8

THE MATERIAL CULTURE

This chapter describes the wealth and nature of the material culture from the excavations. The first section of introduction presents an overview of the detailed evidence from the following ten sections. It is of necessity confined to the Iron Age phases; earlier chapters have indicated that the material culture of the preceding Neolithic and Bronze Age phases is limited to a very few stone and ceramic items.

8.1 • INTRODUCTION

In addition to the buildings, the most durable evidence of habitation and life in the settlements at Howe was the range of artefacts. Those best preserved were of bone, stone, metal and ceramic. Although the organic material of skins, hides, wool, leather and other vegetable matter did not survive, tools found amongst the bone and inorganic artefacts indicate their presence during the Iron Age.

Compared to most other land-based Iron Age excavations (prior to Howe) which have taken place in the Northern Isles of Scotland, Howe yielded the largest collection of stratified finds. Over 18,300 artefacts were recorded, and this number excludes the organic material described in the preceding section. This apparently overwhelming amount of data is not merely due to the exceptionally good preservation at Howe, but is also the result of the total excavation of occupation contexts such as floors and of the walls and rubble foundations on which structures were built. In this respect, at the time of excavation, Howe was exceptional.

In the following overview of the material culture, it must be borne in mind that some of the apparent differences may be a product of the proportionately greater preservation of the later phases, in particular Phase 7. This is in part a result of the repeated thorough clearance of existing settlements, especially severe at the beginning of Phase 7. Problems are also apparent when reviewing the archaeological material from the later phases. Repeated contemporary cleaning, demolition and clearing of buildings, and the reworking of rubble layers have left a disjointed and somewhat unsatisfactory artefact record.

EARLY IRON AGE • PHASES 3–6

The Early Iron Age history of the site covers the period from some time after the abandonment of the Phase 2 Neolithic tomb, through phases of enclosed settlement to the construction of a roundhouse and then the first broch tower. From this period 2464 artefacts (13% of the total) were recovered, which reflect the human exploitation of the available environmental resources (7 Environmental evidence above).

MATERIALS UTILISED

Artefacts were produced from the by-products of domestic animal production, notably cattle, sheep/goat and pig. Wild species were also present in the assemblage; antlers of red deer were used; and the vertebrae of whales. Stone was another important local resource which was used, not just for building, but for a variety of durable tools. The exploitation of stone was as wide as it could have been, given the largely unvaried geology of Orkney. Finds of sea-borne pumice and flint within the settlement suggests the utilization of all kinds of stone, no matter how small, from which more varied tools could be produced.

Also present in these early phases, were small amounts of metal, the earliest being a lead (?)stud from Phase 4/5. The rest of the metal work, an iron nail, a piece of waste iron, a copper-alloy ring headed pin and a pin head all came from Phase 5/6. The additional evidence of the presence of iron slag in Phases 5 and 5/6 and of (?)crucible fragments, indicate the establishment of metalworking sometime during Phases 5 and 6, the period of the roundhouse and of the first broch. Lead and the ores of iron and copper are available in Orkney, within a 10km radius of the site: to the N of Stromness, in the N of Hoy, and at Yesnaby. It is

however conceivable that local copper ores were never used (see below). Other materials exploited for artefact use during this period were local clays and stone for pottery making and possibly crucible manufacture.

The vast majority of artefacts from these phases were made of local resources either at source or within the settlement, although specific work areas and working debris from bone and stone manufacture were not found. The standard of Iron Age technology was simple (see below) and very few items came from elsewhere. Of these, a steatite spindlewhorl probably derived from Shetland, and the copper-alloy items and (?)crucible fragments were most likely imported with the related technology.

RANGE OF ARTEFACTS

The data is so limited from these four early phases, that it is impossible to make any comparisons between them but treated as a whole, the artefacts indicate certain activities on the site. From the earliest settlement evidence, a rotary quern denotes food processing. Quern rubbers, a mortar, non-rotary querns, pounders, pestles and a bone scoop also support this occupation. Ceramics, mainly undecorated but some with simple incised line designs, indicate both cooking, and food storage with the addition of stone lids. Cloth production is shown by both stone and bone spindlewhorls, a bone needle and pins, an antler long-handled weaving comb and possible stone loom weights. Bone awls and bone and flint scrapers could have been used for leather working and the preparation of skins. Pottery was produced and no doubt agricultural land was prepared with the use of bone mattocks. Personal items were few, but beads, a counter and the copper-alloy ring-headed pin and pin head hint at things beyond the normal necessities of survival.

The evidence for copper working during the Early Iron Age at Howe, rests solely on the, unused, (?)crucible fragments of which there were two. The paucity of additional material as well as the lack of a tradition of copper-alloy working in the Orcadian Bronze Age (Øvrevik 1985) points to the introduction of the technology during the Early Iron Age. However, copper-alloy working was never a dominant or important aspect of life in the Iron Age at Howe, as most of the copper-alloy artefacts found in Phases 7 and 8 were imports (see below).

These remnants of artefactual evidence cannot confirm the high status for Howe which the constructional works of Phases 5 and 6 suggest. The paucity of information from these Early Iron Age phases prevents further detailed discussion into the economic life of the settlement. Nonetheless, it would appear that outside material influences were minimal during the latter half of the first millennium but the exact extent of contact and exchange of ideas amongst the local Iron Age society at this time cannot be determined. Only in the next major phase on the site can better approximations of these factors be arrived at.

MIDDLE IRON AGE • PHASE 7

The resources and economic prosperity suggested by the remnant evidence for the Early Iron Age above, are more apparent during Phase 7 from the wealth of surviving material evidence. Not only were the buildings the best preserved on the site, the range and numbers of artefacts from the Phase 7 settlements reached a peak. 13,256 objects, over 72% of all the artefacts from the site, with pottery representing the major percentage, were recovered from this phase. The range of resources were similar to that of the earlier Iron Age but derived from an expanded environment, allowing a greater variety of tools and equipment to be made. Problems of the survival of organic resources however, with the exception of one or two examples, remained the same in Phase 7.

It is likely that the immediate territory of the settlement at the beginning of Phase 7 was similar to that covered in Phases 5 and 6. The environment had not significantly changed, and both domestic and wild livestock were fundamental providers of bone for use in tool manufacture and for recreational items new in the assemblage, such as counters and whistles. The availability of access to beaches for stone for building and tool-making was presumably unchanged. Flint and pumice pebbles were still present in the artefact assemblage, but the vast majority of stone used was that derived from the local geology, especially that of the sandstones. The expansion of iron technology seems not to have radically altered the stone tool assemblage from that already present in the earlier phases, and the assemblage was maintained. Some new tool types were however developed to cater for demands of iron production (see below). Other new tools were grinders

(almost an exclusive Phase 7 tool), cleavers and pebble polishers. These did not simply reflect developments due to improved technology and possibly to changes in food processing, but were also modified according to the influence of personal needs. In Phase 7 are first recorded items of personal adornment such as beads and armlets, made from stone and bone. However, none of the new items required a new manufacturing skill, except the use of a lathe for armlets. The techniques of chipping, grinding, pecking, hammering, polishing and boring to make stone tools had been employed since the Neolithic on Orkney. The same can be said for the production of bone artefacts (eg antler comb illus 90a), where the cutting, splitting, scraping, boring and polishing of the raw material with stone tools were traditional skills. As mentioned elsewhere (8.3 Stone Report), the evidence for stone and bone tool manufacture on the site was limited due to the paucity of relevant production debris.

