



Plate XIX Brandon Road. Anglo-Saxon interlace carving (SF738). (See Fig.157, No.2.)

XII. Burnt Clay

Brandon Road

For hearths see above, Part II.

Fig.158

1. Fragment of fire-arch, showing withy support on which clay was laid to form arch. (504) kiln N19 F7(b), Period III.

Kilnyard

2. Fragment of fire-arch, showing impressions of pottery rims (small jars, AA) on upper surface. Section shows profile of withy impressions on bottom and side. Kiln D16 F97, part of piece shown in transverse section Fig.89.

XIII. Objects of Bone, Antler and Ivory

Bone identifications are by Gillian Jones. All items are thought to be Saxo-Norman unless stated otherwise.

Brandon Road

(Part II, above)

Some sixty-seven objects were found, probably all of Anglo-Saxon date. Evidence of bone-working was not clearly present but some cut bones are included in the total. Examples of classifiable objects have been illustrated.

Combs

Only nine examples were found. Except for Fig.159, No.1 below, all were of single-sided composite design.

Fig.159

1. Double-sided **comb** of elephant ivory (ident. J. Watson for AM Lab.). Made in one piece, incised lines at edge of teeth, Roman or Early Saxon.

- SF573 (3083) under Period VI–VII walls (no grid ref.).
2. Composite **comb**, probably antler. Both sides decorated incised lines with panels and bands of ring-and-dot design, originally six iron rivets, tooth plates average 1.7 cm wide. SF1, Q20 F1 (SFB2), in south-west corner 9" (22 cm) below natural ground surface, beside bench.
3. Composite **comb**, probably antler. Incised line decoration on exterior of both connecting plates, one hole and one iron rivet surviving. SF475 (2447), K26 F6, Early Period V feature.
4. Composite **comb**, probably antler. Incised line decoration on exterior of both connecting plates, iron rivets. SF341 (2959) K25 F19, Period IV pit.
5. Bone strip with three holes for iron rivet, possibly **comb connecting plate**; split rib. SF549 (1323) L20 F20, top of Period III(?) pit.
- (ni) Fragment of plain **side plate**. One iron rivet, one hole, split rib (of sheep/goat). SF217 (1431) context uncertain, probably Period IV or V.
- (ni) Fragment of **tooth plate**, antler. SF343 underneath Road C Period VI–VII.
- (ni) Fragment of plain **side plate**. One iron rivet, notched where teeth were cut, split rib. SF459 (2986) context uncertain.
- (ni) Fragment of plain **side plate**. Two rivet holes, split rib. SF489 (1170) L21 F34, Period IV?

Needle

Fig.160

6. Top of bone **needle**. Immature pig fibula. SF518 (3043) K25 F8, Period III pit.

Double-ended implements

These objects seem mostly likely to have been associated with the weaving industry (MacGregor 1985, 189). Six examples were found on this site. They range in thickness but are of similar lengths and all show polished surfaces from wear.

7. **Double-ended bone implement**. Polished surfaces, cross-hatched lines probably vestiges of original decoration, large mammal. SF490 (762) M20 F54, Period IV pit.
8. **Double-ended bone implement**. Highly polished surfaces, pointed end darker than rest, large mammal. SF550 (962) M21, unstratified in area west of pit M21 F40 (Period IV pit). Not illustrated: SF456 (2009) L24 F71, Period III pit. SF457 (2896) L26 F75, Period III–IV pit. SF483 (527) M17, unstratified. SF537 (2509) J26 F20, Period V pit.

Spindlewhorls

Five bone spindlewhorls were found, all made from the unfused immature heads of cattle femora. None were decorated except the example illustrated below.

9. Bone **spindlewhorl**. Faint incised line decoration, cattle femur, unfused femoral head. SF462 (2020), J25 F60, Period IV pit. Not illustrated: SF460 (508) M18 unstratified. SF546 (873) M20 F111, Period IV pit. SF547 between Roads B and C, Period IV–VI. SF724 (404) N19 F37, Period IV pit, top.

Skates

Not illustrated.

Four examples were found, all of which show signs of wear on the flat-tend side. None shows any visible signs of method of attachment, but they could still have been skates (MacGregor 1985, 142). All are made from the metatarsal or metacarpal bones of cattle or horse. Two almost complete examples are 225 mm long (*cf.* child's skate from Kilnyard, see below). Contexts are:

- SF536 (1294) K21 F21, Period V pit.
- SF543 (211) O18, unstratified.
- SF544 between Roads B and C, Period IV–VI.
- SF545 (1280) K21 F13, Period IV pit.

Of note are three cattle metacarpals which may be roughouts for bone skates:

- SF511. Smoothed area, some cut marks. (2193) J25, resting on surface of Road B, Period IV–VI.
- SF560. Both ends trimmed. (2743) L26 F58, Period III pit.
- SF760. Proximal end trimmed. (34) O20 F2, Period IV pit.

