the piazza at Terranuova is not precisely 90 x 70 b. But it is also possible that the piazzas were explicitly planned with these dimensions. In that case, one would expect these dimensions to have had some sort of special relevance; but I have not been able to trace such a special significance of the values of 70 x 90 b.

There is, however, another way of looking at the open space of the piazzas of the two towns. If the streets are regarded as extending over the piazza, then four imaginative squares would be left as open spaces, not used for traffic. These four squares would be 28 x 28 b. in Giglio, and if Friedman’s measurements are right, circa 30 x 30 b. in Terranuova. The total dimensions of the piazzas may thus have been arrived at by squaring the length of the house lots that face the main streets. All in all, it remains difficult to establish the way the piazzas were designed. They may have been proportioned, either as a total of 70 x 90 b., possibly with a special significance in these dimensions, or as four open squares separated by trough-going, intersecting streets. It is also possible that the similarity of the dimensions of the two piazzas is coincidental, and that the piazza at Terranuova is only the result of leaving open a number of house lots in the centre of the town. This also seems to have been the case with the piazzas of the other towns, which have quite different dimensions. At San Giovanni it had a completely different shape, elongated and transverse in direction. Its original dimensions are difficult to determine, but the 16th-century plans of Della Zucca and Gentile and Batista mention 248 x 80 b. and 246.40 x 81.86 b. (accumulated). The piazza at Castelfranco measures approximately 70 x 86 b. and in Scarperia the dimensions are circa 69 x 46 b.

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86 Friedman also claims that the piazza at Terranuova measures 70 x 90 b. (Friedman 1988, p.79).
87 Friedman 1988, p.146-147. This probably means that, to arrive at the 70 b. width at Giglio, not all house lots facing the square would be 10 b. wide, although that is not mentioned in the document. Friedman supposes that four of them may have been either 8 or 18 b. wide. (see fig.3.27) If my measurements are right, then, similarly, at Terranuova some lots must have had a width other than 10 b. in order to arrive at the measured 68.97 b. or the rounded dimension of 70 b. If Friedman is right (his measurements are probably more accurate than mine; see note 45 above), the lots and the cross street at Terranuova were all 10 b. wide.
88 When the space of the back streets that border the piazza is subtracted, it would measure 70 x 70 b. at Giglio and 74 x 70 b. at Terranuova. Possibly, there is a similarity with the original design for the piazza at Castelfranco, which might have been proportioned as a real square of circa 70 x 70 b. This was suggested by Guidoni (1970, fig.116, see fig.6.11), following Richter (1940, p.369). But it seems more likely that the piazza was wider, being circa 102 b. long, as it was more common that public space was made smaller, being encroached upon, instead of larger. (Friedman 1988, p.242, n.34).
89 Friedman 1988, p.79; Friedman 2004, p.149. According to Friedman (2004, p.149) the piazza was purposely given the proportions 3 : 1.
90 On Castelfranco, see par B.3.3. The piazza at Scarperia is very different from the other piazzas, not lying in central position with the main street as its axis, for which reason it is not really comparable. The length is almost 70 b. and thereby more or less analogous to the piazzas of Terranuova and Giglio, but it is likely that this is accidental, as the overall form is so different.
The dimensions of the outlines of the terre vary from town to town, and so do the relative proportions between length and breadth.\footnote{My measurements in braccia partly result from reconstructions of the original rectangles: Castelfranco 451.16 x 403.96; San Giovanni, 792.49 x 326.32; Terranuova 570.08 x 271.85; Scarperia, circa 520 x 220 (to the outside of the second parallel street, which was presumably meant as wall street in the original design). For Giglio the document mentions 470 x 246 b. For Firenzuola the foundation document mentions 633 x 342 b., but (at least) since the late 15th century the town’s dimensions are circa 356 x 312 b. It is rather strange that these are the only dimensions given in this document. It suggests that the layout was already designed in detail, but was not found necessary to describe in an official document, as was done 13 years later for Giglio. Alternatively, the design may have been recorded in another document, which has been lost.} It is obvious that the dimensions of the outlines are not chosen as round numbers, and apart from the case of Terranuova, they do not seem to have been determined by geometric proportioning methods.\footnote{On Terranuova, see par. B.3.1. See also pars. B.1 and B.3.2, B.3.3.} It seems that the outline dimensions were mainly the result of the dimensions in the inner structure\footnote{This was not the case with the Florentine new town that was to be founded on the Consuma pass in 1329 (see par. 3.3), which has not left any traces in the present-day landscape. This town was to measure 300 x 600 braccia, according to the document of legislation for its foundation. (Richter 1940, p.381; Friedman 1988, pp.327-329) It is probable that the layout for this town was not really planned into detail yet, so that these dimensions were just given as a rough indication of its future size. A considerable difference between this town and the towns that are amply described in chapter 3, is that this town was to receive two gates instead of four.} and, of course, the planned number of house lots.\footnote{Friedman has done research after the number of settlers who could be expected for the foundation of Giglio. He came to a number of between 176 and 330 families. The plan provided for circa 338 lots, in the space of which the church and town hall also needed to be accommodated. (Friedman 1988, p.76). It is not impossible, however, that the diameters of the polygons played a role in determining the length of the towns of Castelfranco, San Giovanni (doubled) and Scarperia (doubled), just like at Terranuova. (see fig.6.19) At Castelfranco the diameter reaches to the outer side of the gates (fig.6.22) and at San Giovanni, conversely, only to the inside of the wall streets (see fig.6.20). The later option may also have been planned for Scarperia, but this is conjectural, as it is unknown in what form the northern end was originally planned. (fig.6.24) Possibly, the planners used the (doubled) diameters roughly for guiding points, from which they diverged according to the number of house lots that were needed.}
# APPENDIX C

## STANDARD DIMENSIONS OF HOUSE LOTS ACCORDING TO DOCUMENTS AND RECONSTRUCTIONS

In this appendix to paragraph 9.11 the sizes of original standard house lots in newly created towns are listed. The towns are grouped by region, and within the separate regions the list is separated in two sections. The first section contains dimensions of the house lots which are mentioned in the ancient documents that have survived, while the second section contains dimensions of presumable standard house lots which are known from later documentary sources or which are reconstructed and measured from plans or from the presently existing situation. Within these separate sections the lots are listed chronologically (for as far as exact dates are known).

As far as possible, dimensions are listed in metres or feet. Because the dimensions that are mentioned in the ancient documents were expressed in contemporary units of measurement, it is not always possible to determine what their exact size would have been in metres, since the ancient units could vary per place and period. For instance, dimensions in feet are not converted to metres, unless it is known exactly which foot-length was meant. The length of the foot could vary between about 29.5 and 32.5 cm, but most commonly it was around 30 cm.

