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Feeding Medieval European Cities, 600-1500

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1. The medieval city: a problematic concept

I'm taking it as axiomatic, *first* that the large city cannot exist without a fertile and productive hinterland (which is itself a characteristic commonly praised in medieval descriptions of cities); and *second*, that whatever the natural endowment of the hinterland, its productivity will to a large extent be shaped by the growth of the city. A third axiom overrides the first: namely, that at a certain level of a city's power or wealth, and given the appropriate transport and institutional infrastructure, its demand for supplies transcends the pedological limitations of its immediate hinterland, so that that the interplay between city and country can take place at a great distance from the point of consumption. Thus we enter the world of the Kenyan mange tout, an image not entirely inappropriate for understanding at least some aspects of the feeding of medieval cities.

In the context of food, as in much else, the words 'Medieval City' denote a problematic concept, for except in chronological terms, it is not a readily definable type.

In the first place, different medieval cities could have very different specialisms. The city could be a local or regional centre of exchange, of limited wealth and with limited horizons; it could be a commercial gateway, an industrial centre, or the capital of an extensive territorial state. It could combine these functions in various ways.

Moreover, over the period in question they covered a wide range of physical types, from filthy but relatively low-density agglomerations of houses of sticks and mud, to high-density, solidly built, well-ordered and impressive environments. They also ranged in widely in size: from just a few thousand inhabitants to populations in the low hundreds of thousands. Actually, we don't know very exactly what those populations were. In my short recollection, for example, London, Milan, and Paris at their peak populations around 1300 has each doubled in size; they may get larger still, or even shrink. This makes comparison especially difficult, for the current state of knowledge and opinion is far from clear.

Still, it is clear that cities were very important, both ideologically and physically. Over western Europe as a whole urbanisation reached a peak by 1300 which may have been about equal to the peak under the Roman Empire. It remained at that level for at least the next 200 years, despite the overall fall in population and a considerable reshaping of the urban network. In 1300 England's level urbanisation was perhaps 20 per cent urbanised, having climbed from something over half that level 200 years before, and from virtually nil 500 years before that. Over a good deal of Italy and parts of the Low Countries, however, the level in 1300 was 40 per cent, but much depends on how you define your territory.

2. Idea of the 'city' as a focus of order in the food economy

The term city is nevertheless helpful in considering our topic, for the idea of the city was a focus of order in the food economy. Cities came to be recognised as the seats of bishops, and in the early medieval city the secular responsibilities of the bishop embodied Ancient notions of the role of public authority in the maintenance of urban food supply. Good St Didier, bishop of Cahors in the 7th century, for example, was remembered has having managed his city so well that that it enjoyed an abundance which enabled neighbouring cities to be fed: a tale which betrays an awareness of the significance of hierarchy and interdependence in urban provisioning. A 9th century archbishop of Rheims ordered his bishops to buy and stockpile cereals to avoid a foreseen shortage, and there are many similar instances.

Bishops and other representatives of the early state also regulated food prices and food measures in cities. Thus Charlemagne set grain prices, and a 10th-century archbishop of Milan contracted with five master bakers to feed the city with loaves of a set weight and price. This established, or continued, a practice of regulation, which was at first under royal or episcopal authority and then progressively passed into civic or municipal control.

Cathedral churches and other religious communities based in cities were also important for the substantial food rents which they received from their estates. At Milan in the 4th cent., St Ambrose received vast quantities of agrarian produce, which he sold in the city's market, sending his slaves out to Sainsbury's to buy domestic supplies. In the much smaller cities of the earlier Middle Ages, by contrast, religious communities tended to live off their own and to sell the surplus. In the more urban and commercial environment which later emerged, direct transfers from the more distant estates were given up, their produce being sold through local markets and some of it ending up in the city. By 1300 sales in the city of produce which was surplus to the needs of ecclesiastical establishments probably made only a small contribution to the needs of the citizens. Nevertheless, throughout the period some of the largest stocks of foodstuffs kept in cities would have been in monastic or canonical cellars, where they were an important resource in an emergency or, more routinely, for the charitable sustenance of the poor. The food renders of the early period, however, have an important place in the loner history of urban food supply for their distribution promoted the maintenance and development of an infrastructure of transport and exchange which served as a framework for the later growth of a much larger market.