Points or 'gouges'

These are the proximal ends of cattle metatarsal bones cut to a dull point which is usually very worn. The purpose of these tools is not clear but they may have been associated with the leather working industry (MacGregor 1985, 175). Four examples were found on this site, all of which had holes cut in the proximal end (possibly for the attachment of a handle?).

10. Bone 'gouge'. Sides polished, point blunted and worn by wear, hole cut in proximal end, cattle metatarsal. SF538 (2509) J26 F20, Period V ?pit, below 1' (30 cm). (ni) 'Gouge', length 102 mm, squarish hole 15 mm in size cut in proximal end, point well worn. SF548 (150) O19 unstratified.
- (ni) 'Gouge', length 94 mm, oval hole 23 mm by 19 mm cut in proximal end. SF720 (309) N19 F31(a), top of unphased pit, with Early Period III pottery from kiln N19 F7.
- (ni) 'Gouge', length 67 mm, roundish hole 15 mm in diameter cut in proximal end, tool formed by roughly splitting bone leaving edges jagged, point less worn than in other examples. SF723 (514) N17 F27(d), Late Period IV or Early Period V. Also in this category are possibly two broken off bone points: SF534 Cattle metatarsal. (2337) J26 F9, Period VI pit. SF535 Large mammal bone. (1285) L22 F48, Period V–VII well. A similar tool is perhaps represented by a cattle metatarsal chopped to a rough point 135 mm from the proximal end, in which there is no hole: the point is jagged and shows little sign of wear. SF514 (1401) L20 F40, Period III or VI–VII pit.

Antler point

One example.

Fig.160

11. **Worked antler tine.** Sawn proximal end, cut sides, pointed end cut flat on two sides so that point is oblong in plan, red deer tine. SF491 (959) M21 context uncertain.

Objects of uncertain use

12. Bone object of uncertain function, cattle metatarsal shaft with cut end(s) and opposed pierced holes. Length possibly complete so holes were central, but sides broken. Resembles decorated mounts from Thetford (Rogerson and Dallas 1984, fig.200, nos 106, 107) but has only one hole twice the size of those examples. It seems too large to have been a toggle. Exterior surfaces polished, particularly at complete end. Broken end very worn by comparison with broken sides and may have been reused as a dull point or 'gouge' type instrument after breaking. SF512 (2735) K25 F19, Period IV pit.

Not illustrated.

A number of cut bones have been included in the site total, and some may have been intended or used as artefacts, for example:

- SF719 from M26 F6 Period III pit and SF722 from M21 F61 Period IV pit: two sheep metatarsal bones with a hole cut in the proximal end.
- SF517 from L20 F13, Period III pit with later top, cattle metacarpal with hole 56 mm long by 25 mm wide gouged in one side, edges left rough.
- SF527 from K25 F16 Period III–IV pit, cattle scapula with hole 6.5 mm made from both sides.
- Also of possible interest are two sheep metatarsal bones, the surfaces polished by wear from handling:
- SF523 from M20 F111 Period IV pit, late eleventh century.
- SF533 from J26 F38/F39, Period V pits.

Toggles

Seven examples of pig metatarsal and metacarpal bones were found with pierced central holes, usually interpreted as fasteners.

13. Bone **toggle.** Pig metacarpal with opposed pierced holes. SF526 (488) M19 F58, Period III–IV pit.

Not illustrated:

- SF461 (1931) N25, context uncertain.
- SF513 (2599) J26 F35, Period IV pit.
- SF515 (2342) J26 F43, Period IV pit.
- SF532 (2654) K24 F31, top Period III pit.

Fittings

Only one object was found which is a mount or fitting.

14. Bone **plate** decorated with incised ring-and-dot design. Curved outwards and possibly warped, seems to be complete at edges

although chipped and broken in places, two of rings seem to form cut holes at different heights at either end, rib of large mammal. SF458 (2067) J26 F14, top of Period IV pit, part of backfilling of cellared Building L c. AD 1200, depth 1'–1'6" (30–45 cm)

Note on bone flutes

Fig.161

15, 16, 17. The following note has been contributed by Graeme Lawson of the Cambridge Music-archaeological survey:

The finds of three bird-bone pipes recovered from the 1966 season of excavations now bring to a total of five the number of such instruments from Late Saxon and medieval Thetford, and add to the now rapidly increasing body of archaeological evidence for popular music-making in medieval Britain. From the East Anglian region alone more than twenty bird-bone pipes and whistles have so far been recorded, several of them already published, representing one of the most comprehensive regional samples yet recovered in Europe (Megaw 1968, 149; Clarke and Carter 1977, 314; Lawson 1982, 1984). Together with pipes of other varieties, notably those made from sheep and goat *tibiae*, and stringed instrument components such as tuning-pegs, they show both music-making and functional sound-production to have formed important elements in medieval entertainment and work alike. In addition they provide a remarkable variety of information about the actual music of their time which is not available from any other source.¹

The three finds described here have each been made from the *ulna* of a large bird, one of crane, the others of goose, both of which were commonly used for this purpose during the Middle Ages. The first, **No. 16** comprising 111 mm of crane *ulna* associated with late eleventh to twelfth-century pottery, is incomplete having been broken at both ends prior to deposition. Nevertheless enough remains to support a firm musical identification despite the absence of finger-holes. Parallels both from the Anglian region and elsewhere confirm that these, numbering only three or four, would have been confined to the now missing distal portion of the instrument.

