Part I: Anglo-Saxon to c.1345

NAU Archaeology and Norfolk Historic Environment
Part I: Anglo-Saxon to c. 1345

by Elizabeth Shepherd Popescu

with major contributions from
Umberto Albarella, Sue Anderson, Mark Beech, Niall Donald, Alison Goodall, Julia Huddle, Irena Lentowicz, Alison Locker, Quita Mould, Jacqui Mulville, Peter Murphy, Andy Shelley and Margot Tillyard

and contributions from
Alex Bayliss, John Davies, Rowena Gale, Richeada Goffin, Stephen Heywood, Richard Kemp, Neil Linfoord, Richard MacPhail, J.M. Mills, Catherine Mortimer and David Whitmore

with
Marion Archibald, Steven Ashley, Trevor Ashwin, Brian Ayers, Justine Bayley, Nancy Beavan-Athfield, Sue Black, Mark Blackburn, Christopher Bronk Ramsey, David Buckley, Gordon Cook, Elizabeth Crowfoot, Paul C. Ensom, A. Rus Hoelzel, David King, Graeme Lawson, Alice Lyons, D.T. Moore, Kenneth Penn, Sarah Percival, Jez Reeve, Mark Robinson, Andrew Rogerson, Dinah Saich, John Shepherd, Ana Töpf, Claire Watson, Jacqui Watson and John Wymer

illustrations by
Steven Ashley, David Dobson, Mark Hoyle, Hoste Spalding and Nick Arber

photographs by
Kirk Laws Chapman and David Wicks, with Terry Burchell, Graham Norrie, Gwil Owen and Elizabeth Shepherd Popescu

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Cover illustration
Reconstruction of the early Norman castle, showing the timber keep on its small motte. The
possible extent of the ditched Castle Fee boundary is indicated, with the church and cemetery
of St John now lying just outside the castle’s south gate. Painted by Nick Arbter
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archaeology ran beneath roads which needed to be diverted, and the economic considerations which obviously dictated that the two years of archaeological work prior to any development activity was out of the question.

In consequence, the project was integrated into the development itself. The archaeological unit was part of the contract team, a sub-contractor to the main contractor in common with over twenty other sub-contractors. As such, the work was a great learning experience for those who took part, enforcing disciplines of budgets and schedules while ensuring that archaeological staff appreciated (and gained) the respect of other professionals. While acknowledgements are recorded elsewhere in this volume it is perhaps appropriate here to mark the contribution of the late Nigel Mottram of Bovis Construction. A man with many other day-to-day concerns of considerable moment, he was always a courteous and considerate colleague who treated the requirements of archaeologists with thoughtfulness and fairness.

The Preface is also the place to recognise that the fact that the archaeological project was brought to fruition at all is due in large part to two individuals. Jez Reeve was appointed in 1989 to direct the excavations. To her great credit, she brought to the task a rigour which, prior to any of the main phase work on site, ensured the re-thinking of the entire excavation and recording process. She insisted upon levels of personal equipment and standards of care for the site staff which were well in advance of requirements at the time, she introduced regular briefing sessions for those working on site and she acted as the principal point of contact with the main contractor, often arguing successfully for additional time and resources when delays elsewhere in the programme impacted upon the archaeological timetable. She drove a project which, had it not been driven, would probably not have been done at all. Sometimes she upset people but she accepted the challenges thus engendered and completed the task in hand. She deserves great credit for her clear-sightedness and perseverance.

The second individual is the principal author of this work. Liz Popescu came to Norfolk in 1991 and took on the unenviable role of co-ordinating not only the mass of data generated by the excavation but also the wide range of specialists necessary to enable a synthesised report to appear. She did this despite not having seen the excavation itself nor having influenced the recording methodology. She has also had to work within a rapidly changing environment: the data itself has grown and further development within the Castle Mall site and its neighbouring locations engendered further excavation. Liz has struggled with all of this as well as the necessity to present the results of an exceptionally large project in as concise and usable a format as possible. She has shown great dedication and has persevered over many years to produce both the report and its supporting archive.

Kirkpatrick was an inveterate recorder of the historic environment of Norwich. He exhibited all the attributes of the modern archaeologist — consulting documents, noting original drawings of buildings and monuments, observing the results of excavations, commentating upon recovered artefacts and, most importantly (if posthumously and helped by others, notably the late William Hudson) publishing his work. His observations and conclusions were made nearly 300 years ago but they still inform the study of his city. This report follows in his tradition, noting, commenting upon and presenting observations and discoveries. It too informs the study of Norwich and, given the scope of the data presented, that of other towns and their hinterlands. It is a fine and complex work, concluding a fine and complex project.

Brian Ayers
July 2003

Summary

This research examines the great institution of Norwich Castle and its Fee, tracing their impact on existing settlement, their rise and eventual decline, as well as gradual encroachment by the surrounding city. Norwich Castle was one of over forty Norman urban fortifications founded before 1100 and overlies a substantial part of what had become one of the dominant towns in England by 1066. By the mid 14th century, it lay at the heart of a walled city larger than London. Norwich was to remain the only royal castle in Norfolk and Suffolk for nearly a century and was one of the finest Norman fortifications in England, serving as the administrative centre of an extremely wealthy area. A substantial precinct of Crown land (Feudum Castellii: Fee or Liberty of the Castle) was defined immediately around it and royal jurisdiction was maintained over the enclosure until 1345. Within the Fee, two large baileys were laid out to the south and north-east, the latter being known as the Castle Meadow. A barbican was added in the 13th century.

Redevelopment for a shopping centre complex named Castle Mall — entailed the archaeological excavation of the castle's south bailey, its barbican and part of the Castle Meadow, along with the fringes of the adjacent urban settlement. The investigation was carried out by the Norfolk Archaeological Unit (NAU) between 1987 and 1991, with supplementary work undertaken at Golden Ball Street in 1998. This was the largest archaeological project ever undertaken in Norwich and remains one of the largest urban excavations in Europe.

This volume is Part I of the Norwich Castle report, forming the first part of a two-volume monograph which presents a synthesis of all the results from the excavations and associated historical and documentary research. Part I spans the Anglo-Saxon period to c. 1345 and includes the

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background to the project. Part II spans the period c.1345 to modern and includes chapters on finds analysis, the development of the castle and overall conclusions. (The division at c.1345 was selected since, as well as being convenient in terms of binding, it is also a key point in the development of the site: the castle baileys were released to the city in this year.) Although Parts I and II both contain summary accounts of the faunal remains, setting them into their wider context and including additional information on craft activities, the scale of the data required the production of a separate and more specialised report on the faunal remains (Part III, Albarella et al 2009). The final volume (Part IV, Tillyard 2009) provides documentary evidence that supplements the substantial data presented in the first two volumes. This fourth volume is published separately both as a result of the scale of the data and because it forms a rounded resource in its own right. It provides additional data on medieval and later properties around the entire circuit of the Castle Fee, permitting ease of access to information that might otherwise have been obscured within the complexity of the integrated monographs.

The project studies in microcosm a millennium in the life of one of England’s major cities, demonstrating the complex process of urbanisation. The publication concerns far more than just a ‘castle site’: the castle is itself a route into a wide array of social and economic issues. For the first time it has been possible to investigate a large part of the landscape fossilised by the imposition of the castle and for the Anglo-Saxon period the project offers major contributions to church and cemetery studies, the Middle Saxon origins of Norwich, Viking influence and development of the Late Saxon town. Contributions to castle studies are equally substantial, permitting investigation of the great fortification of Norwich Castle over its long history. The layout and sequence of the castle’s great defensive network are elucidated. Previous theories of the castle area’s development are reviewed, indicating how the new findings support, alter or enhance these earlier hypotheses. Newly discovered elements of the defences include complex ditchwork, a collapsed masonry gate and a deep castle well at the foot of the extant castle bridge (which was also examined in the course of the project).

For urban studies more generally, the opportunity to investigate the social, economic and historical context of an urban royal castle, set within the framework of the Castle Fee, is currently unparalleled in England. The Castle Mall excavations produced the largest material assemblages thus far recovered from Norwich, providing extremely useful information on the city’s history and the economy of Late Saxon, medieval and post-medieval England. There are implications for population movement, immigration, trade contact, craft and occupations, including key new evidence for a possible early Thetford-type ware pottery industry beneath the later castle.