<table>
<thead>
<tr>
<th>where</th>
<th>when</th>
<th>plot dimensions</th>
<th>source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scotland, from contemporary sources</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Leges Burgorum</em>, a compilation of laws relating to the royal burghs, such as Aberdeen and Edinburgh</td>
<td>attributed to the reign of King David I (1124-1153)</td>
<td>1 burgh perch (probably 9.1 m.) width</td>
<td>Dennison 2003, p.74; Adams 1978, p.33</td>
</tr>
<tr>
<td><em>Fragmenta collecta</em>, a compilation of laws relating to various burghs</td>
<td>12th–13th centuries</td>
<td>20 ft. width</td>
<td>Dennison 2003, p.74</td>
</tr>
<tr>
<td><strong>Scotland, reconstructed dimensions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>St. Andrews</td>
<td>early 12th century</td>
<td>36-38 ft. and 28-32 ft. width</td>
<td>Dennison 2003, p.74</td>
</tr>
<tr>
<td>Perth</td>
<td>first half of the 12th century</td>
<td>20 ft. width</td>
<td>Dennison 2003, p.74</td>
</tr>
<tr>
<td>Dunfermline</td>
<td>12th century</td>
<td>22 ft. width, with variants of 20-25 ft.</td>
<td>Dennison 2003, p.74</td>
</tr>
<tr>
<td><strong>England, from contemporary sources</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stratford upon Avon</td>
<td>founded and doc. 1196</td>
<td>3.5 x 12 perches (57.75 x 150 ft.), at 1 shilling yearly</td>
<td>Slater 1987, p.195; Carus-Wilson 1990, p.63; Aston &amp; Bond 1976, p.98</td>
</tr>
<tr>
<td>Burton upon Trent</td>
<td>founded late 12th or first half 13th c.</td>
<td>4 x 24 perches (66 x 396 ft.)</td>
<td>Slater 1988, p.97</td>
</tr>
<tr>
<td>New Salisbury</td>
<td>doc. 1219</td>
<td>3 x 7 perches (49.5 x 115.5 ft.), at 12 d. a year*</td>
<td>Ancient and Historical Monuments in the City of Salisbury 1980, p.XXXII</td>
</tr>
<tr>
<td>Altrincham</td>
<td>late 13th century</td>
<td>2 x 5 perches (33 x 82.5 ft.)</td>
<td>Slater 1988, p.97</td>
</tr>
</tbody>
</table>
### England, reconstructed dimensions

<table>
<thead>
<tr>
<th>Place</th>
<th>Creation Date</th>
<th>Dimensions</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hedon</td>
<td>1138-48</td>
<td>4 or 8 perches wide, possibly 20 perches long, amounting to a 0.5 or 1 acre (1 perch = 16.5 ft; 1 acre = 0.4047 hectare)</td>
<td>Slater 1988, p.97</td>
</tr>
<tr>
<td>Thame</td>
<td>c.1220</td>
<td>c.60 x 650-700 ft. (c. 1 acre), at 1 shilling yearly (width, and possibly length, stemming from pre-urban open field strips)</td>
<td>Aston &amp; Bond 1976, p.98</td>
</tr>
</tbody>
</table>

### Wales, from contemporary sources

<table>
<thead>
<tr>
<th>Place</th>
<th>Creation Date</th>
<th>Dimensions</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degannwy</td>
<td>founded and doc. 1252</td>
<td>0.5 acre (0.2023 ha., for instance ca. 32 x 64 m.)</td>
<td>Butler 1985, pp.488-489</td>
</tr>
<tr>
<td>Caernarfon</td>
<td>founded and doc. 1283</td>
<td>60 x 80 ft. (18.29 x 24.38 m.)</td>
<td>Lewis 1912, p.49; Williams-Jones 1978, p.78</td>
</tr>
<tr>
<td>Criccieth</td>
<td>founded and doc. 1284</td>
<td>60 x 80 ft. (18.29 x 24.38 m.)</td>
<td>Lewis 1912, p.49; Williams-Jones 1978, p.78</td>
</tr>
<tr>
<td>Beaumaris</td>
<td>founded and doc. 1295</td>
<td>40 x 80 ft. (12.19 x 24.38 m.)</td>
<td>Lewis 1912, p.63</td>
</tr>
</tbody>
</table>

### Belgium, Northern Germany and The Netherlands from contemporary sources

<table>
<thead>
<tr>
<th>Place</th>
<th>Creation Date</th>
<th>Dimensions</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mariakerke (Flanders)</td>
<td>doc.1228</td>
<td>50 x 100 ft.</td>
<td>Strahm 1945, p.47</td>
</tr>
<tr>
<td>Hildesheim Dammstadt (northern Germany)</td>
<td>founded 1196</td>
<td>6 x 12 Ruten (=96 x 192 ft.)</td>
<td>Schich 1993, p.97</td>
</tr>
<tr>
<td>Klee (northwestern Germany)</td>
<td>extension 1242</td>
<td>44 x 140 ft.</td>
<td>Schich 1993, p.97</td>
</tr>
<tr>
<td>Kalkar (northwestern Germany)</td>
<td>founded c.1230, doc.1347</td>
<td>44 x 140 ft.</td>
<td>Schich 1993, p.97; Wensky 2001</td>
</tr>
<tr>
<td>Nieuwpoort (Holland)</td>
<td>founded 1283</td>
<td>4 roeden (rods) wide (c.15 m.) (at 3 schellingen yearly, by lengths of about 63 and 38 m.)</td>
<td>Henderiks c.s. 1990, p.28</td>
</tr>
<tr>
<td>Sonsbeck (northwest Germany)</td>
<td>founded 1320</td>
<td>4 x 25 Holländische Ruten (Holland rods; presumably c.15 x 94 m.)</td>
<td>Wensky 1996</td>
</tr>
</tbody>
</table>

### Northern Germany and The Netherlands, reconstructed dimensions

<table>
<thead>
<tr>
<th>Place</th>
<th>Creation Date</th>
<th>Dimensions</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Braunschweig Hagen</td>
<td>founded c.1166</td>
<td>6 x 12 Holländische Ruten (22.5 x 45 m.)</td>
<td>Rötting 2001, p.4</td>
</tr>
<tr>
<td>Hamburg Neustadt</td>
<td>founded 1188</td>
<td>34-28 x 320 ft.</td>
<td>Higounet 1986, p.288</td>
</tr>
<tr>
<td>Lippstadt</td>
<td>founded c.1185</td>
<td>35 x 105 ft. (11.3 x 34.2 m.)</td>
<td>Keller 1979, p.88</td>
</tr>
<tr>
<td>Heidelberg</td>
<td>founded 1214-1220</td>
<td>6 x 12 Ruten (72 x 144 ft.)</td>
<td>Nitz 1999, p.109</td>
</tr>
<tr>
<td>Grafenwöhr</td>
<td>founded 1361</td>
<td>4 Ruten width (72 ft.)</td>
<td>Nitz 1996, p.21</td>
</tr>
<tr>
<td>Neustadt am rauen Kulm</td>
<td>founded 1370</td>
<td>9 Ruten width</td>
<td>Nitz 1996, p.25</td>
</tr>
<tr>
<td>Elburg (The Netherlands)</td>
<td>founded 1392</td>
<td>28 x 112 ft.</td>
<td>Rutte, Visser &amp; Boerefijn 2003, pp.122-127</td>
</tr>
</tbody>
</table>
### Southern Germany and Switzerland, from contemporary sources