The external surfaces of the bone seem to have been only lightly worked, many of the natural features remaining visible. The few noteworthy tool-marks include sliced facets around the *foramen* and on the opposite surface fine chatter marks left by the back-scraping action of a sharp blade.

The break at the proximal end of the bone bisects the only primary musical feature, a curved, chamfered edge, which is all that remains of the D-shaped sound-hole usually associated with the mouth-pieces of such pipes. Its location on the inward-curving, ventral surface is unusual but strikingly repeated in **No. 17** below. The surviving edge, against which the ducted air-jet from the mouthpiece would have been directed, is still intact. A slight general polishing both here and elsewhere on the ventral surface indicates that the instrument had seen some use before it was discarded.

The three-holed pipe of goose *ulna* recovered from the filling of cellared Building L in c. 1200, **No. 17**, is extremely well preserved, with only a small chip missing between the distal finger-hole and tip. Operational surface wear is very slight, restricted to the cut and trimmed edges alone, suggesting only limited handling and musical usage prior to deposition. Knife-marks resulting from the scraping smooth of the surface of the bone are also light and superficial, while the cutting of both sound-hole and finger-holes in the ventral surface, and the trimming of each end, also represent knife-work. Internally the finger-holes are only roughly finished, nor are they rebated externally.

As might be expected the block (or 'fipple') which would have formed the air duct inside the mouthpiece is missing. Among excavated medieval bone flutes such features almost invariably fail to survive. Although some may have been carved from wood or bone, as they were in some simple whistles and in later, all-wooden flutes, the irregular internal shapes of most bones would probably have made beeswax the most practical, economical and convenient choice. Indeed, in this particular case this is corroborated by close examination of the internal surfaces of the bone, the natural coarseness of which proves to have undergone none of the shaving that would have been essential for the airtight fitting of a rigid block. It is further supported by linear scratching inside the roof of the mouthpiece cavity, consistent with surface adjustment of a soft wax block by knife.²

The remains of a second pipe of goose *ulna* **No. 15** were recovered from an eleventh-century pit, the earliest context of the three. Altogether 67 mm remains, including the distal end and four finger-holes cut into the dorsal surface. Although broken at the uppermost hole these probably would have represented its full original complement. All four are neatly rebated, unlike those of **No. 17**, and once again tool-marks point to a simple manufacture in which trimming, perforation and overall smoothing were all achieved by knife. Here, however, a remarkable feature is the high degree of polishing of the whole surface, and especially

of the finger-hole areas, suggesting that the instrument had been extensively handled and played before deposition.

Conclusion

Musical interest in this assemblage derives particularly from the positioning of the finger-holes in the complete pipe No. 17, from which its original tuning can be reliably reconstructed by practical experiment. In a controlled experimental replication based on an identical goose *ulna* selected from a modern comparative collection, tests show this to have been, in ascending order, *g* #^{'''}, *a* #^{'''}, *c* #^{'''}, *e* #^{'''}, overblowing one octave higher.³ Of the intervals between them each exceeds a full tone, at 1¼, 1½ (a full minor third) and 1¼ respectively. Such irregularity, which is not unlike that of many other small bone pipes of the period, contrasts with the broadly diatonic tunings of more sophisticated instruments such as pan-pipes and some of the larger sheep and crane-bone flutes, which play more-or-less straight seven-note scales made up of intervals of a tone or less.⁴ This may well be due merely to the relatively short length of the goose *ulna*, the limitations of finger-breadth forcing omission of certain notes of the scale. These can in fact still be achieved with relative ease, either by varying breath pressure or by half-stopping the holes. Whether this was indeed the intention it is at present still too early to say. Nevertheless it is interesting to note here two small transverse chop-marks, one close to the upper edge of the sound-hole and the other close to the second finger-hole, which suggest preliminary marking-out and therefore a significant element of premeditation in their location. That they are not simply accidental is becoming apparent from a growing number of recent finds, notably the *tibia* from Castle Acre, Norfolk (Lawson 1982, fig.47). It is intriguing too to note the close metrical correlation between the spacing of these holes and those of the fragmentary pipe No. 15, which would consequently have produced a broadly similar tonal pattern.⁵

Contexts

15. SF342 (2959) K25 F19, Period IV pit.
16. SF758 (2351) K26 F6, Early Period V pit.
17. SF542 J26 F6 (C), cellared Building L, in filling of c. 1200.