Résumé

Il s’agit d’une recherche qui porte sur le Norwich Castle et sur son Fee. L’impact sur l’emplacement actuel, le développement, le déclin final de cette grande institution ainsi que l’empire progressif par la ville environnante ont été analysés en détail. Plus de quarante fortifications urbaines de type normand ont été fondées avant 1100 et Norwich Castle fut l’une d’entre elles. Le château s’étend sur une partie importante de ce qui est devenu l’une des villes dominantes de l’Angleterre de 1066. Au milieu du quatorzième siècle, il se trouvait au centre d’une ville fortifiée plus grande que London. Norwich allait rester le seul château royal dans le Norfolk et le Suffolk pendant près d’un siècle et il fut l’une des plus belles fortifications normandes d’Angleterre. Il joua également le rôle de centre administratif d’une région très riche. Une importante enceinte de terres appartenant à la Couronne (Feodum Castelli : Le Fee du château (également appelé Liberty) fut immédiatement établi autour de celui-ci et la juridiction royale fut maintenue sur l’enceinte jusqu’en 1345. À l’intérieur du Fee, deux grandes basses-cours furent définies vers le sud et le nord-est, la seconde étant connue sous le nom de Castle Meadow. Une barbacane fut ajoutée au treizième siècle.


La partie I du rapport sur le Norwich Castle forme la première partie d’une monographie en deux volumes. Celle-ci présente une synthèse de tous les résultats tirés des fouilles ainsi que de la recherche documentaire et historique qui l’a précédée. La partie I couvre la période anglo-saxonne jusqu’à environ 1345 et elle expose le contexte du projet. La partie II couvre la période allant d’environ 1345 à l’époque moderne et elle comprend des chapitres sur l’analyse des découvertes, le développement du château et les conclusions générales. (La date de 1345 a été choisie car elle constitue un moment essentiel dans le développement du site ; elle est également pratique car elle permet de diviser le rapport en deux volumes d’une longueur sensiblement égale. Les basses-cours du château furent en effet cédées à la ville cette année-là.) Bien que les parties I et II contiennent chacune des résumés sur les restes de la faune, qui les placent dans un contexte plus large et apportent des informations supplémentaires sur les activités artisanales, la taille des données nécessite la production d’un rapport distinct et plus spécialisé sur les restes faunistiques (Partie III, Albarella et al 2009). Le volume final (Partie IV, Tillyard 2009) fournit des preuves documentaires qui complètent la masse importante des données présentées dans la monographie. Ce volume est publié séparément en raison de la taille des données et parce qu’il s’agit d’une
Figure 4.102  Primary antlerworking waste (SF6374, 6589 & 6635). Secondary antlerworking waste (SF5650). Antler wedges (SF143 & 7399). Scale 1:1
Antler- and Hornworking

Primary waste
by Umberto Albarella, Mark Beecroft, Jacqui Mulville and Julia Huddle
(Figs. 4.102-103, 4.108 and 13.2, Plates 4.42-4.44)
A total of 59 horncores came from Late Saxon contexts (cattle x 33; sheep x 14; goat x 12), many of which had been sawn, chopped or cut. A complete pair of large goat horns (Plate 4.44) came from Area 46 (47008, pit 57187, Open Area 9, Period 1.4) while a sheep skull with sawn horncores came from pit 57187 (Period 1.4; Plate 4.43). In addition to the 19 red or fallow deer antlers and antler fragments and a pair of roe deer antlers from pit 47837 (Period 1.3; Plate 4.42), fifteen other pieces of primary waste were recovered, along with a single piece of secondary waste and two antler wedges (see below). One pit in Area 9 to the east of the site (pit 91828, G9/39, Period 1.3) contained a small group of antlerworking waste (5 pieces), together with an antlerworking tool in the form of a wedge (SF7399 — see below).

Spatial analysis indicates that both horn- and antlerworking were practised across the site during the pre-Conquest period, although it must be emphasised that the numbers involved are small. Antlerworking was mainly concentrated to the east, whereas hornworking was primarily practised in the northern, western and central areas (Figs. 4.103 and 4.108). It is possible, however, that this distribution reflects patterns of disposal rather than activity, but this appears to be a less likely explanation.

In the area under analysis there is a rather high density of buildings and workers would probably dispose of their refuse either in the vicinity of their own workshop or much further afield.

Further comments on Late Saxon antlerworking at the site are given by Huddleson below and antler-, bone- and hornworking in the vicinity of the site is considered in more general terms in Chapter 13 (see Fig. 13.2), with more detailed evidence given in Part III.

SF6589 Sawn antler. Naturally shed right antler bell, beam and brow tine sawn off close to the bell at an oblique angle. Red deer antler. Unmodified
22211, fill of pit 22074, Period 1.2, G2/130

SF6635 Sawn antler. Left antler bell with part of skull attached. The beam and brow tine are sawn off close to the bell at an oblique angle. Red deer, large left antler attached to part of skull.
46172, fill of pit 46205, Period 1.4, G46/16

Secondary waste
by Julia Huddle
(Fig.4.102)
Despite the fact that only a single piece of secondary antlerworking waste was recovered from Late Saxon deposits (an offcut from a composite comb; SF5650), the primary waste described above is likely to be the result of comb manufacture on or near the site (see Chapter 13.2). Prior to the Conquest, composite combs accounted for the majority of the antler industry. The preference for antler rather than bone resulted from its mechanical properties — antler being more suited to the manufacture of combs (MeeGregor 1991, 357; 1985, 25–9). This preference is clearly shown on continental sites such as that at Ribe (Ambrosiani 1981), Lund (Christoffersen 1980) and Hedeby (Ulbricht 1978). Antlerworking from English sites has so far been on a much smaller scale by comparison, although the antlerworking debris from Fishergate, York (Rogers 1993) and Greyfriars, Norwich (Huddleson, in Emery 2007) for example, similarly provides growing evidence for the manufacture of antler composite combs during the Late Saxon period (see Chapter 13). Other antler artefacts may have been made on the site, such as the fine spoon (SF1081) described elsewhere in this chapter.

SF5650 Strip. Antler strip fragment; uncut tooth plate.
50178, fill of pit 50173, Period 1.4, G5/14

Antler wedges
by Julia Huddleson
(Fig.4.102)
Four antler wedges were recovered from the site, two of which were found residually in post-medieval fills of the

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**Figure 4.103 Distribution of horncores and antlers in Period 1 by area**

![Image of bar chart showing distribution of horncores and antlers in Period 1 by area]

Legend:
- Cattle
- Sheep
- Goat
- Red/Fallow deer
- Roe deer

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Coffins and Coffin Fittings

Stone coffin
by Steven Ashley
(Plate 4.56)
A stone coffin recovered opposite the Plough Inn (now Le Rosey (sic) public house) was apparently found without a lid (Fishers Almanac and Annual 1911: Plate 4.56, p.267), the presence of which would, perhaps, have helped to provide a closer date of probable manufacture. However, a number of closely datable examples of monolithic coffins, with or without plain lids, and with recessed head-niches are known from excavations at St Albans Abbey and Winchester. Those found at St Albans comprise nos G14, of AD 1119 or 1146, and G2 of AD 1151 (Biddle and Kjolbye-Biddle, in prep.). The Winchester examples, G54 and G71 are dated respectively to AD 972–80 and 980–92 (Kjolbye-Biddle 1990). Of these examples, the closest parallel to that from Norwich is no.G2, from St Albans. A date of manufacture for the Norwich coffin could, however, fall anywhere within the 10th to 12th (and possibly 13th) centuries AD. It probably relates to the Farmer’s Avenue cemetery (Cemetery 3; see Chapter 4. VI).

Description
A monolithic stone coffin of shelly limestone (Plate 4.56), is broken and has been reconstructed. Part of the foot missing. The coffin is 2.160mm long and tapers from 270mm at the head to 70mm at the foot (170mm survives). The thickness is 360mm at the head, tapering to 330mm at the foot. The coffin has an internal depth of c.290mm. At the head there is a recessed rectangular block, cut into which is an approximately semi-circular head-niche. The block is recessed 300mm below the top edge of the coffin, is 170mm deep, and is chamfered on its shoulders or both sides of the head-niche.

Coffin fittings
by Quita Mould
(Fig.4.107)
Two small rectangular iron staples (SF1045 not illustrated and 1046) were found in situ within a flint and chalk-lined grave of a burial of a sub-adult leper. The staples had been used in the construction of a coffin, their clenched arms indicating that the boards of the coffin were about an inch thick.

