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From antiquity to postmodernity

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CHAPTER 1. APPROACHES TO STORAGE AND STORAGE VESSELS

Political, socio-economic and archaeological studies have long acknowledged storage as a crucial and complex mechanism upon which the survival and prosperity of humans depend. Likewise, and partly because storage vessels are considered one material expression of this mechanism, pithoi have been the subject of several treatises. Thus, while some scholars have been concerned with the development of specific characteristics of pithoi (i.e. morphology, decoration), others have brought together matters of storage and storage vessels by treating them as distinct yet interconnected elements of one social, economic and political network. For this reason, a differentiation between studies on storage vessels in particular and storage as an act in general is not always absolute. Nevertheless, broadly speaking, existing literature can be usefully divided into two related subject matters: a) studies on Greek storage vessels and b) various cross-cultural studies on ancient economies, storage and the formation of complex societies. Below, I offer a review of these traditions, starting with the main studies on the Greek pithos in general and Cretan pithoi in particular. This is followed by an inspection of the most influential cross-cultural works on storage and surplus, including a summary of relevant works focused on the Greek world. In the final part of this Chapter, I explain how these approaches are integrated to the theoretical backbone of this thesis, namely the cultural biography of objects.

1.1. Studies on Greek storage vessels

The existing literature on storage vases approaches pithoi from diverse but occasionally overlapping perspectives which can be broadly categorized into three main research lines a) an art-historical approach on storage jars, which has long been applied to Archaic Greek material, b) an ethnoarchaeological approach to pithoi, which has considerable tradition in the Aegean and Crete in particular, and c) various integrated approaches which bring together studies of typological and technological characteristics, of fabrics, of symbolic and cultural aspects, etc. Though by no means sharply outlined, this distinction structures the literature review on pithoi presented below.

1.1.1. Art-Historical approaches

Literature on decorated Greek pithoi has a long history and is also quite extensive. Due to the large number of pithos fragments found across the Greek world (because they survive well and are easy to spot in the ground) but mostly because of their sometimes elaborate decoration, various decorated fragments or complete storage jars drew the attention of early researchers from the very first days of Greek archaeology. The majority of early publications developed an art-historical approach, focused on a specific type of decoration known as decoration-in-relief, which was the main technique applied to Greek pithoi from the 8th until at least the early 6th c. and most probably until the Hellenistic period.

Pithoi with relief adornment were produced and circulated in various regions of the Aegean but the main production centres have been located in the Cyclades, Rhodes, Crete, and probably in Boeotia. Relief decoration was made with the use of moulds, roulettes, stamps, or in free hand. The repertoire of motifs varies but it generally consists of ropes, bands, bands with the potter's finger impressions, wavy or zigzag lines, incised lines or concentric circles, spirals and rosettes or various combinations of the above. These motifs are occasionally much more complex and figurative, with the addition of epic and mythological scenes, or with creatures such as sphinxes and griffins.

The interest in relief pithoi can be traced as early as the mid-19th c. AD and was prompted by the numerous finds unearthed at the Kameiros, Rhodes, during excavations conducted by Alfred Biliotti and August Salzmann (Salzmann 1861; 1867). By the end of the same century, this interest had intensified though the discovery of numerous, almost intact pithoi in Boeotia, which later became known as pithoi of the *Tenian-Boeotian* group (de Ridder 1898).

Cretan relief pithoi attracted some brief notes in an early publication by Ernst Fabricius (1886). These notes include references on the decoration of the twelve Minoan pithoi found by Minos Kalokairinos at Knossos (discussed in Chapter 5) and a comment on an Archaic pithos originating from Lyktos (ibid. 147-149). Ten years later, Lucio Mariani (1896) visited Knossos and other sites across Crete and published the details of his journey. The Italian archaeologist commented on the abundance of pithoi in relief decoration [('*Oltre ai frammenti di vasi dipinti, vi sono una grande quantita di vasi a relieve, principalmente πίθοι.'*) ibid. 344], and offered a table with

the most then-known characteristics of their decorative patterns (fig. 1). Mariani was also amongst the first scholars to observe the perpetual difficulty in the dating of pithoi (rooted to their long survivability, their reuse in later periods and to the limited typological change they showed through time). In 1901, Luigi Savignoni presented the 27 pithos fragments previously recovered by Frederico Halbherr during his explorations on Crete (Savignoni 1901). His paper highlighted the wide diffusion of similar products of ceramic art in Crete, Rhodes, Boeotia, and elsewhere and gave detailed observations regarding the decorative features of fragments from Prinias, the hill of Aghios Elias at Aphrati, Knossos and Praisos (fig. 2). Savignoni stressed the continuity of a flourishing Cretan pithos industry which lasted from the Mycenaean to the Archaic-Classic period and considered these vessels as the product of a general artistic current that extended from Asia Minor through to Sicily and Italy, and as the manifestation of imitations of metal vessels. His conclusion was one which ceramicists continued to observe in the years to come, especially in the case of Cretan pithoi, namely that *'the art of pottery decorated with reliefs was not only largely cultivated in Crete, but that it had there a much longer duration that we have hitherto been able to verify in other places'* (ibid. 416).

A few years after these first general notes on pithoi, Fernard Courby (1922) published the first systematic examination of vases with decoration in relief. His book on *'Les Vases Grecs à Relief'* is an overview of the stylistic groups of Archaic pithoi, including those from Tenos-Delos, Melos, Thera and Crete. Part of his study comprises a stylistic analysis of Cretan pithoi from various sites of the island, through which it became evident that during the Archaic period there was a radical transformation in the general ceramic repertoire (ibid. 40-53). This transformation, he noted, was the aftermath of the 'Doric invasion' and it involved the disappearance of painted pottery and the widespread application of relief decoration. This decoration was not limited to pithoi, but it was also observed in other ceramic artefacts such as decorative plaques and metopes. This element underlined the direct link of pithoi with plastic art of – mostly – the 7th and 6th c. Courby also presented three different styles of relief decoration which retained the distinctive styles of their ateliers of production, despite the attested continuity from the 'pre-Hellenic tradition'. The three stylistic categories were a) a style which resembled the Mycenaean repertoire (i.e. animal decoration), b) a transitional style, known as the Orientalizing, which included the adoption of palms, sphinxes etc, and c) a style which imitated certain architectural

elements such as metopes or friezes. The last category, represented by diverse pithos fragments from different sites such as Eleutherna, Lyktos and Aghios Elias at Aphrati (fig. 3), was considered a rare case of a brief artistic development which only lasted from the mid 7th to the second half of the 6th c. BC [*('Il est donc d'autant plus étonnant que les quelques spécimens, que nous en avons conserves, soient aussi différents les uns des autres: rien ne ressemble moins aux centaures trapus et courts d' Eleutherne que les chevaux et cavalier démesurément allonges de Lyttos, ou encore que les guerriers figes en pose hiératique d'Haghios Ilias')* ibid. 52]. For Courby, this diversity was indicative of the limited communication between ateliers which he associated with the dispersed political organization in Crete echoed in the tradition of the island's 'one hundred cities' (Hom. *Il.* 2.649).

During the third quarter of the 20th c. and with many decorated pithoi coming to light from the excavations at Sparta, Crete and Rhodes, a new series of publications focused on the main pithos production centres and their stylistic characteristics. Typical of this growth in pithos studies is the earliest most comprehensive study on Aegean pithoi by Jörg Schäfer (1957) entitled *'Studien zu den Griechischen Reliefpithoi des 8-6. Jahrhunderts v. Chr aus Kreta, Rhodos, Tenos und Boiotien'*. The book includes a catalogue of fragments from Tenos and Boeotia, the Cyclades, Rhodes and Crete followed by a detailed discussion on their style and iconography. A considerable part of his study is devoted to the stylistic development of Cretan pithoi in relief with a catalogue of all the then-known fragments (76 entries) with details on their provenance (Lyktos, Eleutherna, Phaistos, Aphrati and Prinias), as well as a compilation of the stylistic groups based on their figurative ornaments (i.e. lions, horses, bulls, sphinxes, centaurs) (ibid. 26-42)[3]. The second, and better known example in relief pithos studies is the catalogue of the exhibition held in 1970 at Hamburg, entitled '*Dädalische Kunst auf Kreta im 7. Jahrhundert v. Creta'* (Matz 1970) (for which see a detailed discussion in Chapter 7). The catalogue includes 44 Cretan pithoi and pithos fragments, predominately originating from the plundered site of Aphrati (ibid. 56-73). This represents a substantial part of the full spectrum of pithos relief art.

[3] For other early studies on relief pithoi from single production centres, see Hampe 1936b (on Boeotian pithoi), Feytmans 1950 (on Rhodian pithoi) and Weinberg 1954 (on Corinthian pithoi).