Kilnyard

(Part III, above)

The only purpose-made bone artefacts are not illustrated (see also Potter's tools):

- (ni) Child's **skate** 150 mm long, cattle metacarpal, flat side polished by wear. SF506 (1569) D16 F80, large storage jar set in ground (Fig.149, NO.163).
- (ni) **Spindlewhorl**, immature femoral head of cattle. SF572 (1881) D15 F4 pit.

1969 – 1970 excavations Site 5759

Trench 1

(Part IV, above)

One chapped red deer antler was found in pit F27 and there were five bone objects:

Fig.162

18. **Pottery stamp or tool of uncertain purpose.** Right cattle metatarsal proximal half, proximal end trimmed down and slightly eroded, incised line decoration, sides polished by handling. Surviving portion of cut end shows radiating segments cut to a depth of 1–2 mm with a saw 0.6 mm thick. Central hole is natural. Object resembles a handle but the vertical septum in the medullary cavity is undamaged and nothing can have been inserted into the opening. Found in tenth-century pit F27 which contained pottery wasters and warped sherds (Fig.102) and, although no stamped sherds were found, a pottery stamp seems the most likely interpretation of this object. SF970 (735) F27 layer (68), tenth century.
- (ni) **Split and trimmed rib** 10 mm wide by 104 mm long, one rivet hole in each end c. 80 mm apart, short transverse cut marks on either side, probably from cutting teeth of comb. SF969 layer (52) in ditch F12, eleventh century.
- (ni) **'Gouge'** (see above, Points or 'gouges'), length 77 mm, hole 18 mm wide cut in proximal end, point jagged and little worn, split longitudinally in half in antiquity and may be why so little used. SF1019 (657) pit F27, in layer (68), tenth century.
- (ni) **'Gouge'**, length 102 mm, left cattle metatarsal proximal end, irregularly rounded hole 20 mm diameter cut in proximal end, some wear on point.

SF1020 (877) pit F46, tenth century?

- (ni) Small right cattle *metatarsal*, both ends neatly sawn off, ventral side longitudinally sliced, length 141 mm. Function, if any, obscure (handle?). SF1002 layer (31), eleventh century.

Trench 2 The Church

(Part IV, above)

Only four items were found:

19. **Double-ended bone implement.** Surfaces highly polished, flat end very sharp, scratches suggest used on flat sides, pointed end darker at tip than rest of tool, long bone of horse or cattle. SF937 (734) in filling of grave F108, eleventh century.
20. **Double-ended bone implement.** All surfaces polished including concave area, original cut edges smoothed by wear, long bone of horse or cattle. SF938 (839) beneath Period VIII F18, F19, F20, in south-east part of trench.
- (ni) **Comb plate.** Split rib, curved top, straight lower edge, surviving fragment 82 mm long, one fe rivet, ring-and-dot decoration. SF8000, F284 Period V, in filling.
- (ni) Bone **skate**, right cattle metatarsal, distal end curves upward (toe end) but little side trimming, polished by wear on flat side, could have been attached to foot by natural holes and cleft in distal end. SF1018 (767) layer (g), north-west of church.

XIV. Wooden Objects

Brandon Road

(Part II, above)

Carbonised wood from cellared Building J includes two artefacts or fragments of furniture (wood analysis by P. Murphy, below, Plant Remains).

Fig.163

1. Carbonised wood, slightly curved. Use not obvious, for example, could be part of a wheel, a reel for winding wool (Graham-Campbell 1980, no. 74) or a handle (perhaps of a scoop?). SF763 (2275) K27 F15, Period III cellared Building J, from charcoal patch in entrance.
2. Carbonised wood, flat ring with slightly convex profile; a complete circle would have had a diameter of c. 290 mm internally and c. 340 mm externally; seems too large for an embroidery frame, purpose remains obscure and may have been a specialised item related to an industrial occupation. SF764 (2275) K27 F15, Period III cellared Building J, from charcoal patch in entrance.

XV. Textile Impressions

(Pls XX–XXIV; Figs 164, 165; Table 20)

by Elisabeth Crowfoot

Brandon Road

(Part II, above)

As well as some impressions on iron object No.106 (Fig.124), one large fragment was examined from a hearth discarded in Period III pit M24 F38 in property Q. This showed a probable unpatterned coarse *four-shed twill* (bag 1927b) and a fine *three-shed twill* with point repeat (bag 1927a) (Fig.164c, Pl.XX). The clarity of the fine diamond twill impression (bag 1927a) suggests that the wearer must have knelt, thinking the clay was hard, perhaps during inspection of work in progress. This was a high quality cloth, unlikely to have been worn by any labourer.