<table>
<thead>
<tr>
<th>Location</th>
<th>Foundation Date</th>
<th>Document Date</th>
<th>Dimensions</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freiburg im Breisgau (SW Germany)</td>
<td>c.1120</td>
<td>c.1152</td>
<td>50 x 100 ft.</td>
<td>Strahm 1945, p.47; Schich 1993, p.97</td>
</tr>
<tr>
<td>Arconcel (Switzerland)</td>
<td>mid-12th century</td>
<td></td>
<td>80 x 100 ft.</td>
<td>Flückiger 1984, p.243</td>
</tr>
<tr>
<td>Flumet (Switzerland)</td>
<td>1200, doc. 1228</td>
<td></td>
<td>50 x 100 ft.</td>
<td>Strahm 1945, p.47; Schich 1993, p.97</td>
</tr>
<tr>
<td>Dießenhofen (Switzerland)</td>
<td>1178, doc. 1260</td>
<td></td>
<td>52 x 100 ft.</td>
<td>Schich 1993, p.97</td>
</tr>
<tr>
<td>Freiburg im Üechtland (Switzerland)</td>
<td>c.1157, doc. 1249</td>
<td></td>
<td>60 x 100 ft., at 12 Pfennig (1 shilling) yearly</td>
<td>Strahm 1945, p.48; Schich 1993, p.97; Frölich 1975, p.306</td>
</tr>
<tr>
<td>Bern (Switzerland)</td>
<td>c.1190, doc. 1218</td>
<td></td>
<td>100 x 60 ft., at 12 Pfennig (1 shilling) yearly</td>
<td>Strahm 1945, p.48; Schich 1993, p.97; Frölich 1975, p.306</td>
</tr>
<tr>
<td>Büren (Switzerland)</td>
<td>document 1260</td>
<td></td>
<td>60 x 100 ft., at 1 sol (=shilling) yearly</td>
<td>Strahm 1945, p.48</td>
</tr>
<tr>
<td>Aarberg (Switzerland)</td>
<td>c.1220, doc. 1271</td>
<td></td>
<td>60 x 100 ft., at 1 sol (=shilling) yearly</td>
<td>Strahm 1945, p.48</td>
</tr>
<tr>
<td>Thun (Switzerland)</td>
<td>13th century</td>
<td></td>
<td>40 x 60 ft., at 1 sol (=shilling) yearly</td>
<td>Strahm 1945, p.48</td>
</tr>
<tr>
<td>Burgdorf (southern Germany)</td>
<td>13th century</td>
<td></td>
<td>40 x 60 ft., at 1 sol (=shilling) yearly</td>
<td>Strahm 1945, p.48</td>
</tr>
<tr>
<td>Erlach (Switzerland)</td>
<td>13th century</td>
<td></td>
<td>24 ft. wide, at 12 deniers (=1 shilling) yearly</td>
<td>Strahm 1945, p.48</td>
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<tr>
<td>Kenzingen (southern Germany)</td>
<td>1249, doc. 1283</td>
<td></td>
<td>30 x 50 ft.</td>
<td>Schich 1993, p.97</td>
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### Switzerland and Austria, reconstructed dimensions

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<tbody>
<tr>
<td>Bulle (Switzerland)</td>
<td>early 13th c.</td>
<td>45-50 x 80 ft.</td>
<td>Flückiger 1984, p.143</td>
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<tr>
<td>Horn (Austria)</td>
<td>1150-1160</td>
<td>23 x 66 m.</td>
<td>Pfeßl 1993, p.211</td>
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### Northern France, from contemporary sources

<table>
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<tr>
<td>Fienvillers (northern France)</td>
<td>c.1204</td>
<td>80 x 80 ft., at a yearly rent of 2s.6d.</td>
<td>Higounet 1990, p.300</td>
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<tr>
<td>Corny-la-Ville (northern France)</td>
<td>document 1233</td>
<td>60 x 80 ft.</td>
<td>Higounet 1990, p.179</td>
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### Southwest France, from contemporary sources