One undervalued resource, found in limited numbers throughout the Iron Age at Howe, were flint tools. Although some were undoubtedly residual from the disturbed Neolithic phases, it is possible that other tools were contemporary with the phases in which they were found. The evidence of a high standard of craftsmanship was seen on the flint tools even from Phase 7 contexts (8.5 Flint & Chert Report), but the question as to why certain pieces were still required in the Iron Age remains unresolved (Hunter 1990), unless some were used with iron fire-steels.

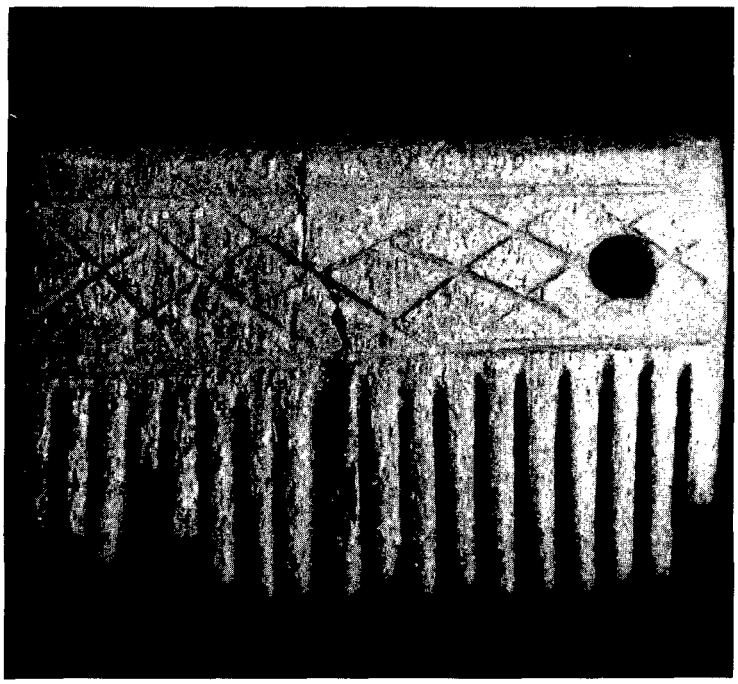
The development of metalworking, and especially iron-working, had a greater impact on the economy of Phase 7 than the two preceding phases. Evidence survived not only of iron artefacts but of iron smelting furnaces and at least one smithing hearth. The ***NE*** building during part of Later Phase 7 was used exclusively as a smithy (illus 55) and the broch tower was also used for iron-working activities before the end of the phase. A contemporary iron-working shed was also located and partly excavated immediately S of the settlement entrance. In the earlier part of the phase, iron-working processes were less formalized or possibly less specialized, and furnaces were found within the houses, implying also the use of the domestic hearth for iron production.

The amount of evidence for iron-working which survived on the site may have been disproportionate, in comparison to the regularity of the activity and the number of iron objects produced. Iron-working processes produce much enduring and tangible evidence of the activities performed, such as slag and furnace lining from iron smelting, while numbers of iron artefacts (including iron lumps) from Phase 7 amounted to only 108 pieces. From the surviving evidence, artefacts which were produced were small (illus 90b, 90e) such as knife blades, blanks and nails, suggesting that only an immediate, but important, local demand was satisfied by the domestic production on the site. It is suggested (8.7 Slag Report) that the production was not continuous, that it was probably somewhat inefficient. Very few of the iron artefacts were decorated, indicating the possible low standard of technological skills available at the settlement.

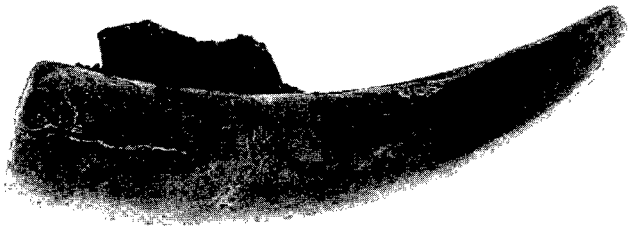
A consequence of iron-working was the development of an accompanying tool kit, this included elongated stone polishers, whetstones and one possible granite anvil (8.3 Stone Artefacts Report). Coinciding with this was the demand to house iron blades in bone and antler handles. The numbers of handles found in Later Phase 7 in the S buildings and related to the last floors of the broch tower, indicated possible work places for their manufacture, but no bone-working debris was traced. Iron production also allowed the development of specialized tools such as saws and files. Although not found on the site, evidence for their use was noticed in hair combs which made their first appearance during Phase 7. In spite of the new iron tools, bone objects were rarely decorated.

The production of pottery was also an important aspect of the economy of the site during Phase 7. Using the available local resources as in the previous phases of the site, the production of pottery vessels was at its most sophisticated in Early Phase 7. Evidence from the ***E*** building and later from the broch tower indicated that pottery was (made and) fired in these two buildings. Decorative vessels which were apparent in Phases 5 and 6 developed and continued alongside plain pots, but with more elaborate designs (illus 90d). From the state of the present research it is not known how important insular development was on vessel design and style, or how much they were influenced by the common Iron Age culture in the north of Britain.

Outside economic and cultural influences were more noticeable in artefacts of copper-alloy and glass. The paucity of copper-working debris and equipment seen in the previous phases continued throughout Phase 7, and the majority of copper-alloy artefacts are considered to be imported. The artefacts, mainly jewellery,



