Lard, lice, and longevity: a comparative study of the standard of living in occupied Denmark and the Netherlands, 1940-1945
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Feeding the People

Introduction
'The word rationing,' began a Dutch public radio broadcast in October 1939, 'has an unpleasant ring to it, especially for those of us who can remember the mobilization period of 1914-18.' The broadcast continued, the tone slightly lighter now: '... current rations no longer impose any grave limitations, as they did during the first weeks, when a mere 500 g of sugar per head were available every two weeks. Since then, one can have a kilo every two weeks, which is in accordance with normal average consumption (...). Still, it is an average, and families with many young children occasionally find themselves short.'

This passage is a telling one for a number of reasons. In the first place, the First World War served as a point of reference, not, as described in Chapter 2, among bureaucrats and politicians, but in a programme for and by housewives. Secondly, the quote provides an insight into the richness of the diet of the interwar years. The kilogram of sugar mentioned above, notably, did not include the sugar added to other products in the production process, only loose sugar. It is indicative of prewar patterns of consumption as they existed in Denmark and the Netherlands alike: both were nations of big eaters. Potatoes, whole milk, sugar, meat, lard and margarine were consumed in large quantities, constituting an average diet considerably richer in calories than would be deemed healthy today. These diets were supplemented with copious amounts of tea and coffee, and – for men – tobacco, gin and beer.

The rich diet of the Danes and the Dutch was made possible by the close integration of their countries into the global economy. Sugar and vegetable fats were imported from abroad, not least from North America and the tropics, as was, crucially, fodder for cattle. After the German invasion, such imports obviously could not continue. The same problem affected large parts of the continent: Nazi-dominated Europe as a whole had to nourish itself on indigenously produced food.

96. IIAV, Archief Posthumus van der Goot, 3.
The area under German control, however, was densely populated, and regions where the German leadership had expected to find food for its population, notably the Ukraine, yielded far less than had been anticipated. In many parts of Europe, food was diverted from government-controlled distribution and channelled into the black market. Acquiring food became a difficult task for many Europeans because food was in short supply, the administrative management of allocation was faulty, and in many areas Germany appropriated the available food to feed the densely populated German heartland. Compared to the food situation in the east, Denmark and the Netherlands were in a relatively favourable, but certainly not unproblematic, position. After their involuntary inclusion in the German economic sphere, Dutch and Danish diets were under threat, both from the discontinuation of imports from abroad and the possibility of German claims on the food that was needed indigenously. In the event, the latter threat was to prove largely insubstantial, as Germany did not export such quantities of food from either country that indigenous nutrition was immediately threatened. Both the Dutch and the Danes were spared the plunder of foodstuffs to which other countries, especially in the east, were subjected. Two problems, however, remained. First, the discontinuation of imports necessitated a changeover of agriculture, and second, the available food had to be allocated among the Dutch and the Danes in such a manner that public health, and ultimately survival, was safeguarded.

Apart from the gruesome exception of the Dutch Hunger winter, Denmark and the Netherlands did not experience life-threatening food crises during the Second World War. Yet that finding alone can scarcely be satisfactory in the light of the established differences in public health. This chapter is therefore devoted to two questions, namely: how much food was available? And by whom it was consumed?

These questions, straightforward as they may seem, are not easily answered. A sizeable share of the total food production ended up on the black market, leaving little or no archival record. In this chapter, attention is focused on legally produced or distributed foodstuffs in both countries, leaving the question of illegally produced food

to Chapter 8, which is entirely devoted to black markets. Black markets were in any case far smaller, in terms of the volume traded, than the legal economies. The bulk of foodstuffs produced in Denmark and the Netherlands reached consumers through the rationing system. Food rationing, moreover, was among the first priorities of the authorities at the time, and the rationing of other consumer goods was mostly modelled on systems originally set up for food rationing. Because of the extent of administrative control over food allocation, we first turn to the administrators, their ambitions and their priorities. Thereafter, the availability of foodstuffs after the radical changes introduced by these administrations will be assessed. Finally, the diets available to Dutch and Danish citizens during the occupation will be investigated and, importantly, compared.

The birth and growth of food administrations
The administrative bodies in control of food allocation in Denmark and the Netherlands did not appear out of thin air when the Second World War broke out. In both countries, the administrative apparatuses that managed the distribution of foodstuffs during the occupation had a history dating back to at least the mid 1930s. The institutions set up to protect agriculture in the 1930s, and many of the people employed by those institutions, came to play a crucial role when agricultural production and consumption came to be regulated. The availability of numerous knowledgeable civil servants and an at least rudimentary statistical grasp on agricultural production proved to be a great advantage when imports of food and fodder faltered.

In Denmark, dependent as it was on agriculture, governmental control over international trade had increased strongly during the 1930s. In 1932, after the collapse of the British pound and the Danish krone, Denmark had introduced rigid currency controls in order to be able to control international trade. As long as these controls were in place, importing goods was possible only with the permission, initially, of the Danish Central Bank, and after 1937 of the Valutacentrale, a department of the Ministry of Trade. This not only placed very effective restrictions on the streams of goods and money flowing across the Danish border, but also necessitated the rapid expansion of the ministry's staff. Because the international transactions of companies and individuals were controlled, the ministry had to judge
the hundreds of thousands of applications for such transactions. In the process of doing so, the administrators of the Valutacentrale became well-acquainted with the nooks and crannies of the Danish economy. Apart from the knowledge amassed by the ministry’s employees, extensive contacts between sector organizations and civil servants in the Valutaråd (currency council) had helped to gain the political support that was required to extend bureaucratic interferences. These contacts included, primarily, representatives of the agriculture sector – the foremost internationally operating sector of the Danish economy – as well as representatives of the manufacturing, trade and other sectors.99