SF1046 Iron staple of rectangular section with clenched arms, found resting on the right pelvic of skeleton. L 48mm, arm 25/29/5mm
19555, skeleton 13000, Period I.4, G1/61

Figure 4.107 Iron coffin staple (SF1046). Scale 1:2

IV. ZOOLOGICAL AND BOTANICAL EVIDENCE

Mammal and Bird Bone
by Umberto Albarella, Mark Beech and Jacqui Mulville
(Figs 4.103, 4.108 and 4.109, Plates 4.39–4.44)

Assemblage Summary
A total assemblage of 1,461 mammal, bird and amphibian bones and teeth (NISP) was hand collected from Late Saxon deposits at Castle Mall, with an additional 1455 bones from Site Riddled Samples (SRS) and 219.5 from Bulk Samples (BS). This represents 24.4% of the site assemblage (excluding the babican well shaft assemblage detailed in Chapter 9. IV). No deposits of Late Saxon date were encountered at Golden Ball Street. The range of taxa recorded at Castle Mall is indicated in Table 4.17, with full details of the mammal and avian bone assemblages given in Part III.

Spatial Analysis
Possible variations between the animal bone assemblages from different areas and types of context at Castle Mall were considered during analysis, with the intention of identifying possible variations and similarities between areas as well as assessing the extent to which these have influenced the frequency of the species at different periods. Due to the nature of the archaeological evidence, the study of lateral variation in animal bone distribution in terms of comparison between different activity area could only be undertaken for the Late Saxon period. For later periods, comparison was limited to the study of the contents of pit and ditch fills.

Period I, which spans the Anglo-Saxon occupation of the site, may include some deposits relating to the earlier post-Conquest phase (included in Period I.4). The site was occupied throughout the Late Saxon period by a series of different ‘plots’ or Open Areas (i.e. buildings surrounded by pis) — probably having both domestic and industrial/raft functions. It was not possible to compare bone assemblages from each individual plot as this would have resulted in an excessive division of the assemblage into very small samples. The plots were therefore grouped into four broad geographical areas: centri, north, east and west (Fig.4.108) and the frequency of the main domestic taxa was calculated for each (Fig.4.109). This comparison identified substantial differences between the areas. Plots to the east of the settlement produced a much larger number of domestic fowl bones, whereas those to the north had a larger number of pig bones. The interpretation of the different spatial distributions is far from easy and should be attempted in the light of other archaeological evidence. One possibility is that they reflect differences in food taste between different families; another is that they indicate variation in the disposal of food refuse. Wilson (1994) has pointed out that greater amounts of large bone fragments are generally present in the periphery of a settlement. In view of this observation it is possible that the eastern area, with its high number of small chicken bones, might be closer to the real centre of the site. It seems reasonable to suggest that the central part of a settlement is kept clear of the largest food and butchery refuse.
The distribution of craft waste (specifically horn- and antler-working) was also studied in different areas and the results — illustrated in Fig. 4.103 — are detailed alongside associated evidence in Chapter 4.3.11.

A high concentration of partial skeletons was found in a series of pits (G9/109) in Open Area 8 adjacent to Building 12 and its possible replacement, Building 15 in the eastern part of the settlement (Table 4.18 and Fig. 4.42). This suggests that these pits were used to discard dead bodies (including three cats, a pig, a domestic fowl, two horses, a goshawk and a dog, as well as four bones from a buzzard, Plates 4.39–4.41). The deposits had remained
Figure 4.109 Relative proportion of the main species within different areas in Period 1

Plate 4.39 Horse partial skeleton (juvenile) from pit 90516, Open Area 8, Period 1.3

Plate 4.40 Horse partial skeleton (juvenile) from pit 90516, Open Area 8, Period 1.3

Plate 4.41 Goshawk partial skeleton from pit 90516, Open Area 8, Period 1.3
<table>
<thead>
<tr>
<th>Taxon</th>
<th>Hand collected</th>
<th>SRS</th>
<th>BS</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle (Bos taurus)</td>
<td>540.5</td>
<td>37</td>
<td>41.5</td>
<td>619</td>
</tr>
<tr>
<td>Ram (Ovis/Capra)</td>
<td>236</td>
<td>29.5</td>
<td>35.5</td>
<td>301</td>
</tr>
<tr>
<td>sheep (Ovis aries)</td>
<td>(51)</td>
<td>(5)</td>
<td>(-)</td>
<td>(60)</td>
</tr>
<tr>
<td>goat (Capra hircus)</td>
<td>(9*)</td>
<td>(-)</td>
<td>(-)</td>
<td>(9)</td>
</tr>
<tr>
<td>Pig (Sus domesticus)</td>
<td>276.5*</td>
<td>48</td>
<td>49.5</td>
<td>374</td>
</tr>
<tr>
<td>Equid (Equus sp.)</td>
<td>43.5*</td>
<td>2</td>
<td>-</td>
<td>45.5</td>
</tr>
<tr>
<td>Dog (Canis familiaris)</td>
<td>51.5*</td>
<td>-</td>
<td>3.5</td>
<td>55</td>
</tr>
<tr>
<td>Dog fox (Canis/Vulpes)</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Cat (Felis catus)</td>
<td>73*</td>
<td>6*</td>
<td>23*</td>
<td>102</td>
</tr>
<tr>
<td>Red deer (Cervus elaphus)</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Fellow deer (Dama dama)</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Roe deer (Capreolus capreolus)</td>
<td>1.5</td>
<td>-</td>
<td>-</td>
<td>1.5</td>
</tr>
<tr>
<td>Hart (Lepus sp.)</td>
<td>-</td>
<td>1</td>
<td>0.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Rabbit (Oryctolagus cuniculus)</td>
<td>4.5</td>
<td>-</td>
<td>-</td>
<td>4.5</td>
</tr>
<tr>
<td>House/wood mouse (Apodemus/Mus)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Field vole (Microtus arvalis)</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Rainwater vole (Rattus/Arvicola)</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Domestic fowl (Gallus gallus)</td>
<td>191*</td>
<td>20</td>
<td>34*</td>
<td>245</td>
</tr>
<tr>
<td>Goose (Anser anser)</td>
<td>22</td>
<td>1</td>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>Tuck (Anas sp.)</td>
<td>9</td>
<td>-</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Buzzard (Buteo buteo)</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Goshawk (Accipiter gentilis)</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Pigeon (Columba sp.)</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Small corvid</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Bird</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Amphibian</td>
<td>3</td>
<td>1</td>
<td>15</td>
<td>19</td>
</tr>
<tr>
<td>(flood (Bufo bufia))</td>
<td>(1)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>1,461</td>
<td>145.5</td>
<td>219.5</td>
<td>1,826</td>
</tr>
</tbody>
</table>

Trees/Goat also includes the specimens identified to species. Cases where only ‘non-countable’ bones were present are denoted by ‘+’. Pig metapodii and ruminant half distal metapodii have been divided by two, while carnivore and lagomorph metapodii have been divided by four. Due to the difficulty in distinguishing between upper and lower incisors in equids and upper and lower canines in carnivores, all have been recorded and then divided by two. All totals which include material from partial skeletons are denoted by ‘*’. This material is described in further detail in Table 4.19.