The publication of the Hamburg catalogue fuelled a new wave of academic inquiries regarding the art of Archaic pithoi. Just five years after the exhibition in Germany, Linda Anderson (1975) wrote her PhD dissertation on Late Geometric-Archaic Greek pithoi from Boeotia, Rhodes, Crete, Sparta, Corinth and Attica. This monograph remains – remarkably so – one of the most in-depth studies on relief pithoi, its main contribution being the detailed catalogue of specimens from the main centres of production and their arrangement in chronological order[4]. The list of pithoi published by Schäfer in 1957 was enriched by numerous new finds which, in the case of Cretan pithoi, totalled 283, with entries originating from Dreros, Gortyn, Prinias, Aphrati and Lyktos. This tripled the number of known pithos fragments from Crete, thus giving a more complete picture of stylistic and morphological development. Through this analysis it became evident that some Subminoan pieces appear to continue a Bronze Age tradition, and in some cases, the Minoan type seems to have persisted until at least the 9th c. BC. Anderson also suggested that the flourishing art of pithoi during the 7th c. was the result of the expansion of the Greek world during the 8th-6th c. and of renewed contacts with the East. The wide use of relief pithoi was, she stated, most probably the outcome of an intensified need for storage and of their wider use in mortuary practices as burial containers or as grave markers and as votive offerings.

Just a year after Anderson's dissertation, Miriam Caskey (1976) published the large group of relief pithoi known as the 'Tenian – Boeotian group'[5]. Caskey discussed the typological variation and the distribution of pithoi from the 7th c. and divided them into chronological groups based on their decorative repertoire, which is dominated by epic and mythological themes. Based on the observations by Schäfer (1957, 88-90) and Anderson (1975, 41-42), Caskey returned to the stylistic characteristics of the Tenian-Boeotian, Theran and Rhodian pithoi to discuss the matter of relief art as imitation of metal working. By challenging this recurring idea of borrowed techniques, she proposed that this hypothesis should be abandoned overall;

[4] Anderson's dissertation also includes the first definition of the Greek pithos, which is described as a large type of wide mouthed amphora with a 'tapered base, long neck and, generally two neck handles' (Anderson 1975, xix).

[5] Pithoi of the 'Tenian - Boeotian group' describe a specific type of pithos found in Tenos and Boeotia but also in Delos, Mykonos and Naxos (Schäfer 1957, 67-90). Similar fragments have been excavated at Zagora in Andros, in Eretria and in Attica. Caskey (1975) argued that these pithoi were produced at (E)Xombourgo, Tenos, during the 8th and 7th c. and that Boeotia was probably the recipient of such vessels and/or the place where Tenian artisans settled.

it is, she stated, erroneous in the first place to assert that a decorative motif has its roots in other materials; to her, the only way to identify such interrelationship would be 'when a device is preposterous in the medium to which it is applied' (ibid. 41), which is not true for pithoi.

For the next couple of decades after this activity, the art-historical approach to storage jars apparently paused. But in the beginning of the 21st c. some scholars revisited an array of concerns centred on the production and consumption of relief pithoi. Most notably, Evangelia Simantoni-Bournia (2004) returned to the development of pithos decoration from the 8th to the 6th c. BC and offered a comprehensive overview of the main characteristics of motifs as well as insights on their technique, stylistic characteristics, distribution and the main production sites in Crete, Rhodes and the Cyclades[6]. Simantoni-Bournia gave particular attention to the two main Cretan ateliers of Aphrati and Prinias, suggesting that, although each site produced pithoi in a distinctive style, there were common decorative motifs and stylistic characteristics, which are indicative of some kind of interconnection between the two centres (ibid. 36-37). Most recently, the author specifically examined and categorized motifs of quadrupeds on relief pottery, including some pithos fragments from Crete (Simantoni-Bournia 2017).

1.1.2. Ethnoarchaeological Studies

For most of the 20th c. a series of ethnoarchaeological studies on pithoi developed in parallel to the art-historical approaches. Until recently, pithoi continued to constitute a necessary item for the daily activities of the Greek household and so the early researchers and travellers on Greece found ample evidence on their use and production. Therefore, research on storage and Greek pithoi has been largely complemented by a plethora of ethnoarchaeological studies. Because a substantial part of the ethnoarchaeological evidence is reviewed and re-assessed with respect to ancient modes of production and distribution in Chapter 2, the present subsection is a summary of the main ethnoarchaeological literature.

The first thorough ethnographic studies on Greek pithoi in general and Cretan pithoi in particular were carried out by Roland Hampe and Adam Winter

[6] See also Simantoni-Bournia 1998; 1990 for Siphnian and Naxian relief pithoi respectively.

during the 1930s-1960s. The authors, who maintained their focus on Crete, published their observations in a series of papers (Hampe 1936a; 1963; Hampe and Winter 1962; 1965). These early ethnographic works were enhanced by original photographic material of the pithos makers (*pitharades*) based on Thrapsano in Crete, published by Adolph Rieth (1960). In the following decades, Maria Voyatzoglou (1972; 1973; 1974; 1984; Voyatzoglou-Sakellaropoulou 2009) conducted thorough ethnographic research on the labour organization and the activities of the *pitharades* of Thrapsano and on the *vendema* (the season during which specialized teams of potters toured across various parts of Crete and set up open-air workshops), thus documenting the traditional Cretan pithos making. Philippe Gouin and Christine Vogt (2002) have also published a comparative study on the modern and historical evidence for the pithoi and *pitharades* at Margarites in Crete. A comprehensive review of existing ethnographic research on Cretan pithoi is included in Kostis Christakis' monograph on Cretan Bronze Age pithoi (Christakis 2005, 64-67).

Concerning studies outside Crete, Frederic Matson (1972) focused on modern pithos production in the area of Messene. A more detailed research on the manufacture of the *Koroneika* jars from Koroni in Messenia was carried out by Harriet Blitzer (1990). The most recent work on the ethnoarchaeology of pithoi from Crete and beyond is by Mimika Giannopoulou (2010). A notable part of this book covers an examination of the technology of making storage vases from a diachronic perspective, including inquiries on the types of workshops, the degree of specialization of pithos makers and itinerant workshops operating in the gulf of Messenia, Thrapsano in Crete, Cyprus and Ainos in Thrace. Although primarily focused on ethnoarchaeological concerns, the title of her book on '*Pithoi, Technology and History of Storage Vessels through the Ages*' is suggestive of several other aspects covered, including matters of pithos production. Giannopoulou focused on the area of ancient and modern Messenia and examined an array of activities involved in the making of pithoi (i.e. the extraction and processing of raw materials, forming methods, surface treatment and firing techniques). Her study is also the first to include detailed macroscopic analysis of the fabric of 64 pithos sherds from ancient Messene, the majority of which derived from the area of the ancient stadium and gymnasium. Thirty-eight of these fragments were subjected to petrographic analysis conducted by Evangelia Kyriatzi (2010), and the results showed that the vessels were produced

locally with a persistent pattern of tempering that implies the existence of a well-organized and specialized pithos-making industry.

1.1.3. Novel approaches to Greek pithoi

Complementary to the stylistic and ethnographic studies, the Greek pithos has also been the subject of integrated approaches. These mostly regard pithoi from the prehistoric period; yet the most recent literature also includes a few studies on storage vessels from historic times, as part of increased scholarly interest in the social changes which took place after the collapse of the palaces.

The earliest, most comprehensive study on the stylistic, decorative and manufacturing development concerns the Attic pithos from the Submycenaean through to the early Roman period, in a thesis produced by Elizabeth Boggess (1972). The four appendices of the dissertation make an admirably detailed list of existing literary and epigraphic testimonies of ancient Greek pithoi (73 entries) and provide rich evidence on representations of pithoi in other artistic media such as painted vases, decorative and glyptic arts as well as a single example of Attic sculpture. Perhaps most importantly, Boggess' work is the first to include a discussion on the reuse of pithoi informed by evidence on their secondary uses (for example their use as settling basins and their placement in public drainage systems, the reuse of their sherds for ostracism, as beddings for steps, etc)[7]. Lastly, Boggess gathered evidence on the commerce of Athenian pithoi, adding to our information regarding regulations of their price, their transportation and standard measurement requirements (i.e. size, volume) for their production.

Another extensive study regards Cypriot pithoi of the Late Bronze Age, published by Despina Pilides (Pilides 2000)[8]. Her work places emphasis on the contexts of LBA Cypriot pithoi and also incorporates comparative examples from outside Cyprus (e.g. Kommos in Crete and the shipwreck of Ulu Burun). The detailed catalogue of 344 storage jars and fragments thereof is accompanied by information on

[7] Boggess, like Mariani had observed a century earlier (see this Chapter, section 1.1.1.) noted the persisting problem of the dating of pithoi due to the lack of decoration, their reuse in later contexts or, in the case of burial pithoi, the lack of accompanying grave goods (Boggess 1972, 3). For earlier notes on the reuse of pithoi, see Dörpfeld 1902, 176; fig. 66 (for Troy VIIIa). For the secondary consumption and the reuse of Cretan pithoi see discussion in Chapter 4.