Controlling international trade was a drastic step towards a centrally managed economy, but it was still a far cry from the blanket controls introduced during the occupation. When war broke out, therefore, the executive powers of the currency authorities were quickly broadened. In fact, the expansion of their powers was arranged within twenty-four hours; on 2 September 1939 – the day after the outbreak of war – legislation was passed allowing the Ministry of Trade to introduce rationing, to control prices, and to more stringently regulate imports and exports. On close inspection, this rare feature of rapid legislation owed much to the fact that the new law was an almost verbatim copy of legislation passed in 1914. Compared to the First World War, however, these powers would be used far more extensively and to considerably greater effect. The more extensive implementation of controls after 1939 obviously owed much to the fact that Denmark had a sizeable and knowledgeable workforce at its disposal, quite unlike in 1914.100

Moreover, to ensure continuation of the cooperative relation between business and bureaucracy, the economic administration was extended on 7 September with the addition of the Ehrhvervsøkonomiske Råd (business council), which included representatives of various sector organizations, government departments and the unions. The council has been derided by historians and contemporaries alike as having been too big, hopelessly inefficient and hopelessly ineffective. The council indeed was a dismal institution for economic policy making, but as Bundgård

99. Jensen, Levevilår 11; Hansen, Økonomisk vækst 91. Rostgaard Nissen, Til fælles
bedste 64.
100. Jensen, Levevikår 14.
Christensen pointed out, it did serve a crucially important political function. The fact that seemingly everybody was somehow represented, provided a kind of political reassurance. Moreover, the existence of the council fitted the notion that the Danes were all in the same boat, as Prime Minister Stauning had put it. The council may have malfunctioned in practice, but it was a life insurance of sorts for the nascent economic bureaucracy.101

The newly acquired executive powers were put to use well before the actual invasion. As in the Netherlands, sugar rationing was introduced in 1939, a policy that appears to have been inspired at least as much by the need to test the newly developed rationing system as by the imminent shortage of sugar.102 It allowed the Danish authorities to fine-tune their policies (whether or not such was necessary) in advance of more serious problems. The infrastructure needed for the introduction of economic controls in Denmark was highly developed before the country became involved in the Second World War.

After Operation Weserübung had dashed all Danish hopes of retaining independence, long-prepared controls were introduced wholesale and for a seemingly indefinite period of time. To cope with the new situation, in August 1940 the Ministry of Trade established the Direktorat for Vareforsyning, which it invested with the main executive powers needed to introduce rationing and other economic policies. Although seemingly a novel institution, the Direktorat was staffed by the employees of the Valutacentrale, which was disbanded on the same day. The Ehrvervsøkonomiske Råd and the related Valutaråd were dismantled and integrated into a new Vareforsyningsråd, or council for the provision of goods, which took on similar responsibilities and, again, by and large included the same people. In the course of the war years, the Direktorat for Vareforsyning grew in both size and power. Its ranks swelled during the war, and the organization continued to exist until as late as 1960. An enormous, multi-divisional apparatus, it organized the rationing system, quality controls and import and export controls almost single-handedly. Although the Direktorat collaborated with other institutions, such as the police, it was

102. Jensen, Levevilkår 16.
effectively in control of all aspects of economic life in Denmark, from printing the ration coupons to monitoring production.103

In the Netherlands – a more densely populated country than Denmark – more serious problems loomed in the wake of the Second World War. Problems that had surfaced during the First World War were about to return with a vengeance, especially since the Dutch population had grown significantly during the interwar period. A serious food crisis was clearly imminent if no measures were taken to avert it. This message was first brought home to the Dutch authorities by the agriculturalist S.L. Louwes. As early as 1934, Louwes (then employed by the Ministry of Agriculture) warned that reserves of cereals in the Netherlands were considerably lower than they had been during the First World War, and that the population could not be fed if there was a cessation of food imports. The 1936 Rhineland crisis offered a timely reminder of the possibility of a return to pan-European war, emphasizing the need to prepare extensive measures. From then on, as the imminence of war became increasingly apparent, a commission for economic war preparations was established, later followed by the RBVVO (state bureau for food supply in wartime). Its director was Louwes.104

Louwes never doubted that feeding the Netherlands in the case of war would require extensive government intervention. The calorific output of Dutch agriculture had to be maximized and a fair allocation of foodstuffs among the population was to be rigidly enforced; food production and consumption were to be state controlled from seed to plate. The need for a centrally administered rationing system was, as said, felt almost everywhere in Europe, but the Netherlands, through the early initiatives of the RBVVO, established the legal framework and the administrative infrastructure to implement such policies earlier and more profoundly than elsewhere. Moreover, the RBVVO not only prepared a fair distribution of the available food, but also (under the leadership of the food scientist, Dols) endeavoured to make the diet of the Dutch as healthy as possible, within the limitations set by acreage and

103. Direktorat for vareforsyning. Vareforsyning og varefordeling under den tyske besættelse (Copenhagen 1948).
104. Klemann, Nederland 44; Trienekens, Tussen ons volk 34.
population size. Such concerns are indicative of the fact that the RBVVO prepared for a prolonged period of crisis, in which it aimed to comprehensively administer both the consumption and production of food. Food rationing in the Netherlands went far beyond merely offering relief in difficult times.

Apart from rationing, Louwes was concerned with building up reserves. Although it was clear that reserves would not be able to feed the Dutch for any prolonged period of time, Louwes was adamant that they be formed. In the case of a calamity, he believed, reserves would prove essential for overcoming a transitory phase until the next harvest. Despite opposition from both government and military circles, Louwes managed, albeit at the last moment, to build up huge reserves of especially grains. While the amount was sufficient to tackle the initial problems that would arise after an invasion, they were certainly not going to ensure the nutrition of the Dutch in the longer run. To feed the Netherlands, which for centuries had been an importer of agricultural products, more radical measures were needed. Dutch agriculture came to be controlled in its entirety and was radically transformed, so that it could feed the Dutch population for longer periods of time, if not indefinitely.