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<th>Location</th>
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<tbody>
<tr>
<td>Gargas</td>
<td>founded and doc. 1239</td>
<td>8 x 23 pegas (c.24 x 69 m.)</td>
<td>Erlen 1992, p.228</td>
</tr>
<tr>
<td>Buzet-sur-Tarn</td>
<td>founded and doc. 1241</td>
<td>4 x 6 brasses (20-24 x 30-36 ft.)</td>
<td>Abbe 1997, p.311</td>
</tr>
<tr>
<td>Puybegon</td>
<td>founded and doc. 1246</td>
<td>4 x 6 brasses (20-24 x 30-36 ft.)</td>
<td>Abbe 1997, p.311</td>
</tr>
<tr>
<td>Villefranche-de-Rouergue</td>
<td>founded and doc. 1252</td>
<td>4 x 10 cannes (c. 8 x 20 m.)</td>
<td>Grimbert 1988, p.51; Zupko 1978</td>
</tr>
<tr>
<td>Monflanquin</td>
<td>founded and doc. 1256</td>
<td>4 x 12 cannes (c. 8 x 24 m. or a little less), at 6 deniers yearly</td>
<td>Leblond 1987, p.56</td>
</tr>
<tr>
<td>Castelnau-de-Levis</td>
<td>founded and doc. 1256</td>
<td>4 x 6 cannes (c. 8 x 12 m. or a little less)</td>
<td>Abbe 1997, p.311</td>
</tr>
<tr>
<td>Rudelle</td>
<td>founded and doc. 1259</td>
<td>4 x 7 cannes (c. 8 x 14 m.)</td>
<td>Lauret, Malebranche &amp; Séraphin 1988, p.245</td>
</tr>
<tr>
<td>Village</td>
<td>Founded and Doc.</td>
<td>Measurements (in feet, cannes = 7.72 x 19.30 m.)</td>
<td>Sources</td>
</tr>
<tr>
<td>----------------------------</td>
<td>------------------</td>
<td>-------------------------------------------------</td>
<td>---------</td>
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<tr>
<td>Villefranche-du-Périgord</td>
<td>1261</td>
<td>4 x 10 cannes (one canne probably being c. 1.93 m. here)</td>
<td>Leblond 1987, p.58</td>
</tr>
<tr>
<td>Monségur</td>
<td>1285</td>
<td>24 x 72 ft.</td>
<td>Abbe 1997, p.311</td>
</tr>
<tr>
<td>Monclar-de-Quercy</td>
<td>1267</td>
<td>4 x 12 cannes (c. 8 x 24 m. or a little less), at 6 deniers yearly</td>
<td>Leblond 1987, p.56</td>
</tr>
<tr>
<td>Barran</td>
<td>1270</td>
<td>4 x 12 perches (c. 12.5 x 37.5 m.)³</td>
<td>Abbe 1997, p.311</td>
</tr>
<tr>
<td>Ribouisse and Lignairolles</td>
<td>1271</td>
<td>10 brassées (12 - 15 m.) in length</td>
<td>Lavedan &amp; Hugueney 1974, p.74</td>
</tr>
<tr>
<td>Sainte Gemme</td>
<td>1275</td>
<td>4 x 12 stades (c. 8 x 24 m.)</td>
<td>Abbe 1997, p.311</td>
</tr>
<tr>
<td>Saint-Osbert</td>
<td>1276</td>
<td>24 x 72 ft.</td>
<td>Lavedan &amp; Hugueney 1974, p.74</td>
</tr>
<tr>
<td>Beaumont-du-Périgord</td>
<td>1277</td>
<td>4 x 10 cannes (7.72 x 19.30 m., one canne probably being c. 1.93 m. here)³</td>
<td>Leblond 1987, p.58</td>
</tr>
<tr>
<td>Labastide-l’Éveque</td>
<td>1280</td>
<td>4 x 10 cannes (c. 8 x 20 m.)</td>
<td>Grimbert 1988, p.43</td>
</tr>
<tr>
<td>Monpazier</td>
<td>1284</td>
<td>4 x 10 stades (= c.8 x 20 m.)</td>
<td>Lauret, Malebranche &amp; Séraphin 1988, p.85</td>
</tr>
<tr>
<td>Molières</td>
<td>1285</td>
<td>4 x 10 cannes&quot;</td>
<td>Leblond 1987, p.59; Randolph 1994, p.297</td>
</tr>
<tr>
<td>Albias</td>
<td>1285</td>
<td>4 x 8 brassées (16-20 x 32-40 ft.)</td>
<td>Lavedan &amp; Hugueney 1974, p.74</td>
</tr>
<tr>
<td>Villeneuve-sur-Lot</td>
<td>1286</td>
<td>5 x 10 cannes (c.10 x 20 m.)</td>
<td>Leblond 1987, p.58</td>
</tr>
<tr>
<td>Sainte-Aulaye-sur-Dronne</td>
<td>1288</td>
<td>4 x 6 brasses (15-20 x 24-30 ft.), at 12 denier per year</td>
<td>Cahiers du C.E.B. no.2 (1994), p.32</td>
</tr>
<tr>
<td>Villeréal</td>
<td>1289</td>
<td>4 x 12 cannes (one canne was probably c. 2 m. here, but in reality the lots measured just 3 x 10 cannes)</td>
<td>Leblond 1987, p.60</td>
</tr>
<tr>
<td>Mirepoix</td>
<td>1289</td>
<td>6 x 12 brasses (24-30 x 48-60 ft.)</td>
<td>Leblanc 1973, p.346</td>
</tr>
<tr>
<td>Grenade-sur-Garonne</td>
<td>1291</td>
<td>5 x 15 brasses (25-30 x 75-90 ft.)</td>
<td>Abbe 1997, p.311</td>
</tr>
<tr>
<td>Réquista</td>
<td>1293</td>
<td>5 x 10 cannes (c. 10 x 20 m.)</td>
<td>Grimbert 1988, p.45</td>
</tr>
<tr>
<td>Bassous</td>
<td>1295</td>
<td>4 x 12 perches (c. 12.5 x 37.5 m.)</td>
<td>Abbe 1997, p.311</td>
</tr>
<tr>
<td>Plagne</td>
<td>1303</td>
<td>5 x 12 periones (c. 12 x 28 m.)</td>
<td>Abbe 1997, p.311; Dubourg 1997, p.110</td>
</tr>
<tr>
<td>Rabastens-de-Bigorre</td>
<td>1306</td>
<td>20 x 60 rases (c. 9.2 x 27.6 m.)</td>
<td>Dubourg 1997, pp.109, 112</td>
</tr>
<tr>
<td>Vianne</td>
<td>1310</td>
<td>24 x 48 rases (c. 11.70 x 23.40 m.)</td>
<td>Higounet 1984, p.11</td>
</tr>
<tr>
<td>Créon</td>
<td>1315-16</td>
<td>22 x 66 ft.</td>
<td>Erlen 1992, p.238</td>
</tr>
<tr>
<td>Ornezan</td>
<td>1322</td>
<td>12 x 35 coudées (18 x 52.5 ft.)¹¹</td>
<td>Abbe 1997, p.311</td>
</tr>
<tr>
<td>Revel</td>
<td>1341</td>
<td>5 brasses, 3 razes x 11 b., 3 c. (c. 8 x 17 m.; the brasse was 4 to 6 ft., the raze was c. 0.46 cm.)</td>
<td>Doumerc 1976, p.180; Dubourg 1997, p.112</td>
</tr>
<tr>
<td>Location</td>
<td>Founded and Documented Date</td>
<td>Dimensions</td>
<td>Sources</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------</td>
<td>------------</td>
<td>---------</td>
</tr>
<tr>
<td>Rébénacq</td>
<td>1347</td>
<td>14 x 60 arases (4.44 x 27.60 m.)</td>
<td>crdp.ac-bordeaux.fr/cddp64/bastides/PDF/rebenacq.pdf</td>
</tr>
<tr>
<td>Bruges</td>
<td>1357-58</td>
<td>16 x 62 arases (c.9 x 35 m.)</td>
<td>Lavedan &amp; Hugueney 1974, p.74; Lauret, Malebranche &amp; Séraphin 1988, p.85</td>
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**Southwest France, reconstructed dimensions**

<table>
<thead>
<tr>
<th>Location</th>
<th>Founded Date</th>
<th>Dimensions</th>
<th>Sources</th>
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<tbody>
<tr>
<td>Marmande</td>
<td>1182</td>
<td>6.7 x 13.4 m.</td>
<td>Atlas historique du villes de France, Marmande, 1985</td>
</tr>
<tr>
<td>Beaumont-du-Périgord</td>
<td>1272</td>
<td>7.86 m. wide</td>
<td>Randolph 1994, p.297</td>
</tr>
<tr>
<td>Monpazier</td>
<td>1284</td>
<td>7.84 m. wide</td>
<td>Randolph 1994, p.297</td>
</tr>
<tr>
<td>Molières</td>
<td>1285</td>
<td>8.32 m. x c.18 m.</td>
<td>Randolph 1994, p.297</td>
</tr>
<tr>
<td>Moncabrier</td>
<td>1307</td>
<td>4.185 m. (= 2 cannes) width</td>
<td>Leblond 1987, p.57</td>
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**Italy, from contemporary sources**