Table 4.17: Numbers of mammal, bird and amphibian bones and teeth in Period 1 by collection category (NISP)

<table>
<thead>
<tr>
<th>Period</th>
<th>Area/Group</th>
<th>Context</th>
<th>Related feature</th>
<th>Collection method</th>
<th>Species</th>
<th>Notes</th>
<th>Plate</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>G9/109</td>
<td>90469</td>
<td>pit 90504</td>
<td>BS sieve</td>
<td>cat</td>
<td>16.5 bones</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>G9/109</td>
<td>90398</td>
<td>pit 90504</td>
<td>hand</td>
<td>dom. fowl</td>
<td>12 bones</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>G9/109</td>
<td>90366</td>
<td>pit 90389</td>
<td>hand</td>
<td>pig</td>
<td>3 bones</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>G22/138</td>
<td>22023</td>
<td>pit 22015</td>
<td>hand</td>
<td>goat</td>
<td>10 bones + teeth</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>G22/145</td>
<td>22110</td>
<td>pit 22111</td>
<td>hand</td>
<td>cat</td>
<td>13 bones + teeth</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>G9/109</td>
<td>90354</td>
<td>pit 90516</td>
<td>hand</td>
<td>horse (juvenile)</td>
<td>15 bones</td>
<td>Plate 4.40</td>
</tr>
<tr>
<td>13</td>
<td>G9/109</td>
<td>90354</td>
<td>pit 90516</td>
<td>SRS sieve</td>
<td>cat</td>
<td>4.5 bones</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>G1/109</td>
<td>90491</td>
<td>pit 90516</td>
<td>hand</td>
<td>goshawk</td>
<td>8 bones</td>
<td>Plate 4.41</td>
</tr>
<tr>
<td>13</td>
<td>G9/109</td>
<td>90501</td>
<td>pit 90516</td>
<td>hand</td>
<td>dog</td>
<td>13.5 bones</td>
<td>Plate 4.39</td>
</tr>
<tr>
<td>13</td>
<td>G9/109</td>
<td>90506</td>
<td>pit 90516</td>
<td>hand</td>
<td>horse (juvenile)</td>
<td>11 bones</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>G9/109</td>
<td>90506</td>
<td>pit 90516</td>
<td>hand</td>
<td>cat</td>
<td>18 bones + teeth</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>G1/63</td>
<td>90227</td>
<td>pit 90292</td>
<td>hand</td>
<td>dog</td>
<td>5 bones</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>G2/11</td>
<td>40002</td>
<td>pit 40003</td>
<td>BS sieve</td>
<td>dom. fowl</td>
<td>5 bones</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>G2/11</td>
<td>40047</td>
<td>pit 40003</td>
<td>hand</td>
<td>pig</td>
<td>13 bones</td>
<td></td>
</tr>
</tbody>
</table>

The number of bones and teeth given are the number of countable specimens from each skeleton.

Table 4.18 Summary of partial animal skeletons found within Period 1 pits
undisturbed, as indicated by the presence of bones in articulation. The two partial horse skeletons were both from very young animals, possibly neonatal, with all piphyses, including the scapula, fused. This suggests that not only the main food animals, but also horses were at least occasionally reared on site.

**Pigs**

A substantial increase in the number of pigs was noted in Period 1.4, in the immediately pre-Conquest or possibly in the early post-Conquest period. This could be interpreted as a consequence of the high status that the site acquired with the erection of the castle, but it is more probably due to some change in animal exploitation or in use of the site which was brought about by the arrival of the Normans. In general there is a high variability in the percentage of pigs present at castle sites and, even though many exceptions occur, they tend to have a larger number of pigs (see further discussion on this issue in Chapter 13 and Part III).

**Norman introductions**

One pit in Open Area 6 (90292, G9/63, Period 1.4), adjacent to sunken-featured Building 25, contained a fallow deer metatarsus. The associated building apparently went out of use in the post-Conquest period. Fills of the pit yielded a large quantity of 11th-century pottery, and it is possible that some post-Conquest material was included. Even if the bone is post-Conquest in date, its rather early occurrence is noteworthy (see Part III). Fallow deer disappeared in England after the last glaciation and were again imported, possibly by the Romans. Rather than a full reintroduction to the wild, the Romans probably brought with them some animals to be kept in semi-captivity. In fact, fallow deer bones are rare if not absent from Saxon sites and become common only with the Norman Conquest (see Lister 1984 for a review). Castle Mali is one of the earliest sites which may provide evidence for a reintroduction of fallow deer by the Normans. The early occurrence of this species in Norwich is confirmed by another find from an 11th- to early 12th-century context at St Martin-at-Plains (Cartledge 1987).

The Castle Mali specimen has been positively identified as a fallow deer on the basis of its size and of the morphological characteristics suggested by Lister (1996). This bone also displays knife cuts on the mid shaft which attest to the butchering of the animal.

There is surprising evidence for the presence of rabbit bones in Period 1 (the fill of post-hole 17790 associated with Building 8, G1/7, Period 1.2). This species, like fallow deer, was introduced to England by the Normans (Corbet and Harris 1991), but probably not before the 12th century (Veale 1957). It is thus possible that the Castle Mali bones attest to an earlier introduction of the rabbit into this country. However, due to the burning habits of the species, the possibility that the bones are a contaminant from an upper level must be considered as a more likely explanation.

**Hunting**

Birds of prey were only found in deposits assigned to Period 1 (both Period 1.3). They are represented by four buzzard bones, possibly belonging to the same individual and the partial skeleton of a goshawk (Plate 4.41). Both birds derived from a mid 11th-century context in Open Area 8 (from the same fill of pit 90516, G9/109) and, as in the case of the fallow deer, it is not certain whether this pre- or post-dates the Conquest (although the ceramic assemblage indicates a probable immediately pre-Conquest date). This pit fill also contained a number of other partial skeletons (see above and Table 4.18).

If the buzzard was just a scavenger (see O'Conor 1993b), then the presence of the goshawk is of more interest. The bird is one of the four species most commonly used in falconry (the others being the peregrine, the merlin and the sparrowhawk). This type of hunting was particularly common in the Middle Ages and the occurrence of this practice at Castle Mali seems the most plausible explanation for the presence of the goshawk. A few birds of prey have been found buried in human graves in European sites, but generally when a trained hawk died it was just thrown on the waste tip (Prummel in press). Whereas falcons were strictly associated with the highest aristocracy, sparrowhawks and goshawks were also used by the lower nobility and rich commoners (Prummel in press). In particular, the goshawk was the typical bird of the yeoman (Grant 1988). Although it is tempting to connect the hawking practice with the arrival of the Norman nobility, the possibility that it belonged to a Saxon or a royal servant cannot be excluded. Domessday Book mentions that Norwich made a pre-Conquest payment (annually?) to a goshawk to the Earl (Brown 1984, (61) 117b).

Also of note among the pre-Conquest assemblage is a roe deer trophy (Plate 4.42) from pit 47831 (Open Area 9, Period 1.3, adjacent to ?Building 13): this probably represented a status object rather than a specimen of any practical use.

**Fish Bone**

by Alison Locker

In this and subsequent summaries of the fish identified from each period only the common names of the fish are given and the periods are not subdivided except for the barbican: well in Period 5 (Chapter 9). The main focus in these summaries is comparison between the major food fishes in each period. A fuller discussion of the fish, their economic importance, trade and fishing practices is to be found in Chapter 13 and also in Part III.

A total of 4,589 fish bones were identified from deposits dated to Period 1, fairly equally divided between Periods 1.2, 1.3 and 1.4. A summary table of the number of bones identified to species/family level is shown in the table below (Table 4.19), with more detailed evidence presented in the Occasional Paper. The Anglo-Saxon fish assemblage is the largest of all periods except for Period 5 and also has the second largest number of species and families identified, 33 against 36 in Period 5. The bulk sieved (BS) material is most representative of the surviving fish, as it includes the smallest bones and amounts to 89% of all identified fish bone from this period. Excluding the elasmobranchs and rays (whose cartilaginous remains survive poorly) herring is 62.4% by number of the bony fish in the BS column, eel is 18.3% (exaggerated as eel has approximately double the vertebrae of other species), while cod and large gadids are 11.8%, whiting 1.9% and mackerel 1.6%. Cod and large gadids (the latter are likely to be cod as the most common
Leather- or Woodworking

Iron awl
by Quita Mould
(Fig. 5.52)

An awl with the point and tang separated by a slight shoulder was recovered from a pit fill. A small tool of this type may have been used in leatherworking or woodworking.

SF5671  Awl with slight shoulder tapering to a pointed tip at each end. L 56mm max w 15mm 40182, fill of pit 40200, Period 2.1, G2/9

Antlerworking
by Julia Haddle
(Fig. 5.52)

Although only a single piece of secondary waste was recovered from Conquest period deposits, identified as an offcut from a composite comb (SF229), the primary waste recovered is likely to be the result of comb manufacture on or near the site (see 'Antler Combs' above). Until the Conquest, composite combs accounted for the majority of the antler industry (further discussion is given in Chapters 4,111 and 13). The two pieces of primary waste found in Period 2 contexts consisted of sawn and/or split red deer antler tine and/or beam (SF6591 and 5830, later not illustrated). Another piece of sawn fallow antler beam came from an early fill of the St John's cemetery boundary ditch at Golden Ball Street (SF248, Period 2.1, not illustrated). The significance of the presence of fallow deer antlers is discussed by Albarella et al in Chapter 4.1V and Part III.