Rationing: fair and fitting

The aim of rationing was to ensure fairness rather than equality. The biological need for food differs from one person to another, and to a certain extent individual needs could be accounted for in Danish and Dutch food rations. People doing heavy physical work – such as miners and construction workers – were entitled to considerably larger rations than others. Young children received smaller and different rations than adults, while young adolescents received somewhat more. Pregnant and lactating women were also given larger allotments, especially of milk and other animal-source foodstuffs. What was not taken into account, however, was gender. Women, on average, have a considerably lower calorific need than men, but neither the Danish nor the Dutch rationing system differentiated between the sexes. That said, the people receiving extra coupons for heavy labour were exclusively male, so

106. Trienekens, *Tussen ons volk* 10, 34.
that the average male did in fact receive a considerably higher ration than the average female.

Workers' nutrition was a central concern for both the Danish and the Dutch rationing authorities. In many cases, especially in Denmark, people were given coupons quite in excess of what they, apparently, wanted to consume, so that in some cases rations remained partly unused and were often sold on the black market. In addition to rationing, the Dutch authorities arranged for extra meals to be served to labourers at work, in excess of their rations. Some 400,000 workers thus received an extra 600 kcal per working day. Similar schemes to improve the diet of Dutch schoolchildren, however, failed because the scheme was hijacked by a National Socialist organization, which proved a decisive disincentive to most parents. School milk was introduced with some success, but the scheme never covered the entire population. All Dutch schoolchildren were given food supplements (vitamins C and D) at regular intervals. In Denmark, all schoolchildren were provided with at least one free meal per day, as well as milk.

Manual workers in Denmark and the Netherlands may have been provided with relatively large rations, but the one profession that absolutely guaranteed a more than sufficient diet was farming. In neither country did the economic authorities deem it realistic to order food producers to surrender their entire output and then buy their ration with coupons. Rather, Danish and Dutch farmers and farm workers were allowed to consume part of their own produce and were not given coupons for the foodstuffs they themselves produced. As a consequence, farmers' nutrition did not notably change in either country, at least not quantitatively. The shortage of imported tropical goods, such as cocoa, of course affected farmers no less than it did others, but farmers' households, and to an extent the countryside in general, maintained the high levels of food consumption they had been used to before the war.

107. LAS KBB, Domsboger passim; NA, Weekverslagen passim.
In virtually all other households it was necessary to change the diet and to make do primarily with what the rations had to offer. It should be noted that however intricate the calculations of individual nutritional needs in Denmark and the Netherlands may have been, rations were made available to households in their entirety and food was of course not prepared separately for each member of a household. This clearly diminished the authorities' grip on people's diets. Below the level of administrative allocation, designed by food scientists, agriculturalists and other specialists, lay the level of household allocation, and it was there that individual consumption was ultimately determined. The equal rations of men and women, for example, in all likelihood were not consumed quite so equally. In practice, men ate more than women, quite in accordance with their different nutritional needs. More problematic were cases in which some family members sacrificed (or were made to sacrifice) to other family members part of the food they did need. As a social worker in Utrecht noted in 1943:

Speaking of men: a grave problem I regularly encounter is that in many households the principle still holds that the best is for father, who earns the money and therefore has a privileged position. This privilege may not, however, be extended to nutrition. When, for example, I spoke about cheese with a housewife she told me: 'The cheese is for my husband, I can't expect him to eat sweet toppings on his bread.' The father ate the cheese ration of every member of the family! Such things are common in many families, where especially young children do not get their share of cheese. That the fathers receive their due, as they are supposed to, with their coupons for heavy work, is natural. Yet the rations of other family members may not be diminished because of them. Meat too is often very badly divided, to the benefit of men. Most men do not realize this. They do not think about the origin of their food, as long as it tastes good.\footnote{NA, Ministry CRM, St. Nationale Federatie voor Huishoudelijke en Gezinsvoorlichting.}
Such comments were rare in Denmark, undoubtedly as a consequence of the more favourable food supplies, but there too the allocation of foodstuffs within families gave rise to some concern. The EHN, for example, noted that people were introducing infants to solid foods at a later age than before the war, apparently to limit the burden of infants on family rations.\textsuperscript{112}

Notwithstanding these examples, it is hardly a feasible undertaking to reconstruct the ways in which food was divided within families. It seems safe to assume that a reasonable degree of solidarity prevailed in the majority of households, but there is no telling in how many families, or to what extent, foodstuffs were divided in a manner very different from the prescribed ration. It should be added that most people at the time lacked even a rudimentary understanding of human nutrition and were not necessarily aware of the consequences of changing their diets from those prescribed by rations. Finally, mention was often made, especially in the Netherlands, of women sacrificing much of their rations to better be able to feed their husbands and children sufficiently, and suffering nutrition-related diseases as a consequence.\textsuperscript{113} The gender balance in disease records, however, does not suggest that such practices were as widespread as was apparently supposed, and one may justifiably wonder whether these sources reflect actual practice or the prejudices of the observers thereof, most of whom were male.

\textbf{The agricultural transformation}

Like the people, the millions of animals on Danish and Dutch farms had to be fed. Before the war, both countries had imported fodder from overseas, but after the severance from world markets, pigs, chicken and cows became competitors for scarce grains and potatoes. In neither country were the authorities willing to allow animals to consume grains that were needed to feed people, and as imports dwindled there was only one solution: the animals had to go. This not only diminished the need for fodder but also – because less space was needed for pasture – increased the production of crops. By forcibly changing agriculture from a profit-maximizing to a calorie-maximizing industry, the Danish and the Dutch government

\begin{footnotesize}
112. RA, EHN, \textit{Beretning} 26-04-1944.
113. NA, Bureau prijsbeheersing, 62.
\end{footnotesize}
endeavoured to overcome the food crisis looming over them. By switching a large proportion of agricultural activity to the tillage of plants rather than the raising of animals, the calorific output could be increased significantly, because the quantities of grain and other plant-source foodstuffs needed as fodder in the production of meat, dairy products and eggs are far greater in caloric terms than the nutritional value of the end product.