<table>
<thead>
<tr>
<th>Location</th>
<th>Founded and Documented Date</th>
<th>Dimensions</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Gimignano, new suburb</td>
<td>created 13th century</td>
<td>12 x 24 braccia (c. 7.5 x 15 m.)</td>
<td>Friedman 1992, p.71</td>
</tr>
<tr>
<td>Giglio Fiorentino</td>
<td>founded and doc. 1350</td>
<td>10 x 28 braccia (ells of 58.36 cm.: 5.84 x 16.34 m.) on the main street, gradually diminishing in length towards the outside of town to 10 x 20 and 10 x 10 braccia</td>
<td>Friedman 1988, pp.337-343; see appendix A</td>
</tr>
</tbody>
</table>

**Italy, reconstructed dimensions**

<table>
<thead>
<tr>
<th>Location</th>
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<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pontedera</td>
<td>created c. 1269</td>
<td>10 x 45 braccia (5.83 x 26.26 m.)</td>
<td>Morelli 1994, pp.106-108</td>
</tr>
<tr>
<td>Florentine terre nuove (San Giovanni Valdarno, Castelfranco di Sopra, Scarperia and Terranova Bracciolini)</td>
<td>founded 1299-1337</td>
<td>10/12 x 39/30/26 braccia (ells of 58.36 cm.) on the main streets, gradually diminishing in length in the parallel streets to 10/12 x 19/16/15</td>
<td>(see app.B, table XII)</td>
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**Poland and former Prussia, from contemporary sources**

<table>
<thead>
<tr>
<th>Location</th>
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<th>Dimensions</th>
<th>Sources</th>
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</thead>
<tbody>
<tr>
<td>Cracow</td>
<td>1257, doc. 1385</td>
<td>36 x 72 Ellen (ells) (72 x 144 ft.)</td>
<td>Schich 1993, pp.97-105</td>
</tr>
<tr>
<td>Poznan (Posen)</td>
<td>1253, doc. 1398</td>
<td>36 x 72 Ellen (ells) (72 x 144 ft.)</td>
<td>Schich 1993, pp.97-105</td>
</tr>
<tr>
<td>Soldin (Myslibórz)</td>
<td>1281, doc. 1326</td>
<td>4.5 x 7 Ruten (rods of 12 ft. = 54 x 84 ft.)</td>
<td>Schich 1993, p.97</td>
</tr>
<tr>
<td>Königsberg (Kaliningrad), new suburb Löbenicht</td>
<td>founded 1300</td>
<td>3 x 4 Ruten (rods of 15 ft. = 45 x 17.2 m.)</td>
<td>Gause 1965, pp.35-38</td>
</tr>
<tr>
<td>Königsberg (Kaliningrad), new suburb Neustadt Kneiphof (nova civitas)</td>
<td>founded 1327</td>
<td>2 x 4 Ruten (rods of 15 ft. = 60 x 17.2 m.), and in the eastern part where the ground was low and of poor quality: 4 x 5 Ruten</td>
<td>Gause 1965, pp.35-38</td>
</tr>
<tr>
<td>Bartenstein (Bartoszyce) and Gerdauen (Železnodorozhnyj)</td>
<td>docs. 1332 and 1398</td>
<td>4 x 7 Ruten (60 x 105 ft.) on the market place and 4 x 8 Ruten (60 x 120 ft.) on the streets</td>
<td>Schich 1993, p.97</td>
</tr>
<tr>
<td>Schwetz (Świecie)</td>
<td>doc. 1338</td>
<td>2 x 10 Ruten (30 x 150 ft.)</td>
<td>Schich 1993, p.97</td>
</tr>
<tr>
<td>Lauenburg (Łębork) 1341, Tuchel (Tuchola) 1346 and Putzig (Puck)</td>
<td>docs. 1341, 1346 and 1348, resp.</td>
<td>3 x 7 Ruten (45 x 105 ft.)</td>
<td>Schich 1993, p.97</td>
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### Bütow (Bytów), Schippenbeil (Se˛pol) and Rastenburg (Ke˛trzyn)

<table>
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<tr>
<td></td>
<td>1346, 1351 and 1357, resp. (Rastenburg founded c. 1350)</td>
<td>4 x 6 Ruten (60 x 90 ft.)</td>
<td>Schich 1993, p.97</td>
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### Berent (Ko ścierzyna)

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<tr>
<td></td>
<td>c. 1350</td>
<td>4 x 7 Ruten (60 x 105 ft.)</td>
<td>Schich 1993, p.97</td>
</tr>
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### Danzig Neustadt (Gdańsk Nowe Miasto)

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<tr>
<td></td>
<td>1342, doc. 1352</td>
<td>2 x 7 Ruten (30 x 105 ft.)</td>
<td>Schich 1993, p.97</td>
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### Danzig Jungstadt (Gdańsk Młode Miasto)

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<tr>
<td></td>
<td>1380</td>
<td>2 x 8 Ruten (30 x 120 ft.)</td>
<td>Schich 1993, p.97</td>
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### Allenburg (Drużba), Nordenburg (Krylovo) and Drengfurt (Srokowo)

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<tr>
<td></td>
<td>1400, 1405 and 1405, resp.</td>
<td>4 x 7 Ruten (60 x 105 ft.)</td>
<td>Schich 1993, p.97</td>
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### Sensburg (Mragowo)

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<tbody>
<tr>
<td></td>
<td>1404/7, doc. 1444</td>
<td>2 (- 1 ell) x 9 Ruten (28 x 135 ft.) facing on the market place and 2 (- 1 ell) x 8 Ruten (28 x 120 ft.) facing the streets</td>
<td>Schich 1993, p.97</td>
</tr>
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### Poland, reconstructed dimensions

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<tr>
<td></td>
<td>in the first half of the 13th century</td>
<td>60 x 240 ft. (one ft.= 31.3 cm.: 18.78 x 75.12 m.)</td>
<td>Gutkind 1964, p.14; Lavedan &amp; Hugueney 1974, pp.124-125</td>
</tr>
<tr>
<td>various towns, particularly in Silesia, such as Nysa and Legnica (Leignitz)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>in the 13th century</td>
<td>60 x 120 ft. (18 x 36 m.)</td>
<td>Gutkind 1964, p.14; Keller 1979, p.88</td>
</tr>
<tr>
<td>several towns in Silesia; among others in Ujazd and Brzeg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>mid-13th century, c. 1253 and c.1275, resp.</td>
<td>50 x 150 ft.</td>
<td>Gutkind 1964, p.14</td>
</tr>
<tr>
<td>Świdnica, Kluczbork and Jawor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>founded 1254</td>
<td>60 x 130 ft. facing the market place, and 60 x 120 ft. along the streets</td>
<td>Gutkind 1964, fig.13</td>
</tr>
<tr>
<td>Paczków</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>founded 1257</td>
<td>facing the market place: 11.4 x 22.8 m.</td>
<td>Keller 1979, p.88</td>
</tr>
<tr>
<td>Cracow new town</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>various towns, particularly in Silesia</td>
<td>founded in the second half of the 13th century</td>
<td>50 x 200 ft. (one ft.= 28.8 cm.: 14.4 x 42.2/57.6 m.)</td>
<td>Lavedan &amp; Hugueney 1974, pp.124-125</td>
</tr>
</tbody>
</table>