[8] See also Pilides 1996, for an earlier and shorter version of her monograph.

their typological features, decoration, fabric and context. Based on ethnographic parallels from Cyprus, Crete and the Peloponnese, Pilides proposed that ancient Cypriot jars were widely exported across the island; their increased production during the Late Cypriot II was linked to an analogous increase of the copper industry which brought a higher demand for vessels with large capacity. Equally insightful is the discussion on the socio-economic factors which are relevant to the disappearance (or decline in the production) of pithoi. The scholar suggested that 'both phenomena are strong indicators of economic and political circumstances that led first to the need to manufacture storage jars of very large capacities and to have them concentrated in large storage areas within administrative buildings and then to the cessation of their manufacture and their replacement by smaller storage jars of smaller capacities, denoting short term storage requirements and frequent accessibility for domestic purposes' (ibid. 109). The last part of the book (which is co-authored with Costas Xenophontos and John Malpas) includes a petrographic analysis of a few pithos samples. Despite the very small sample size (34 samples from ten sites across Cyprus) the authors concluded that, with the exception of few samples whose provenance was unclear, the pithoi analysed were locally made and very few possible exports could be identified.

Though petrography has been limitedly applied to pithoi from Cyprus and Messene, an early first-stage microscope analysis of some Cretan Bronze Age pithoi has been carried out by Peter Day (1988). The analysis, aimed at investigating the circulation of Neopalatial pithoi and the mobility of pithos makers, showed a strong tradition in the making of pithoi in central Crete and pointed to the area around mount Juktas as the main productive centre of Knossian pithoi. Since the area of Knossos remains the focus of researchers, a most recent petrographic analysis on Knossian coarse ware sherds of the Early Iron Age was carried out by Marie-Claude Boileau and James Whitley (2010). From the 244 samples taken, 28 belonged to pithoi. The analysis showed that these were mostly locally made, with a couple of probable imports from Mesara and perhaps the Cyclades.

Bronze Age storage jars from Thera have also been the subject of integrated archaeological research. Irene Nikolakopoulou produced a series of publications on

pithoi from Thera, including her PhD thesis (Nikolakopoulou 2002)[9] which is focused on storage and storage vessels of the Late Cycladic I from Akrotiri. The study combines theoretical models on *material* and *social* storage (for which see below) to examine matters of surplus and exchange and it includes a typological classification of pithoi with assessments on their morphological, technological, functional and mechanical properties. Storage areas (storeys, benches with built-in pithoi, cupboards, shelves, etc.) are also discussed and then paralleled with some similar modern structures from Crete and other Aegean islands. Some concluding remarks are dedicated to the production and distribution of pithoi. It appears that most storage jars were locally made while maintaining a strong Minoan influence and others may have been imports from Crete, the Cyclades and the Mainland. The fact that local Cycladic and Minoan morphological features may co-exist on the same vessel is, as Nikolakopoulou observed, indicative of 'a selective adoption and adaptation of foreign features rather that exact imitation' (ibid. 264).

The economic and social aspects of Bronze Age pithoi and storage have been explored in depth by Kostis Christakis. Christakis engaged with a broader integrated approach on storage though a series of landmark publications (Christakis 2003; 2004; 2005; 2008; 2009; 2011a; 2011b)[10], which influenced the ways in which archaeologists understand and interpret palatial economies overall. Drawing from extensive literature on storage and the rise of social complexity (see following section) he examined storage and storage policies in general and pithoi in particular and detected emerging storage patterns. More specifically, his book on *'Cretan Bronze Age Pithoi: Traditions and Trends in the Production and Consumption of Storage Containers in Bronze Age'* (Christakis 2005) deals with Cretan pithoi from the Early Minoan I to the Late Minoan IIIC period through a detailed examination of 4235 pithoi and pithos fragments. The formulation of his typology, the first to be conceived, is based on the shape of pithoi while other characteristics such as fabric, surface treatment and decoration were not taken into consideration due to the variability of the material in terms of space, time and context. Instead, typology is

[9] See also Nikolakopoulou 2001 on Minoan pithoi from Akrotiri; Nikolakopoulou 2011 on storage and chronology in Late Cycladic I Akrotiri, and Karnava and Nikolakopoulou 2005 on a pithos fragment from Akrotiri with a Linear A inscription.

[10] For early brief notes on Cretan Bronze Age pithoi, see Evans 1935; Warren 1972; Carinci and Levi 1988.

built on 'the ratios of height to maximum diameter and of mouth diameter to maximum diameter and then on the presence and height of a collar' (ibid. 5). This method proved quite effective since it enabled him to a) identify six main types of pithoi (ovoid, globular, piriform, barrel, conical and tub), b) to assess their use and their main functional characteristics such as stability, accessibility, transportability and graspability, and c) to trace five regional potting traditions across the island (west, south-central, north-central, east-central and east Crete). Additionally, in an effort to clear up an existing confusion on the various names used for Cretan pithoi in literature, Christakis discussed the rich ethnohistoric evidence from pre-industrial Crete and listed early modern terminology according to the capacity and use of storage jars (i.e. *pithos, pitharaki, ladopitharo*, etc)[11]. Overall, the major contribution of his work is the fact that it laid the theoretical and methodological foundation for similar inquiries and it can be used as a paradigm for the investigation of storage practices and storage containers.

Integrated and contextual studies on storage and storage jars from the historical period have begun to appear slowly yet steadily. Though not comparable to the number of studies dedicated to their prehistoric counterparts, this trend is stimulated by a scholarly interest on the emergence of social hierarchy and elite groups from the EIA onwards. Because this interest includes investigations on the mechanisms behind these transformative changes, EIA and Archaic Greek pithoi are once again being brought to the forefront. The most characteristic example of this shift in combined studies is the article published by Susanne Ebbinghaus (2005), which drew attention to the social and symbolic value of relief late Geometric and Orientalizing pithoi. As a case-study, Ebbinghaus used the iconography on the famous *Mykonos pithos*, a pithos of the Tenian-Boeotian group which depicts the Trojan horse on the neck and scenes of supplication and slaughter on the shoulder and upper body arranged in three rows of metopes. A fragment of the same pithos preserves the decoration of a fallen warrior who is identified as Hector defending Troy during its

[11] Some early modern terms for pithoi (i.e. *jar, pithoid*/*large amphora*, *pithos, stamnos*) persist in archaeological reports, especially those of the early 20th century. This calls for a cautionary approach to relevant publications since it can be the source of much confusion. Christakis addressed this confusion and resolved it by conventionally defining pithoi as 'pots taller than 50cm in height, while pots below this are classified as small pithoi or *pitharakia'* (Christakis 2005, 2). This distinction however, deals with the vessel only in terms of size and therefore limits the dimension of its function as a storage container. For a short discussion on the matter and the confusion, see also McLoughlin 2000, 2, fn. 1.

fall (fig. 4). Ebbinghaus argued that the decoration of the pithos, and especially the placement of the warrior in the centre of the top row of metopes, give to the vessel a symbolic value because of the role of Hector as a protector and guardian of a city (described in the Iliad), who is further identified as a role model for the aristocracy of the 7th c. BC. This argument brought a new, fresh perspective to art-historical approaches by emphasizing the symbolic value of pithoi, prompting us to consider the possibility that they were used as a means to state a person's or a groups' wealth or status. This hypothesis has also been proposed for the pithoi found in domestic contexts at Geometric Zagora in Andros, Cyclades. The excavators noted that pithoi become more elaborate and that they were placed on specially designed benches in visible locations of some households. This may attest to the symbolic value of pithoi and to their conspicuous consumption (Cambitoglou et al. 1988, cf. McLoughlin 2011). Ebbinghaus's work strengthened the idea that because of their use as the containers of landed wealth, the size of pithoi, their decoration and their context could be viewed as indexes of individual, familial, household or communal economic prosperity. This is been further suggested by the fact that pithoi were most probably expensive items in their own right and so the ability to commission their making required access to economic resources. Indeed, storage jars were the most labour-intensive vessels of the ceramic repertoire. Their making required specially trained potters to dedicate many hours and in fact many days of specialized work (i.e. for the collection of specific kinds of clays, for the gradual forming of the vessel, for drying, firing and/or decoration etc.) and evidence from the later periods indicate their high economic worth[12]. Accordingly, the ownership of a large or even of elaborately adorned pithos adds to their symbolic use as a statement of elite status.

