

URBAN GARBAGE: ON DROVERS, BUTCHERS, WEALTH AND RATS

At various times and places over the last five thousand years or so, people have gathered in the accumulations of population and housing which we refer to as towns. Where people are concentrated, so too are the processes of food preparation and consumption, and the disposal of refuse. Ancient towns and cities sometimes yield very large quantities of archaeological animal bones, and this may itself be a distinctive characteristic of what we can briefly describe as urban bone assemblages. In addition, the social and economic characteristics of towns give to those assemblages characteristics which can be quite different to those from hunter-gatherer or agrarian sites, and which can be a valuable source of information about the social and economic activities of the people concerned.

There is a wealth of literature surrounding the origins and functions of towns and cities. This is not the place to go into the topic in great detail, but some of the political and economic theory on towns has a bearing on the interpretation of urban bone assemblages, and the archaeological information which we might hope to extract from them. One strand of opinion derives from Marx and Engels, who essentially saw the emergence of city-states in the protohistoric Middle East as a means of institutionalizing inequalities of control of the means of production (Engels 1891). Gordon Childe saw cities as evolving to utilize the surplus production which he believed would inevitably have resulted from increasingly efficient agriculture, allowing the emergence of agriculturally unproductive craftspeople, who in turn required a ruling elite with powers of tithe or taxation by which to finance construction and to patronize craft specialization (Childe 1950; 1957). For Mesoamerica Sanders & Price (1968) proposed that the surplus agricultural production which allowed the development of non-productive specialists was actively induced and managed by the ruling elite, rather than the inevitable outcome of agrarian development. There has been a shift of emphasis away from the overtly political analysis of Engels, and more recent models tend to see towns largely in terms of the specialization of craft production, and thus a high degree of segregation of economic activities, in terms of personnel, timing, and location (e.g. Wright 1977).

What does all of this have to do with bones? Possibly quite a lot. As nucleations of population, towns need to draw in food from a large area, requiring control of acquisition, droving, marketing and butchering, and possibly the provision of 'holding'

areas in or near the town. The bones recovered from a town may be of livestock which began their lives many kilometres away. Whether or not one accepts Engels' analysis regarding inequalities of economic control, a proportion of the population was agriculturally unproductive, and so had to be fed in some way. Some form of marketing or redistribution was necessary, and this creates the potential for substantial differences in the animal products acquired by different families or neighbourhoods. These differences may reflect the degree of control and influence (or 'wealth') exercised by a particular segment of the urban population. We might see this reflected in the distribution of different taxa, or of different joints of meat, or of different age classes.

The disposal of refuse, and therefore the location and characteristics of deposits of bones, may carry valuable information about the tolerance of refuse at different periods and in different places, or about the deposition of mostly household debris rather than the garbage from larger-scale butchering activity (Fig. 14.1). Among the debris of human subsistence, there will also be the bones of the urban vertebrate fauna, whether of



Fig. 14.1. A view of waterlogged Roman deposits and structures in York, UK. The deposits will include bones and other objects from activities within and around the timber buildings, and debris from elsewhere around the city deposited as 'landfill' at this low-lying riverside site. The dormouse immortalized in Fig. 11.2 came from the deposits depicted here. (Photo courtesy of York Archaeological Trust)

companion animals such as dogs and cats, or of opportunistic commensal species such as mice and crows. Urban bone assemblages can thus give us information about the social and economic relations between the town and its hinterland and between different parts of the town, about where and when it was felt appropriate to deposit refuse, and about the wider urban ecosystem. In any investigation, it is essential that the town or city as a whole is seen as the 'site', not just the individual excavation, as even a very large excavation will reflect only the characteristics of one neighbourhood.

Published examples of urban archaeology obviously mostly come from those parts of the world where there is a long history of urban development, and where there has been active archaeological investigation. It is inevitable, then, that this chapter deals mostly with examples from the Middle East and Europe, and perhaps excusable that my own work on Roman and medieval towns in England provides some of the more detailed examples.