1. The form and layout of the plots were influenced by the structure of pre-urban open field strips.
2. Tenants who held more or less land were to pay more or less accordingly, for which it is evident that from the very outset the tenements were not meant to be (or to remain) of the same size.
3. This new settlement was meant as a large agricultural village in a new clearing in the forests of Visogne in the Bassin Parisien.
4. Together with gardens of 15 x 15 verges (1 verge being 22 ft.) accounting for a yearly rent of 12 Reims deniers.
5. The perga was a perche of about 10 ft. (Zupko 1978, p.131)
6. A canne means a rod, but it was measured as a man with both arms outstretched: 5 to 6 ft. (Zupko 1978)
7. A canne is a rod of c. 1.8-2 m. (Zupko 1978)
8. A perche is a rod, which was about 3.143 m. in the Haute-Garonne region. (Zupko 1978, p.131)
9. In reality, however, the lots were laid out only 8 cannes long.
10. According to Leblond (1987, p.59) one canne probably measured c. 2.14 m. here, but according to Randolph (1994, p.297) the canne is metrologically identified as being 1.98 m. long.
11. A coudée = an ell, which was commonly expressed as 1.5 ft. (Zupko 1978)
12. 4.5 x 7 Ruten according to Keller 1979, p.88
13. The subtracted ells probably were for gutters in between the lots.
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De stichting, planning en bouw van nieuwe steden in de 13de en 14de eeuw in Europa.

Een architectuurhistorisch onderzoek naar stedelijke vorm en haar creatie.

Beknopte samenvatting

De huidige nederzettingsstructuur van Europa is voor een groot deel gecreëerd in de periode tussen de 11de en 15de eeuw. Honderden nieuwe steden werden in deze periode gesticht in bijna alle delen van Latijns-christelijk Europa. De grootste dichtheid aan nieuwe stedelijke creaties ligt in de 13de en 14de eeuw, met een piekperiode in de late 13de eeuw. Verschillende soorten landheren, van de hoogste tot de laagste orde, probeerden nieuwe steden te creëren op hun land, met het doel om hun economische, politieke en militaire macht te consolideren of te vergroten. De stichters trachtten bewoners aan te trekken door hen fiscale, economische en juridische privileges te verlenen, of door hun onderdanen simpelweg te dwingen om zich in de nieuwe nederzetting te vestigen. Helaas is nog erg weinig bekend over hoe de creatie van nieuwe steden precies in zijn werk ging, omdat er niet veel bronnen zijn die informatie verschaffen over het onderwerp.

In de afgelopen decennia is vrij veel onderzoek gedaan naar steden die zijn gepland in de periode tussen de 11de en de 15de eeuw. Maar in vergelijking met stedenbouwkundige planning vanaf circa 1450, is het onderwerp nog sterk onderbelicht. Het onderzoek beperkt zich meestal tot individuele steden of soms groepen steden in een specifieke regio of van een bepaalde stichter. Slechts in enkele gevallen zijn grotere groepen samenhangend onderzocht, meestal betreffende een specifieke periode of specifieke landen. In dit proefschrift wordt de planning van nieuwe steden beschouwd in het bredere perspectief van het Latijns-christelijke deel van Europa, met het doel om meer overzicht te krijgen en verschillende regio’s te kunnen vergelijken. De nadruk ligt hierin op de hoogtij-periode van de tweede helft van de 13de eeuw en de eerste helft van de 14de eeuw.

Dit onderzoek heeft in hoofdzaak een kwalitatief en beschrijvend karakter. Het hoofddoel is om het proces van stadsstichting, van het eerste idee tot en met de feitelijke realisatie, te reconstrueren en te beschrijven, vooral met betrekking tot de ruimtelijke vorm van het project. Dit proces was waarschijnlijk min of meer verschillend voor elke individuele nederzetting, maar door het gebrek aan bronnen moet noodzakelijkerwijs informatie aangaande verschillende steden in verschillende regio’s worden gecombineerd om tot een beeld te komen van het hele proces. Zo wordt een algemene beschrijving van het proces samengesteld, waarbij verschillende alternatieven worden belicht voor zover dat mogelijk is op grond van historische informatie. In het laatste deel van het proefschrift zal ook worden ingegaan op de 19de- en 20ste-eeuwse historiografie van de planning van (nieuwe) steden in de onderhavige periode, teneinde te verklaren waarom een aantal belangrijke conclusies van het onderzoek niet overeenkomen met gevestigde denkbeelden en theorieën.

Deel I (h.1 - 4) van het proefschrift bevat drie case studies van groepen nieuwe steden - vaak veeleer stadjes - in verschillende regio’s. Deze groepen steden zijn geselecteerd op hun variëteit in geografische ligging binnen Europa, variëteit in vorm en variëteit in stichters en hun motivaties. Het eerste hoofdstuk behandelt de steden die in de late 13de eeuw werden gesticht in Wales door koning Edward I van Engeland, merendeels in het kader van de militaire herovering van Noord-Wales na twee grote opstanden onder leiding van inheemse vorsten. In hoofdstuk 2 worden de bastides van zuidwest Frankrijk bestudeerd. Deze nieuw gestichte nederzettingen zijn gecreëerd tussen ca.1230 en ca.1350 door diverse heren van verschillende rang. Hun motief was in de meeste gevallen om de plattelands economie te stimuleren en daarmee hun inkomsten te vergroten. Het oude idee dat bastides vooral werden gecreëerd uit militaire overwegingen blijkt voor het overgrote deel van de gevallen een misvatting. Hoofdstuk 3 behandelt de zes stadjes die bekend staan als de terre nuove en die tussen 1299 en 1350 werden gesticht door de stadstaat Florence in Toscane. De reden voor de stichting van deze stadjes was de ambitie van het stadsbestuur om het omringende grondgebied te beheersen in militaire en economische zin, in tijden dat het gebied werd bedreigd en ten dele beheerst door Florence vijandelijk gezinde machten. Het platteland was van groot economisch en strategisch belang aangezien het essentieel was voor de productie van voedsel en grondstoffen voor de stad.
De drie groepen nieuwe steden worden in hoofdstuk 4 vergeleken. In het bijzonder met betrekking tot de verschillende stichters en hun motieven, de soort locaties waar de steden werden gebouwd en de plattegrondvorm van de steden. Onder andere blijkt dat de Welshe steden over het geheel de minst regelmatige vorm hebben, wat ten dele verband houdt met hun locaties die uit defensieve overwegingen vaak in geaccidenteerd terrein aan de kust zijn gekozen. Bij de bastides is de variëteit in vorm en locaties het grootst, maar veel van deze stadjes hebben een min of meer regelmatige orthogonale plattegrondvorm en meestal zijn locaties op tamelijk vlakke ondergrond gezocht. De zes terre nuove hebben alle regelmatige grid-plattegronden met een grote mate van symmetrie. Ze zijn gelegen op vlakke dal-locaties aan belangrijke toegangswegen tot het Florentijnse territorium, waar hun functie als vooruitgeschoven Florentijnse vestingen en markten goed tot haar recht kwam. Een ander belangrijk verschil is dat de Welshe nieuwe steden slechts bij uitzondering echte marktpleinen hebben, terwijl die in de bastides en de terre nuove vaak juist een zeer prominente rol spelen in de plattegrondstructuur. Voor wat betreft de inwoners die werden geworven, valt op dat deze bij de twee laatstgenoemde groepen steden voor het overgrote deel uit de nabije omgeving werden gehaald, terwijl ze bij Edward I’s nieuwe steden in Wales merendeels uit Engeland en continentaal West-Europa kwamen. In die zin waren die laatste dus echte ‘koloniale steden’.