In Denmark, the slaughter of a large proportion of the country’s livestock was an all the more viable option because the main prewar market for Danish pork and butter – Great Britain – was now out of reach. Throughout the war, Germany imported considerable amounts of Danish pork and butter, but not nearly such great quantities as had been exported to Britain before the war. Especially the production of pork was drastically reduced: roughly half the pigs in Denmark were slaughtered.114 This reduction in livestock numbers, however, came at the expense of production for export rather than at the expense of indigenous consumption. Despite reductions in cattle numbers and in exports to Germany, Danish food supplies were so ample that the Danish consumption of animal-source food declined by less than 10%. Germany knowingly allowed the Danes to consume a far richer diet than was common in Germany itself, despite occasional claims to the contrary.115

Nevertheless, while it did not decline much in caloric terms, the Danish diet did change during the occupation. Due to the low availability of vegetable fats, the production and consumption of margarine came to a virtual standstill and many Danes had to shift to butter in its stead. Sugar was in short supply and chocolate all but disappeared – much to the dismay of the traditionally sweet-toothed Danes. Another important change was, of course, the introduction of rationing for most of the mainstays of the daily diet. However large the available quantities were, the introduction of food rationing was nevertheless considered indispensable. Although food supplies in Denmark were never seriously at risk, nobody could foresee that the country would live through the occupation without food shortages ever arising. Consumers were expected to anticipate the risk of declining food availability and to

start hoarding.¹¹⁶ The poorest or the least assertive of Danish citizens were at risk of being excluded from the consumption of important foodstuffs, as wealthy or economically assertive individuals would safeguard their own high consumption level and thus drive up prices. Finally, there was serious concern that in the absence of controls, food designated for humans would be fed to pigs and other livestock. Such problems had arisen, at least incidentally, during the First World War. The Danish authorities were acutely aware that even amidst plenty, war could seriously disrupt food supplies, and rationing was introduced primarily as a safety net against misallocation.¹¹⁷

Unlike in many other countries, food rationing in Denmark was not entirely coupon-based: most meat and dairy products, with the exception of butter, were distributed in a less transparent manner. These goods were rationed by retailers themselves, who received a certain amount of goods to be distributed evenly among a fixed group of registered customers, without the exchange of coupons. This second rationing system, although it clearly opened doors to favouritism and corruption, appears to have worked quite well. It worked well enough to allow the development of a considerable black market for products thus rationed — indirect proof that the system made it difficult to expand one's consumption further through normal retail channels. It has been suggested that the secondary rationing system had the purpose of obscuring the available amounts of food from the occupier, but this is highly unlikely. It is difficult to imagine that German officials, many of whom lived in Denmark for years, collectively remained oblivious to the large quantities of meat sold by Danish butchers. Perhaps the fact that no official rations were published for these goods enabled the German authorities in Denmark, who in all likelihood were perfectly aware of how much was being consumed all around them, to not make higher claims on the Danish economy as Berlin may have wanted. The German authorities in Denmark seem in any case to have been quite happy to allow the

¹¹⁷. Bundgård Christensen et al., Danmark besat 68.
Danes their ample provisions — not least, one suspects, because they themselves benefited from the social peace and the high standard of living in Denmark.\textsuperscript{118}

In the Netherlands, things were looking considerably less bright on the eve of the occupation. As noted, Louwes had concluded years before the war that if the Netherlands were again forced into nutritional autarky, its people could be sufficiently fed only if agriculture were drastically reformed. The Netherlands was similar in size, in terms of acreage, to Denmark but inhabited by more than twice as many people. After Belgium and a few city states, at the time it was the most densely populated country in the world and its agricultural sector was among the most globally operative. If the Dutch were to be fed from their own soil, which they had to be during the German occupation, radical measures needed to be taken.

During the period between 1940 and 1942, the RBVVO ensured that the number of livestock in the country was drastically reduced. Particularly pigs and fowl, which competed with humans for scarce grains, were slaughtered in large numbers. Compared with the prewar figures, by 1942 a mere 10% of the fowl and 24% of the pigs were left. Cows were slaughtered as well, both because they required fodder imports and because meadows were transformed for tillage; however, the number of cattle was reduced by less than 20%.\textsuperscript{119} The reduction in livestock numbers was coupled with a marked increase in the production of grains and potatoes. The acreage of grains almost doubled during the early years of the occupation, and the total acreage of potatoes increased by 70%. The availability of potatoes for human consumption increased even more, as a larger share of production was channelled towards consumers rather than used as fodder. The production of rapeseed and vegetables was also stepped up significantly.\textsuperscript{120}

Bureaucratic control over the reformed agricultural sector, although never perfect, was comparatively effective. Importantly, the RBVVO managed to keep the calorific value above, or at least around, the threshold values where quantitative malnutrition was to be feared. Hunger, at least in a biological sense of the word, was

\textsuperscript{118} Jensen, \textit{Levevilkår}. Jensen is somewhat unclear in his representation of both the secondary rationing system and the attitudes of German officials.
\textsuperscript{119} Trienekens, \textit{Tussen ons volk} appendices.
\textsuperscript{120} Trienekens, \textit{Tussen ons volk} 140; Klemann, \textit{Nederland} 221.
rare until September 1944. Although the rationed diet did not starve people, they were forced to accept a radical and involuntary departure from their prewar diet. Like the Danes, the Dutch had enjoyed a particularly fatty diet until the German invasion, with a large helping of foods of animal origin. This diet had to change, as a consequence of the conversion of agriculture and the termination of imports. The animal-source component in the Dutch diet declined dramatically, much to the dismay of the Dutch. The diet imposed on the Dutch was often described by consumers as 'too little to live on, yet too much to starve.' Especially the low fat content aggravated the Dutch. However, things were to become much worse. Real starvation was just around the corner, and in the autumn of 1944 the country was plunged into a serious food crisis.