SF229  Worked antler. Antler strip, of plane-convex section, possible offcut from a comb connecting plate. L 35mm. Finished with a 7000c 20167, fill of pit 20167, Period 2.1, G2/5

SF6591  Sawn antler. Segment of sawn and split antler beam or tine, saw trace measures 1mm, red deer antler. 70080, fill of Hollow 1 (70072), Period 2.1, G7/5

Bone- and Hornworking
by Julia Haddle, with Umberto Albarella, Mark Beech and Jacqui Mulvile
(Fig. 5.52, Plate 5.17)

A total of 202 bone strip fragments was recovered from the Castle Mall site indicating the manufacture of horn and bone combs. They derived exclusively from Periods 2 (x 192; 95%) and 6 (x 10; 5%). By far the majority of the strips from Period 2 contexts were from the fills.

Figure 5.52 Iron awl (SF5671). Scale 1:2. Antlerworking waste (SF229 & 6591). Bone strips (SF5512). Scale 1:1
Table 5.14  Bone strips from Period 2 deposits, showing associated horncores (perf. = perforated)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Group</th>
<th>Period</th>
<th>SF no.</th>
<th>No. strips</th>
<th>Total no. strips</th>
<th>No. horn cores</th>
</tr>
</thead>
<tbody>
<tr>
<td>pit 20059</td>
<td>G2/5</td>
<td>2.1</td>
<td>5511</td>
<td>12</td>
<td>158 (5 perf.)</td>
<td>11 cow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5512</td>
<td>124</td>
<td></td>
<td>1 goat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5563</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5570</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pit 20070</td>
<td>G2/5</td>
<td>2.1</td>
<td>5510</td>
<td>21</td>
<td>22 (3 perf.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5513</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pit 22152</td>
<td>G22/151</td>
<td>2.1</td>
<td>6593</td>
<td>1</td>
<td>1</td>
<td>1 goat</td>
</tr>
<tr>
<td>Ditch 7</td>
<td></td>
<td></td>
<td>402</td>
<td>2</td>
<td>11 (4 perf.)</td>
<td>6 cow</td>
</tr>
<tr>
<td>Ditch 8</td>
<td>G2/1 and G2/2</td>
<td>2.2</td>
<td>407</td>
<td>5 (2 perf.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>409</td>
<td>1 perf.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>479</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>483</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>484</td>
<td>1 perf.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>192 (12 perf.)</td>
<td>19</td>
</tr>
</tbody>
</table>

In a few sheep/goat horncores also found in Period 2 deposits (Part III, Plate 14). Further comments on bone working are given in Chapter 13 and Part III.

SF5512 Incomplete bone strip, x 124; four are perforated on one end, broken edge. Mammal fibs. A selection (x 6) is illustrated 20060, fill of pit 20059, Period 2.1, G2/5.

Whestones

by J.M. Mills and D.T. Moore (Fig. 5.53)

Three fragments of whestone, two of which are illustrated, were recovered from deposits dating to the Conquest (two from organic deposits pre-dating the south bailey rampart (SF5917 and 5938) and the third from pit fill (SF5592)). All three were made from the ubiquitous medieval Edsberg Schist horn which is known to come from Telemark, southern Norway (Moore 1978 and 1983; Mitchell et al 1984; Crosby and Mitchell 1987).

SF5592 Whestone Fragment, broken at both ends, sub-oval cross-section. Pierced for suspension. The hole is very close to one of the broken ends, and may be a re-used/ re-pierced fragment. 40 x 25 x 30mm. Norwegian ragsstone.

SF5917 Whestone Heavily worn rectangular-sectioned whestone, broken at one end. Each face undulates markedly due to wear, and each face has one groove worn in it — three of these are U-shaped, the fourth V-shaped, even the irregular original end is worn smooth. This item must have seen much use over a considerable period. 160 x 35 x 30mm. Norwegian ragsstone. 80471, organic layers beneath south bailey rampart, Period 2.1, G8/8

Querns

by David Buckley

A total of six fragments of lava quern were recovered from Conquest deposits, of which three were from organic layers pre-dating the construction of the south bailey rampart (SF6003, 6015 and 6522, Period 2.1). The remaining three from pit fills (SF5907, pit 20320; SF482, 20167, Period 2.1) and another from a fill of Ditch 8 (SF480, Period 2.2). None are worthy of illustration.
Horse Equipment

**Iron horse harness pendant**
by Quita Mould and Steven Ashley
(Fig. 5.54)
A rare 12th-century decorative example of unusual form, of a class of object normally found in copper alloy, was recovered from Ditch 8 in the south bailey (the type, however, is probably only rare because it is not usually recognised). During a recent reassembly of medieval armorial horse furniture in Norfolk (Ashley 2002) only one other possible specimen of an iron (shield-shaped) horse harness pendant came to light (SMR 31559 Sporle with Palmgrave). A national survey of both armorial and non-armorial horse furniture has failed to discover any other examples (Griffiths pers. comm.). It is, however, comparable with a pendant fitting of tin and iron (756606) from a later 13th-century deposit in the Lesser Hall at Launceston Castle, Cornwall (Mould in Saunders and Vince, in prep.).

A horse harness mount (SF5826, Period 2.2) is of post-medieval date and therefore intrusive in its Norman context. It is discussed and illustrated in Chapter 10.111.

**SF408 Iron horse harness pendant** comprising a hinged and suspending a bifurcated pendant with knobbled terminals with non-ferrous metal coating. L 44mm w 18mm.
20149, fill of ditch 20129, Period 2.2, G2/2

Iron horseshoes and horseshoe nails
by Quita Mould
Thirteen horseshoes were recovered from Period 2 deposits, most from pits assigned to Period 2.1 with four examples from Period 2.2 fills of Ditches 7 and 8. A single fragment of a horseshoe of Clark’s type 1 (1995, 85–6) was found in Ditch 8 (SF226, not illustrated). The remainder were wavy-edged shoes with countersunk holes of Clark’s type 2, the majority (x 8) having round nailholes of Clark’s type 2A (1995, 85). A single example (SF6561, not illustrated) with rectangular nailholes (Clark’s type 2B) came from a planked-lined pit (22999–22064). The dating of the horseshoes at Castle Mall tallies with that of the London material (Clark 1995, 91–7).

Twenty-three fiddlekey nails used to secure type 2 horseshoes were found in Period 2 contexts. Half were recovered from features in Area 49 and may reflect either the amount of traffic crossing the castle bridge or may — just possibly — hint at the presence of a farrier in the vicinity.

IV. ZOOLOGICAL AND BOTANICAL EVIDENCE

Mammal and Bird Bone
by Umberto Albarella, Mark Beech and Jacqui Mulville
(Plates 5.17–5.19)

Assemblage Summary
A total assemblage of 990.5 mammal, bird and amphibian bones and teeth (NISP) was hand collected from early Norman deposits at the Castle Mall site, with an additional 123 bones from Site Riddled Samples (SRS) and 109 from Bulk Samples (BS). A further 37 bones and teeth (NISP) were identified at the Golden Ball Street site. The range of taxa recorded at the Castle Mall site is indicated in Table 5.15. Full details of the mammal and avian bone assemblages from both sites are given in Part III.

Status
The presence of a royal castle in the late 11th to 12th century (Periods 2 and 3) might lead to the expectation that evidence of a high status diet might be found. In fact, this was not the case and the typical high status animals such as deer and wild birds, are as rare during the early castle phases as they are in earlier and later times. Continuity, rather than change, could be observed in the transition from Late Saxon to Norman (Periods 1 and 2). Thus it appears that the excavated features, even if not related to the castle, did not contain refuse from royal banquets. This is not surprising as visits by the King were very occasional and may have left traces in other areas of the castle, untouched by the excavation. The findings from the plant remains are consistent with the animal bone results; no exotic species or any other evidence of a high status was observed (Murphy, below).

Deer bones are generally rare at the Castle Mall site contrasting with the high percentage of deer bones in many castles (see Part III). Venison consumption was associated with high status and deer hunting was a well known privilege of the aristocracy. The castle refuse is not necessarily, however, have been derived from high status meals and royal visits to Norwich castle were
Sheep/Goat also includes the specimens identified to species. Cases where only 'non-countable' bones were present are denoted by a '+'.