In deel II (h.5 - 9) worden enkele belangrijke aspecten van de planning van nieuwe steden in de betreffende periode thematisch onder de loep genomen. Het materiaal dat betrekking heeft op de groepen nieuwe steden die in de eerste drie hoofdstukken zijn behandeld, speelt een belangrijke rol in het onderzoek naar deze thema’s, maar wordt gecombineerd met materiaal van elders. Op deze wijze wordt een meer algemeen beeld verkregen van het fenomeen nieuwe stadsstichting in de betreffende periode.

Hoofdstuk 5 gaat in op het aspect locatiekeuze. Voor het succes van een stad was een goede locatie essentieel. In de betreffende periode valt te zien dat de menselijke woonplaatsen zich vaak verplaatsden van hoger gelegen locaties naar de dalen. Dit hing samen met de ontginning van de dalgrond en met de betere verkeersligging in het dal. Deze ontwikkeling zou zich voortzetten tot in het heden. In dit hoofdstuk wordt ook beschreven dat veel nieuwe steden uit de periode in feite verplaatste nederzettingen zijn.

Hoofdstuk 6 behandelt methoden van plattegrond-ontwerp, en specifiek het gebruik van geometrie daarin. Uit de eerste drie hoofdstukken blijkt duidelijk dat de meeste nieuwe steden werden gepland in ruimtelijke zin. Maar er zijn nauwelijks historische gegevens over hoe dat gebeurde. Sinds de late 19e eeuw hebben verscheidene auteurs complexe geometrische ontwerpmethoden gereconstrueerd met betrekking tot specifieke stadsplattegronden. In dit hoofdstuk blijkt dat veel van die reconstructies zeer onnauwkeurig zijn of dat de voorgestelde methoden onwaarschijnlijk zijn door hun ingewikkeldheid en gebrek aan logische samenhang. Het blijkt waarschijnlijker dat de eenvoudige geometrie van de rechte lijn, de rechte hoek en veelvouden van een vaste lengtemaat is gebruikt. De plattegrond-ontwerpen van de terre nuove zijn hierop echter een uitzondering. Nauwkeurige analyse (uitgewerkt in appendix B) toont dat het aannemelijk is dat voor vier van de zes stadjes wel complexe geometrie op basis van regelmatige veelhoeken is gebruikt, ten einde een meetkundige verhouding tussen de verschillende lengtes van de huiskavels te genereren. De reden voor zo’n complexe ontwerpmethode was waarschijnlijk om via de in hoog aanzien staande kunst der geometrie een afspiegeling te creëren van de harmonie van de goddelijke schepping, waarvan men destijds meende dat daarin ook gebruik was gemaakt van geometrie.

De professionele status van de personen die betrokken waren bij de planning en het ontwerp wordt onderzocht in hoofdstuk 7. Veel auteurs hebben beweerd dat professionele architectonische ontwerpers of zelfs professionele stedenbouwers achter de planning van nieuwe steden zaten, maar hiervoor blijkt geen bewijs te zijn. Het is wel waarschijnlijk dat in Edward I’s nieuwe steden in Wales de ontwerpers van de kastelen die er werden gebouwd ook de stadsplattegronden en de vestingwerken ontwierpen. Ook blijkt het zeer wel mogelijk dat de Florentijnse stadsbouwmeester Arnolfo di Cambio betrokken was bij het ontwerp voor de eerste twee terre nuove. De historische documenten wijzen meestal echter op de inzet van lieden zoals organisatoren uit het gevolg van de landheer of uit de lokale politiek actieve elite (Italiaanse stadstaten), ingehuurde notarissen of monniken, of een soort projectontwikkelaars uit de lage adel of stedelijke bovenklasse (met name de zg. locatoren in Centraal-oost Europa). De bronnen noemen zelden landmeters, maar het is zeer waarschijnlijk dat vaak mensen met landmeetkundig kennis en ervaring werden ingezet bij de ruimtelijke organisatie van nieuwe nederzettingen.

Hoofdstuk 8 gaat in op de ideologische aspecten van de stadsstichtingen. Het stedelijk ideaal werd destijds in sterke mate bepaald door de christelijke ideaalsteden het Hemelse Jeruzalem en de Augustijnse Ciuootas Dei. Vreemd genoeg hebben de beelden van deze ideaalsteden geen duidelijk herkenbare invloed
gehad op de stedenbouwkundige vorm van de nieuwe stadsstichtingen. Niettemin speelden christelijke ideologische motieven soms wel een belangrijke rol in de creatie van nieuwe steden. Met name eschatologische verwachtingen blijken nu en dan te hebben aangezet tot stadsstichting. Waarschijnlijk speelden bij veel meer nieuwe steden op de achtergrond christelijke ideeën mee. In de 13e eeuw had het fenomeen stad in het algemeen een positieve connotatie gekregen in het christelijk gedachtegoed. Mogelijk speelden christelijke ideeën over de maatschappelijke indeling een rol in de streng geordende ruimtelijke indeling van veel nieuwe steden. Dit geldt bijvoorbeeld met betrekking tot de gelijke omvang van de huiskavels in veel nieuwe steden, en de strenge ordening in kavels van verschillende grootte in de Florentijnse terren nuovo. In het algemeen geldt dat ruimtelijke orde en regelmaat werden geambieerd in de stedelijke vorm, omdat dit praktische voordelen had, maar vooral ook omdat dit antwoordde op het gevoel voor schoonheid, dat verweven was met de symboliek van morele rechtvaardigheid en filosofische ideeën over orde in de samenleving en de goddelijke schepping. Dit leidde bijvoorbeeld tot publieke straten die bij voorkeur recht en breed waren en die regelmatige straatwanden hadden, en tot plattegronden die bij voorkeur regelmatig en orthogonaal waren.