SUPPLY AND DEMAND

A useful starting point is to consider the economic relationship between the town and its hinterland. Did towns in the past rely upon a rural hinterland population to generate a surplus which could be supplied to the towns, or did some towns actively manage production on lands directly owned and managed by the urban population? This question has been investigated for two major Roman towns in southern England: Dorchester and Winchester (Maltby 1994). Contemporary documents and inscriptions give grounds to believe that land around at least some of the Roman towns in Britain was farmed by the inhabitants of the town, and excavations in some Roman towns have located what appears to be housing for livestock, as at Silchester (Boon 1974). The results of Maltby's comparison are somewhat ambiguous, but a couple of points should be noted. The pigs at Dorchester and Winchester were significantly larger than those from the nearby large rural site of Owslebury. It appears that the pigs slaughtered in the towns did not come from the rural populations represented by Owslebury, but were a different, larger form of pig, perhaps raised in sties in and around the towns. The size distribution of the cattle bones from the towns indicates a predominance of adult females, and one excavation at Dorchester has produced a quantity of bones of young calves (Maltby 1993). Putting these data together, Maltby suggests that the urban population might have maintained milking herds, hence the age distribution, and hence too the deposition of culled, presumably male, calves within the town rather than at some rural location.

Maltby's discussion of Dorchester and Winchester raises the big question of supply and demand. At its simplest, we might ask whether a particular town generated such demand that the rural hinterland was geared to meet that demand, or whether agricultural settlements in the surrounding area simply continued farming as they saw fit, and supplied a surplus to the towns as and when they could. In other words, did the town get what it wanted, or what the hinterland wanted to supply? Melinda Zeder has investigated this question for the Bronze Age town at Tal-e-Malyan, in the Kur River region of Iran (Zeder 1991). For the Banesh phase (about 3,400–2,800 BC), there is a

marked difference in the age distribution of goats and of sheep, and a high ratio of goats to sheep. Zeder points out that sheep generally yield more meat, whereas goats have a higher reproductive capacity. If livestock were being raised largely to feed the town, we might expect a higher ratio of sheep to goats. The high proportion of goats suggests that the animals were supplied by pastoralists who had other priorities. Furthermore, the goats were generally slaughtered as immature animals, while the sheep were generally older. Zeder's interpretation is that the sheep were mainly kept for their secondary products of wool and milk, with surplus young goats being supplied to the town, rather like the interpretation offered for Dinkah Tepe (Chapter 13). Rural availability, rather than urban demand, seems to have directed the process. The Middle Bronze Age urban site at Tell Jemmeh, Israel, also seems to show that sheep and goats were supplied from surplus pastoral stock. The sheep and goats at this site were killed either as young animals approaching one year old, or as adults around five years old. Measurements of the adults were consistent with most of them being female, so giving the impression that the town was fed with animals surplus to milk production (Wapnish & Hesse 1988).

My own interpretation of samples from medieval York makes the same point. The cattle supplied to the town were largely adult, though not particularly elderly, and the sheep were predominantly adult (O'Connor 1989; 1991a; Bond & O'Connor 1999). The data are consistent with a hinterland in which the priorities were to raise cattle to draw the plough, and sheep for wool, with animals being traded into the city only when they had worked for a few years, or produced some young or a couple of years' worth of wool. Even one of the major cities of medieval England does not seem to have generated enough demand to justify the specialized production of animals for meat alone. In fact, the large-scale droving of cattle to London, in order to feed the burgeoning urban population, seems only to have begun in the seventeenth century (Armitage 1978).

Historical sources will not necessarily lend support to the interpretation of bone assemblages in matters of supply and demand. Gill Clark (*et al.* 1989) reports material from what appears to have been a relatively affluent household in late fourteenth-century Tarquinia, Italy. The bones are principally those of old cattle and mature, probably female, sheep. The meat supply to this household appears to have been obtained from worn-out working oxen, and sheep surplus to the needs of a pastoral economy based on wool production. Contemporary Italian written sources class the beef from former working cattle as of very low value indeed, fit only for manual workers and those with a strong stomach. Either the interpretation of this household as affluent is seriously wide of the mark, or the written sources are describing things as the writer would wish them to be, rather than the harsh reality of life. On the other hand, documentary sources can provide information on the minutiae of supply and demand, not least seasonal availability, which will not be detectable in the archaeological samples, but which is none the less relevant to the interpretation of the archaeological data (Clark 1992). In the end, we tend to assume that urban supply and demand was economically rational, while accepting that social attitudes and tastes might create patterns of demand that are unexpected precisely because they are not (O'Connor 1992a).