a



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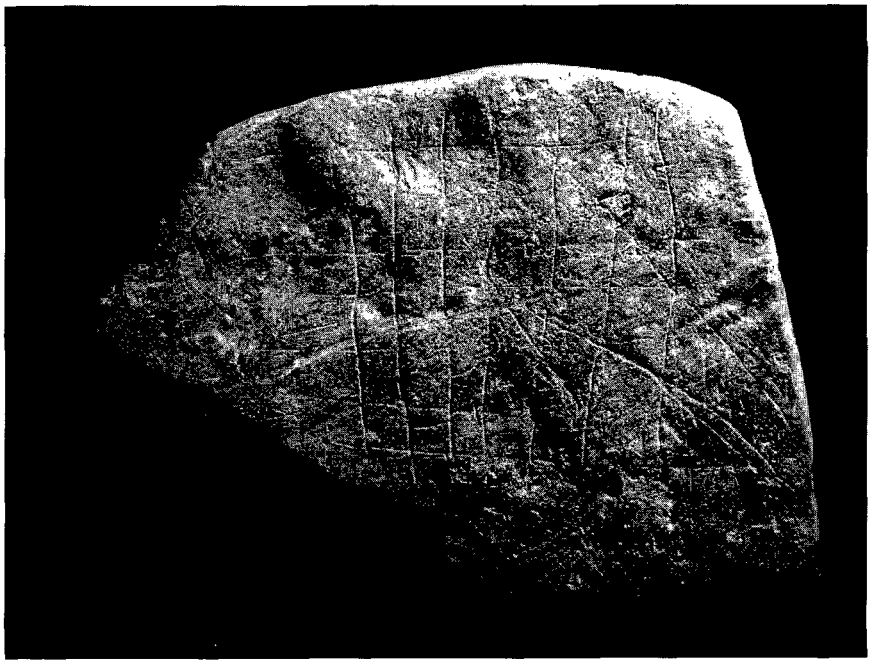
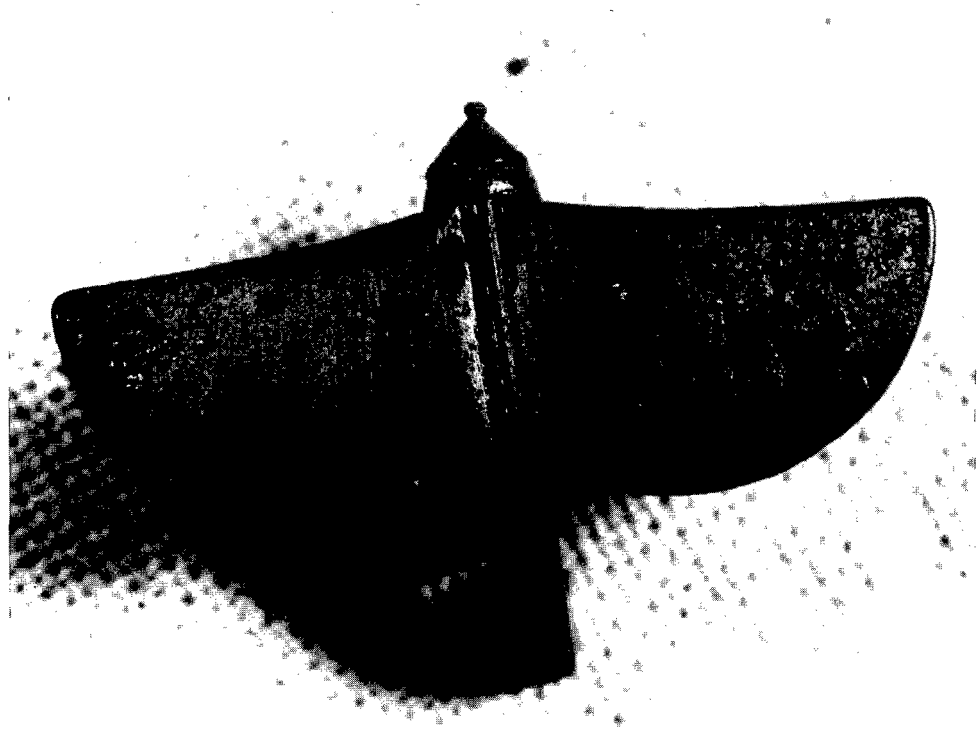


c

d

e

Illus 90
a) Antler comb (SF 4907), Phase 7, scale 1:2; b) iron razor in a bone sheath (SF 5319), Early Phase 7, scale 1:1; c) incised stone gaming board (SF 700), Phase 8, scale 1:3; d) incised vessel, (SF 5241), Phase 7, scale 1:2; e) iron-shanked glass-headed pin (SF 5502), Early Phase 7, scale 2:1.



Illus 91
Insect brooch, Later Phase 7. Reproduced × 235%.

came from as far afield as Ireland, Wessex and the Celtic West and eastern coastal areas of Scotland. Trade contacts which began as early as Phase 5/6 were maintained during Phase 7 and continued into Phase 8. Also imported, presumably at the same time as the copper-alloy pieces, were glass beads, which made their first appearance during Phase 7. These too came mainly from the east of Scotland, along coastal routes ways.

The expansion of maritime trade routes in the early centuries AD, especially along the E coast of Scotland, allowed the passage of both Roman and Roman-influenced goods to the N. This accounted for fragments of glass vessels (from Early Phase 8), and Romano-British style pins and brooches found at Howe (illus 91). Although numbers of both copper-alloy jewellery and glass artefacts were small, they indicate that the inhabitants of Howe had access to the markets, goods, fashions and ideas of the day. They had sufficient wealth, and or status, to contemplate these luxury items and presumably surplusses in meat, grain or other goods in order to pay for them.

LATER IRON AGE • PHASE 8

Initially the material culture of the inhabitants of the Phase 8 settlement differed little from that of Phase 7. However, the outward appearances of economic prosperity, as seen in the buildings, changed dramatically during the final few centuries of occupation.

The introduction to the Iron Age environment (7.1 above) discussed the gradual change in farming practices during this phase, in particular from red deer to sheep, believed to be due to economic factors. The material culture of the settlement during Phase 8 does not indicate a population in stress, nor a contraction of available resources. The basic raw materials for the production of bone and stone artefacts, iron and pottery continued to be exploited in much the same way as the earlier phases. Numbers of artefacts were however significantly reduced, and only 11.7% of all the small finds (2143 artefacts) were found in this phase. Many of the earlier stone artefact types were maintained in Phase 8, although some were lost to the assemblage such as grinders, mortars, shovels and mattocks, but others were added including whetstones and strike-a-lights. These changes indicated developments in food processing, with the gradual availability of hulled six-row barley (7.2 Plant Remains), which demanded different processing methods, and the continued influence of

iron technology. 11 flints were also found, but as mentioned above, their use is somewhat dubious, and may represent residue from disturbed Neolithic deposits.

Iron production continued into Phase 8, specifically in two areas of the site, to the E and in a single shed on the W which may have been a smithy. The latter building was the only manufacturing place identified from the whole of Phase 8. The overall amount of slag and ore from this phase was comparable to that found in Phase 7, but smithing slag was halved and furnace/hearth-lining and cinder massively reduced. This may imply that some iron-working activities took place beyond the area of excavation. The evidence suggests either very few intermittent firings, or a single episode, took place producing small items such as nails, bars and blanks.

Sometime between the 4th and 6th centuries (the end of stage 7 of Phase 8) iron-working disappeared completely from the site; this may suggest that from stage 7 iron artefacts were brought in from elsewhere. There was no apparent change or improvement in the state of iron technology from Phase 7 to Phase 8, but iron-working may have became an uneconomic occupation in a declining settlement.

In contrast, evidence from the pottery assemblage indicated that technological changes took place from Early Phase 8, with the development or introduction of wheel-thrown vessels. This may have been a natural development of wheel-finished vessels found in Phase 7, suggesting that the technology existed at the settlement for wheel-thrown vessels to have been made there. However, traditional coil-built vessels continued to be made to the end of the settlement occupation. Another technological change to have occurred, was the development of more efficient firing and higher temperature techniques as seen in the fabric of some of the pottery. It is interesting to speculate on how far the inhabitants at Howe were influenced by outside forces, such as merchants or traders in the development of these technological changes, and to whether some pottery was actually imported to the site during this phase. The standard of pottery manufacture improved considerably beyond that of Phase 7, but in contrast, decorated vessels were conspicuous by their absence.

Imported goods during this phase tended to be decorative, whereas domestic goods were normally plain. This was true of bone combs, where two decorated, composite hair combs and one long-handled weaving comb with a groove, have been recently identified (Birthe Weber pers comm) as possibly having been manufactured from reindeer antler originating in Norway. It is significant that the proportion of antler artefacts remained roughly the same in Phases 7 & 8, approximately one third of the total number of artefacts for those phases. The recorded shortfall (7.3 Animal Bone Report) between numbers of red deer and antler artefacts could be explained by importation of antler from Norway, but only further research will be able to produce a more detailed explanation.