In both Denmark and the Netherlands, then, livestock numbers were drastically reduced and tillage became more important than it had been before the war. Plants did not rely on imported fodder and, on all but the very wettest of land, they yielded far more calories per acre than livestock did. The availability of synthetic fertilizers plummeted as a consequence of both countries' severance from world markets, but this was a manageable problem. Synthetic fertilizers were a relatively recent innovation in Danish and Dutch agriculture, and alternative methods for fertilization were still common. The Dutch and the Danish soil did suffer a degree of exhaustion as a consequence of the low availability of synthetic fertilizers, but not to such an extent that production was seriously threatened. Generally, plant-source foods could be produced in quantities considerably above prewar production levels, especially in the Netherlands, where many meadows were converted to tillage

In Denmark, foods of plant origin likewise remained available in ample quantities. Although these foodstuffs (especially such staple foods as bread and oats) were generally coupon-rationed, a sizeable part of the rations were never used. Throughout the occupation, 60-90% of all bread and oats coupons were returned by retailers, a fact suggesting that rations were not an effective constraint on consumption. That is not to say that there was no need to ration these goods or

121. Trienekens, *Tussen ons volk* 362.
122. Dols, *Food supply and nutrition* 324; Rostgaard Nissen, *Til fælles bedste* 158.
123. RA, *DIV, Beretninger*, among others 14-6-1941 and 18-2-1943.
that rations could have been easily lowered. In the absence of rations, flour and oats could have been hoarded, thus posing a threat to immediate availability, and there was considerable concern that part of the Danish grain consumption would be used as fodder if it were not specifically directed towards human consumption. A final possible reason to maintain the rationing of bread and grains was that, as explained in Chapter 8, these cheap staple foods could enable poor households to achieve minimal nutrition. By increasing the consumption of bread at the expense of other goods, people could limit the cost of their diet.\footnote{Rostgaard Nissen, \textit{Til fælles bedste} 82.}

Even in Denmark, however, there were some changes in the consumption of plant-based foodstuffs. Sugar consumption, which had been comparatively high before the war, plummeted as imports faltered. Per capita consumption of potatoes increased, compensating for the loss of calories caused by declining consumption of such products as sugar. Vegetables and fruits were never rationed in Denmark (nor, for that matter, in the Netherlands) and few or no problems at all with the provision of these foods are reported. Another significant change in the Danish diet was the composition of bread. By intensifying the milling of grains, richer, more fibrous bread was produced, leading to a more efficient use of available grain – a development not quite to the taste of most Danes.\footnote{Statens Komkontor, \textit{De Danske Kornordninger 1936-1946 Med et tillæg omfattende hestårene 1946-1949} (Copenhagen 1950).}

In the Netherlands, the consumption of potatoes, oats and pulses increased markedly, far more so than in Denmark, contributing significantly to the maintenance of a quantitatively sufficient diet. The consumption of vegetables likewise increased, both because of the greater acreage devoted to them and because relatively large quantities that had previously been exported were now consumed domestically.\footnote{Trienekens, \textit{Tussen ons volk} 140; Klemann, \textit{Nederland} 221.} As in Denmark, such products as cereals, sugar and pulses had been among the first to be rationed, followed in 26 April 1941 by potatoes. Unlike in Denmark, however, relatively few coupons for these goods remained unused, even though the per capita availability of these goods was much higher in the Netherlands. The fact that meat,
dairy products and eggs were available in much smaller quantities necessitated an increase in the Dutch consumption of such products as oats, potatoes and bread.

With regard to the latter, the RBVVO, like its Danish counterpart, introduced stringent rules regarding milling and bread production. The white and light-brown bread that had commonly been consumed before the war was banned, because of its relatively inefficient use of the available cereals. As in Denmark, wholegrain bread became the norm, but in the Netherlands flour was partly substituted with ground pulses and potatoes. The resulting bread, although highly nutritious, was greyish and not at all to the taste of the Dutch. Wartime bread became a scapegoat for a variety of ills, such as bed-wetting and flatulence. In reality, the bread may well have been healthier than the white bread commonly eaten before the war. Bread policies in both countries are indicative of how far the authorities went to coordinate food production and consumption from seed to plate. Their aim was to scrape out every bit of nutrition that there was to be found in the country.

The Hunger winter and its aftermath
After September 1944, the RBVVO could not maintain the relatively favourable food situation. Denmark too suffered a partial collapse of social order, especially after the dismantling of the police force, but there the production and distribution of food was never seriously under threat and the prevailing diet during the last months of the war did not significantly differ from that of the preceding years. Although in Denmark provisions of many goods were low during that winter, nutrition continued more or less as usual. The food situation in the Netherlands after September 1944, however, requires closer attention.

The Hunger winter itself was, as explained above, primarily caused by problems with the transportation of foodstuffs from the net food-producing to the net food-consuming parts of the country. This problem was of course most marked in the large cities in the west of the country, where the population density was so great that it was impossible to produce sufficient calories locally. While dangerous shortages were limited to the densely populated west, it has often been wrongly assumed that the food situation elsewhere was unproblematic. There were sufficient quantities of food outside the western cities, because the food that could not be moved to the west came to benefit the rest of the country, which was hence better supplied than before.
On the other hand, food could not be transported very easily in the remainder of the Netherlands either. Most of the problems – such as the railway strike and the ice – were obviously nationwide phenomena. In the countryside, people could easily survive on local produce, but provincial towns were in a more precarious situation. Although in virtually all cases it proved possible to acquire foodstuffs within the vicinity of these towns to avert hunger, but often little more than that. In several towns, potatoes were grown within the city limits to maintain sufficient nutrition, while on farms relatively close by, potatoes were being fed to pigs for want of a way of transporting them elsewhere. The famine, then, was limited to the west, but the disruption of food supplies occurred throughout the country. Because food supply became localized (people ate what was produced nearby), it is difficult to estimate how much of what was consumed by whom.