3. Importance of feeding cities

There are many ways in which we can perceive the significance of feeding cities as a collective effort. Bold, or rash, individuals estimate that food production and distribution accounted for 75 % of the economy, and that cereals contributed 70 % of calorie intake. The diet of many people in cities would have contained a smaller proportion of cereals, but that of many more is likely to have depended more heavily on them. Food was an important marker of status and we have a broad idea of differences in diet between social groups, in cities and elsewhere, but it is difficult to be precise about the actual intake of particular groups.

Urbanization and changes in the general standard of living were associated with striking developments in food consumption. Cities were strongly associated with elite foods and drink, the commerce in which was well developed from the early part of the period. Among cereals wheat, the most commercialised grain on account of its density and its capacity to survive storage, and white bread (refined to varying degrees) were particularly identified with city patterns of consumption over much of Europe. For the majority of town dwellers, however, brown bread, based on or incorporating a secondary grain, was

very important, while for a significant, but to a large extent invisible, proportion, forms of porridge or even toast gruel were vital. Secondary grains are an interesting, complex and changing phenomenon, influenced by trade and towns as well as by ecology. They deserve more thought. In the Norwich, Ghent, and the London regions, for example, the secondary grains at one period were barley, oats, and rye, respectively. At London over the period up to the later 13th century, we can identify a shift from oats to barley for brewing, which presumably represented a move upmarket. With the increase in the general standard of living after the demographic crises of the fourteenth century people drank more alchohol, with the result that in northern Europe the overall demand for grain did not shrink in proportion to the population and that in the hinterlands of cities there was a spatial reconfiguration of arable farming so as to produce more barley and malt for the market.

Meat and the city form a powerful economic and cultural nexus, for which much of material evidence had come down to us. Even in such an apparently primitive city as 8th century London there was a developed system of livestock production for the market, and meat from young cattle, including veal, was a significant part of that consumed, more so than in other towns. It is also clear, however, that cattle were highly valued for milk products and as beasts of traction. In the larger and more complex city of the eleventh century the proportion of young beasts among the slaughtered had increased, and with the rise in the standard of living the late Middle Age it increased even more. People ate more meat and relatively less fish and cheese. They made more use of horses for traction -- an important urban effect in itself -- and that influenced the meat economy since horsemeat was not normally eaten. Throughout the Middle Ages cattle provided the bulk of the meat consumed in cities, but pig and sheep were also consumed, and indeed produced, in cities and were probably more significant for certain groups. Highly developed specialisms developed in relation to meat. Tripe dealers emerged early in Paris, and a tract on health illuminated for a 14th-century Verona family contains 19 illustrations of the preparation and sale of meat, half of them concerning offal such as brains, hearts, udders, livers, spleen and tripes. The apparently late medieval evolution of small cuts and charcuterie is an intriguing topic.

Vegetables and fruit made a small overall contribution to the city diet. In contrast to birds and beasts they were perceived, by some at least, as melancholic and terrestrial and in need of elevation by the addition of butter or oil. Nevertheless, they were significant as an addition to the porridge of the poor and certain fresh fruits had a symbolic value as seasonal luxuries. The development of more intensive arable farming presumably made certain vegetable more available, and in large cities such as London, Paris or Cologne vegetable gardens and orchards producing for the market as well as for wealthy households were a recognisable element in the suburban landscape. There was a cross Channel trade in onions and garlic, and a longer distance trade in luxury (or medicinal) dried fruit.

Fish made a crucial contribution, not only on account of Lent and fishdays. In 8th-century London and Southampton river and estuary fish predominated. In the eleventh century and later, deep sea fish, above all herring, were to the fore. The herring consumed in towns were the product of a highly-organised fishing and processing industry, and were widely distributed. They perhaps had a special significance as a food resource which could be developed more quickly than agrarian products to meet the needs of rapidly growing towns in north western Europe. After 1350 there was a shift towards meat and away from fish, perhaps especially away from the unpalatable dried, salted and smoked herring, for there are signs of more variety and greater discrimination in fish consumption.

The herring industry used large quantities of fuel, as did baking, brewing and simply keeping warm. Fuel was predominantly organic: peat was important for some cities, but in general carefully managed trees were the fuel source. The fuel economy thus interacted with the food economy of the city in complex ways. In late thirteenth century London, for example, the limits of the organic fuel supply were evidently tighter than those of the corn supply. A decline in population, and a reduced dependence on bread, might make more fuel available for brewing ale or for firing tiles and bricks. When people came to have more money in their pockets, there was a demand for more solidly-constructed houses, as well as for more ale. The pattern of such interactions were different, but probably no less significant, in the Mediterranean context.