SOURCES AND BUTCHERING

One approach to the analysis of economic relations between town and country is to attempt to 'source' the livestock: in other words, to determine the likely place of origin of the animals whose remains are found in the town. This is fraught with difficulties. At Roman Winchester and Dorchester Maltby (1994) suggested that the town pigs were of a different size to contemporary country pigs, and further suggested that two different types of sheep were recognizable in Winchester. One was a relatively small, horned type, consistent with the sheep typical of Iron Age sites in the region, and the other was a much larger, hornless type, which appears in small numbers on rural sites such as Owslebury much later than in Winchester.

My own analyses have detected the same large morphology in Roman sheep from Winchester and other sites in southern and eastern England (O'Connor 1982), and Noddle (1998) has noted large hornless sheep from Roman deposits at Wroxeter, in western England. Assuming for the moment that Roman Winchester was supplied with sheep of two very different types, does that necessarily imply provisioning from two different areas, or were the small sheep and the large sheep each typical of different locations within the catchment of Winchester? There is no reason why two different types of sheep should not

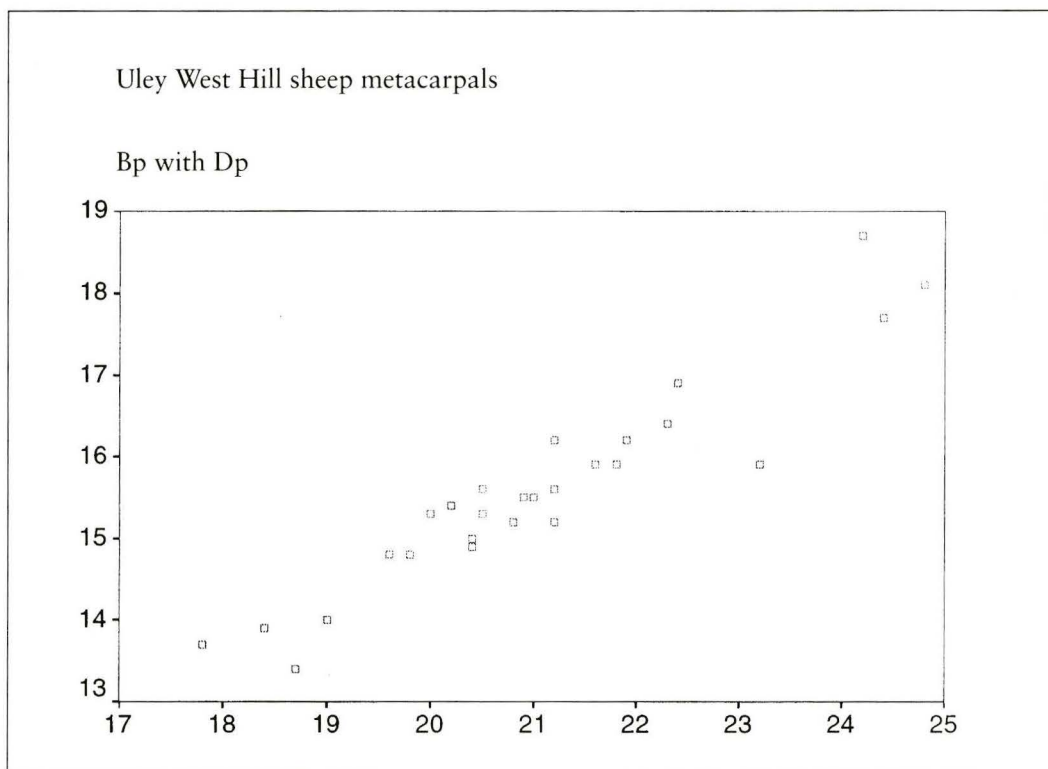


Fig. 14.2. A scattergram of two measurements taken on the proximal end of the metacarpals of sheep from a Roman site at Uley West Hill, Gloucestershire, to illustrate the presence of a few particularly large specimens. Size distributions like this one have been noted from a number of Roman sites in southern England.

have been kept in separate flocks, but in the same locations, throughout southern England through the Roman period.