Table 5.15 Numbers of mammal, bird and amphibian bones and teeth in Period 2 by collection category (NISP)

<table>
<thead>
<tr>
<th>Period</th>
<th>Area/Group</th>
<th>Context</th>
<th>Related feature</th>
<th>Collection method</th>
<th>Species</th>
<th>Notes</th>
<th>Plate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>2/5</td>
<td>20168</td>
<td>pit 20167</td>
<td>hand</td>
<td>cat</td>
<td>15 bones</td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>2/7</td>
<td>40189</td>
<td>pit 40320</td>
<td>hand</td>
<td>dog</td>
<td>16.5 bones + teeth</td>
<td>Plate 5.19</td>
</tr>
<tr>
<td>2.1</td>
<td>2/47</td>
<td>49192</td>
<td>pit 49193</td>
<td>hand</td>
<td>cat</td>
<td>32 bones</td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>2/2</td>
<td>20152</td>
<td>ditch 20129 (Ditch 8)</td>
<td>hand</td>
<td>dog</td>
<td>14 bones</td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>2/4</td>
<td>40185</td>
<td>ditch 40285 (Ditch 8)</td>
<td>hand</td>
<td>cat</td>
<td>5 bones</td>
<td></td>
</tr>
</tbody>
</table>

The number of bones and teeth given are the number of countable specimens from each skeleton.

Table 5.16 Summary of partial animal skeletons found within Period 2 features

Deer were much better represented by their antlers, the majority coming from red deer (see below and Chapter 13).

Some findings, such as the evidence for falconry (buzzard and goshawk) in the 11th century (see Chapter 4.14), or a rather high proportion of pig bones in the Late Saxon to early medieval periods — roast pork was 'the most consistent source of more delicate meat' (Dyer 1989, quoted by Serjeantson forthcoming) — may hint that some evidence of high status is indeed present. This, however, is not necessarily related to the status of the castle, but may instead be a consequence of the variation and inequality of the distribution of wealth within towns (Dyer 1989). The goshawk was not necessarily a bird associated with the highest aristocracy.

A large number of pig bones have been linked to high status sites (Grant 1988; Albarela and Davis 1996). Pigs are typically 'meat animals' and are thus expected to be
Plate 5.17 Sheep skulls with chopped horns (from pit 40200, Period 2.1)

Plate 5.18 Horse limb, extremity of hind limb in anatomical connection (from pit 91954, Period 2.1)

Plate 5.19 Cat skeleton with cut marks on the skull from late 11th- to 12th-century pit 49193, Open Area W (Period 2.1)
more common on sites with a higher meat consumption. Periods 2 and 3 at Castle Mall are those associated with the most active period of the castle's life and thus it is possible to speculate that the higher frequency of pigs recorded in these periods is an indication of status. There is, however, no other evidence of high status for these or later periods. It therefore appears likely that the decrease in the number of pig bones in later periods is a consequence of a genuine change in the animal economy noted at a countrywide level. In general there is a higher variability in castle sites, but even though many exceptions occur they tend to have a larger number of pigs (see further discussion in Part III).

**Refuse Disposal**

From Period 2 onwards, much of the bone assemblage was derived from the fills of ditches. Some differences in the faunal contents of pits and ditches have been noted and this is probably due to the different use of these two types of features. Ditches may mainly have been used for large-scale dumping (particularly in town refuse in later periods), whereas pits were associated with smaller scale activities.

A number of partial skeletons were found in fills of Ditch 8 (G2/2), including a cat and two dogs, two further cat skeletons and another dog coming from pit fills. An articulated cat skeleton recovered from pit 20167 showed that it had been skinned (Plate 5.19). Comments on dog butchery (perhaps to provide meat for human consumption in times of famine, or relating to the use of dog fat in cosmetics/medicine) are given in Part III. Evidence for the dismembering of horse carcases is provided by the extremity of a hind limb, found in articulation in pit 91954 (Plate 5.18). The calcaneus of this specimen is gauged and the absence of the rest of the skeleton suggests that this limb was separated and given to dogs.

**Craft Waste**

The main zoologically attested craft at this period was horn- and bone-working, which is detailed in Chapter 5.11 and in Part III. Of note is pit 40200 which contained four sheep skulls with the horns removed (Plate 5.17).

**Fish Bone**

by Alison Locker

A much smaller assemblage of fish bones and a reduced number of species (only 23) were identified from Period 2, mostly from Period 2.1. These are shown below in Table 5.17 and were associated with the early Norman castle, seen as discrete from the preceding and succeeding periods, where the animal bone is viewed as representing waste from the town and burgeoning city. The analysis of the fish, however, did not reveal any differences between this and other periods that could be regarded as significant.

Looking at the BS (Bulk Sieved) column (minus elasmobranch and rays) herring is 69.4% by bone number, cod and large gadid 29.9%, eel 6.6%, whiting 5.9%.

<table>
<thead>
<tr>
<th>Taxa</th>
<th>Head collected</th>
<th>SRS</th>
<th>BS</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elasmobranch</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Ray</td>
<td>0</td>
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<td>Eel</td>
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<td>Herring</td>
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<td>0</td>
<td>765</td>
<td>765</td>
</tr>
<tr>
<td>Salmonid</td>
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<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Smelt</td>
<td>0</td>
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<td>6</td>
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<tr>
<td>Pike</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Cyprinid</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Cod</td>
<td>67</td>
<td>55</td>
<td>136</td>
<td>258</td>
</tr>
<tr>
<td>Large Gadid</td>
<td>17</td>
<td>33</td>
<td>22</td>
<td>72</td>
</tr>
<tr>
<td>Small Gadid</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Whiting</td>
<td>0</td>
<td>6</td>
<td>44</td>
<td>50</td>
</tr>
<tr>
<td>Grass</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Scad</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Sea Bream indet.</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mackerel</td>
<td>0</td>
<td>2</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Scombrid</td>
<td>0</td>
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<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Plaice</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Plaice/Fivunder</td>
<td>0</td>
<td>10</td>
<td>11</td>
<td>21</td>
</tr>
<tr>
<td>Flatfish</td>
<td>0</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
</tbody>
</table>

Only material identified to species and/or family level is indicated. Indeterminate fragments including fins and rays were not quantified, though all potentially identifiable material was recorded.

Table 5.17 Numbers of identified fish bones from Period 2 by collection category (see Part 3, Tables 81-83)

353
Horse Equipment
by Quita Mould
(Fig. 6.46)

Iron horseshoes and horseshoe nails
The remains of seven horseshoes were recovered from Period 3 deposits, including two near complete examples (SF5339 and SF5803, latter not illustrated). Five of the horseshoes from Period 3.1 were of Clark’s type 2A with countersunk round nail holes and a wavy edge. The example from Period 3.2 was too small a fragment to classify.

A total of eleven fiddlekey horseshoe nails were found, eight of which came from Period 3.2. Most of the latter came from fills of the Castle Fee ditch and one remained within its horseshoe.

SF5339 Horseshoe complete with wavy edge, narrow web with straight-edged heel, three countersunk holes with round nail holes within in each branch, type 2A. L: 100mm, W: 97mm, Wv: 21mm
2002, fill of ditch 2004.1, Period 3.1, G2/3

IV. ZOOLOGICAL, BOTANICAL AND MICROMORPHOLOGICAL EVIDENCE

Mammal and Bird Bone
by Umberto Albarella, Mark Beech and Jacqui Mulville

Assemblage Summary
A total assemblage of 177 mammal, bird and amphibian bones and teeth (NISP) was hand collected from Period 3 deposits at the Castle Mall site, with an additional 22.5 bones from Site Riddleed Samples (SRS) and 35 from Bulk Samples (BS). A further 18 bones and teeth (NISP) were identified at the Golden Ball Street site. The range of taxa recorded at Castle Mall is indicated in Table 6.12. Full details of the mammal and avian bone assemblages from both sites are given in Part III.

This was the only period from which no partial animal skeletons were recovered. Of note amongst the small assemblage was a beaver mandible which was recovered from a post-hole possibly forming part of a postern gate (70047, post-hole 70048, Group 7/9, Period 3.1; Part III, Plate 40). This may attest to the occasional hunting of this animal, probably for its fur.