Medieval descriptions of cities often characterise them in terms of food supply. Thirteenth-century urban intellectuals acknowledged agriculture as one of the 'mechanical arts', and it is clear that discourses of number and measurement were important in the attempt to comprehend city food supply. A poem on the foundation of Montauban in 1144 mentions the 100 tavernkeepers, 100 bakers, 100 butchers, 100 fishmongers, 100 merchant of the Indies, and 300 others without identified trades summoned to the site. The description of Milan in 1288, written by a man who also penned text on table manners, provides a splendid real life example. It totals the city's churches, chapels, and defence, but a major focus is food consumption. It gives quantities for the volume of grain consumed each day, 'as it is proved for certain', and the number of people that it fed; for the wagons of wine entering over a year; for oxen killed each day, 'learned from diligent examination of the butchers'; and totals for butchers, tavern-keepers and ovens. It describes how corn, honey, wax, vegetables and beasts 'flow to the city'. [illustrated by extracts from an early 14th - century life of St Denis showing the bridges of Paris and foodstuffs entering the city] Such descriptions, and a mass of records from both northern and southern Europe, show the significance of the effort devoted to securing and administering the food of cities. In Florence the scale of the public granary erected in the mid 14th century, and the way in which it served as a focus for communal and craft identity, provides a clear demonstration of the importance attached to securing the basic food supply. [illustrated by aerial view of Florence showing the control position and scale of the Orsanmichele granary]

The occupational make up of cities also reveals the effort devoted to food. In English cities about a quarter of the tradesmen with identifiable occupations were concerned with food. It is clear that trade in the elite victuals - such as spices and wine - brought the greatest profit. Fishmongers were also relatively prosperous and numerous, reflecting the extent of their trade and their investment in shipping and industrial plant. Butchers and bakers were much less prominent. Except in cities the size of London or greater, professional corn merchants are not very obvious. Even in London they were only of middling rank according to tax assessments, although the great famine of 1315-17 boosted their prosperity in the short term. This is because the trade was normally in the hands of numerous small-scale dealers, many of them based outside the city. The small number of bakers in the city often served as the intermediary between rural suppliers and household consumers of grain. As in the twentieth century, the food distribution industry was characterised by small returns for the large numbers who handled the commodities. One symptom of this was the high involvement of women. At Winchester in 1300, there, there were just 12 bakers, but 40 women selling their loaves from baskets that they carried round the streets; in addition there were perhaps 140 women who sold ale, which many of them had also brewed. Thus the proportion of labour input within the city which was devoted to food was very much greater than 20 per cent, even if we takes no account of food preparation within the household. At Winchester over two-thirds of the numbers explicitly involved in the victualling sector handled cereal products (including ale).

The rarity of bakers and their ovens is a further indication of the limits of the fuel supply and the prevailing poverty of the population. Moreover, an oven was major investments. At both Milan and Winchester there was one baker's oven to about 130 households. There was little baking at home, although rather more preparation of dough. The many who lacked kitchens were also served by the cooks, who were about as numerous as the bakers and provided fast-food for a predominantly poor and mobile population. Cooks also performed a valuable service by selling fresh (but dead) poultry and small cuts of meat. Many of the poor may rarely have eaten hot food.

4. Area needed to feed a big city

Even a big medieval city does not seem to have needed a very large area to provide its basic supplies. Attempts to measure these areas have perhaps generated more confusion than enlightenment The normal grain supply district for Paris at its medieval peak seems to have been well within a radius of 100

km, although the city drew fish and cattle from a greater distance. The grain supply district possibly extended over an area of rather more than 20,000 square km. London's grain normal supply area can perhaps be estimated more precisely at between 10,000 and 11,000 square km. It is remarkable that the relationship between these values roughly corresponds to that between what we believe their populations to have been, but a better knowledge of the Paris hinterland is required before we can push such comparisons too far. In each case the precise shape of the area was much influenced by the presence of navigable rivers and, certainly in London's case, by the existence of areas fairly close to the city which could not be made productive. Within London's region, as we shall see, there were enormous differences in arable output. In sharp contrast to these great cities, the grain supply area of Winchester, an eighth the size of London but at one time a major English city seems to have been hardly more than 30 km across. Transport costs and therefore the availability of water transport were crucial, as the 12th-century English laws attributed to Edward the Confessor recognised. The Muslim cities of al-Andalus were commonly supplied with grain from North Africa: that was not because corn was lacking in their landward hinterlands, but because it was cheaper to bring it across the sea. Developed maritime commercial networks were very important for delivering surplus where it was needed. Thus in the 12th cent. even Egypt could draw in grain and pulses from the Andalusian cities on hose rare occasions when it suffered a shortage.