In the western cities, the period September 1944 – April 1945 saw the complete collapse of not only food supplies but also of much of the social order. The black market took over much of the urban economies and large numbers of urban dwellers set out for the countryside, hoping to find food. The first to fall victim to actual starvation were those who had nothing to barter, insufficient capital to buy on the black market and inadequate physical ability to scavenge the countryside for food. Hunger was widespread in the urbanized western Netherlands, but what made the famine so lethal was the uneven distribution of food. Even at the height of the famine some people managed to remain well or even luxuriously nourished, while others literally starved to death. The concept of ‘food entitlement’ is perhaps best illustrated by this episode of Dutch history: after the collapse of the centrally administered food supplies, some people were fed and others were not.

At the time of the Hunger winter, parts of the Netherlands had already been liberated. Because the front froze on the Rhine, the southern Dutch provinces became occupied by an Allied army that was stretching its resources to the utmost in order to defeat the Reich. Some sources suggest that in these months circumstances

127. Kruijer, Hongertochten passim; Klemann Nederland 463.
128. Klemann Nederland 463; Boerema Medische ervaringen, passim.
similar to the northern Hunger winter arose at least locally in southern cities.\textsuperscript{129} On the one hand, it is quite conceivable that under the circumstances it was difficult to provide sufficient nutrition to the southern cities and towns. On the other hand, if such situations arose at all, they were certainly short-lived. The temporary military government in the liberated south rebuilt a provisional infrastructure for the distribution and rationing of food, and established a provisional administration for food distribution. The local food economy thus established, while perhaps not as sophisticated as the national, centrally administered system, appears to have made considerable progress towards normalization.\textsuperscript{130} As yet, the economic circumstances prevailing in the liberated south have hardly been investigated. Given the limited availability of sources, only a study based on local research would be able to fill this lacuna.

When the Netherlands was finally liberated in its entirety, work began to restore normal standards of nutrition. Serious problems had to be dealt with in the newly liberated Netherlands. Most of all, food rationing and agricultural controls had to be restored. Perhaps surprisingly, the RBVVO resumed work without much trouble, a token of the robustness of the food supply bureaucracy. Even a perfect system of rationing and food provision, however, can only distribute food that is actually available. Given the inundations and the general disarray of Dutch infrastructure, which disrupted the indigenous production and dissemination of foodstuffs, the immediate resumption of food imports was indispensable. During the first postwar months, food imports predominantly came in as relief. After liberation, food aid was given to the Netherlands on a considerable scale, also, as mentioned, from Denmark. The majority of these and other food imports were arranged through the military channels of SHAEF (Supreme Headquarters Allied Expeditionary Force), which managed to restore minimal standards of nutrition relatively quickly. Food aid, moreover, was often directed at specific groups of people. It provided considerable

\textsuperscript{129} J. A. van Oudheusden, \textit{Tussen vrijheid en vrede: het bevrijde Zuiden, september '44-mei '45} (Zwolle 1994) 76.

\textsuperscript{130} Afwikkelingsbureau Militair Gezag, Overzicht van de werkzaamheden van het militair gezag gedurende de bijzondere staat van beleg (Den Haag 1947) 364.
nutritional relief to those worst affected by hunger and illness, and hence had a life-saving effect well beyond its relative magnitude.\textsuperscript{131}

In the longer run, the restoration of Dutch indigenous food production was more important than providing aid. The harvest of 1945 was far smaller than normal—a consequence of warfare, inundations and general chaos—but already in 1946 normal production was more or less restored. Only Dutch livestock numbers remained relatively low, until the granting of Marshall Aid. The unfavourable currency position of the Dutch hindered the resumption of fodder imports, and to the postwar Dutch governments, restoring cattle breeding had relatively low priority.\textsuperscript{132} Apart from the relatively slow restoration of production, animal-source foods were still to a considerable extent diverted towards the black market.\textsuperscript{133} Despite these problems, the restoration of the Dutch diet was a remarkable success. Especially interesting is the development of the amounts of food available through rationing in 1946.\textsuperscript{134} Although it took the Dutch much longer than the Danes to return to their prewar levels of food consumption, the diet in the period 1945-48 was already far richer than wartime diets had ever been. That is not to say that the public was necessarily satisfied: as in other countries, consumers were highly disappointed that the end of the war did not immediately lead to the restoration of their prewar diet.\textsuperscript{135}

**Nutrition compared**

Can food consumption in Denmark be reasonably compared with food consumption in the Netherlands? There clearly are some serious drawbacks to such an undertaking. Rations quite accurately reflect consumption in the Netherlands, at least to the extent that virtually all food was rationed and rations were usually fully used. In Denmark, on the other hand, a number of important foodstuffs were never rationed in a way that allows for easy reconstruction, and rations for a number of products were

\textsuperscript{131} SHAEF, *Final report of the supply and economics branch G-5/CA of the British & USFET Military missions to the Netherlands* (1945).

\textsuperscript{132} Klemann, *Nederland* 202, 207, 211.

\textsuperscript{133} See Chapter 8 below.

\textsuperscript{134} Dols and van Arcken, *Food Supply and Nutrition* 350.

\textsuperscript{135} Klemann, *Nederland*, 463; Cf. Zweiniger Bargielowska, *Austerity in Britain*. 
not nearly used up. A comparison of rations is therefore not a viable approach to comparatively assess the food consumption in each country. An alternative approach is to primarily investigate the amount of food available per head and forego a precise comparison of individual rations. This inevitably means that much of the inequality that existed in both countries is obscured. On the other hand, because the allocation of foodstuffs took place within households, equating rations with consumption provides little more than an illusion of exactitude.