Other imported wares found in Phase 8 were glass beads and copper-alloy jewellery and other artefacts. It is apparent that trade along the E coast of Scotland was maintained throughout this phase, as it was in Phase 7, but with the suggestion of increased trade from the west, especially from Ireland. Whatever the state of the settlement at Howe, it was possible for the inhabitants to obtain fashionable and contemporary jewellery such as zoomorphic pins and brooches, which were supported by the economy of the site. Such goods also indicate that the settlement was either culturally part of the Pictish society of the time or had access to it.

The economic and technological basis of Phase 8, as discussed above, show continuity and some advances beyond those of the previous phase. The material wealth and associated living standards remained largely unchanged, and may have even improved considering the small size of the settlement, but the condition of the community and its organization, as evidenced by the radical change in its structures, had changed beyond all recognition from Phase 7.

8.2 • BONE ARTEFACTS

with bone identifications by Josephine Constantine

Although bone preservation was good, fewer bone objects than stone were found at Howe. This difference may be accounted for by the clearance of organic debris and possibly broken artefacts from domestic floors, especially during Phase 7, and the preferential use of metal tools for some functions. Bones of the

domesticated farm animals, cattle, sheep/goat and occasionally horse, were used as were the bones and antlers of local herds of red deer. The rare and perhaps accidental findings of cetacean species provided bones for larger tools and utensils. In contrast, smaller species such as birds provided bones for the occasional delicate artefact.

This report is concerned only with recognizable artefacts and not with fragments which have been worked, used or cut pieces of bone or bone debris. For these see the Mammal Bone Report (7.3 above). The catalogue of artefacts is available in fiche, 8.2.1 (3:A3–D2).

LOCATION AND DISTRIBUTION (Table 51)

Bone artefacts survived from all phases except Phases 1–3. Most of the bone artefacts, some 71, were located in the early part of Phase 7 from building walls and in particular the broch tower. Clearance of the Early Phase 7 domestic floors allowed little accumulation of stray bone tools and the ***SW*** and ***S*** buildings were almost completely devoid of bone artefacts. From Early Phase 7 there follows a gradual decline in bone artefact numbers to the end of Phase 8.

A surprisingly high number of unfinished and broken tools were located within holes and niches of the interior wall of the broch tower. Antler handles and bone points were the most numerous items found, although the iron blades from these tools were most likely to have been kept and reused. These artefacts derived from the industrial activities within the tower during its later use in Phase 7. The fourth and last industrial floor within the broch contained more bone tools than its predecessors and suggests that production may have taken place there. High numbers of tools were found within the reused S and NE buildings during Early Phase 8 and reasonable numbers in Later Phase 8 contexts.

The occurrence of whalebone objects is grouped: Phases 3, 4 and 5, later in the ***E*** and ***SE*** buildings of Early Phase 7, from Later Phase 7 and Early Phase 8. Phase 8 stage 6 and the abandonment horizons provided the rest. The distribution of antler artefacts is more constant, occurring in every phase from Phase 4 onwards. Higher numbers occur in the S buildings of Late Phase 7 and early in Phase 8. In Late Phase 8 antler combs are some of the most numerous objects.

Interesting contexts to yield artefacts, apart from the broch tower wall already mentioned, were the Phase 4–6 well silts which produced a complete antler pick and the ditch fills of Phase 5 and 5/6 in which several whalebone vessels were found.

Table 51: Distribution of bone artefacts by phase

Artefact type	Phase 3	4	4/6	5	5/6	6	E 7	L 7	7/8	E 8	L 8	8/9	9	Total
BONE														
Birdbone tubes								2		1	1			4
Counters							1							1
Toggles								3			1		1	5
Beads					1			1	1	2	1			6
Spindlewhorls		2					1	2		3			1	9
Pierced bone					1		3	1		3	4		3	15
Needles					1			2		1	2			6
Pins		1			1	1	3	9	3	4	4		2	28
Points	3				4	1	12	8		7	4		2	41
Awls	1					1	8	2		1				13
Handles							1	2			2			5
Spatulas							3	2						5
Scoops					1		1	2	4	3	2			13
Scrapers						1		3		1	1			6
Shovels							1	1		3				5
Miscellaneous					1		4		1		4	1	4	15
Others							1	3	1	2				7
ANTLER														
Combs		1					5	1		1	8		1	17
Pierced antler							1	3		3	2			9
Points						1		1		1	1			4
Handles							6	3	1	1	1		3	15
Picks			1				2	1		4				8
Miscellaneous			1				1	2	1	1	1			7
Used tines					1		10	9	3	8	4		2	37
WHALEBONE														
Vessels					1		1	1			1			4
Lids, rims	1	1		2				2		2				8
Mattocks		1					4			4				9
Miscellaneous		1	1				2			1	2			7
Totals	5	7	3	2	12	5	71	66	15	57	46	1	19	309

THE ARTEFACTS

ARTEFACTS OF BIRD BONE

Four fragmentary bird ulnas have been identified by Dr Bramwell as being worked (7.4 Bird Remains above), from Late Phase 7 through to Late Phase 8. Two of the artefacts are of gannet and two of (?)greylag goose. The bones are delicate, light in weight and have been sawn across both ends. They have also been hollowed out and rubbed or polished smooth, especially SF 1958 (illus 89). The two most complete tubes measure 70mm long and 9mm in diameter. Another tube which could be discussed with these of bird bone is a sheep/goat tibia SF 3006 (illus 92), catalogued as a miscellaneous bone artefact. It is also a cut and hollowed bone with a smoothed and polished surface, but of slightly larger dimensions to the above.

These tubes could have had at least two functions. One being that of a blow pipe, although not very long in length, and using bird bone radius shafts as darts (pers comm Dr Bramwell). Their other and more likely use could have been as end-blown flutes. Bird bone flutes of a similar length have been recorded from Sweden, where the length of the shaft was used to resonate air blown across the top of the tube and to create a sound (Lund 1984, 13). A bird bone tube was also found at Midhowe Broch, Rousay (Callander & Grant 1934, 489, fig 29, 3), two fragmentary tubes came from the East Broch, Burray (Hedges 1987c, 100) and two from Birsay (Curle 1982, ill 38, 240 & 241) both with holes, the largest being 162mm in length.