Since the early 2000s, a number of studies on EIA-Archaic Crete have drawn attention to patterns of pithos production and consumption and aspects of their morphology; several scholars argue that these features echo aspects of the re-

[12] There is no evidence for the actual economic worth of pithoi during the EIA-Archaic periods, but the evidence from the Late Classical-Hellenistic site of Olynthus at the peninsula of Chalcidice points to their significant monetary value: a group of large pithoi from the storeroom of the 'Villa of Good Fortune' (ranging in height from 0.9 to 1.1m) had incised numbers on their rims for which Robinson and Graham (1938, 314-316, fig. 31; Robinson 1946, 205, pl. 173.2) convincingly argue these are prices referring to the cost of the vessels. If this interpretation is correct, then the price of pithoi ranged from 31 *drachmae* and 1 *obol* to 53 *drachmae* and 4 *obols*, totalling up to 215 *drachmae*. According to Cahill (2002, 228), this cost was equal to more than a labourer's wage for six months. On the price of pithoi see also the evidence from the Attic stelae in Amyx 1958, 168-180.

emergence of socio-political complexity, a development otherwise referred to as the emergence of the city-state or *polis*[13]. Archaeologically, the specialized production of Cretan pithoi during this period is testified by excavations at the kiln complex of Mandra di Gipari, outside the settlement of Prinias in Central Crete (Rizza et al. 1992). The pottery workshop was in use from the second half of the 7th c. until the early 6th c. BC and the kilns were organized in small architectural units which produced a large amount of pithoi (in addition to other vessels). A typological and chronological study of the pithoi (66 pithoi and pithos fragments and one lid of a large pithos) revealed that their mass production was achieved by the combination of a special type of wheel which allowed for a slow rotation with the successive addition of separately made clay parts (a technique known as coiling) (Palermo 1992a, 84-85). Dario Palermo who studied the pottery, compared some pieces from Mandra di Gipari with pithos groups from Lyktos, Aphrati and Phaistos and concluded that there appears to be a typological continuity which spans from the Late Minoan through to the Archaic period. Based on the ethnographic evidence on early modern itinerant pithos makers of Thrapsano in central Crete, Palermo also discussed the organization of labour, the production and distribution of the pottery from Archaic Prinias. He argued that craftsmen mobility presupposes a certain independence of the potters, yet if the Cretan city-states or *poleis* had a strict social and political organization in the form of clusters of nucleated centres, this organization would have been limited to the territory of each city-state (ibid. 109-110; *contra* Brisart 2007, 118-119). Still, whichever way pithos production was organized across the island, the evidence from Mandra di Gipari attests to a well-structured industry in Prinias which met the demands of a very large market and which should be relevant to the organization of the Cretan communities.

The production and use of Cretan Archaic pithoi and storage facilities was first put into context in a foundational article by Antonis Kotsonas (2002), which discusses the rise of the Cretan *polis* from the 7th c. onwards. Kotsonas drew from a variety of data to argue that central Crete of the 7th c. BC experienced intensification

[13] E.g. Kotsonas 2002; Wallace 2010b; Fitzsimons 2014; however, the use of the term *polis* has been quite problematic, mostly because there is no solid definition of the *polis* in social, political, institutional and judicial terms or with respect to its physical components in the archaeological record.

in the production and exchange of goods and an increase of surplus storage as evidenced by the enlarged size of pithoi and the appearance of storage facilities during the transition to the Archaic period. These developments were identified as the economic reflections of the birth of the *polis* (ibid. 52). Therefore, the emergence of socio-political complexity in Archaic Crete should be related to the intensification and the management of agricultural surplus. This emphasized the functional as much as the symbolic value of storage jars, as vessels which played a critical role in socio-economic change.

Cretan Archaic pithoi from Aphrati have been systematically examined by Thomas Brisart (2007; 2009; 2011) who elaborated on Ebbinghaus to hypothesise that the Orientalising pithoi of Aphrati (ancient Arkades?) stored resources used for communal consumption and acted as a symbol of their owners' high-status (Brisart 2009, 137-151). By collecting evidence on the production, distribution and function of relief pithoi made at Aphrati, Brisart drew a distribution map of pithos sherds with decoration that was produced from identical moulds (map 1). Their distribution appears to show that the decorated pithoi were indeed highly appreciated in areas well beyond their production site, reaching sites around the western part of the massif of Lasithi but also across the entire plain of Lasithi itself[14]. Brisart added a new, highly insightful hypothesis on the symbolic use of pithoi by addressing their contextual value when found in communal buildings. Essentially, he promoted the idea that when in communal or ritual contexts pithoi denoted the status of the building itself or the status of the city-state.

The notion promoted by Brisart has steadily gained attraction in literature appertaining to early city-states and it is further encouraged by some excavation data from Archaic Crete. The most convincing evidence so far comes from east Crete and from the excavations at the late 7th-early 5th c. site of Azoria. The excavations revealed a complex building (called a 'Communal Dining Complex') which has been interpreted as *andreion* (Haggis et al. 2004). This included fragments of decorated

[14] The map of pithos distribution drew by Brisart (map 1) is suggestive; however, as Brisart (2009, 149) acknowledged, there are two limitations which need to be taken into consideration: first, there is a possibility that moulds could be exchanged between workshops. This map, therefore, does not necessarily represent the tradition of a single atelier. Second, pithoi formed in free-hand technique (i.e. without the use of moulds) were inevitably excluded from this distribution pattern; we may therefore be missing the full repertoire of decorated jars.

pithoi found together with grapes, cereals, legumes, almonds, figs and poppy seeds. The excavator, Donald Haggis, has quoted Ebbinghaus' and Brissart's argument to suggest that that the vessels must have held a value which extended beyond their practical role. Specifically, in the contexts of a building used for communal dining, pithoi must have held a symbolic value related to the function of the building itself (i.e. for the storing and preparation of foodstuff for the city) and, perhaps most importantly, to the social and political importance of such an institution (ibid. 373-390). In addition to pithoi in public contexts, Azoria has yielded evidence on their practical and symbolic importance in domestic contexts since many of them were found in specifically designed storerooms that communicated to halls, which are taken to have hosted the semi-formal or formal consumption of food (Haggis and Mook 2011a). Based on the architectural connection between storerooms and halls, and therefore the accentuated visibility of these pithoi, it has been argued that pithoi in households held an equally important value as a means to highlight personal wealth.

Approaches placing particular emphasis to the architectural ambiances of pithoi have encouraged a set of context-orientated questions. In the light of these new perspectives scholars have begun to realize the multi-faceted importance of pithoi during antiquity and to consider aspects of their agency. Such considerations have been promoted by the excavator of Archaic Praisos in east Crete, James Whitley, who found evidence for the reuse of Archaic pithoi in later periods (Whitley 2011, 29-31). Because the occurrence of Archaic pithoi in Hellenistic level floors has been documented at other Cretan sites such as Phaistos and Trypitos, Whitley proposed that this is a recurrent pattern which testifies to their agency as heirlooms, namely as items charged with a cumulative familial value that was acquired through their continuous use by succeeding generations of Cretans (Whitley 2015, 42).

To conclude, the result of all the theoretical and practical approaches to storage and pithoi in Crete and beyond is sufficient to indicate the way for advanced and more nuanced researches on storage vessels. Excavation data and critical reviews on the craft of plain and decorated pithoi have testified to their association with certain social and political hierarchies and they have recognized the vessels as items of an emblematic value deeply embedded in the communal and personal identity of their consumers. Scholarship on the biography and the agency of objects, outlined in the last part of this Chapter, holds out a fresh perspective for us by which to uncover such multi-layered meanings integral to pithoi.

1.2. Storage and the study of ancient economies

In the first half of the 20th c., right after the very first steps of social, economic and historical sciences, scholars begun to focus on the birth of complex civilizations. Storage acquired a prominent position in a substantial number of cross-cultural studies which connected the genesis, the development and the proliferation of communities (as well as the formation of social configurations and political hierarchies) with successful storage policies. The deepest foundations for the history and the archaeology of storage were set in place in the 1930s by the 'great synthesizer' Gordon Childe. Childe borrowed from Marxism to develop an interpretative framework for social changes in early civilizations and applied socio-economic criteria to explain what he termed the 'Neolithic' and the 'Urban Revolution' (Childe 1936). Despite the criticism his terminology would later receive (for which, see Greene 1999), Childe was among the first to connect the production of agricultural surplus and the domestication of plants and animals with fundamental changes in society. In another paper published in *The Town Planning Review* he wrote of the famous 'Urban Revolution' and outlined the criteria for the formation of early states (Childe 1950). One of these criteria, hinted at the link between the concentration of surplus and the appearance of a state or a divine government:

'(3) Each primary producer paid over the tiny surplus he could wring from the soil with his still very limited technical equipment as tithe or tax to an imaginary deity or a divine king who thus concentrated the surplus. Without this concentration, owing to the low productivity of the rural economy, no effective capital would have been available' (ibid. 11).