Fish Bone
by Alison Locker

A slightly larger sample of fish bone was recovered from Period 3 than the preceding period (see Table 6.13) and at least some appears to be associated with city waste rather than directly with the castle. (Material from fills of the Castle Fee ditch is indicated in Part III, Table 94.) A similar number and range of species was identified (26) and the majority of the fish were from Period 3.2. Herring is numerically dominant again in the Bulk Sieved sample (excluding rays and other elasmobranchs) at 67.4%. Cod and large gadids are second at 24.4% with plaice, flounder and indeterminate small flatfishes at 6.0%. This is an increase for the latter group, more numerous than eel at 4.3%; whiting is 2.8% and haddock 1.5%. Mackerel has decreased to 1%. Other species are below 1% including sea bream, scad and gurnard, familiar fish but in low numbers in all periods. Ling was also present in this phase, in the hand collected material. The rise in small flatfishes (plaice and flounder) could reflect the consumption of traditionally cheap fish recovered from shoreline trapping by townspeople, contrasting with the earlier castle debris of Period 2.

The quantities of herring and the gadids as food portions showed herring at 23% and a decrease in cod from the preceding period to 71%. Haddock is 4% and whiting 2%, while lug scarcely registers. The gadids are the prime fish eaten in quantity and though cod is still by far the most important, haddock and whiting show some increase as does herring from the preceding period.

Only three estimates of cod total length from this sample; 75, 100 and 105cm, within earlier ranges but too few for further comment. As a NISP percentage of all bony fish, herring and the gadids are 85.7% of the bulk sieved sample.

Plant Macrofossils, Molluscs and Invertebrates
by Peter Murphy, with Mark Robinson

As in the previous period, no high status deposits were evident amongst the Period 3 botanical assemblage. Contexts analysed included fills of the north-east and south bailey ditches (Ditches 9 and 10), as well as pitting along the road frontage to the south-west of the castle.

Period 3.1
Five samples from fills of a recut of the north-east bailey ditch (Ditch 9, Phase 3. G9/7, 9/11 and 9/12) included relatively large and interpretable assemblages of macrofossils and were selected for analysis (Table 6.14 on CD, BS1800, 1823, 1805 and 1809). They were dominated by grains of barley (Hordeum sp), most of which had germinated prior to charring. Germinated oat (Avena) grains were also present and, in one sample, a few germinated grains of rye (Secale). Loose ‘sprouts’ (plumule and primary root fragments) from disintegrated sprouted grains were common in BS1800. Other charred plant macrofossils were sparse, comprising small numbers of ‘weed’ seeds, scraps of hazel nutshell (Corylus avellana), ericaceous stem fragments, and macrofossils of a few wetland plants including nutlets of Cladium mariscus (saw-sedge). Uncharred macrofossils comprised durable propagules of elder (Sambucus nigra) and henbane (Hyoscyamus niger). Stems of land molluscs were principally of open-country taxa, presumably representing a resident fauna in the ditch.

The charred plant material is interpreted as malt, accidentally charred due to inefficient temperature control during drying prior to parching and brewing. The samples are comparable to many from Periods 1 and 2, though samples of charred malt from these earlier periods were dominated by oats, with a relatively minor component of barley. This evidence is discussed further in Chapter 13.

Period 3.2
Samples from a pit group on the Berstrete/Timberhill frontage in Open Area 27 (Area 1, G1/144, Table 6.14

443
Castle Mall piece comes from a 13th- to 14th-century context.
SF5608 Incomplete bone discoidal gaming piece or counter, decorated on one face with five concentric grooves of varying width. Whole bone. 11557, fill of ditch 11375, Period 4.2, G1/21

Horse Equipment
by Quita Mould
(Fig. 7.35)

Iron harness pendants and bits
A disc fitting (SF5233, not illustrated; G1/48, Period 4.2) similar to the disc-shaped spur fittings described in Chapter 9, came from a cemetery boundary ditch fill of 13th- to early 14th-century date. It is likely to be a pendant for horse harness as it is noticeably larger than the other hooked spur fittings recovered and no indication of a second hook is visible. It is comparable to undecorated examples of copper alloy found in London (Griffiths in Clark 1995, fig. 47, nos 57, 60), which have a suspension loop rather than a hook. The iron pendant, with its bright ‘silver’ appearance when new, is perhaps a less expensive version of the decorative copper alloy pendants and bells hung on the brow band, breast band and rear straps of horse harness from the late 12th through to the end of the 14th century (ibid. 62).

Mention should also be made here of the small swivel hooks found (see above) which were used on medieval curb bits, see for example two illustrated in the London Museum Medieval Catalogue (Ward Perkins 1940 fig. 18,1–2). A side link (SF6776) appears to be of pre-Conquest type and is described further in Chapter 4.1II (Fig. 4.166).

Iron spur buckles
Two small angular buckle frames (SF5119.02 and 5119.03, not illustrated) with integral plates were recovered from a modern feature and are likely to be spur buckles. They are comparable with a buckle associated with a spur and its other fittings from Swan Lane, London dated to 1250–1300 (Ellis in Clark 1995, 136–7, no 326 and fig. 96).

SF5119.03 Savall buckle with angular frame and integral plate with remains of leather present adhering to the rivet. Non-ferrous metal plating visible in radiograph but not verified during cleaning. Fragment of pin present. L: 20mm. Not illustrated. P0326, modern feature, Period 7, G1/161

Iron horseshoes and horseshoe nails
Fragments of three horseshoes were found in Period 4 deposits. The left branch of a shoe of Clark’s type 2B (1995, 89) was found in the fill of a quarry pit. Insufficient remains to allow classification of the other examples, however the smooth edge on one (SF5560) suggested a type 3 (ibid 86–8). Type 2 and type 3 horseshoes might both be expected at this period. Eleven Eddie-key horsehoe nails were recovered.

SF5540 Horseshoe left branch with wavy edge, narrow web and three rectangular nail holes within countersunk holes, type 2B. L: 91mm, web w. 17mm. 11360, fill of quarry pit 11385, Period 4.2, G1/35

Weapons and Armour
Copper alloy scabbard chape
by Alison Goodall
(Fig.7.35)
A decorative object (SF5150), which may have served as a scabbard chape or as a belt end, was attached by a rivet through the perforated terminals at the end of its arms. It is very similar to one from a medieval context at Wharram Percy (Goodall 1979, 112, fig. 57.79) and may also be compared with the object illustrated by Egan and Pritchard (1991, 126–9, fig.83.575). This latter object was initially identified as a strap end but, in view of the double thickness of leather enclosed within it, it may be better described as a chape (ibid. 129).

SF5150 Scabbard chape, L-shaped foliate scabbard chape, with broad flat foliated terminal and narrowed half-round ‘arms’ at right angles. The end of the ‘arms’ have pierced circular terminals which have some iron staining, perhaps from rivets. The broader terminal is decorated on both sides of the field with a starken rectangular field, on one side this field bears a kerring-bone relief pattern. 10423, fill of pit 10424, Period 4.2, G1/110

Iron arrowheads
by Quita Mould
(Fig. 7.35)
An arrowhead with a triangular-shaped head and straight shoulders (SF6581), from a 13–14th-century pit fill, is a commonly found type: Jessop type MP3 (Jessop 1996, 196 and fig. 1). The blade width suggests that, in this case, it may have been used for hunting. An arrow-piercing arrowhead was found intrusively in a Late Saxon deposit. It is long and slender (SF6147), appearing to be an arrow-piercing arrowhead (Jessop type M8) of a type dating to the mid 13th to 15th centuries (Jessop 1996, 199).