MAMMAL BONE ARTEFACTS

COUNTERS

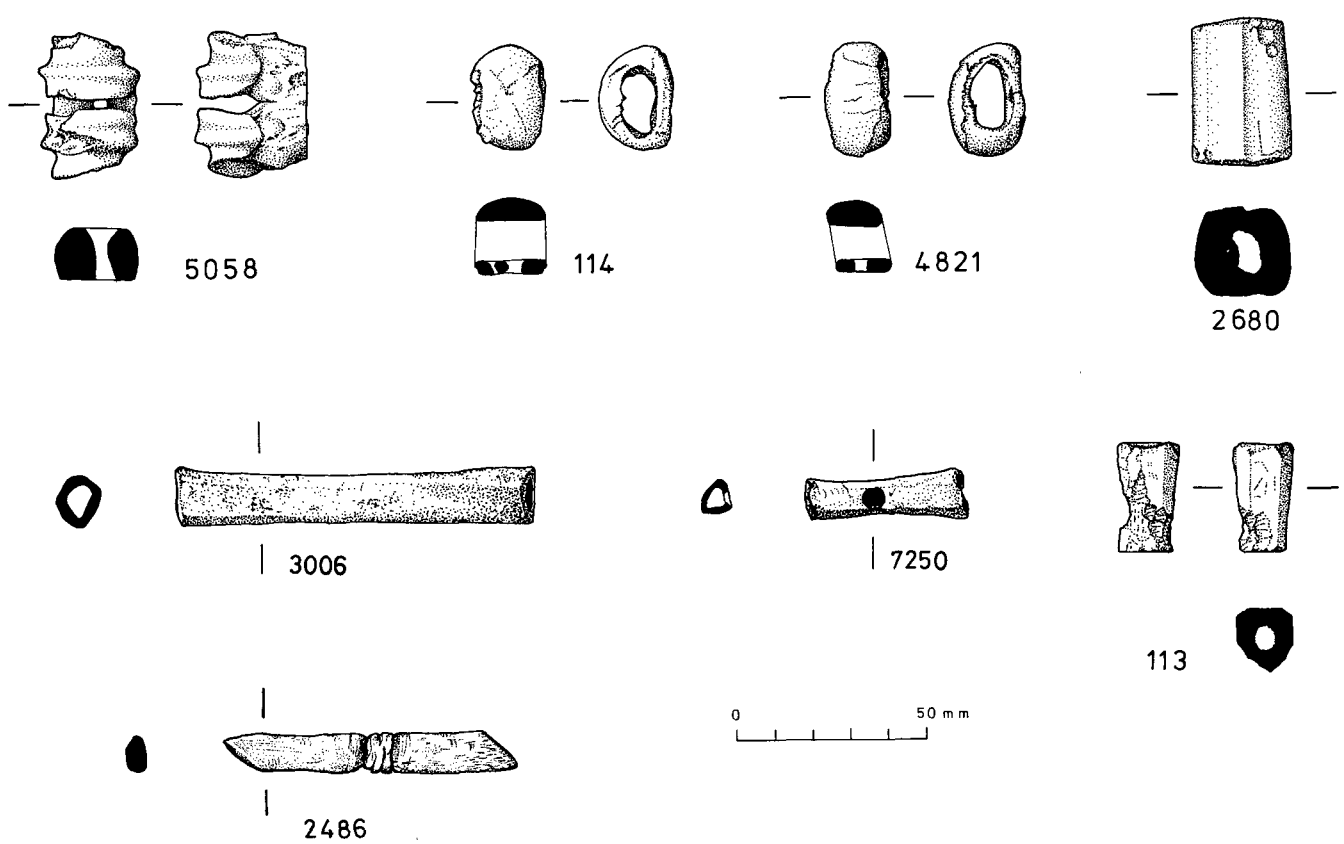
One counter, SF 2137 (illus 106), was recognized. It came from the broch tower in Early Phase 7. It is an irregular flattened roundel, scored on the upper surface by five horizontal lines, overlain by an incised cross. It was probably used on a gaming board like SF 700 (8.3 Stone Artefact Report below).

TOGGLES

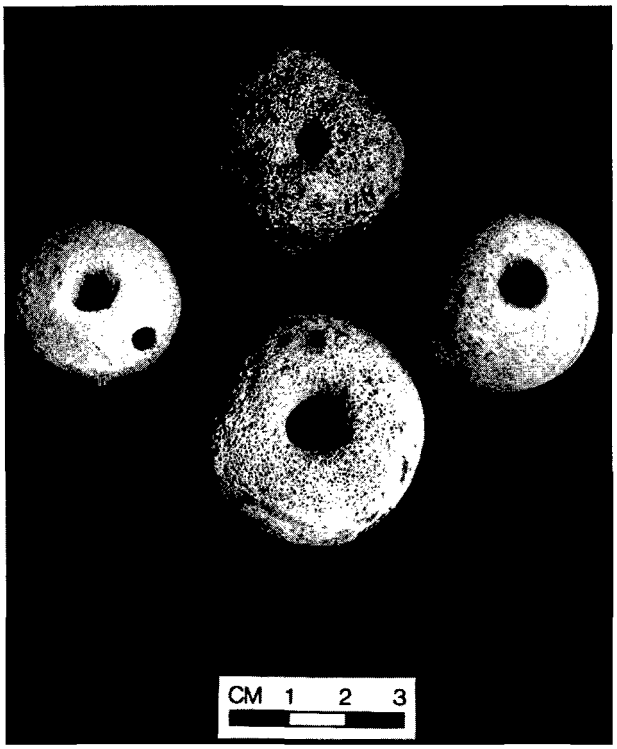
There are five examples made primarily from cattle long bone shafts, three of which came from the the Late Phase 7 S buildings. Two examples are hollowed pieces of shaft (eg SF 2680, illus 92), and two others are broken but have one or two grooves across the middle. From the Iron Age wheelhouse at Clickhimin, Shetland, examples like SF 2680 are referred to as bone cylinders or collars (Hamilton 1968, fig 60, 9 & 10). The most complete example is SF 2486 (illus 92) from the S buildings in Late Phase 7. It is highly polished with opposing diagonal cut ends and a central notched and grooved band.

BEADS

Most of the beads are from Phase 5/6 and from Later Phase 7 onwards, and made from mammal long bones, sawn from the



Illus 92
Miscellaneous bone artefacts, pin heads and gaming pieces.



Illus 93
Perforated bone bead (SF 2011) (right), and spindle whorls (SF 7316) (upper), (SF 5293) (lower), (SF 4523) (left).

shaft with the bone cortex hollowed out. They are either long beads as in SF 845 or 5841 or small thin slivers of bone like SF 7264. Two other fragmentary beads are semi-circular in section but have remains of a hole on their flat side (eg SF 2516). SF 2011 (illus 93) is made from a cattle femur head and so shaped that it is almost octagonal in section. It is bored through its centre and again on one edge. It is too light in weight to be a spindlewhorl and may therefore be a bead or a fishing line float (pers comm Anne Brundle).

SPINDLE WHORLS

The earliest spindle whorls are recorded from Phase 4 with others from Late Phase 7 and Early Phase 8. All (illus 93) are made from large mammal femur heads, epiphyses of cattle or deer bored centrally. The holes are usually splayed externally and measure between 6–15mm in diameter. SF 4523 has a narrow hole and the body is polished, while the surface of SF 5293 is almost completely worn away. Femur head spindle whorls were common at the Broch of Burrian, North Ronaldsay (MacGregor 1974, 88, fig 17), Midhowe, Rousay (Callander & Grant 1934, 490, fig 40, 6), Bu Broch (Hedges 1987a, 99) and from several of the other Orkney brochs.

OTHER PERFORATED BONE

One of the earliest pieces from this category is SF 7250 (illus 92) from Phase 5/6. It is a cut and polished piece of hollowed pig metapodial. It is pierced by a hole 6mm in diameter in one surface and may be a flute or whistle. Instruments of a similar size, 43 × 12 × 12mm, have been found in Sweden (Lund 1984, 15, 12; 19, 21).