Kilnyard 1966

(Part III, above)

The impressions on coarse domestic pottery are surprisingly clear and varied, covering the main weave types

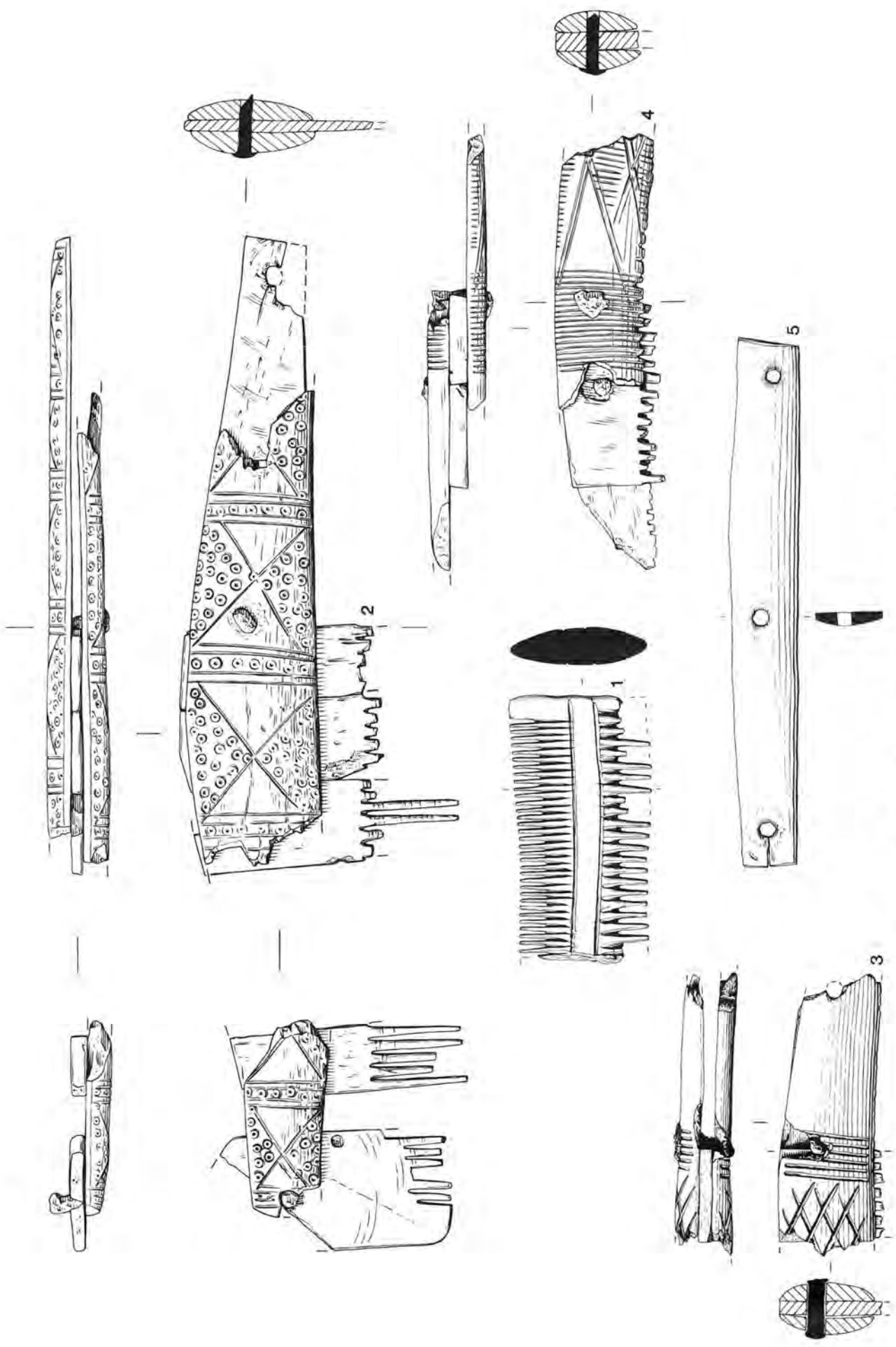


Figure 159 Brandon Road. Objects of bone, antler and ivory. Combs. Scale 1:1.