When corn was short and prices rose, cities could command supplies from much greater distances than usual. For Paris in 1304, a year of shortage, royal agents sought corn 200 km from the city. In the case of London, according to a formula I have devised, it did not require major increases in prices for it to become profitable to bring in corn by water from beyond the counties adjoining the Thames estuary, which were its normal sources of supply on the east. Thus in the 14th cent. it would have been worth a London cornmonger going as far as the Wash or the Humber about every ninth year. This focuses attention on the crucial point that wealthy or powerful cities did not need to depend on their immediate hinterlands for supplies. By the 1190s Barcelona regularly drew corn from 90 miles along the coast. Venice was normally to have been supplied from adjoining parts of the Veneto and Romagna, but during the shortage of 1226 the city authorities loaded three ships with gold bars and sent them to Ancona to buy corn. During the severe shortage of 1268 they sent ships to the Black Sea. By the late 13th century Barcelona, Genoa, Florence and Venice routinely obtained supplies from Sicily. Later, Florence was said to obtain from its territory (which was not notable for high arable yields) supplies sufficient for only five months of the year, while Flanders, with its dense network of cities, could provide for one month only. A more modest city, like Orvieto, could generally live off its own. Thus the supply areas of small and large cities nested within each other. The comments on Florence and Flanders reveal a sense that well-ordered urban societies should live off their own, and a recognition that these major long-distance importers were exceptions. To us such cases demonstrate that the political and strategic frameworks within which city food supply systems were situated were of crucial significance. The oil strategies of the 20th century had their predecessors.

5. Impact of city on hinterland

Systematic study of the London region has revealed that the demands of a medieval city of that size (80-100,000 inhabitants) had a distinctly structured impact on agrarian specialisation within its region, conforming to the model of land use developed by Johann von Thunen. Physical conditions and the imperfections of the medieval market, not to mention an uneven distribution of records, mean that the picture is both complex and fuzzy. Such methodological problems mean that we should be cautious in interpreting the sparser and less systematic indications that we have for other cities. Nevertheless, those indications, existing even for cities much smaller than London, suggest that systematic patterns of interaction between town and country on these lines were widespread by 1300, if not long before. Von Thunen even had medieval predecessors. A description of London written in the 1170s, for example, describes its setting in terms which anticipate the famous zones (illustrated by diagram of the 'von Thunen zones'): in the immediate suburbs were gardens and orchards, then came pasture and meadow, then woodland, then the fertile fields of corn.

I shall illustrate the principles involved mainly by a simplified look at grain production, and glances at fuel and livestock supplies. The argument follows that in B. M. S. Campbell, J. Galloway, D. Keene, and M. Murphy, *A medieval capital and its grain supply* (1993), as experssed in the following figures:

- transport cost isopleths (Fig. 7)
- cornmongers (Fig 5.)
- demesnes above top decile for percentage of grain acreage under the principal grain crops (Fig. 10)
- wheat price as % London price (Figs 8, 9)
- high value arable (Fig. 22)

A striking feature is the relatively unintensive character of the agriculture of the region which supplied London, especially upriver to the west. Intensive arable production was clearly associated with the eastern part of the region, where it was part of a larger area of intensive production spanning the North Sea and stimulated at least in part by the concentration of towns in the Low Countries, as well as by demand from London (*A medieval capital*, Fig. 1). Over the region as a whole and in the vicinity of London net yields for wheat were below those for the vicinity of Bruges, but in the mid Thames area equalled them, and in Kent exceeded them.

A similar exercise on evidence concerning the production and sale of firewood indicated that it too was associated with a definable zone, which as would be predicted was quite close to the city. It is represented here (illustrated by J. Galloway, D. Keene, M. Murphy, 'Fuelling the city: production and distribution of firewood in the London region, 1290-1400' Economic History Review 49 (1996), Fig. 1) by a theoretical estimate based on sale prices and transport costs and by the direct evidence of supply.