Almost a decade after Childe's publication, Leslie White (1959) offered an in-depth analysis of cultural changes and their relation to surplus. As hinted by the title of her book, called '*The Evolution of Culture',* White supported an evolutionary approach to societies, suggesting that social change requires the *continuous* accumulation of energy, governed by one universal law:

'...culture advances as the amount of energy harnessed per capita per year increases, or as the efficiency or economy of the means of controlling energy is increased or both' (ibid. 56).

Childe's and White's approaches were called into question by Julian Steward (1955) who challenged any all-encompassing theory for cultural development and

introduced the theory of *multilinear* evolution. He argued that surplus (i.e. accumulated energy) can either lead to an increase of population or to the development of complex societies. Social change, therefore, does not solely depend on the amount of energy produced but also on the ways in which surplus is channelled through social groups.

Although there was a general consensus on the importance of agriculture and storage mechanisms, anthropologists, ancient historians and economists periodically participated in a persistent debate on the fundamental character of ancient economies. The debate, which started at the end of the 19th c., intensified in the 1960s. Initially discussions were centred on the role of exchange value in the ancient world, sparked off by the dispute between the '*modernists'* and the '*primitivists'* (formerly also known as the 'Bücher-Meyer controversy'): the first set viewed the ancient economy as a set of activities with a well-developed market, comparable to contemporary advanced economics, whilst the latter interpreted it as 'primitive', namely a self-sufficient integrated or closed household economy based on exchange (the so-called *oikos* type or mode of economy)[15]. Essentially, both sides were concerned with the degree of development in the economy until about the middle of the 20th c. when the emphasis shifted from *modernists* vs. *primitivists* to *formalists* vs. *substantivists*. *Formalists* continued to apply formal rules of neoclassical economy to pre-modern societies but the movement of *substantivism*, championed by Karl Polanyi (1944; 1957a; 1957b; 1960) and Moses Finley (1957; 1973), opened up a new path employing economic analytical methods detached from western cultural assumptions. First off, Polanyi emphasized the nature of the ancient economy as a social construct wherein 'man's economy … [was] submerged in his social relationships' (Polanyi 1944, 46) contingent on access to land and labour and through successful kinship ties (i.e. birth, adoption, marriage) and status within community. He then challenged previously entrenched ideas for state-based economics by arguing against capitalistic bias when it comes to the study of pre-capitalistic states (Polanyi 1957a, esp. 58); instead, he proposed that early state economies and modes of exchange could be categorized in three fundamental interconnected mechanisms: 1) reciprocity among

[15] Literature on the controversy is extensive but a key-contribution to the history of its debate remains '*the Bücher-Meyer controversy'* by Finley (1979).

egalitarian social groups, 2) redistribution in centralized political hierarchies and 3) market exchange in modern economies (Polanyi 1957b). Polanyi was also among the first to theorize on storage in Greek antiquity, suggesting that the aforementioned mechanisms were the pillar of the Mycenaean civilization and its flourishing economy and that the core of its success lay 'in the palace household with its storage rooms and its administration' (Polanyi 1960, 342).

Finley (1973) stressed the impact of social and cultural considerations – in play too in the ancient Greek and Roman economics – in a status-driven system governed by and continuously shaped from ideological constrains: the self-imposed constraints of a higher social position and the status of citizenship, he argued, heavily regulated commercial activities and so necessitated the institution of slavery (or debt-bondage) to provide free labour. This system, however, was not governed by a market-based mentality; rather than as a capital investment, ancient Greeks and Romans used land as a means to enhance one's status. Essentially, Finley and his supporters developed what has been the most influential model for pre-industrial economies, now generally understood as largely agricultural societies with no or little surpluses or bulk commodities, with limited trade restricted to essential staples (such as grain), and negligible contribution by specialized manufacturers. These societies are thought to have been largely structured upon dominant male citizenship ('the Masters') and the exploitation of subordinate population ('the Slaves'). Therefore, it was thought that the ability of ancient cities to pay for their food depended upon the produce of local agricultural production, particularly of wine or olive oil, which came from the rural areas, as well as being derived from the income paid for land ownership, taxes and other forms of tribute.

The interest of economic historians in the economies of early states was boosted due to a major advance in ancient scripts. The decipherment of Linear B by Ventris and Chadwick (1956) opened the flood-gates on studies on the political economy of the Mycenaean palaces, since the texts had rich evidence for the collection and distribution of foodstuffs and textiles. The Mycenaean economy was henceforth understood as a network of centralized activities based on massive and complex redistributive mechanisms, where land-products and storage areas comprised substantial elements of a sustainable economy. Finley (1957, esp. 135) expressed this

trend and, although his publications were later heavily criticized as misconceived and based on over-simplistic assumptions[16], they influenced archaeological and anthropological thinking for several decades to come. This influence is identifiable in some elaborate and contrasting ideas of his theoretical opponents. For example, George Dalton underlined the complex and interconnected social and political dimensions of supply, storage and distribution, and discussed the differentiation between 'primitive economy and Western market industrialism' (Dalton 1961, 19-20). He also emphasized the importance of the social mechanisms which surround surplus by stating that 'what difference, if any, the surplus makes, depends on how it came into being and the special institutional apparatus and values of the society experiencing it' (Dalton 1960, 489).

What Dalton basically suggested was that surplus can be the by-product of social change but not necessarily the catalyst for it; rather, it is social change which creates the grounds for an increase in the food supply, hence, producing surplus (Dalton 1963, 392). This aligned with what Harold Pearson (1957) had proposed just a few years earlier. Pearson debated the notion of a direct link between surplus and social complexity by drawing attention to socio-political structures attached to the production of surplus. He suggested surplus, in and of itself, is not an adequate condition for social advance; instead, social change and stratification is steered by the institutional means or organizations. Pearson then drew a distinction between *absolute* and *relative* surplus. The first relates to subsistence needs which are determined biologically and the second to those which are socially defined. His main argument was that absolute surplus cannot be accurately measured (ibid. 339; *contra* Harris 1959), whilst relative surplus may be necessary but not always sufficient for social change.

Approaches emphasising surplus and its surrounding structures fuelled a series of inquiries into the social and political dimensions of accumulated agricultural wealth and affiliated mechanisms such as trade and exchange. For example, Elman Service (1962) followed an evolutionary perspective which he associated with developmental economic stages to specific socio-political groups: subsistence economy with band societies, reciprocity with tribes, redistribution with chiefdoms and archaic states. In this model, the redistribution of staples (i.e. the collection of

[16] Trigger 2003, 60; Smith 2004, 75-76.

goods from producers into a centre and from there to attached members of a society) is the prerogative of chiefly leadership. The driving force for social and political change as well as for the rise of complex forms of hierarchy is, as a Darwinian model would dictate, competition.

The ethnographers Timothy Earle and Terence D'Altroy questioned Service's model as they sought to acquire a deeper understanding of these redistribution mechanisms. Drawing from ethnographic information from Hawaiian and Inca chiefdoms, they suggested that rather than *redistribution* of food, the term *mobilization* of resources was more accurate to describe various related economic activities (Earle 1977; D'Altroy and Earle 1985). The main argument was that in societal complexity, large quantities of collected goods were channelled towards the support of the various managerial sectors wherein 'what appears structurally to be redistribution takes on the role of centralized finance (i.e. becomes mobilization) while maintaining the trappings of political and ritual interaction' (D'Altroy and Earle 1985, 190). Their highly influential ethnographic work included an investigation on the ways in which new forms of finance develop and on how political and economic systems adjust to meet the needs of expanding states. For the Inca, the state finance system pointed towards two general heuristic finance systems of archaic states: *staple finance* and *wealth finance*. *Staple finance* denotes 'obligatory payment in kind to the state of subsistence goods such as grains, livestock and clothing' used to finance state activities (ibid. 188). This system, although simple and direct and often locally organized, comes at a cost, namely that of bulk storage and transportation because such goods are usually heavy and difficult to move. As such, it pertains to relatively small agrarian states, or states reliant on small-scale and regional mobilization structures. *Wealth finance*, on the other hand, involves the manufacture and procurement of highly-valued goods that are used to fund state operations, such as the payment of political officials. These goods can either be acquired as a direct payment from local populations or they can be produced by specialized craftsmen who are affiliated to the central authorities[17]. Thus, *wealth finance* allows for the centralized control of bulky staples and can be an effective system to support territorially expanding states, where goods can be more easily stored and transferred over long

[17] For wealth and surplus and their relationship to social groups affiliated to central authorities, see also Morony 1987, esp. 9-10.

distances (ibid. 188). In the case of the Inca Empire, the authors argued that economy was based on *'a mixed strategy of labor taxation, control of staple goods and production and circulation of wealth goods'* (ibid. 196). This brought them to the main conclusion of the study, which was that any centralized power requires the institutionalization of storage as a necessary means to maintain socio-political hierarchies.