Bone plates

Bone plates or mounts are also included here, although all are very fragmentary. Only SF 5097, from the ***E*** Building Early Phase 7, with its three aligned perforations, is illustrated (illus 94). The mounts are made of mammal long bone shafts or ribs and others are made of antler (see below), with bone pegs for the holes. Similar mounts have been found at Buckquoy, Birsay but antler mounts seem to be more prolific (Ritchie 1977, 194, fig 6 45 & 46). SF 1169 from Late Phase 8, comprises two small and narrow bone plates held together by iron rivets. There is also a single isolated bone peg, SF 5353, which is included here, as it is probably from a perforated mount.

Bobbins

Other types of perforated bone are bobbins, usually made from sheep/goat metapodials. In these artefacts the shaft of the bobbin is usually polished and pierced by a centre or off-centre hole such as SF 4956 and 3671 (illus 94) from Early Phase 7 and 8. The holes lie in a range between 4.5 and 6mm, but in the example of SF 4956 prolonged use may have enlarged this to 13mm. SF 5728 is an unfinished object with large splayed hole (illus 94).

Bobbins have been found in the Iron Age and later levels of several sites from the wheelhouse at Clickhimin, Shetland (Hamilton 1968, fig 60, 1), the late wheelhouse at Jarlshof, Shetland (Hamilton 1956, fig 37, 6), and from Gurness (Hedges 1987b, 2.34) where the bobbins closely resemble those from Howe. At the excavations at Glastonbury, England, earlier this century, the find of a wooden shuttle with a bronze spindle gave credence to the use of these bobbins as spools for weaving (Bullied & St George Gray, 1917, vol 2, 426).

Needles

Perforated and elongated bone points have been interpreted as sewing needles, and they have all been formed from pig fibula. All are smoothed but only one still retains its point. Other types of needles are made from mammal long bone shafts or ribs and are variously described as netting needles or fish gouges (illus 95). These are flat slivers of bone, pointed at both ends with a central splayed hole (eg SF 3580 & 2850), and can also be made of antler (see below). Two bones with a similar description were found at the Crosskirk broch in Caithness (Fairhurst 1984, 121, fig 72,670 & 622), and more functional larger netting needles notched at both ends from Staple Howe, Yorkshire (Brewster 1963, 122, fig 69, 1–4), may indicate that the Howe examples are fish gorges and not needles.

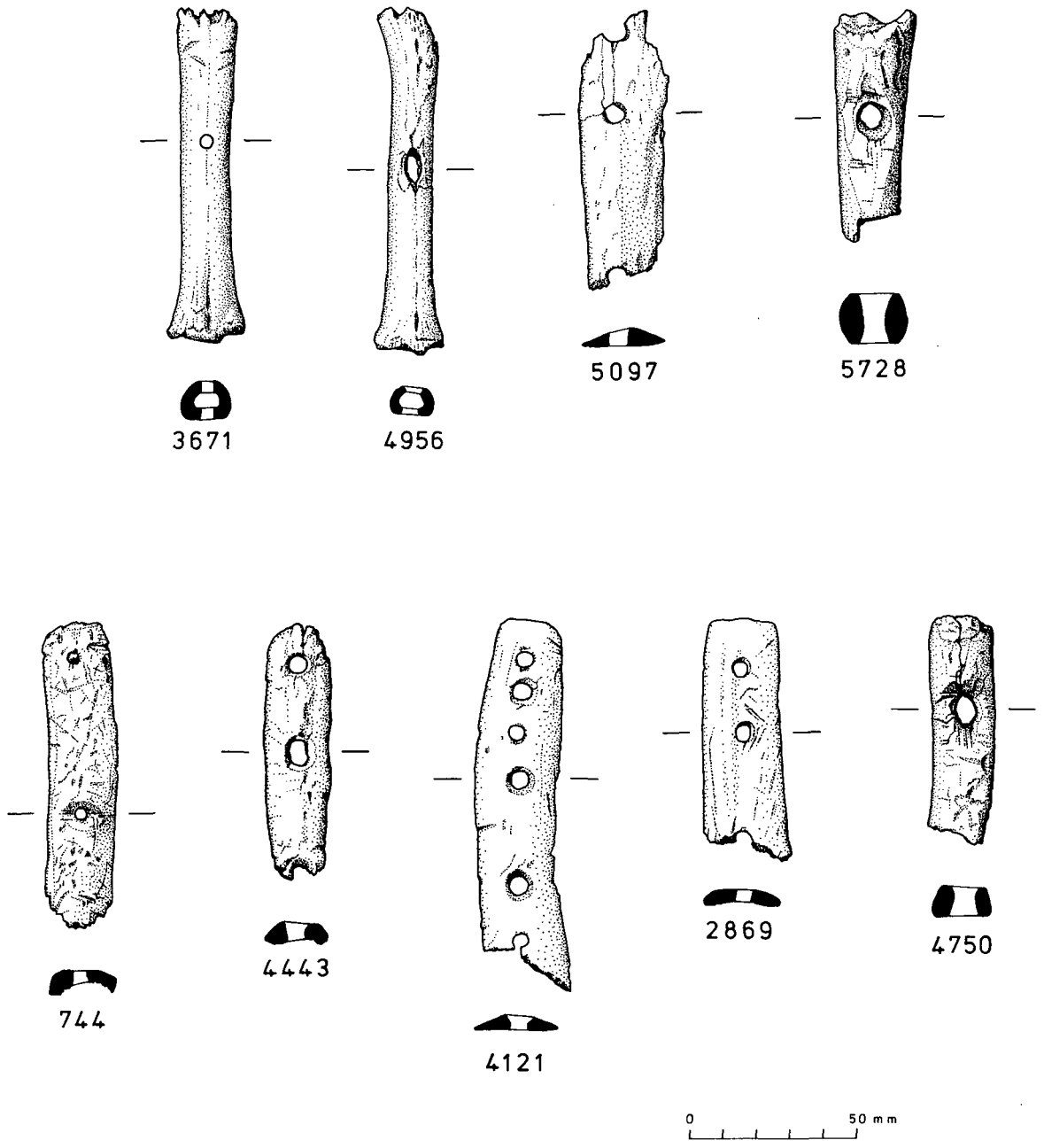
PINS, POINTS AND AWLS

There seems to be little archaeological consistency of opinion on the definition of pins, point and awls. Although these categories are used here, little is certain about their function.

Pins

Pins were found in nearly all phases and are plain thin cylinders of bone with a point at one end and a highly polished and smoothed body. They are usually made from pig fibula, although cattle long bone shafts and other bones have been used. Many pins are incomplete, with the top of the pin lost. SF 4890 (illus 95) from the Phase 7 ditch in the S, is one of the largest and most complete artefacts of this type, and may be a dress pin. Examples similar to this have been found at Midhowe, Rousay (Callander & Grant 1934, fig 28, 1–3) and Birsay (Curle 1982, ill 48, 96). SF 7100 and 7108, from Phase 5/6 and Early Phase 7, have a small hole at the distal end which perhaps helped to secure the pin if these too were dress pins. The form, but without the perforation, seems to be common at most Iron Age sites, such as examples from the Broch of Burrian, North Ronaldsay (MacGregor 1974, fig 7, 82–89).