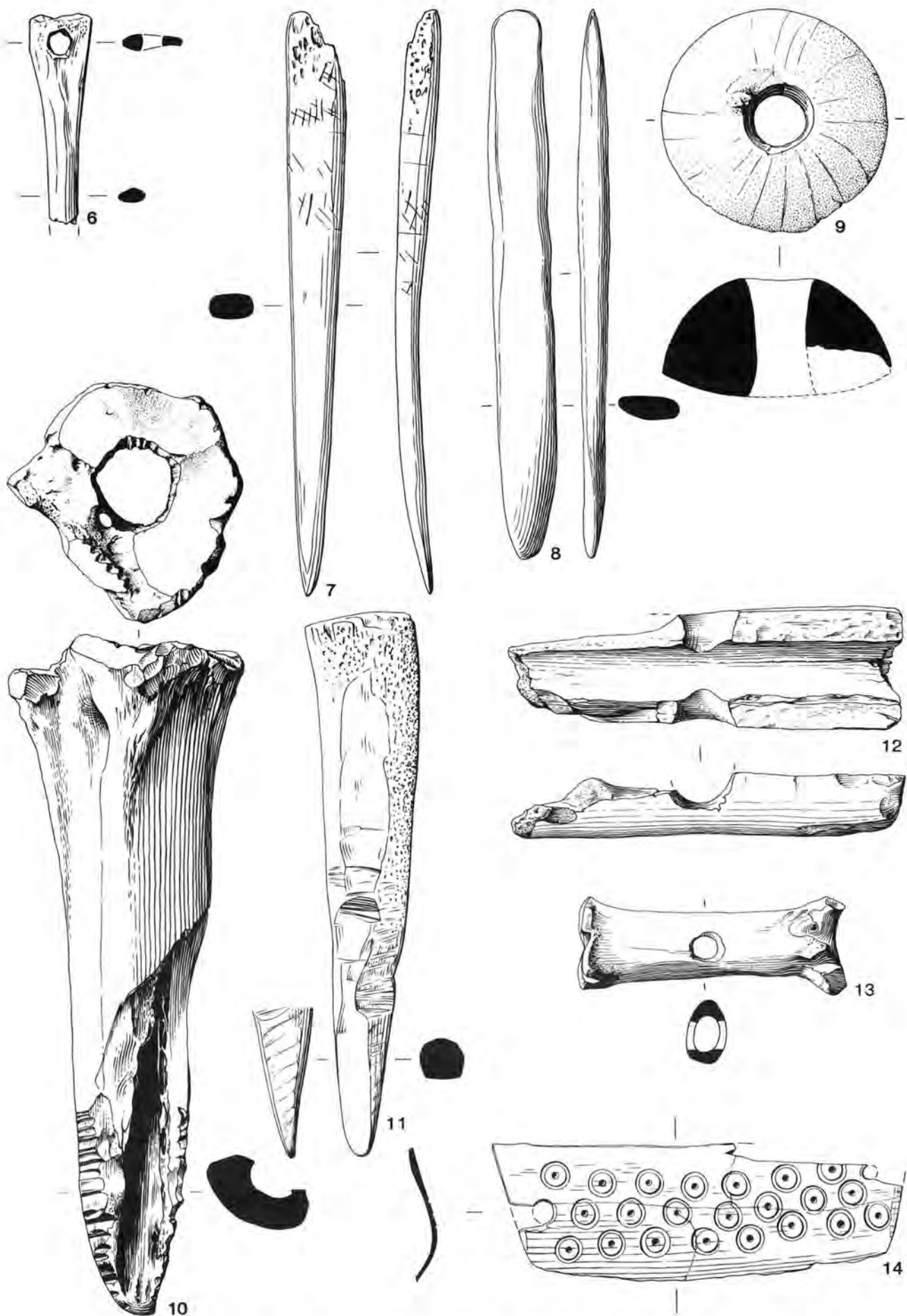


Figure 160 Brandon Road. Objects of bone and antler. Tools and domestic objects. Scale 1:1.