While some ethnographers examined the link of social hierarchies with surplus and its storage in early modern societies, archaeologists and ethnoarchaeologists focused on issues of power and trade networks within pre-historic Greece and the Aegean. The notion of wealth storage as an institutionalized process became a focal point in Aegean, especially in Minoan and Mycenaean studies. For example, Colin Renfrew's neoevolutionary model on the origin of palatial states essentially posited that social change was the response to a productive system's inability to fulfil the demand for supply and surplus (Renfrew 1972). Various cross-cultural studies followed this functionalistic paradigm and espoused the idea that a developing subsistence economy 'must have an efficient way of storing grain between the harvest and the subsequent sowing...' (ibid 287-288)[18]. Renfrew's main argument was primarily based on the fact that for the Minoan and Mycenaean palaces the evidence was rich enough to suggest the importance of food storage and the controlled supply of subsistence goods which guaranteed the functioning and proliferation of palatial economy (ibid. 289). Some years, later Paul Halstead (1988; 1989; 1992; 1999) elaborated on this proposal: he argued that palatial economies were based on both *wealth* and *staple* finance and that the various economic activities extended beyond the palatial peripheries; redistribution, therefore, was an economic activity targeted at the centralization of socio-political power. Following a series of papers by Halstead and John O'Shea (1982; 1989), this concept dramatically influenced the ways in which archaeologists analyzed ancient storage practices. They were, so to speak, treatises on 'social storage', which widened our understanding of storage as a fluctuating act: stored foodstuffs can be exchanged for non-food objects, which can then be re-exchanged for food.

[18] For a review of the neoevolutionary model, see Paynter 1989. For cross-cultural studies which link social inequality with surplus deficit, see Lightfoot and Feinman 1982; Patterson 1987; Wason 1994.

More specifically, O'Shea identified storage as one of the strategies developed against scarcity and proposed two types: *direct storage*, which involves foodstuff stored for later consumption, and *indirect storag*e, which involves all processes that 'transform foodstuffs into a more stable, alternative form, from which food may later be recovered' (O'Shea 1981, 169). The latter is what is today referred to as the *social storage*, upon which Halstead expanded by focusing on the rise of the Palaces. The evidence for increasing storage was clearly attested by the central magazines of the Minoans, leading Halstead to suggest that 'normal' surplus was insufficient for the protection against seasonal crop failures; rather, it was *social storage* which actually increased, thus favouring flourishing communities (Halstead 1981a; 1981b; 1988). Nearly two decades after Halstead's main works, Cyprian Broodbank (2000) revisited the issue of *social storage* and argued that this encompasses an array of behaviours with implications on the nature of exchange networks. For example, communities in mild temperature areas would be in need of help least frequently 'leading either to less intense involvement in such networks or, if the network also incorporated less favoured environments, to long-term accumulations of social credit at their less fortunate partners' expense' (ibid. 84).

The intensified scholarly research of the 1980s attributed further importance to the social dimensions of storage systems as well as the various means and facilities for storage. One such major study was that conducted by Michael Smyth (1989). Smyth analyzed storage systems in Mesoamerica and differentiated them between *central*, *communal* and *domestic*. By examining the variability within these three systems he offered insights into the development of agricultural production and its relationship to political and socioeconomic organisation and complexity. Smyth's model connected the different types of storage systems, the methods of surplus generation (in this case, taxation or tribute, labour service, and trade), and the ways these can be reflected in the archaeological record of Mesoamerica and beyond (table 1). As a heuristic exercise, this model illustrates 'the potential relationships between three important components of political complexity: centralization, surplus generation, and storage' (ibid. 97). Smyth also offered a spatial analysis of the Yucatecan Maya households and their storage behaviours and integrated chemical and botanical analyses of remains found in storage areas. In doing so, he addressed the issue of how storage spaces, their permanence and their volume, can be defining variants when it comes to the spatial organization and household economics.

The cultural and institutional dimensions of economics were also enriched by Rhonda Halperin; in her monograph entitled '*Cultural Economies: Past and Present*' (Halperin 1994), storage was defined as a fundamental social and economic activity which involves the placement of material things (i.e. food, tools, water, seeds) for future use, and it is attested across different cultures in history as one episode in a series of interconnected operations (ibid. 167). She illustrated the ways in which storage may (or may not) be included in an economy: it may occur directly after production and the *ad hoc* processing of various goods *(production - processing - storage)* or, alternatively, after the distribution of these goods *(production - distribution - processing - storage)*. The latter scheme indicated that storing of goods may depend on the distribution rather than the production of surplus *per se*. Similarly, in some cases, goods may have been collected at or near the place of production, whilst certain types of goods may not be stored *[production – consumption (without storage)] (*ibid. 89-90). This model called into question the definite closed link between surplus and storage, an issue that Despina Margomenou also addressed for the case of storage in pre-historic northern Greece (see below), in which she concluded that '*the relationship of storage to production and to surplus cannot be assumed, but is a question to be investigated'* (Margomenou 2008, 196).

Halperin's study was an important first step in the archaeology of storage because it shifted attention to its symbolic dimensions. These associations were more thoroughly discussed by Julia Hendon (2000), who used ethnoarchaeological evidence from the Trobriand Islands, Neolithic Europe and Mesoamerica. Stimulated by Anthony Giddens's definition of *mutual knowledge* (Giddens 1987)[19], Hendon applied the notion that physical space is a means of embodying mutual knowledge, thus proposing that storage spaces are dynamic containers for structuring social interactions (Hendon 2000, 44). As such, storage involves a moral dimension which should be seen as a stage in a series of processes which connect resources to the needs of people. Ultimately, storage becomes a means for groups to raise issues of 'secrecy, prestige, and knowledge' (ibid. 50); in part, then, mutual knowledge can act as a means for constructing identity. The idea that storage spaces played an essential role

[19] According to Giddens (1987, 65) mutual knowledge is the 'knowledge of convention which actors must possess in common in order to make sense of what both they and other actors do in the course of their day-to-day social lives. Meanings are produced and reproduced via the practical application and continuous reformulation in practice of 'what everyone knows'.

in power relations, both between homogenous as well as heterogeneous social groups and individuals, introduced the concept of storage as a social and symbolic act. This act should be traceable in the archaeological record, for example in items and spaces related to household storage or in burials and votive deposits. Hendon's work became a paradigm for interpretations of storage and it has gradually gained popularity amongst studies related to the rise and the development of socio-political complexity, including in the archaeology of Greece.

The socio-political aspects of storage within the Greek world have been studied mostly within the context of Aegean prehistory rather than in the historic period. Regarding the earliest periods, Margomenou (2008) proposed an analytical scheme on the social and symbolic implications of storage practices within power networks for the key-sites LBA-EIA sites of Kastanas, Thessaloniki Toumba and Assiros Toumba. This scheme forms the core of the Northern Greek Storage Project, the results of which have strengthened Hendon's argument by pointing towards the importance of the political factors which operate alongside storage and by highlighting its symbolism(s) as a crucial element in the formation of local networks (ibid. 207). The North Aegean Storage Project represents the culmination of more sophisticated approaches to storage in the archaeology of Greece, and it is a fine example of the many different ways archaeologists and anthropologists can begin to understand the act of storage and the material culture associated with its practices. Kosmas Touloumis (1994) has also reviewed storage in reference to spatial organization and the use of space in Macedonia, Thessaly and the Aegean from the Early Neolithic to the Early Bronze Age. He investigated the evidence of storage spaces, pottery, pits and silos, and discussed their distribution within sites[20]. His work treated changes in the production, size, shape and capacity of coarse-ware pottery including storage and cooking wares. Touloumis concluded that the size and shape of pottery started to change during the EBA, when the use of coarse pottery and pithoi became more common. In other words, the increase in coarse wares can be explained by the wider use of pottery in daily activities, its standardization, the increase of surplus and/or the introduction of oil and wine production and their storage in pithoi (Touloumis 1994, 137-140, esp. table 43).

[20] See also Touloumis 2010 for a literature review on the archaeology of storage in prehistoric Greece.