However, another problem arises. As explained in the previous chapter, the age structure of each country was different and changed very significantly in the course of the war. When comparing the availability of foodstuffs in Denmark with their availability in the Netherlands, it is essential to take proper account of such differences. Infants and children generally eat less than adults, the elderly eat less than adolescents and women eat less than men. To be able to compare the two countries, it is therefore necessary, again, to standardize their populations. To do this, the adult male equivalent (AME) of the Dutch and of the Danish population have been calculated. That is, the equivalent of each population in adult male nutritional requirements has been calculated by multiplying the number of people in a sex or an age group with the estimated consumption as a share of an adult male's consumption. There are a variety of scales to calculate the AME of populations; these scales are often related to specific workload, average height, temperature and other factors. Here, a simple scale, developed for the World Health Organization, has been used.\textsuperscript{136}

Although food availability per AME enables a comparison of nutrition in each country, such an assessment does not necessarily reflect the nutrition of any specific individual, or even an average, although it does provide a measure of relative food availability in each of the two countries. It should be noted that the numbers presented here exclude black market production, which was considerable in both countries. Black markets and their impact on nutrition will be treated separately in Chapter 8. In a sense, then, the data presented here are an administrative fiction, but the high degree of control over food production and consumption in both countries

\textsuperscript{136.} FAO, \textit{Handbook on human nutritional requirements} (Rome 1974).
makes such administrative realities a sensible starting point for the assessment of Dutch and Danish wartime diets.

Before delving into wartime diets, it is worth investigating what the Danes and the Dutch ate before the invasion. Judged by current standards, as mentioned, both were eating rich, perhaps even excessive diets. Of course, many people at the time also had high calorific needs: physically demanding work was still common, transportation relied to a large extent on muscular power, and people spent far more calories keeping warm than they do in today's centrally heated environment. Even taking into account the high nutritional needs of the Dutch and the Danes, however, the diet commonly consumed in both countries appears to have been on the ample side. It was not unusual for men to consume up to 4000 kcal per day, which is far in excess of the calorific intake currently advocated.

Data on the prewar diet of the Danes and the Dutch have been collected by each country's national statistical bureau, namely the Centraal Bureau voor Statistiek (CBS) in the Netherlands and Danmarks Statistik (DS) in Denmark. It should be noted that the results of neither investigation are entirely representative of Dutch or Danish nutrition. In both countries, investigations were based on samples of working-class households and relied on self-reporting. The selection of households in both countries cannot be reconstructed, which also makes the comparison slightly imprecise. Moreover, the Danish data concern average consumption over the period 1935-39, whereas Dutch data relate to only 1936. Still, when compared to other Dutch investigations, the data appear to give a reasonably accurate image of the diet prevailing in the 1930s.
Figure 4.1: Average working-class diets in the mid to late 1930s, Denmark and the Netherlands (kcal per AME per day)

<table>
<thead>
<tr>
<th></th>
<th>Denmark</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant-source foods</td>
<td>1885</td>
<td>2376</td>
</tr>
<tr>
<td>Animal-source foods</td>
<td>1485</td>
<td>1107</td>
</tr>
<tr>
<td>Total</td>
<td>3370</td>
<td>3483</td>
</tr>
</tbody>
</table>

Source: CBS, Huishoudrekeningen van 598 gezinnen (DI II); Danmarks Statistik, Landbrugsstatistik 1945. Mogens Rostgaard Nissen kindly provided the data relating to Denmark.

Two interesting observations can be made on the basis of figure 4.1. First, the total calorific value of working-class diets was roughly the same. The 100 kcal difference between the two countries cannot be taken as reflecting a real difference, given the relative imprecision of the data. A larger difference can be seen in the composition of the diets. In Denmark, the consumption of animal-source foods was clearly higher than it was in the Netherlands. The main reason for this is that in Denmark the adoption of margarine as a replacement for butter and lard had been slower than in the Netherlands.

If the average diet of the prewar Danes and Dutch was rather rich, in the countryside many people ate considerably more than even the manual workers investigated by DS and CBS. It was also a relatively fatty diet. The poor in both countries, who mostly consumed butter and meat in small quantities, ate considerable quantities of lard. Whole milk and other fatty dairy products such as cheese were likewise consumed in large quantities. These habits reflected the tastes of the time. People in the first half of the twentieth century appear to have had a great fondness for heavy, fatty meals, overcooked vegetables and large quantities of sugar. Although this was hardly the diet modern (or even contemporary) food science would have recommended either the Danes or the Dutch to eat, it was certainly the kind of food the people themselves enjoyed best.

137. See e.g. R. Claeys, Uitkomsten van het budgetonderzoek in de Wieringermeer (Alphen a.d. Rijn 1948) 51.
Obviously, the agricultural transformation inevitably had repercussions on the joy of eating in Denmark and the Netherlands, although far more so in the latter than in the former country. In Denmark, notably, the consumption of butter increased considerably after the invasion, and remained well above the prewar levels throughout the occupation. Because margarine, which had been consumed predominantly by the working classes before the war, was replaced by butter, the animal-source content of the diet declined only marginally. The plant-source mainstays of the Danish diet – potatoes and cereals – were consumed in similar quantities as before the war.

The contrast with the Netherlands is considerable. There, the consumption of cereals and especially potatoes increased considerably, to decline only later in the war. The increased consumption of these foodstuffs compensated for a sharp decline in the availability of animal-source foodstuffs, notably meat. As can be seen in figures 4.5 and 4.6, the legal wartime consumption of meat in the Netherlands was less than half that in Denmark. The consumption of butter – which, as in Denmark, replaced margarine – increased, at least initially, but remained far below the Danish level. It should not be forgotten, however, that already before the war the consumption of butter was higher in Denmark than in the Netherlands.