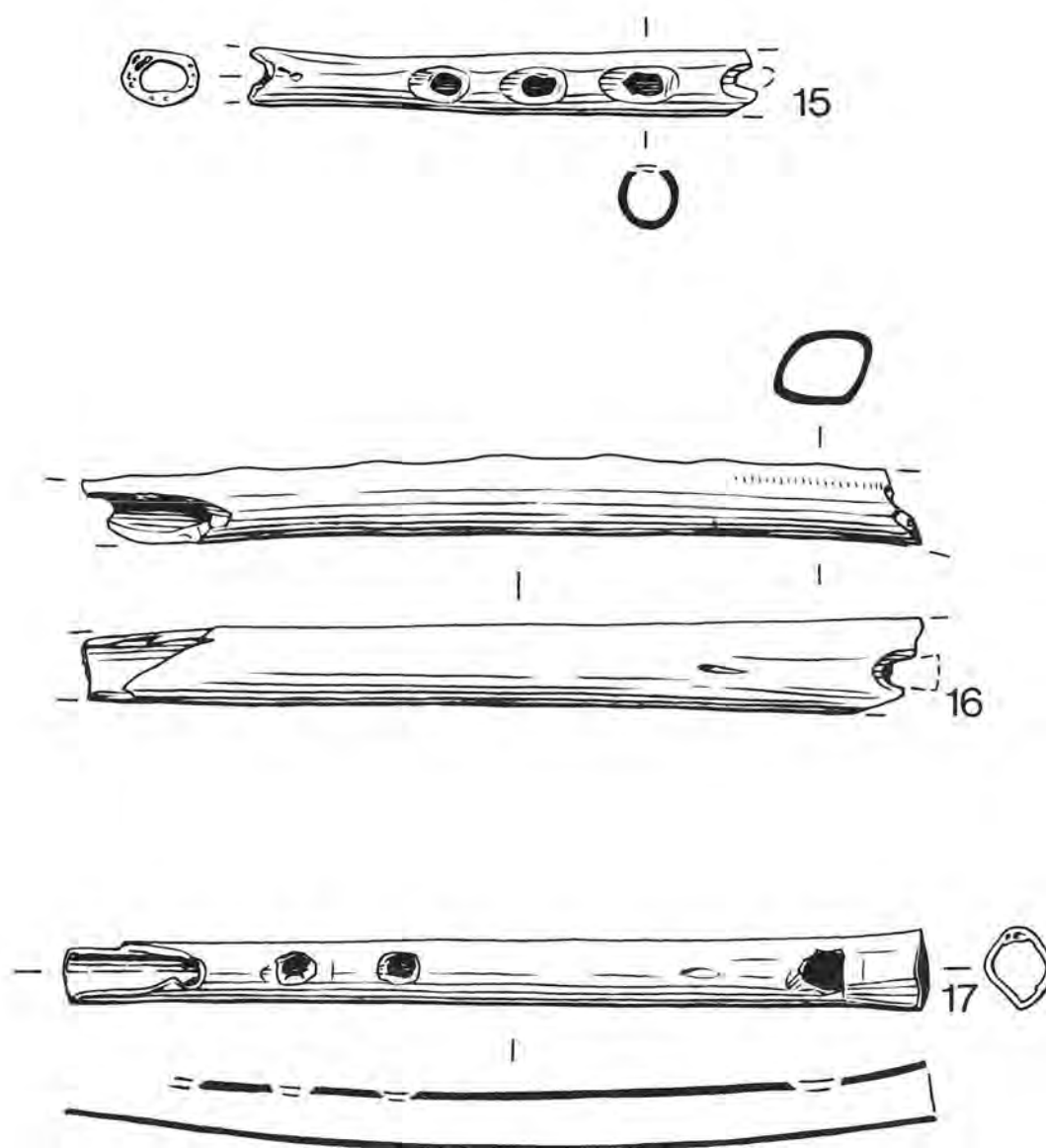


Figure 161 Brandon Road. Bone flutes. Scale 1:1.

identified in Late Saxon and Anglo-Scandinavian deposits of the same period.

Of the *tabby weaves* (Fig.164a) eight can be classified as coarse (bags 1656, 1708, 1703, 1797, 1799, 1515, 1736, 1842), seven medium (bags 1600, 1661, 1759, 1873, 1742, 1702, 1752) and two fine (bags 1727, 1793). Two of the probable coarse *four-shed twills* (Fig.164b) may be unpatterned (bags 1769, 1927b); but there is one example of *broken diamond twill* (Fig.164d) of good medium quality (bag 1745). One fragment, of which the ground weave is uncertain, may possibly have a trace of embroidery (bag 1588, Pl.XXIV, Fig.165).

In spite of the coarseness of the ware, in many of the impressions the spinning direction could be seen by taking a positive cast. In all but a few cases this proved to be Z in both systems. Though at this period this is the direction commonly used for both wool and flax in Europe, the thread quality suggests that most of the fabrics here would have been of wool, possible exceptions being some of the finer tabbies. The appearance of fibres in some of the crudest weaves could suggest hemp, but

their S-spinning in one or both systems (bags 1703, 1797, 1799) makes a vegetable fibre unlikely here. In the two unpatterned twills the spinning is probably mixed, *i.e.* Z in one system, S the other. The close packing of the warp in both types of diamond twill means that this is the only system clearly visible; the evenness of the Z-spun threads, and their sharp profile, suggest the fine worsted yarn commonly associated with these patterned weaves.

With the exception of the diamond twills, the weaves are those of the few Late Saxon examples already published from Thetford (Crowfoot G.M. and E. 1984, 185). Comparative material in England comes mainly from the Anglo-Scandinavian levels at York and Late Saxon deposits from the City of London. In both areas the majority of wool tabbies are near in quality to the coarser ones of the impressions (Hedges 1982, 103, 123; Pritchard 1984, 51), with the mixed spinning and low thread counts also characteristic of the ninth to tenth-century tabby weaves from the Viking site of Birka, Sweden (Geijer 1938, 21-2). In the two probable coarse four-shed twills the visible diagonals that survive all lie in the same direc-