In the case of palatial economies, the most systematic studies resulted from the pioneering papers by Halstead and O'Shea discussed above. Their in-depth work promoted storage and the manipulation of surplus as an important factor in the emergence of palatial systems and urged scholars to consider the archaeological evidence of these practices. Crete and Macedonia have been the main areas of interest, although other areas such as Thessaly and the broader Aegean have also been periodically examined. For example, Angeliki Pilali-Papasteriou (1987, 186) examined storage rooms of ritual sites in palatial Crete and proposed that the pattern of low storage capacity for sanctuaries situated near a large centre can be explained by the fact that palatial storage served diverse ritual needs[21]. Another in-depth analysis on storage processes in the Greek world was produced by Georgia Flouda (2006). Her work constitutes an exemplary case of how contextual evidence can be used to answer specific questions of economic (in this case palatial) activities at a regional level. Flouda examined an array of practices as attested in administrative documents from the Mycenaean palaces of the southern Greek Mainland (i.e. Linear B tablets, clay sealings from Mycenae, Tiryns, Midea and Thebes) during the Late Helladic IIIA2–IIIB periods. The processes in question included the storage of foodstuffs and liquids (oil and unguents), pottery, luxury items and raw materials. One of her main conclusions was that, with the exception of the provision of foodstuffs for ritual purposes, redistribution of staple goods was limited and it was intended for the members of dependent labour staff. Therefore, it is possible that redistribution was aimed at supporting administrative elites and at their entourage, and it revolved around the collection of raw materials, their conversion into high-valued goods and their storage to the benefit of the palaces and their ritual needs.

This series of cross-cultural studies discussed above gradually shaped scholars' understanding on the importance of storage as an act of subsistence as much as a cultural and political mechanism for the creation and sustenance of complex societies. In addition to publications emphasizing its symbolic dimensions, the study of storage has come to include much more intricate research questions such as its role in the formation of complex relationships and issues of power and authority. In Greek studies, the popularity of palatial economies led some researchers to seek for the material manifestations of storage, thus inevitably shifting the attention to pottery and

[21] For storage in temples of prehistoric Greece, see also Kyriakidis 2001.

more specifically to the most prominent relic of storage: the Greek pithos. In time, this attention came to include pithoi and storage both from the pre-historic as well as the historic period.

In sum, major theoretical studies outlined above have highlighted the role of storage in arguing that increased surplus and storage facilities are, in most cases, accompanied by supportive mechanisms which operate in favour of the establishment and/or the endurance of social and political hierarchies. Various cross-cultural studies on the mechanisms underpinning social stratification have come to acknowledge this link between storage and socio-political complexity by demonstrating that the architecture of storage spaces and storage vessels themselves held not only a practical but also a highly symbolic role.

1.3. The approach adopted: cultural biographies of Cretan pithoi

This thesis integrates traditional and novel archaeological approaches to pithoi and storage described above into a wider sociological and anthropological theoretical umbrella which argues for the ability of objects to play an active role in the creation and conveyance of human culture. Specifically, it combines art historical/iconographic considerations, analytical and ethno-archaeological approaches and discussions on storage and socio-political complexity, in order to demonstrate the potency of objects to possess agency and to generate meanings acquired during their biographies.

Though widely seen as a relatively modern perspective, the notion of objects having a biography first appeared as early as the mid 18th c., when the so-called 'it-narratives' became popular (Douglas 1993; Blackwell 2007; 2012). In general, it-narratives are fiction stories in which non-human protagonists such as coins, balloons, or various animals, tell their own stories or they are used as the centre point around which other stories are spun. Particularly fitting to this study of a specific vessel form, is one such it-narrative from the 19th c., produced in the guise of children's literature. In his story of '*The Bottleneck'* ('*Flaskehalsen'),* originally published in 1857, the great Danish spinner of fairy tales, Hans Christian Andersen, recollects the life history of a broken bottle from the objects' perspective. The bottle narrates its life to an old woman's linnet sitting in a birdcage. Now inverted to serve as a rudimentary water feeder, it begins to narrate tales of its former glory to the bird:

'I have gone through a great deal in my time, when I come to recollect: I have been in the fire and in the water, I have been deep in the earth, and have mounted higher in the air than most other people, and now I am swinging here, outside a bird-cage, in the air and the sunshine. Oh, indeed, it would be worthwhile to hear my history; but I do not speak it aloud, for a good reason—because I cannot' (Andersen, translated by Hersholt 1949, 94).

In effect, Andersen lent a voice to the Bottleneck so that it can recount its past life and he portrayed it as an object which, although it cannot speak, thinks its story '*just as when we humans speak inwardly'* (ibid. 94): from when it emerged white-hot from the glass kiln at the manufacturing plant, to when it was bought from a fancy store by a father who wanted to celebrate his daughter's engagement; from there how it ended up in a ship, being used as a medicine container for travellers, to how it was taken to an attic and abandoned for decades, only to end up broken in the bird's cage.

More than a century after Andersen penned his tale, the art of storytelling met archaeology. In the mid-1980s, archaeologists and anthropologists revisited the notion of animated objects and the many stories they could tell if they had a voice. Scholars produced various theories and methodologies in order to reproduce these stories and to understand and explain the power of objects over humans. These theories pertain to the concept of the cultural biographies (or the 'life cycle') of objects.

First posited by Igor Kopytoff in 1986, the theory of objects having biographies introduced the notion that like people, artefacts have life-cycles and thus, objects can be better understood as the products of cultural processes such as production, exchange and consumption. Similar to individuals or groups of people, so the argument ran, objects can have multiple or contemporaneous life stages: *'We accept that every person has many biographies - psychological, professional, political, familial, economic and so forth - each of which selects some aspects of the life history and discards others. Biographies of things cannot but be similarly partial'* (Kopytoff 1986, 68). Kopytoff's views rapidly gained many advocates especially amongst post-processual archaeologists. His article featured in Arjun Appadurai's highly influential book on '*The Social Life of Things'* (Appadurai 1986). Echoing Kopytoff, Appadurai spoke of objects as commodities and the processes lying behind their commoditisation. More specifically, he defined the commoditisation stage as

‘the situation in which its exchangeability (past, present, or future) for some other thing is its socially relevant feature’ (ibid. 13). Such a situation, however, is not static; objects (or groups thereof) can flow between various stages of ‘being’ and undergo different phases in the course of their life-cycle. Appadurai categorised these stages into three broad spheres: the commodity phase, the commodity candidacy and the commodity context (ibid. 13). It is mainly the last state that ties the other two together since ‘the commodity *context* refers to the variety of *social* arenas, within or between cultural units, that help link the commodity candidacy of a thing to the commodity phase of its career’ (ibid. 15). The core of Appadurai’s argument resides in the notion that different commodity contexts form the social domains where various cultural systems coalesce. In this way, commoditized objects, like individuals, acquire social lives.

In one fell swoop, the above two scholars produced a theoretical approach that promoted the notion of fluctuating meanings of objects within their various socio-political environments, thus shifting the emphasis to the historical and cultural contexts which surround artefacts during their life-cycles. These cycles extend to the post-deposition lives of objects, such as their reuse by succeeding generations. The resulting shift in methodology became a lever for cross-cultural social studies to pursue more contextual interpretations of the socio-cultural associations between people and objects. From the 1990s onwards, a series of papers elaborated upon the intricacies which characterise the extended bonds between humans and things, with a focus on the cultural biography of objects and on the role of people as producers, consumers and distributors during the life-cycles of things (i.e. Gosden 1994; 2005; Gosden and Marshall 1999).

In the majority of cases, the biographical approach has been employed within anthropological and ethnographic inquiries, where ethnographers can see existing evidence of how humans are connected to their material culture. For example, in her influential work on ‘*Biographical Objects: How Things Tell the Stories of People’s Lives’,* Janet Hoskins (1998) described the surprise she experienced during her ethnographic research concerning the Kodi at Sumbam, Eastern Indonesia, when she discovered that it was impossible to gather information on the histories of people and objects separately, because, as it seemed, ‘people and the things they valued were so complexly intertwined they could not be disentangled’ (ibid. 2). For the Kodi, common objects such as betel bags were so intrinsically connected to their owners

that in fact their pouches constituted 'a sack for souls and stories' (ibid. 25). Hoskins thus proposed a methodology which involved story-telling and the investigation of individuals via their relationships with objects, a proposal which has since gained widespread currency among ethnographers[22].

The cultural biography of objects developed hand in hand with another theoretical trend beginning in the 1960s, known as the agency of things. As a concept, agency has been subject to multiple interpretations that have led to an ongoing exchange of views and debates[23]. Nevertheless, the general consensus is that in its narrowest sense, agency describes the power of objects to act as an agent, i.e. to have the capacity to cause, affect or change a situation. In archaeological studies, agency was first hinted at in the context of *New Archaeology*, which pleaded for a more fruitful elaboration between archaeology and social anthropology (e.g. Binford 1962). Among the most influential publications are those by Ian Hodder (1982a; 1982b; 1985; 2004) which reflected upon the critical role of anthropology in the interpretation of the archaeological record. Through the application of ethnographic analogies, Hodder detected various levels of social organization and argued that archaeologists ought to recognise the inherent cultural value of artefacts in social transactions and their critical role in social effects. A strong advocate of contextual analyses, he essentially embraced the idea of an active material culture with objects that contain cumulative knowledge and have the ability to affect the lives of people over time: *'Material objects are part of the stocks of knowledge that provide the context for action. They are manipulated as part of intentional strategies (to hide, mask, legitimate, disrupt and so on). And they endure, often resulting in unintended consequences long after individual actions – they spread agency over time'* (Hodder 2004, 33).