A striking feature of bread production for London is the number of bakers who were based in villages within a radius of about 5 miles. This was also a feature of the environs of Paris at a later date. The bakers could obtain fuel from faggot dealers close at hand and grain from cornmarkets a few miles further out from the city, and have their loaves on sale in London within an hour or so of baking, at a substantial saving in transport costs. One cornmarket town two days journey from London had by 1250 developed a specialism in high-class bread resembling the bagel which would keep fresh until sold in the city.

Some market towns developed specialisms as centres where food supplies were aggregated before being sent on to the city. Henley, on the middle Thames, was one of those. Villages 10 or 15 miles away sent wheat in to the Henley market, where it was purchased by London cornmongers, stored in their warehouses and then sent to London. Faversham, on the Thames estuary, performed a similar service, but was much more intensive as a market, presumably because it also supplied the Low Countries. Market towns specialising in cattle, fish, or woodland products for the London market can also be identified.

The systems by which cattle were supplied to city markets extended much further out. There's not time to discuss them properly, but a few points can be made. The value placed on grazing close to the city indicates the existing of long distance supply networks and the need to fatten the livestock before they were slaughtered in the city. In the case of London there is evidence to suggest the existence of such a system by 1100, with connections to Huntingdon, Lincolnshire and possibly beyond. By the early 13th century Barcelona butchers were doing deals high up in the Pyrenees 80 miles from the city. Cattle of Hungarian and east European origin may already have been reaching the markets of north Italian and south German towns by the 14th century. The extent of the network which supplied London in the sixteenth century is indicated by the origins of the butchers' apprentices, which were remarkably widespread and reflected droving routes and cattle marketing centres. (illustrated by map showing origins of apprentices)

Cities depended on their hinterlands, and especially on their cereal hinterlands, for survival and wished to be sure of their supplies. The moves by Italian

cities to establish control over the surrounding territory from the 12th cent. onwards were partly driven by that need. Both there and in Flanders city communes deliberately promoted land reclamation, agrarian development, and water transport systems. For citizens owning land outside the city, growing urban demand was an important source of profit. At the end of the 12th century, for example, the first mayor of London had a ring of estates strategically situated around London: one of them was of high-value grain-producing land on the bank of the Thames with ready access to both city and continental markets. At Orvieto such men were supposed to bring their grain into the city by October, and both there and elsewhere in Italy communes within the contado were obliged to contribute corn to the city. There is no trace of such arrangements in London or Paris.

Another tactic for cities which were uncertain of their food supply was to secure privileges for the city's market as a staple for grain or other food products. There was a tug of war between Venice and Bologna over the latter's use of Ravenna as a grain port. Ghent, by force and other means established itself as a staple market for grain during the fourteenth century, and in its immediate hinterland lesser towns had subordinate staple rights. The merchants of Paris established rights vis a vis Rouen concerning commodities available along the Seine, and gradually extended their control of the river systems around the city to the navigable limit,. The is hardly any trace of such rights in England: London's exclusive control over markets extended only seven miles from the walls and that was not formalised until 1327; its rights over the river had a very different intention. The explanation seems to be that there was no excessive pressure on the capacity of the English countryside to produce the city's food needs. That partly reflected England's peripheral position in relation to the main sites of European demand and its lack of large cities to rival London. But the extent and unity of the territory controlled by the king and the extent of the relatively unrestricted market within it, were also very important. When frontiers were patrolled to prevent the export of corn, for an Italian city they were often no more than 30 miles distant, but for London they could be hundreds of miles away.

The early development of long-range exchange systems promoting specialisation in food production, and the tendency for cities to develop a reliance on distant, even frontier, zones of extensive cereal production are both striking. They emphasise for the links between food supply systems, other forms of trade and commercial and industrial wealth. This may be a point of contrast with the Antiquity, certainly as it was presented last week, when only the two greatest cities had these sorts of supply systems (but is that really true?). In the 12th century, for example, England and Norway developed a complimentary system whereby one supplied dried fish and the other corn. In that period and later Flemish cities drew extensively on East Anglia, and on Artois and Picardy for corn. Sicily's contribution to the needs of Mediterranean cities has already been mentioned. The Ukraine, a zone of extensive production which had been Constantinople's preserve up to the thirteenth century, contributed to Mediterranean cities from then onwards. By the fifteenth century Baltic grain, also the product of an extensive system, was contributing to the requirements of the Low Countries and adjoining areas.