Apart from biometrical data, other evidence may be used to suggest diversity of type in livestock. In York, the sheep represented in near-contemporaneous samples from two different medieval sites within the city wore down their teeth at different rates, indicating some difference in the grazing environment (Bond & O'Connor 1999, 390–1; see also Chapter 8). Furthermore, other samples from medieval York include sheep with quite different frequencies of two non-metrical traits than are typical of the rest of the city (Bond & O'Connor 1999, 409–10; see also Chapter 10). Taking these data together, we seem to have good grounds for saying that the city was drawing in sheep from several different areas. The different attrition rates might represent the difference between flocks grazed largely on the chalk pastures of the Yorkshire Wolds, to the east of York, and those grazed on the often sandy soils closer to the city. The samples with unusual frequencies of non-metrical traits come from an ecclesiastical enclave within the medieval city, so may represent flocks accessible only to that particular segment of the population. If the ecclesiastical sheep were a relatively small population, with a high degree of in-breeding, then founder effect followed by drift within an isolated population could have brought about the distinctive frequency of non-metrical traits. However, that is quite speculative, and frankly gets us no nearer to being able to say that these sheep came from *here* rather than from *there*.

Livestock and meat products move around a town, not just into it. Given the concentration of mouths to feed, it is unsurprising that towns often show the development of specialist butchers, and of areas where the killing and subdivision of carcasses took place. Apart from the bone assemblages produced during the initial subdivision of carcasses, intermediate stages of exchange and butchering of joints might produce distinctive assemblages, before the domestic processes of cooking and consumption lead to the deposition of yet another, distinctively patterned assemblage (O'Connor 1993b). With ungulates such as cattle and sheep, it is generally assumed that the low food utility of the heads and feet will lead to them being deposited close to the site of slaughter and initial butchery, potentially producing assemblages which mimic those typical of hunter-gatherer kill-sites. Two medieval sites in Exeter, in south-west England, serve as good examples (Levitan 1987). At Exe Bridge thirteenth-century deposits gave samples in which cattle horncores were predominant, overlain by later medieval deposits with abundant cattle horncores, metapodials and phalanges. This is clearly debris from the initial butchering of carcasses, and the location of the deposits – dumped in riverside muds – is consistent with the disposal of a large amount of noxious refuse. In contrast, samples from St Katherine's Priory include the major meat-bearing bones of cattle, and are, if anything, rather depleted in head and foot bones. This bias is more pronounced in the sheep bones from St Katherine's Priory, in which the great majority are from the fore and hind limbs, and the limb girdles. Levitan's conclusion is that the sheep, and probably the cattle, mostly arrived at the priory as butchered joints, not 'on the hoof', though it is possible that livestock came to the priory on the hoof, but that the heads and feet were subsequently deposited well away from the priory. Other examples of cattle 'heads and feet' deposits have been identified from Roman towns in Britain (Maltby 1984). One such deposit, in riverside

muds in Lincoln, contains such a quantity of bone as to show that large-scale butchering of cattle, and the economic organization which that implies, was still going on in the city in the late fourth century AD, a time by which some authors have suggested that Roman towns in England were in economic decline (Dobney *et al.* 1998).

The marks left on bones by the butchers' tools may also reveal something about the ways in which carcasses were treated. Butchering procedures may be strongly influenced by custom and practice. For example, a comparison of the butchering marks on cattle bones from Roman towns in central-southern England with those from rural settlements of the same date shows big differences in practice. Cattle bones from the towns bear the marks of heavy-bladed chopping tools, such as axes and cleavers, while those from the rural sites bear fine cut-marks, indicating that the carcasses were taken apart with the aid of a knife (Maltby 1989). It is tempting to interpret this observation in cultural terms, with the more Romanized towns adopting one practice while the 'natives' use another. On the other hand, the difference could be purely functional. The careful dismantling of a cattle carcass with a knife probably maximizes the amount of meat which is recovered from the skeleton, but is relatively slow and requires considerable skill. Taking a dead cow apart with an axe may be more wasteful in terms of recoverable meat, but it is quicker and less demanding of experience. Use of the axe and cleaver in the towns may therefore have been a compromise which allowed speedy butchering of cattle on the scale which the urban demand necessitated.

A similar contrast was noted by Rosemary Luff in her study of bones from a quarry-workers' village outside the Egyptian city of Amarna (Kemp *et al.* 1994). The cattle carcasses seemed to have been dismembered rather haphazardly with a cleaver, whereas pig and caprine (mostly goat) bones from the same samples showed only fine knife-marks. Given that the village was an artisan's settlement adjacent to a city which was both a royal and a religious centre, Luff suggests that the pigs and goats were kept and butchered by the villagers, while the cattle were butchered in the city, probably by temple priests, having come in as offerings which were subsequently redistributed. Pig and goat remains from the village lacked bones from the hind limbs, so perhaps hams and legs of goat were either traded with the city or sent to it as offerings.