The products included in figures 4.2 to 4.6 did not of course make up the entire diet in both countries. In the Netherlands, such pulses as peas and beans joined potatoes and cereals as the mainstays of the diet. Such vegetable foods had the great advantage of delivering excellent yields in terms of calories per acre and thus played a crucial role in averting acute food shortages in the Netherlands. When the entire calorific intake in both countries is calculated (see figures 4.7 and 4.8), two enormous differences between Denmark and the Netherlands are immediately evident. First, the calorific intake of the Danes did not change very significantly, whereas that of the Dutch declined. Second, the Dutch diet became further dominated by plant-source foods, which replaced many of the animal-source foods of which the Dutch had consumed copious amounts before the war.
Figure 4.2-4.6: Legal consumption per AME of the main food groups, kilograms per annum

4.2: Potatoes

4.3 Cereals (including bread)
Figure 4.7: Estimated Danish daily calorific intake, per AME, excluding illegal trade

Sources: see figures 4.2-4.6

Graph 4.8: Estimated Dutch daily calorific intake, per AME, excluding illegal trade

Sources: see graphs 4.2-4.6

Given the significant differences, it is tempting to blame the observed difference in the development of child mortality on food shortages. The decline and changes in the Dutch diet coincided with increased mortality, whereas the Danish diet remained the same and mortality did not rise. Case closed, it seems, but there is a snag to this explanation: the Dutch diet does not appear to have been unhealthy at all. Although
hardly copious, the Dutch diet did not sink below the current ‘food poverty’ line of roughly 2250 kcal per AME; in fact, during most of the occupation, it remained well above it. The relatively high vitamin C content of the diet, which after all was predominantly plant-based, should have been a bounty. Moreover, the decline in the high saturated fat content presumably did people and their cardiovascular system more good than harm.

The Danish wartime diet, on the other hand, was and remained rich to the point of being unhealthy. Many Danes ate more than 1000 kcal more than the 2500 kcal (or thereabouts) currently advocated as healthy. That said, the Danes at the time were not too heavy; on the contrary, recent research suggests that they were relatively slim. By calculating the body mass index of draftees for military service over time, it was found that a mere 1 per 1000 draftees in 1945 were obese, despite the extensive and fatty diets commonly consumed at the time. Today, the figure stands at 5% of all draftees – 50 times as many as there were in 1945.\(^\text{138}\) That said, there were very clear health benefits to the Dutch wartime diet, benefits that Denmark missed out on. The annual death toll from diabetes, a disease strongly linked to obesity, declined from around 1300 in the late 1930s to less than 1200 during the occupation.\(^\text{139}\)

The war may have caused a beneficial slimming down, but can it be that food shortages killed the Dutch? It seems unlikely. The effective rationing system ensured that people had equal access to a meagre but biologically sufficient diet. In addition, as explained in more detail in Chapter 8, there was a sizeable black market for foodstuffs, which allowed many people to expand their diet beyond what was available through rationing. Nor is there any sign that before the outbreak of famine in late 1944, Dutch people suffered obviously food-related diseases. Moreover, the remarkable age pattern of wartime mortality seems to belie such an interpretation. Food shortages, in so far as generalizations can be made, tend to have the greatest relative impact on adults rather than children.\(^\text{140}\)

\(^{138}\) Heltmann, *Epidemiology of Obesity* 51.

\(^{139}\) See note 68.

\(^{140}\) See note 76.
This finding is hardly a scientific breakthrough. As explained in Chapter 2, the Dutch historians Trienekens and Klemann have each presented an analysis of Dutch nutrition that is quite in keeping with these findings, emphasizing that food shortages in wartime were unpleasant rather than unhealthy. Indeed, Klemann goes so far as to claim that from a strictly biological point of view, the wartime Dutch diet was an improvement over the fatty, unhealthy diet of the 1930s. Notwithstanding the considerable difference between Denmark and the Netherlands, that analysis holds water. With an effective rationing system and sufficient food available, it is difficult to see how food shortages could have been a major problem.

Conclusion

Compared with other occupied countries – or even with more or less anywhere in Europe – the amounts of food available to the Danes were enormous. The average Dane in wartime ate a richer, larger and decidedly tastier diet than did people in Germany, Britain or even non-belligerent European states, such as Sweden or Switzerland. In the Netherlands, people had to put up with less and especially very different food than they were used to. Fatty diets with large amounts of lard, bacon and milk were a thing of the past, and the Dutch had no choice but to adapt to a diet centred on potatoes, pulses, skimmed milk and whole bread. Throughout the occupation, and to a lesser extent during the years following it, complaints about food abounded. People rarely felt truly full any more, as they had when they still consumed the richer diet of the past. Many people lost weight. Whole bread, low-fat cheese and skimmed milk filled people with revulsion. The Dutch hated their wartime diet and often blamed it on exports to Germany and mismanagement by the RBVVO.

In reality, exports of food from the Netherlands were not as significant as contemporaries often thought, and the organization of food supplies was a wonder of administrative prowess and efficiency, which rescued the Dutch from the far worse fate of mass starvation. The importance of the RBVVO and the efforts it made to ensure the Dutch food supply are perhaps best illustrated by the brief period when administrators lost their firm grip on food production and consumption during the Hunger winter. Not only was there insufficient food in some parts of the country to

141. Klemann, Nederland 454.
feed everybody sufficiently, but the distribution of food became very unequal. It is quite likely that food inequality effectively cost more lives than did an actual food shortage – an ample demonstration of the necessity of a well-organized apparatus for food allocation.

There is good reason to be suspicious of the Dutch diet as a possible cause or complementary cause of the increase in mortality in wartime. On the other hand, it is unlikely that the comparatively good health of the Danes was caused by their eating more copiously than the occupied Dutch or the wartime Europeans in general. There are, moreover, numerous other possible explanations for the difference between Denmark and the Netherlands. Shortages of goods other than food – such as fuel, clothing and housing – may also have exerted a significant impact on Dutch public health, and perhaps a stronger one than on Danish public health. It is to those goods, then, that we shall turn in the following chapter.