Hoofdstuk 9 heeft een synthetisch karakter: het bevat een algemene reconstructie van het stadsstichtings-proces en beschrijft de verschillende elementen die in het algemeen onderdeel waren van de fysische vorm van de nieuwe nederzetting. De motieven voor de creatie van een nieuwe stad waren vaak meervoudig, maar vrijwel altijd ging het om een of andere manier om het verkrijgen of versterken van invloed op land, mensen of kapitaal in een specifiek gebied. In die zin waren de nieuwe steden eigenlijk kolonisatiecentra. De bedoeling was altijd om mensen om een bepaalde plek te verzamelen, maar de eigenlijke motieven waren bijvoorbeeld het versterken van militaire invloed, het creëren van een administratief centrum, of het (beter) exploiteren en controleren van economische bronnen. Vooral het laatste was vaak een belangrijk motief. Nieuw gestichte steden kregen meestal rechten (vanaf de 13e eeuw steeds vaker opgeschreven in een charter) die waren gekopieerd van een oudere stad in de regio of van de zelfde heer. Zo ontstonden groepen van steden met verwante rechten, zoals die gebaseerd op de rechten van Breteuil, Maagdenburg en Lübeck. De inhoud van de verschillende groepen stadsrechten is echter in grote lijnen overeenkomstig.

Veel nieuwe steden kregen een nieuwe naam, bijvoorbeeld verwijzend naar de stichter (Alessandria), de status (Novus Burgus, Freistadt), de locatie (Beaumont) of een oudere stad (Nizjni Novgorod); vaak werd echter de bestaande naam van de locatie overgenomen. Waarschijnlijk werden bij veel nieuwe stichtingen wijdingsrituelen uitgevoerd. Van sommige gevallen is bekend dat de omtrekvorm in de bodem werd getrokken met een ploeg, zoals ook in de antieke wereld gebeurde, en in andere gevallen werd een kruis opgericht in het centrum. Meestal was er op de locatie al een bestaande nederzetting, in de vorm van een dorp, gehucht, hof, kasteel of klooster. Bij de stadsstichting kon aan de bestaande ruimtelijke structuur worden aangesloten, of kon deze geheel worden gewijzigd. Dit zal waarschijnlijk altijd volgens een plan zijn gebeurd, maar de mate van precisie van de planning liep zeer sterk uiteen. Voor wat betreft de plattegrond is er een grote variatie aan vormen, van zeer onregelmatig tot zeer regelmatig. Veelal is de structuur in essentie orthogonaal rastervormig, met rijen langwerpige, rechthoekige huiskavels die met de korte kant op de (min of meer) rechte straten zijn georiënteerd. Behalve voor huiskavels en straten werd meestal ook ruimte bestemd voor een kerk (en soms voor een klooster), een markt (in de vorm van een plein of een brede straat), voor tuin- en landbouwgrond (buiten de ‘bebouwde kom’) en vaak ook voor vestingwerken. De bewoners voor de nieuwe nederzetting werden veelal in de nabije omgeving geworven, en soms simpelweg gedwongen om te verhuizen. In andere gevallen werd echter juist verder weg geworven, als de ambitie was om nieuwe onderdanen, soms met specifieke kennis en kunde, voor de stichtende heer te winnen, of als deze heer de lokale bevolking liever geen vrijheden wilde verlenen. Vaak is verondersteld dat de bewoners meestal horigen waren die door hun verhuizing naar de stad vrij werden, maar het blijkt waarschijnlijker dat het meestal om reeds vrije dorps- of stadsbewoners ging.

De huizen werden vrijwel altijd gebouwd door de burgers van de nieuwe stad. Dit gebeurde helemaal voorop de kavel aan de straat. Van sommige gevallen is bekend dat materialen van oude huizen werden hergebruikt. Slechts van enkele nieuwe steden zijn nadere voorschriften bekend voor vorm, hoogte en bouwmaterialen. De heer van de stad droeg meestal zorg voor de bouw van een kapel of kerk (nieuwe steden kregen meestal niet gelijk een eigen parochiekerk), een of meerdere putten, een molen, en vaak ook voor vestingwerken en een overdekte marktruimte, soms gecombineerd met stadhuis.

Deel III van het proefschrift (h.10 - 11) gaat in op de wijze waarop de stedenbouw van de 11de tot 15de eeuw in de afgelopen twee eeuwen is behandeld in de geschiedschrijving. Net als in deel II wordt ook hier materi-
aal uit verschillende delen van Europa behandeld. In hoofdstuk 10 worden de Europese nieuwe steden uit de betreffende periode in een breder historisch en ruimtelijk kader geplaatst, teneinde hun positie binnen de geschiedenis van de stedenbouw te begrijpen. De stichting van nieuwe steden blijkt een fenomeen dat vanaf het derde millennium v.C. in verschillende culturen in het Midden-Oosten, Azie, Europa en Midden Amerika, en later over vrijwel de gehele wereld, voorkomt. De creatie van Europese nieuwe steden uit de 11de tot de 15de eeuw is in bepaalde aspecten direct of indirect beïnvloed door de koloniale steden van de oude Grieken en Romeinen, maar het is niet zo dat de antieke stichtingen ‘model stonden’, zoals vaak is aangenomen. Hoofdstuk 11, tenslotte, gaat in op het traditionele beeld van ‘de middeleeuwse stad’ als zijnde ‘spontaan’ gegroeid en onregelmatig van structuur, en de vraag waarom dat beeld strijdig is met het materiaal dat in deze studie is behandeld. Het blijkt dat het misplaatste clichébeeld van de spontane stedelijke groei in ‘de middeleeuwen’ is ontstaan doordat in de traditionele visie op de West-Europese geschiedenis de periode van ‘de middeleeuwen’ wordt afgezet tegen ‘de renaissance’ of ‘de moderne tijd’, waarin er plotsklaps wel een rationele stedenbouw zou zijn ontwikkeld en waarin nieuwe en zelfs ‘ideale’ steden volop zouden zijn gebouwd op basis van gedegen theorievorming. Dit misplaatsde beeld ontstond in de 19de eeuw, toen de vroege geschiedwetenschap op zoek was naar een manier om de geschiedenis in periodes te categoriseren, teneinde systematisch overzicht te creëren in het verleden. De misinterpretatie van de geschiedenis van de stedenbouw is een typisch geval van historische bijziendheid. Dit geval toont aan dat die algemene categorisering van de geschiedenis in tijdsperiodes met verschillende karakters en stijlen, moet worden losgelaten teneinde de historische gebeurtenissen beter voor zichzelf te kunnen laten spreken en beter te kunnen interpreteren.

Illustrations on the cover:

Front
The town of Aigues-Mortes, founded by King Louis IX of France in 1247 to serve as port town to provide the king access to the Mediterranean. (see fig.2.15)

Back
Plan of Terranuova Bracciolini, drawn by Vittorio Anastagi in 1734. Terranuova was founded in 1337 by the government of the city-state of Florence to serve as Florentine foothold in the countryside near to the border with the city-state of Arezzo. (see fig.3.25)

Colophon:

Design: Yves Vaillant
Cover design: Fons van Loenhout