It does not follow that we shall find the bone refuse typical of a specific stage of butchery at the place at which that butchering was carried out. In the examples mentioned above, it should not be supposed that the cattle in medieval Exeter or in Roman Lincoln were actually slaughtered and butchered on the banks of the rivers Exe and Witham, only that the riversides offered a convenient place at which to dump the refuse. Given the often crowded conditions of towns in the past (and today), disposal of large volumes of smelly debris must have been a problem. A convenient river would no doubt have made a useful sewer, and surrounding farmland might have benefited from a top-dressing of urban waste, taking this debris out of the urban archaeological record.

Some quantification of the extent of such disposal is given by West (1995), in a delightful study of seventeenth- to early eighteenth-century samples from the Royal Navy Victualling Yard, London. Archaeological evidence from the site showed the presence of pens and stockyard areas, and historical sources refer to the slaughter of, among other things, forty oxen *per day* in order to keep the Navy fed. West points out that this would

generate around 880kg of cattle bone per day, yet the Early phase at the site, representing around seventy-five years of use, yielded only 38kg of cattle bone. Even adding to this all of the 'cattle-sized' bones gives a total of just 62kg – enough to make three cows, and a vanishingly small percentage of the total originally generated (about .0004 per cent, making due allowance for no slaughter on Sundays and Holy Days). The remainder presumably largely went into landfill dumps along London's fast-developing waterfront, though West ingeniously adds another possibility, namely fashions in Dutch furniture and the accession of William of Orange. The later part of the seventeenth century saw a sharp change from the heavy, dowelled furniture of earlier decades to more refined forms with glued joints, and often with delicate marquetry. In short, there was a considerable increase in the demand for glue, and glue was manufactured from hides, hooves and bones. Lest this should seem too speculative, West notes that the earliest records of glue manufacture on an industrial scale are from late seventeenth-century Holland, with introduction to England in the eighteenth century. Furthermore, records from 1910 show that even at that late date, the Netherlands imported 7,000,000kg of bones for glue-making. Apart from shedding useful light on the volumes of bone debris generated by industrial-scale butchery, West's study of the Victualling Yard material stands as one of the most audacious, yet plausible, interpretations of animal bone data in the English-language literature!

RECOGNIZING THE RICH AND FAMOUS

Turning to the question of wealth and status among the urban population, this brings us back to the various political paradigms reviewed at the beginning of this chapter, and the issue of access to resources. Terms such as 'wealth', 'prosperity' and 'socioeconomic status' are somewhat intangible. In urban archaeology we tend to equate such terms with the occurrence in particular buildings or parts of a town of high value artefacts or uncommon food items, consumables of one form or another to which not everyone in the population seems to have had access, so that the possession or consumption of them seems to denote social or economic power. Differences in status might account for some of the differences which Reitz (1986) noted between rural (mixed slave and planter) and urban (middle-class and blue-collar) sites of mid-eighteenth to mid-nineteenth-century date on the Atlantic coasts of South Carolina and Georgia. Reitz observes that the urban samples probably 'summarize' debris from dozens of individual houses and shops, so blurring the detail of individual wealth and status. To some extent this is almost an inevitable characteristic of urban archaeological deposits, especially where refuse has been collected and redeposited on to riversides and waste ground. Occasionally, though, the excavation of individual house plots and their associated refuse pits and dumps allows very detailed interpretation.

Excavations in 1981 and 1983 at the Waterlooplein and Oostenbergmiddenstraat sites in Amsterdam, Holland, uncovered a total of about one hundred cess pits (latrine pits) dated to the seventeenth and eighteenth centuries. At Waterlooplein the sites of 110 houses were excavated, in a part of the city known to have been particularly settled by Portugese Jews (Ijzereef 1989). Apart from a few cess pits, the Oostenberger site included a refuse deposit dated to the end of the sixteenth century, the bones in which were a mixture of skulls and horncores, domestic food debris and refuse from a manufacturer of

bone buttons (MacGregor 1989). Ijzereef set about distinguishing Jewish from non-Jewish (or non-kosher) households on the basis of the amount of pig bone in the cess pits: in most cases there was a negligible amount (less than 1 per cent) or an appreciable amount (more than 5 per cent; usually around 15 per cent) (Ijzereef 1989, 45–6). The no-pig deposits were also characterized by the absence of hind legs of cattle and sheep. This joint is not kosher unless the sciatic nerve is removed, and it may be that the simple alternative was to sell on the hindquarters to non-kosher butchers. No-pig deposits also lacked calf bones, showed a high relative abundance of chicken bones (in contrast to the common duck bones in apparently non-Jewish contexts), and lacked eel bones. Eels are not kosher.