Plain pins, such as SF 5340 and 4772 from Phase 6 and Later Phase 7, have likewise been found at many Iron Age sites in the Northern Isles such as Burrian (*ibid*, fig 6, 48–54) and



Illus 94
Perforated bone bobbins and bone and antler mounts.

Clickhimin, Shetland (Hamilton 1968, fig 38, 8–12 & fig 49, 3–4). In comparison with the slightly later sites at Birsay, Howe yielded no decorated or hipped bone pins.

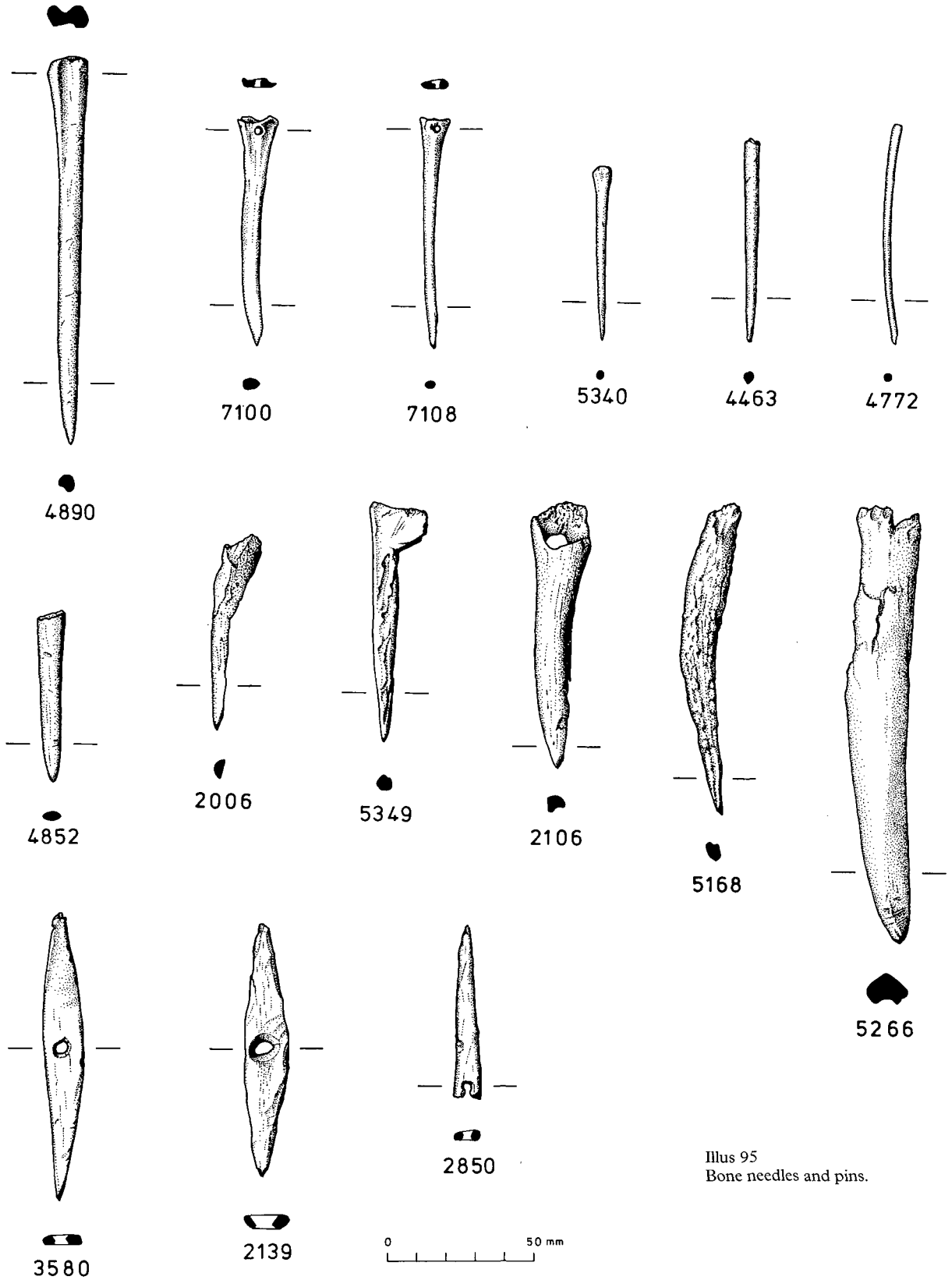
Points

Bone points were made from any cattle or sheep/goat long bone, including ribs, and were found throughout Phase 7 and Early Phase 8. The objects are rough and unfinished with only the pointed ends showing any signs of wear or sharpening. All the examples are broken or damaged as if their use was short and they were quickly discarded and replaced. This also seems to be the situation with antler points (see below). SF 4852 (illus 95) in contrast is burnt, polished all over and shows little further evidence of wear.