SF6147 Arrowhead with lozenge-shaped head of lozenge-shaped section separated from the socket by narrow neck. L: 88mm. blade W: 11mm. 99812, fill of pit 90989, Period 1.3, G9/79

SF6581 Arrowhead with triangular head of lenticoid section and straight shoulders. L: 87mm. Blade W: c.27mm. 45322, fill of pit 45196, Period 4.2, 045/1

IV. ZOOLOGICAL AND BOTANICAL EVIDENCE

Mammal and Bird Bone
by Umberto Albarella, Mark Beech and Jacqui Mulville
(Plates 7.18 and 7.19)

Assemblage Summary
A total assemblage of 533.5 mammal, bird and amphibian bones and teeth (NISP) was hard collected from medieval deposits at the Castle Mall site, with an additional 166 bones from Site Riddled Samples (SRS) and 51.5 from Bulk Samples (BS). A further 21 animal bones and teeth (NISP) were identified at the Golden Ball Street site. The range of taxa recorded at the Castle Mall site is indicated in Table 7.15. Full details of the mammal and avian bone assemblages from both sites are given in Part III.
<table>
<thead>
<tr>
<th>Taxa</th>
<th>Hand collected</th>
<th>SPS</th>
<th>IFS</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle (Bos taurus)</td>
<td>170.5</td>
<td>20.5</td>
<td>8</td>
<td>199</td>
</tr>
<tr>
<td>Sheep/goat (Ovis/ Capra)</td>
<td>133</td>
<td>45.5</td>
<td>15</td>
<td>193.5</td>
</tr>
<tr>
<td>sheep (Ovis aries)</td>
<td>(II)</td>
<td>(II)</td>
<td>(II)</td>
<td>(27)</td>
</tr>
<tr>
<td>Pig (Sus domesticus)</td>
<td>61.5</td>
<td>21</td>
<td>5</td>
<td>87.5</td>
</tr>
<tr>
<td>Equid (Equus sp.)</td>
<td>5.5</td>
<td></td>
<td></td>
<td>5.5</td>
</tr>
<tr>
<td>Dog (Canis familiaris)</td>
<td>10.5</td>
<td>7.5</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>Cat (Felis catus)</td>
<td>25.5*</td>
<td>14*</td>
<td>1.5</td>
<td>41</td>
</tr>
<tr>
<td>Red deer (Cervus elaphus)</td>
<td>+</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Fallow deer (Dama dama)</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Hart (Lepus sp.)</td>
<td>1.5</td>
<td>0.5</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Rabbit (Oryctolagus cuniculus)</td>
<td>4.5</td>
<td></td>
<td></td>
<td>4.5</td>
</tr>
<tr>
<td>Lagomorph?</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Rat (Rattus sp.)</td>
<td>1</td>
<td>1</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>House/wood mouse (Apodemus/Mus)</td>
<td>-</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Domestic fowl (Gallus gallus)</td>
<td>83*</td>
<td>44</td>
<td>19</td>
<td>146</td>
</tr>
<tr>
<td>Goose (Anser anser)</td>
<td>18</td>
<td>10</td>
<td>1</td>
<td>29</td>
</tr>
<tr>
<td>Duck (Anas sp.)</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Teal/Garganey (Anas crecca/querquedula)</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Grey partridge (Perdix perdix)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Curlew (Numenius arquata)</td>
<td>-</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Small corvid</td>
<td>12*</td>
<td></td>
<td></td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>533.5</strong></td>
<td><strong>166</strong></td>
<td><strong>51.5</strong></td>
<td><strong>751</strong></td>
</tr>
</tbody>
</table>

Sheep/goat also includes the specimens identified to species. Cases where only ‘non-countable’ bones were present are denoted by ‘+’. Pig metapodii and ruminate half distal metapodii have been divided by two, while carnivore and lagomorph metapodii have been divided by four. Due to the difficulty in distinguishing between upper and lower incisors in equids and upper and lower canines in carnivores, all have been recorded and then divided by two. All totals which include material from partial skeletons are denoted by ‘*’: this material is described in further detail in Table 7.16.

Table 7.15 Numbers of mammal, bird and amphibia bones and teeth in Period 4 by collection category (NISP)

Sheep/goat remains in Period 4 deposits are notable for a high number of cranial elements. This is interesting when considered in relation to the hind-limb bones which carry the best meat cuts. It is possible that, by this period, the castle ditches and pits were more commonly used for discarding primary butchery and industrial refuse. The sample, however, is not very large and the results must be treated with caution. This was the only period in which no neonatal bones were found. It is also interesting to note that the percentage of gnawing marks at Castle Mall decreases by Period 4, possibly indicating a change of strategy in the organisation of disposal practices.

The highest number of birds was found in Period 4 and after this period their frequency started to decline again. There is no evidence that taphonomic factors lead to a better preservation at this date or that the bird bones came from one or two specific deposits which could be the consequence of specialised activities. It therefore appears that a slight, but genuine, increase in the economic importance of birds occurred during this period. Among the terrestrial birds, grey partridge bones were found. A partridge coracoid bone cut marks (Plate 7.18). This species was highly prized in medieval times (Simón 1944) and its bones are found in great abundance in some high status sites (Maltby 1982; Albarella and Davies 1996).

Pathologies such as exostoses and abnormal bone growth (Plate 7.19) were noted on some domestic fowl growth, but none were abundant and are therefore of little archaeological interest.

<table>
<thead>
<tr>
<th>Period</th>
<th>Area/Group</th>
<th>Context</th>
<th>Related feature</th>
<th>Collection method</th>
<th>Species</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>8/16</td>
<td>80268</td>
<td>ditch 80301</td>
<td>hand</td>
<td>cat</td>
<td>4.5 bones</td>
</tr>
<tr>
<td>4.2</td>
<td>2/28</td>
<td>40416</td>
<td>ditch 40928</td>
<td>SRS sieve</td>
<td>cat</td>
<td>8 bones</td>
</tr>
<tr>
<td>4.2</td>
<td>8/28</td>
<td>82112</td>
<td>pit 80113</td>
<td>hand</td>
<td>dom. fowl</td>
<td>7 bones</td>
</tr>
<tr>
<td>4.2</td>
<td>45/1</td>
<td>45183</td>
<td>pit 45196</td>
<td>hand</td>
<td>dom. fowl</td>
<td>13 bones</td>
</tr>
<tr>
<td>4.2</td>
<td>45/2</td>
<td>45183</td>
<td>pit 45196</td>
<td>hand</td>
<td>small corvid</td>
<td>11 bones</td>
</tr>
</tbody>
</table>

The number of bones and teeth given are the number of countable specimens from each skeleton

Table 7.16 Summary of partial animal skeletons found within Period 4 deposits
**Fish Bone**

by Alison Locker

The fish assemblage came mostly from Period 4.2 (80%) but there was a higher proportion of hand collected bone from the earlier sub-period (Period 4.1). The assemblage was similar to the two preceding periods in sample size, dominant species and their range, summarised below in Table 7.17. Herring is 50.4% of the Bulk Sieved sample by bone number (NISP), cod and large gadid 29.9%, whiting 5.8%, the small flattishes 4.2%, eel 2.9% and haddock 1%. All other fish are less than 1%.

The fish from south bailey ditch were from both Periods 4.1 and 4.2 (see Part III, Table 95) with the larger

<table>
<thead>
<tr>
<th>Taxa</th>
<th>Hand collected</th>
<th>SRS</th>
<th>BS</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elasmobranch</td>
<td>0</td>
<td>1</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Ray</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>11</td>
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<tr>
<td>Roker</td>
<td>0</td>
<td>5</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>Eel</td>
<td>0</td>
<td>33</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>Conger eel</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Herring</td>
<td>0</td>
<td>3</td>
<td>563</td>
<td>566</td>
</tr>
<tr>
<td>Sprat</td>
<td>0</td>
<td>62</td>
<td>62</td>
<td>62</td>
</tr>
<tr>
<td>Salmonoid</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
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<tr>
<td>Smelt</td>
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<td></td>
</tr>
<tr>
<td>Pike</td>
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<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cypinid</td>
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<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cod</td>
<td>23</td>
<td>152</td>
<td>134</td>
<td>309</td>
</tr>
<tr>
<td>Large Gadid</td>
<td>11</td>
<td>41</td>
<td>201</td>
<td>253</td>
</tr>
<tr>
<td>Small Gadid</td>
<td>0</td>
<td>6</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Haddock</td>
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<td>8</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Whiting</td>
<td>2</td>
<td>4</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>Saithe</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Ling</td>
<td>0</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gurnard</td>
<td>0</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scad</td>
<td>0</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sea Bream indut.</td>
<td>0</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thir Lipped Grey Mullet</td>
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<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Mackerel</td>
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<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plaice</td>
<td>0</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plaice/Flounder</td>
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<td></td>
</tr>
<tr>
<td>Sole</td>
<td>0</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Flatfish</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>40</td>
<td>237</td>
<td>1,150</td>
<td>1,427</td>
</tr>
</tbody>
</table>

Only material identified to species and/or family level is indicated. Indeterminate fragments including fins and rays were not quantified, though all potentially identifiable material was recorded.

Table 7.17 Numbers of identified fish bones from Period 4 by collection category (see Part III, Tables 81–83)