The clarity with which the refuse from Jewish and non-Jewish households could apparently be identified at Waterlooplein shows that urban bone samples can retain a remarkable degree of resolution of detail. From the same Amsterdam sites Ijzereef was able to draw up a scale of apparent wealth. At one end lay an eighteenth-century sample with a relatively low proportion of cattle bones, and those only the most meat-bearing elements, and a high proportion of chicken, turkey, goose and fish bones, the latter including tuna (*Thunnus thynnus*). Add to that salmon, oysters and lobster, and the appearance of wealth is quite convincing. At the other end of the scale lay another eighteenth-century sample, predominantly of highly fragmented cattle and sheep bones, among which head and foot elements were common. Ijzereef suggests that this family lived on the charity of the local butcher. Between these extremes, a total of six wealth categories were defined on the basis of the bone samples. Plotting these categories through time, this part of Amsterdam seems to have been relatively rich in the early 1600s, with a gradual decline to about 1700, by which time most households were generating 'poor' refuse. The second half of the eighteenth century is marked by a division of the data into either rich or poor, with few examples in between (Ijzereef 1989, 51).

In the example above, tuna seems to have been an indicator of comparative wealth. We need to draw a distinction between species which were simply exotic and uncommon, perhaps such as tuna in seventeenth- and eighteenth-century Amsterdam, and those which were not uncommon but to which access was restricted. A good example of the latter is the status of, and degree of access to, deer in medieval Europe. York is fairly typical of tenth- to sixteenth-century towns across northern Europe in yielding few specimens of red deer and fallow deer. Tenth- to twelfth-century deposits sometimes contain fragments of red deer antler, where this valuable raw material has been brought into the town to be worked into combs and pins, but bones from the meat-bearing parts of the carcass are uncommon. Both species were maintained on estates as animals to be hunted for the amusement of the landed classes, rather than as food for urban merchants and artisans. Thus in the Netherlands, for example, red deer bones are commonly found at castle sites, but only rarely at town or monastic sites (Groenman-van Waateringe 1994). One site in York, the ecclesiastical enclave at the Bedern, has yielded modest numbers of fallow deer bones, and those predominantly bones of the hind limb (Bond & O'Connor 1999). This appears to represent the donation of haunches of venison to the ecclesiastical college, and is paralleled by samples from some English castles, notably Launceston Castle, Cornwall (Albarella & Davis 1996).

On a smaller scale, rabbits also seem to have been restricted in medieval England. Though present in the country at least from the eleventh century onwards, and one of the most familiar 'wild' animals in the countryside today, rabbits were kept on estates under quite controlled conditions. They were hunted as an alternative to deer and other large game, a form of management seen elsewhere in northern Europe (Groenman-van Waateringe 1994). The scarcity of rabbit bones in medieval samples from York is thus no surprise, but seventeenth-century deposits at the 1–5 Aldwark site (currently unpublished) did produce quite large numbers of rabbit bones. Does this indicate that the neighbourhood in question had privileged access? The rest of the assemblages included a lot of sheep bones, principally from the fore and hind limbs, and a diverse range of birds and fish, including species not found so far elsewhere in the city. Like some of Ijzereef's samples from Waterlooplein, the post-medieval samples from Aldwark give the impression of wealth. However, there may be an alternative explanation, at least for the rabbits. It is possible that by the seventeenth century sufficient rabbits had escaped from managed estate populations to have established feral populations which would have been more generally available. Certainly, the Aldwark households had a varied, good quality meat diet, but access to rabbits may not have been a matter of privilege by that date.