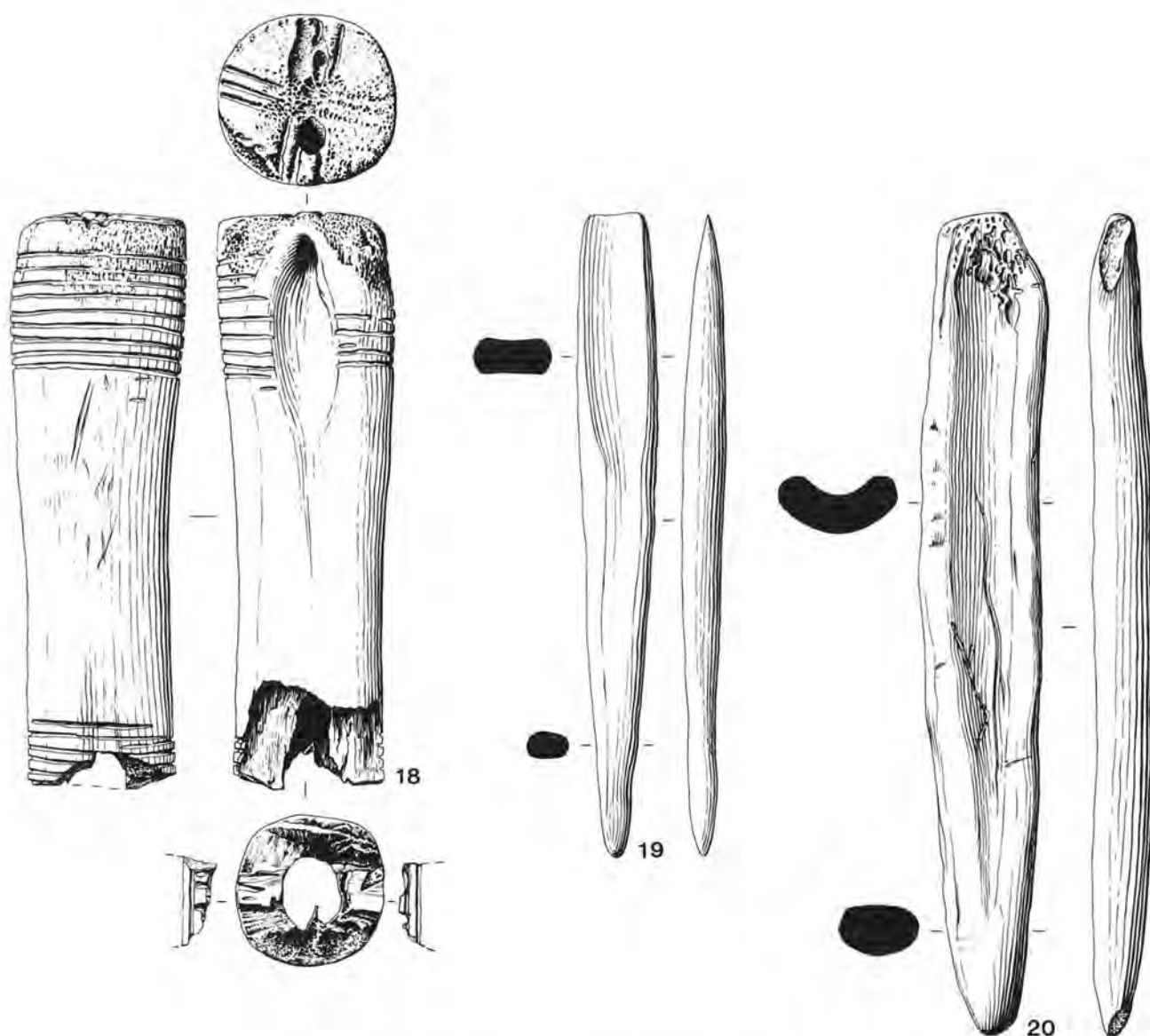


Figure 162 Site 5759. Bone objects. Scale 1:1.



Figure 163 Brandon Road. Carbonised wood, fragments of objects. Scale 1:1.

tion, but with so little preserved these could be simple twills, as suggested for similar grade rather small fragments from York (Hedges 1982, 126-7), or, as in finer twills from London of which larger pieces have survived, from weaves with chevron (herringbone) reverses (Pritchard 1984, 53-5).

Of the two types of patterned twill present, the broken diamond weave has a long history in England and northern Europe, from pre-Roman and Anglo-Saxon to Viking finds (Geijer 1938, 22-6; Wild 1970, 47-9; Bender Jørgensen 1980, 29ff; Hald 1980, 86-95; Crowfoot, E. 1983, 422-5). After the end of the tenth century this weave disappears, its place being taken in

the eleventh to thirteenth centuries by the three-shed diamond twill, a change-over clearly shown in the London collection (Pritchard 1984, 56, 68-70; Hedges 1982, 101, 111; Crowfoot, E. 1980, 112-15; Kjellberg 1982, 137-40). Though not in the same luxury class as the earliest examples from Sweden, regarded there as imports (Geijer 1938, 278; Lindström 1982, 181, 190), these English weaves are clearly high grade professional productions; the count of 28/18 threads per 1 cm on the Thetford impressions is close to that of the finest London pieces, and finer than the twill of the ?white chasuble in which Roger, Abbot of St Augustine's, Canterbury (1252-72) was buried.