With these commercial developments, some nodal cities came to handle more grain and other foodstuffs than they required for their own needs, and distributed it to their hinterlands or more distant markets. Ghent's staple market, drawing in grain by river, brought it prosperity, although the import of Baltic grain to Bruges came to threaten that position. Thus despite the concentrated demand in Flanders, grain was sometimes shipped from there to London. In the early sixteenth century Venice imported more than twice its annual needs of grain and so now supplied rather than depended on the terra firma. London did not develop this characteristic, for it was insufficiently nodal, but it usually did contain a large stock of supplies and the capacity to accumulate more, Thus, those who needed large quantities of foodstuffs quickly, as the king did for military expeditions, often turned to London.

It is possible perhaps to identify during the later Middle ages major European pools into which and within which grain flowed, and from which it was widely distributed according to demand, not quite as it later was to do in Chicago but in a not dissimilar fashion. One was concentrated in the markets adjoining the southern part of the North Sea, and there may have been another other in the Western Mediterranean, less sharply focused but incorporating Sicily.

6. General character of the market within the city

As I have already indicated, the regulation of food markets within the city was a major area of activity. It was very complex in detail and the authorities continuously adjusted rules to deal with practice and to meet the requirement of changing markets.

A number of simple principles informed the system. A common concern was to reserve to the inhabitants of the town an advantageous position in its market. That included allowing them rather than outsiders the right to stockpile commodities in the city and so to profit in times of shortage. Such rules reflect both the influence of ruling groups, and a sense that a city's food supply should be in the possession of its own citizens. On the other hand in the market places dealing in fresh supplies brought in from outside, the rules often favoured outsiders: it was necessary to encourage the inward flow. Another area of concern was to maintain an open market. In this the positioning, or pattern of movement, of traders was crucial. In the grain market there was special concern with the many ingenious forms of double dealing and fictitious trading designed to enhance the price. Dealing in grain not physically present in the market was common, but frowned upon. Food markets were to be accessible to small spenders and barriers to speculation and reselling were set up, with the usual lack of success. There was also sanitary and health concerns. Inspectors watched for rotten meat or fish or recooked pies. Disposing of butchers' offal, blood, and fish entrails was a special problem: they were an offence to sight and smell, blocked the drains, and made the ground oozy. It's clear that pollution taboos were involved, as well as a purely practical concerns.

Intervention concerning prices and supplies betrays an awareness of the interaction of markets and the way in which the price in one town affected that in another. There was a concern to keep prices low. But it was also recognised that supply affected price and much effort was put into policing that relationship with a view to the fairest outcome: this is evident in Pepin the Short's edict of 744 that measures were to be appropriate to the harvest, in Constantinople and in Muslim cities; and in the English assize of bread. It was also policy to maintain a relatively high price in the city so as to ensure an influx of supplies. That caused the city of London in 1375 to fine one of its citizens who offered too high a price for corn in the Henley market; and in Venice the authorities at times of shortage posted guaranteed high prices for grain which were supported out of public funds. Such policies worked. When the Catholic Kings naively insisted on low prices in Cordoba during a local shortage at the beginning of the 16th century, they precipitated starvation for their policy kept sellers away from the city.

The practice of making some sort of public provision of food supply at times of shortage has a long history, in both northern and southern Europe. It is in Italy, however, that civic or communal authorities first took such action, reflecting their material need as much as their administrative sophistication: the Florentine commune is first known to have purchased grain in the 1130s and the Venetian Grain Office existed by the early thirteenth century. From the fourteenth century, following the experience of famine, both cities maintained permanent public granaries. In the north it was in densely urbanised Flanders that municipalities first acquired public stocks, during the great famine of 1315-17. In England and France such initiatives were undertaken by the Crown. During the great shortage of 1258 the shortfall in London was met by the king's brother, who arranged for grain to be shipped from Germany. In towns where public stocks were maintained, it seems to have been the practice to use them to stabilise price movement within the year rather to even out variation from one year to the next. By the late fifteenth century, however, some cities were maintaining stocks large enough to have the latter effect: Nuremberg, for example, is said to had held stocks sufficient to feed the city for three to four years.