The intensity of archaeological activity in north-western Europe means that fish bones have been intensively studied in this region, allowing quite complex questions of regional trade and supply, and biogeographical questions to be addressed. The introduction of the carp (*Cyprinus carpio*) to western Europe has been investigated as an indicator of the development of fish ponds and the cultivation of captive stocks (Hoffman 1994). There are problems of identification among the carp family, but reliable records of carp outside what is thought to be its Holocene range have been obtained at Leeuwarden, Netherlands (Brinkhuizen 1979), and at monastic sites in Belgium (van Neer & Ervynck 1994). At some medieval sites it has been possible to follow fish exploitation through time, showing marked changes from century to century. At York, for example, sites dated to the ninth and tenth centuries AD (the Anglo-Scandinavian period) give assemblages with abundant cyprinids (carp family), pike, eels and herring. Through the eleventh and twelfth centuries there is a marked change to fewer cyprinids and pike, and more cod (*Gadus morhua*). Within the cyprinids, there is also something of a change from clean water species, such as chub (*Leuciscus cephalus*) and barbel (*Barbus barbus*), to more tolerant species such as roach (*Rutilus rutilus*) (Jones 1988; Bond & O'Connor 1999, 398–401).

PETS AND PESTS

Among the food debris deposited in towns, it is not uncommon to find the remains of the companion animals, notably dogs and cats, that lived in and among the human habitation, and the various vertebrate species that took advantage of the town as a source of food and shelter. Where livestock are kept, dogs have an obvious function, either to assist in herding the animals or to deter other potential predators. The dogs that we find in urban deposits are less obviously working animals, though they may have been

important as guard dogs, and utility is a somewhat subjective parameter (O'Connor 1992b). Cats pose still more of a problem, adept as they are at establishing feral populations (Tabor 1983). Age at death estimates for cats from medieval urban sites in Britain and Ireland indicate quite a high mortality of juveniles, and it is not unusual to find knife-cuts on cat bones indicative of skinning (McCormick 1988; O'Connor 1992b; Luff & Moreno-Garcia 1995). Does this indicate that cats were raised specifically for their skins, and 'cropped' as soon as a useful body size was attained? That remains possible but unproven, and it is equally likely that young cats were particularly vulnerable as juveniles newly independent of their mothers, and that people in medieval towns opportunistically used the fur from dead cats.

We interpret the remains of dogs and cats as companion animals because that is their role today. Some of the other species that occur in urban archaeological samples may have fulfilled the same role in the past. For example, the remains of jackdaw (*Corvus monedula*) are commonly found in most medieval towns in northern Europe. This familiar bird is a common scavenger, an intelligent and versatile inhabitant of towns and cities, and we generally assume that the medieval jackdaws occupied that niche. However, jackdaws, in common with other corvids, make good pets, readily adapting to a domestic life, and forming close attachments with humans. At least some of the jackdaws that we find in medieval deposits may have been companion animals, not scavengers: only the context of a particular find would show that distinction.

The importance of towns in facilitating the spread of rats and mice has already been touched upon in Chapter 13. The deposition of large volumes of organic refuse by urban dwellers provides the bones on which we develop our archaeological interpretations, but the deposition of it in the first place may have been of considerable importance in providing food for a wide range of urban vertebrates. Some species no doubt fed directly on the refuse itself, while others preyed on the vertebrate and invertebrate animals attracted by the refuse, and still others predated the invertebrates attracted by the distinctive nitrophile vegetation which would have developed around refuse deposits of any age. We can see urban refuse as forming the basis of a complex community, many of the species in which were vertebrates, the bones of which can be recovered from samples of the refuse deposits (Fig. 14.3). To some extent this is true of any human occupation site, but towns and cities are characterized by the nucleation of people, and thus the deposition of refuse in large concentrations, making these refuse-dependent animal communities particularly typical of urban archaeological sites.

One last source of bones in urban archaeological deposits merits mention. From time to time we encounter what appear to be deliberate burials of one or more animals, often closely associated with structures. In one example from York, the bodies of several cats and chickens had been placed in a shallow pit dug immediately below the foundations of a wall. It was difficult to escape the conclusion that the animals were some kind of a foundation deposit, a superstitious gesture to someone or something intangible. On a larger scale, excavations in House 11 at Pompeii have uncovered deposits of cremated cockerel bones, which appear to be some form of votive offering, dating to around thirty years earlier than the eruption which destroyed Pompeii in AD 79 (Fulford & Wallace-Hadrill 1998). Perhaps the offering was successful only in the short term?