In material culture studies specifically, scholars have tried to provide a more concrete definition of agency[24]. Most tellingly, in the posthumous publication of Alfred Gell's *'Art and Agency'* (Gell 1998), agency was defined as the power of

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[22] See, for example, Ferme 2001 for the ethnography of Kpuawala, Sierra Leone, and MacKenzie 1991 for the ethnography of net bag production in Papua New Guinea.

[23] There are ongoing debates on the degree of intentionality, self-consciousness and autonomy in human and material agency. Typically, see the range of papers included in Dobres and Robb 2000, and discussions in Knappett 2002, esp. 97-98; Joyce and Lopiparo 2005, esp. 368.

[24] For a succinct overview of the development of agency specifically in archaeological thinking, see Dornan 2002.

inanimate things to act and to form bonds with people and with their environs. While many have theorized along the same lines, others have been troubled with some inevitable methodological concerns. For example, how can we actually detect agency in the archaeological record? To do so for artefacts which are no longer in use is not as straightforward as is often the case in ethnographic studies, where story-telling or interviewing enables a more accurate assessment of objects' effects on people. Thus, agency constitutes a thornier issue in archaeology, for one must first establish what would constitute palpable evidence of its existence. Following on from this, there is the question of what archaeologists *should* be looking for in order to unveil an object's ability to act and form relationships with the individuals that created, used and consumed them.

Some of these methodological problems were partially remedied by the publication of '*Agency in Archaeology'* by Dobres and Robb (2000), the first dedicated to the concept of agency in archaeology. This was a critical step for the scrutiny of a previously undertheorized idea, since it offered a more solid definition of agency within archaeological contexts defined as *'the way in which societies structures inhabit and empower agents, those agents' aims, ideals and desires and the material conditions of social life'* (ibid. 8). What is more, this publication gave insights into some accessible methodological tools; the nineteen contributors to the volume demonstrated that in archaeology, *agency* can and should be studied through specific and context-related case-studies. The authors returned to the issue of methods and methodologies in 2005 (Dobres and Robb 2005). Engaged with a bottom-up perspective, they argued that archaeologists should not focus on 'finding agency' per se; instead, we are in need of 'middle range interpretive methodologies capable of interdigitating theory and method in ways that are suitable to sorting out the abundance of meanings in human action...' (ibid. 164). The importance of robust case-studies was once again underlined, with Dobres and Robb proving the need for concrete examples that are not aimed at the application of a speculative theory, but rather, they serve as the means for making sense of a material pattern[25].

Essentially, and even perhaps inevitably, the two concepts of cultural biographies and agency of objects occasionally merged: just as the latter generates a

[25] On discussions and applicable approaches to agency in archaeology, see also Barrett 2001; Dornan 2002; and Knappett 2005a.

series of questions on the socio-political and behavioural influences involved in the lives of artefacts, the former facilitates a broader and deeper understanding of those same complex lives. Such advances in the methodological and theoretical fields have come to offer fresh and more insightful ways of exploring and interpreting the archaeological record. Especially where studies of ancient ceramics are concerned, cultural biographies and agency objects has allowed archaeologists to examine processes that go beyond the 'birth' of a pot (i.e. raw materials and production), enabling ceramicists to treat pottery as a cultural product of a multi-faceted if interconnected scheme, of production, circulation and consumption (e.g. Crielaard et al. 1999).

Picking up on such approaches, pottery studies have begun to extend this tripartite scheme and place it within a contextual framework that involves the life-stages of pottery from use to reuse, repair and disposal. Two publications are characteristic of this new framework. The first is Theodore Peña's (2007) book on Roman pottery which examines the life-stages of various categories of ceramics (including their manufacture, distribution, prime use, reuse, maintenance, recycling and discard), and the ways in which these practices have affected the formation of the archaeological record. One example relevant to this thesis regards *dolia*, the Roman siblings of Greek pithoi, which, due to their large size, heavy weight and high price, were more likely to be repaired than discarded. These characteristics would, for instance, restrict the recycling of *dolia*, in contrast to other types of pottery such as amphorae or cooking vessels (ibid. 322-331). Peña's theoretical and interpretative approach lies behind the collective volume by Mark Lawall and John Lund (2011) on '*Pottery in the Archaeological Record'.* The authors reflected upon their colleague's proposed model for the study of ceramics and dealt with a series of case-studies of Archaic to Late Roman pottery from Greece and the Eastern Mediterranean. The papers of the volume discuss the applicability (or not) of behavioural and functional approaches to the formation of the archaeological record, suggestive of this rising approach in ceramic studies.

Scholarly progress has slowly found its way into Greek archaeology, although this applies more to studies on prehistoric Greece[26] than to those on the Iron Age and Archaic periods[27]. Related publications on specific types of pottery are almost absent and so the Greek pithos in particular has mostly been the subject of traditional approaches. The most notable exception to this lack of diversity is a discussion by Whitley (2018) that is concerned with the agency and the biography of two very distinctive classes of object of the Archaic period: the krater (mixing bowl) and the pithos. Kraters, says Whitley, are associated with diacritical feasting and they are used as objects to generate bonds between its elite male members. They are elaborately decorated and they often travel across great distances. These features turn them into objects linked to (male) status with no heirloom-able value. Pithoi on the other hand, do not travel much but they last for longer periods of time and Cretan Archaic pithoi in particular are often found in later contexts. Thus, be they plainly or elaborately decorated, they are intrinsically tied to the household realm, arguably passed on to succeeding generations through the female line. Whitley proceeds to argue that their biographies turned Cretan Archaic pithoi into 'entangled objects' and into heirlooms with a cumulative ancestral agency.

Following Whitley, I hold that pithoi present a particularly promising dataset for the study of the cultural biographies of objects. This is because of their astoundingly long survivability in the archaeological record; their continuous production and use by succeeding generations through millennia; their appreciation as vases connected with survival and prosperity; their frequent reuse as items too valuable to be discarded; and their desirability as symbolic and highly collectable objects in modern times. Considering the entangled character of storage jars, this thesis integrates the various approaches outlined above into theories on the cultural biographies of objects in order to cover the full spectrum of the complex past and present lives of Cretan pithoi. More specifically, I combine ethnoarchaeological and analytical approaches to offer a petrographic analysis of select EIA-Archaic pithos

[26] Examples from Bronze Age Greece include a case-study on the agency of drinking vessels from Minoan Crete (Knappett 2005b), the agency of power in EM II-MM II Crete (Schoep 2006), the collective agency of seals in the Pylian administration during the Late Helladic period (Flouda 2010, esp.80). More recently, there has been discussion on the 'colonial' agency of the Minoan conical cups (Knappett and Hilditch 2015) as well as an inquiry on the agency of craft in Cretan 'Parading Lions seals' from Late Prepalatial Crete (Anderson 2016).

[27] E.g. Whitley 2013a on the kinds of material entanglements as defined by the Homeric descriptions of objects.

samples from Lyktos, Aphrati, Prinias and Knossos (Chapter 2). By weighing up ethnographic considerations, my analysis assesses matters of pithos production and circulation during the period of their prime use. Also, I integrate art-historical and novel approaches into cross-cultural studies on storage and socio-political complexity to explore the consumption of Archaic Cretan pithoi as an index of socio-political complexity from the 8th c. onward (Chapter 3). I further elaborate on some of the recent socio-economic and novel approaches which argue for their emblematic and cumulative, ancestral value of pithoi in order to investigate aspects of their secondary use, such as their use as inscribed media, and to evaluate proposals for the retention of Cretan pithoi as antiques and/or heirlooms (Chapter 4). In the second part of this thesis, theories on the cultural biography and the agency of objects form the theoretical and methodological framework for inspections on the post-deposition lives of Minoan and Archaic Cretan pithoi. I draw from historic evidence and archaeological commentary literature to survey the cultural biographies of Minoan pithoi excavated at Knossos in the end of the 19th c. and to discuss their political and cultural appropriation (Chapter 5). Finally, I bring together theories on the cultural biography, the reclamation and the itineraries of objects to explore the mass looting of Archaic Cretan pithoi during the 1960s and to look into their subsequent itineraries in Greece and abroad as increasingly collectable antiquities (Chapter 6).