7. Crisis episodes

Crisis episodes reveal the urban food supply system in its starkest form. The normal flow of foodstuffs increased, since it was in the city that the greatest

profits could be made. In the midst of the great famine of 1315-17 honey and wheat were said to have flowed into London. The heavy rains which caused this famine would have had a multiple impact since they made salt production more difficult and so restricted the supply of herring to the city. The opportunities for investment and speculation were obvious to businessmen for whom the trade in victuals would normally have been of little interest. London fishmongers, for example, were able to use their ships to bring in grain from a distance. Very wealthy Italian merchants shipped in large quantities of wheat to Flanders and London: they had both money and ships; whether they brought the grain from the Mediterranean or from somewhere like Bordeaux is a matter for debate. In Florence in crisis years the Bardi put their money into Sicilian grain.

The availability of food in the city, at a high price or as a charitable dole, prompted mass immigration, further motivated by the extreme deprivation which in a crisis the city's demands imposed on the countryside. Bread disappeared from the villages and thousands died on city streets. During the famine of 1527-9 starving peasants flooded into Venice. 'Give alms to 200', a contemporary wrote, 'and as many again appear. You cannot walk down a street or stop in a square or church without multitudes surrounding you to beg for charity; you see hunger written on their faces, their eyes like gemless rings, the wretchedness of their bodies with skins shaped only by bones'. Moreover, urban hierarchies shaped the geography of hunger. Thus one who experienced the Tuscan famine of 1329-30 noted that Perugia, Pistoia, Siena, and Lucca all heartlessly expelled the poor, while Florence welcomed them like a mother. At that time the starving poor in Florence my have represented 20 per cent of the population and vast sums were spent on purchasing grain. Even in normal times crowds of the destitute were a familiar sight on city streets, and the cities' powerful role in the food economy contributed to their rapid growth.

Up to a point crisis episodes were a spur to commerce since the opportunity for profit promoted the development of long-distance supply networks. They certainly had an important impact on the development of policy and practice, such as the drive for the Ghent staple, the establishment of permanent stocks. From the fourteenth century onwards, despite the overall reduction of demand and the relative infrequency of crises, cities seem more generally to have developed grain management policies. During the relatively modest shortage of 1391, for example, London and other English cities used their common funds to buy up grain for the benefit of their inhabitants. Following high prices in the late 1430s Cologne established a public granary and London embarked on a large and lavish new market building, part of which was intended as a granary. London, however, did not maintain a regular stocks of grain until the sixteenth century, and even then they were not very significant. The splendid building at Leadenhall expressed London's sense of what would redound to the worship of the city rather than a perduring need for public stocks of grain. Grain eventually to be consumed in London could safely be stored in the countryside for much of the year without threat from a hostile power. Such policies and enterprises, therefore, reflect a more widespread sense of what it was appropriate for a city to do; a wider diffusion, in other words, of a civic culture.

8. Conclusion

In conclusion a few points should be emphasised.

One is ideological and concerns the way in which cities were the focus for sets of ideas -- moral, practical, and mathematical -- concerning the consumption, supply, and management of food.

Secondly cities, even when they were quite small, promoted specialised and intensive systems of production in the immediate, although in some cases it is difficult to tell whether it was the city or the intensively cultivated countryside which came first. They were also associated with the development of long-range trading systems which enabled supplies, but especially grain and pulses, to be drawn from many sources and distributed to where needed; this included drawing in commodities from extensive production systems in frontier zones. The livestock trade can be perceived in the same light. Such developments involved the accumulation of intellectual, cultural and institutional infrastructure which was independent of demographic trends.

Thirdly, despite these commercial developments and the great profit which could sometimes be made, the provisioning sector was in general characterised by the small scale of business of its individual operators. Even in the grain market in cities as large as Paris and London at their medieval peaks the number of substantial cornmerchants was very small, a reflection of the very numerous individual sources of supply within fairly easy reach of the city.

Fourth, food supply was a political issue, both within the city and outside. The degree to which that was the case, and the form of its expression, depended both on the density of the urban network (seen simply as a demographic or commercial phenomenon) and on the territorial political structures within which the city was situated. Yet while feeding the city was sometimes a matter of great political concern, it seems never to have become the overriding, long-term political objective that it was in the two great cities of the Ancient World.

Finally, at an earlier stage of this seminar we discussed agriculture as a progressive dependency trap, from which once the first steps had been taken it was impossible to escape. The Middle Ages certainly provide plenty of examples of the way in which cities can tighten the vice.

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