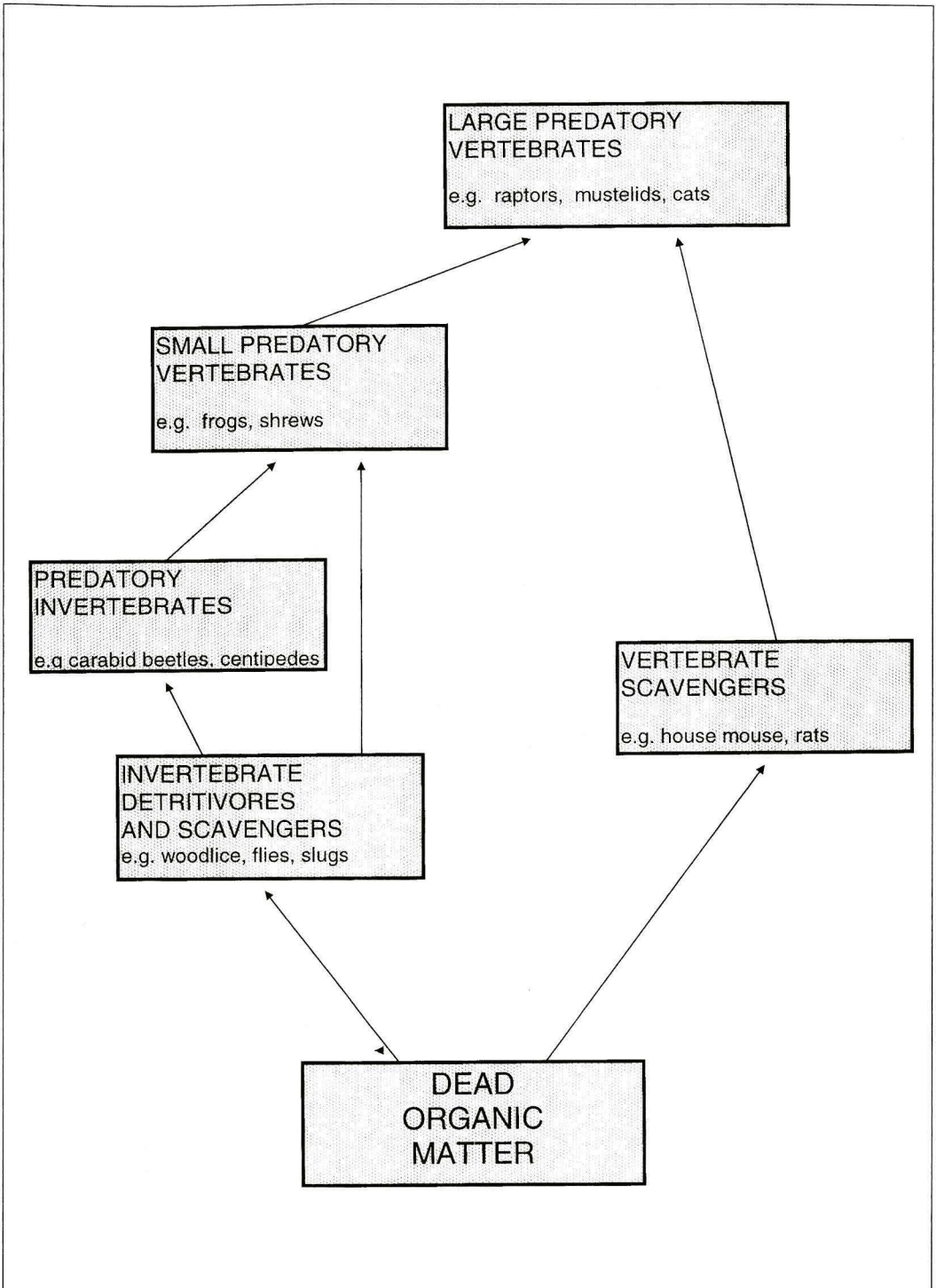


Fig. 14.3. A schematic diagram of a hypothetical urban food-web, showing the importance of garbage as a source of energy and nutrients on which many species depend either directly or indirectly.

Having worked on animal bone samples from urban sites for a number of years, it is difficult to stand back and regard their archaeological significance with an objective eye. I find the complex sources and taphonomy of urban bones an irresistible challenge, and the occasional recovery of samples which can be closely linked to a particular building or a particular suite of activities gives the bones a close link to the human activities which are, in the end, the subject of archaeology. However, that is a personal point of view. The intention of this chapter has been to keep it on a scale commensurate with the importance of the topic, and not to try the patience of the reader!