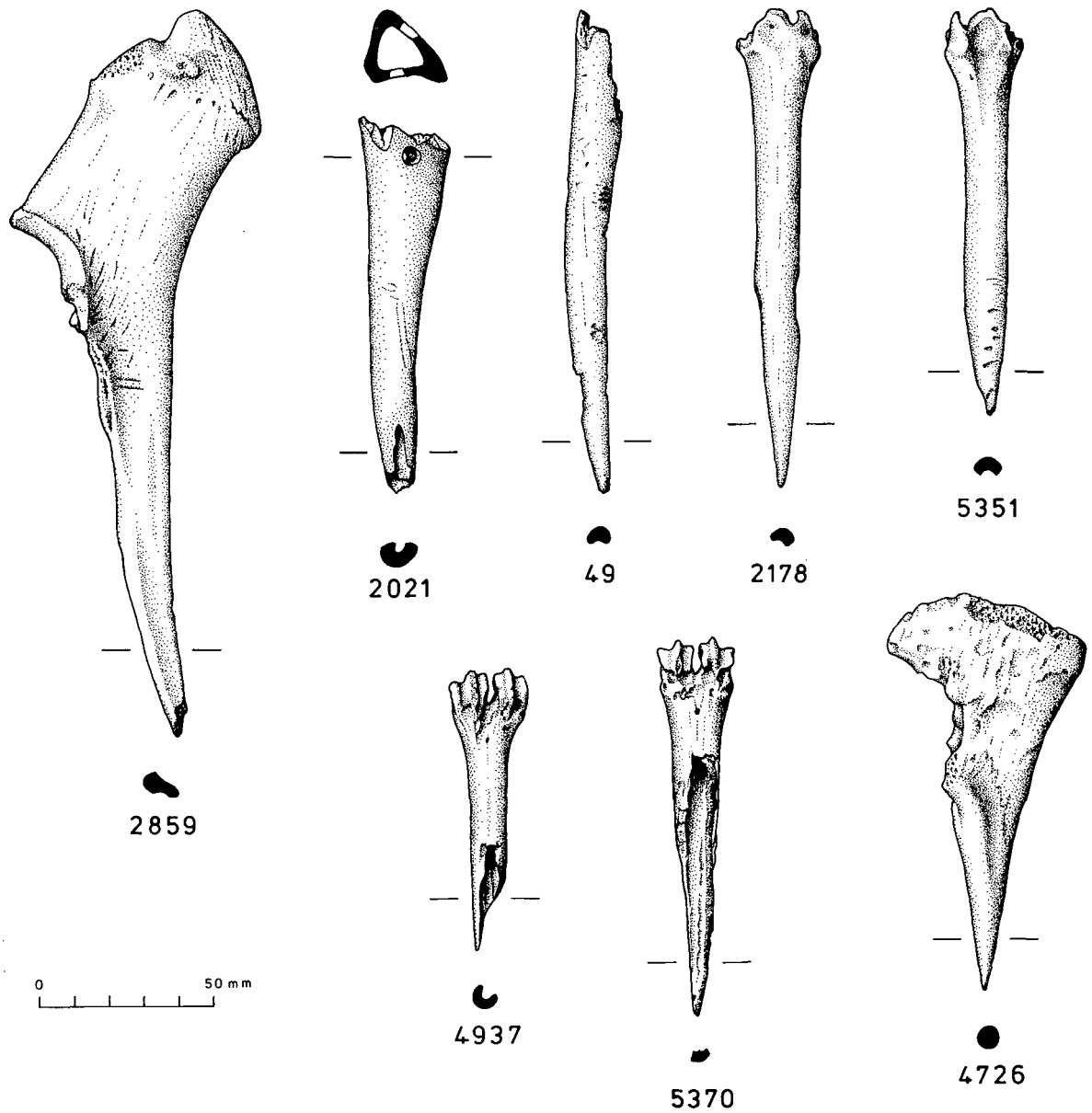
Awls

In contrast to the above, awls exhibit signs of more deliberate finishing and prolonged use. These tools, mainly from Early Phase 7, have a sharply pointed end and have been made, usually but not exclusively, from cattle ulna and sheep/goat tibia. SF 2021 (illus 96) has a broken point but it is the only example which has two holes pierced through the object at the distal end.

SF 2178 and 5351 are of sheep/goat tibia with smoothed bone surfaces and SF 2859 and 4726 (all illus 96) have utilized the natural shape of the ulna from which they are made as a handle. This type of awl has been noted at Clickhimin (Hamilton 1968, fig 38, no 1, 3, 6, fig 49, 6–11), Gurness (Hedges 1987b, fig 2.27), and Burrian (MacGregor 1974, 78, fig 10, 139). One of the commonest awl forms is represented by the sharpened



Illus 95
Bone needles and pins.



Illus 96
Bone awls.

sheep/goat metapodials (eg SF 4937 and 5370, illus 96), where the edges are rounded and worn smooth.

HANDLES

Antler was the most used material for the manufacture of knife handles, but several bone ones were found in Late Phase 7 and Late Phase 8. The most interesting in this section is SF 752 (illus 130), a small handle with a fragment of its iron blade still in position and held in place by a silver trim (8.6 Metal Artefacts Report below). This was found in stage 6 of Late Phase 8.

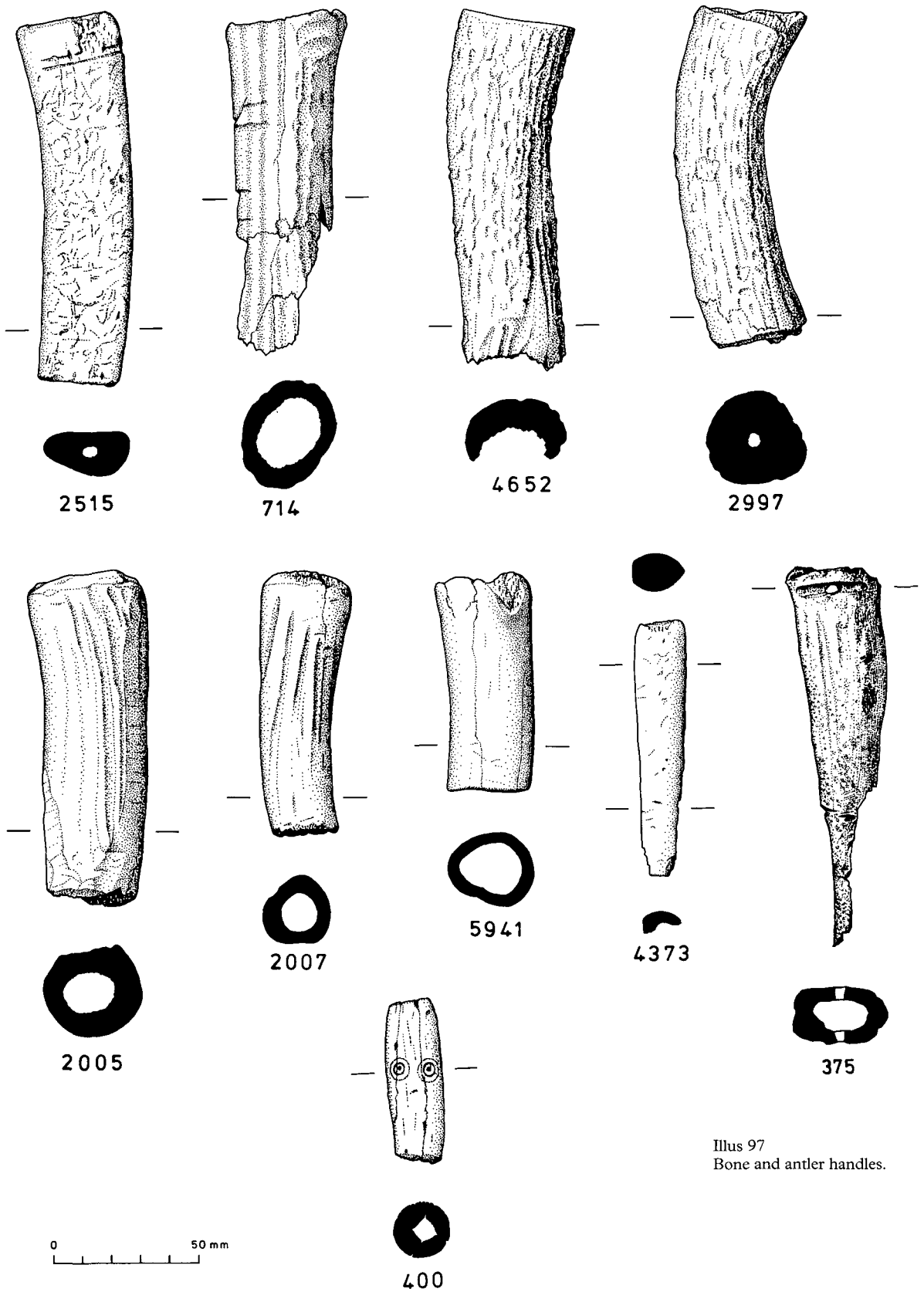
The other handle worthy of note is SF 2515 (illus 97), also from Late Phase 8, which is very similar to its antler counterparts (see below). At its widest end it bears a linear groove, and is similar to a grooved handle, with three lines, found in a Norse grave at Buckquoy, Birsay (Ritchie 1977, 194, fig 6, 44).

SPATULATE TOOLS

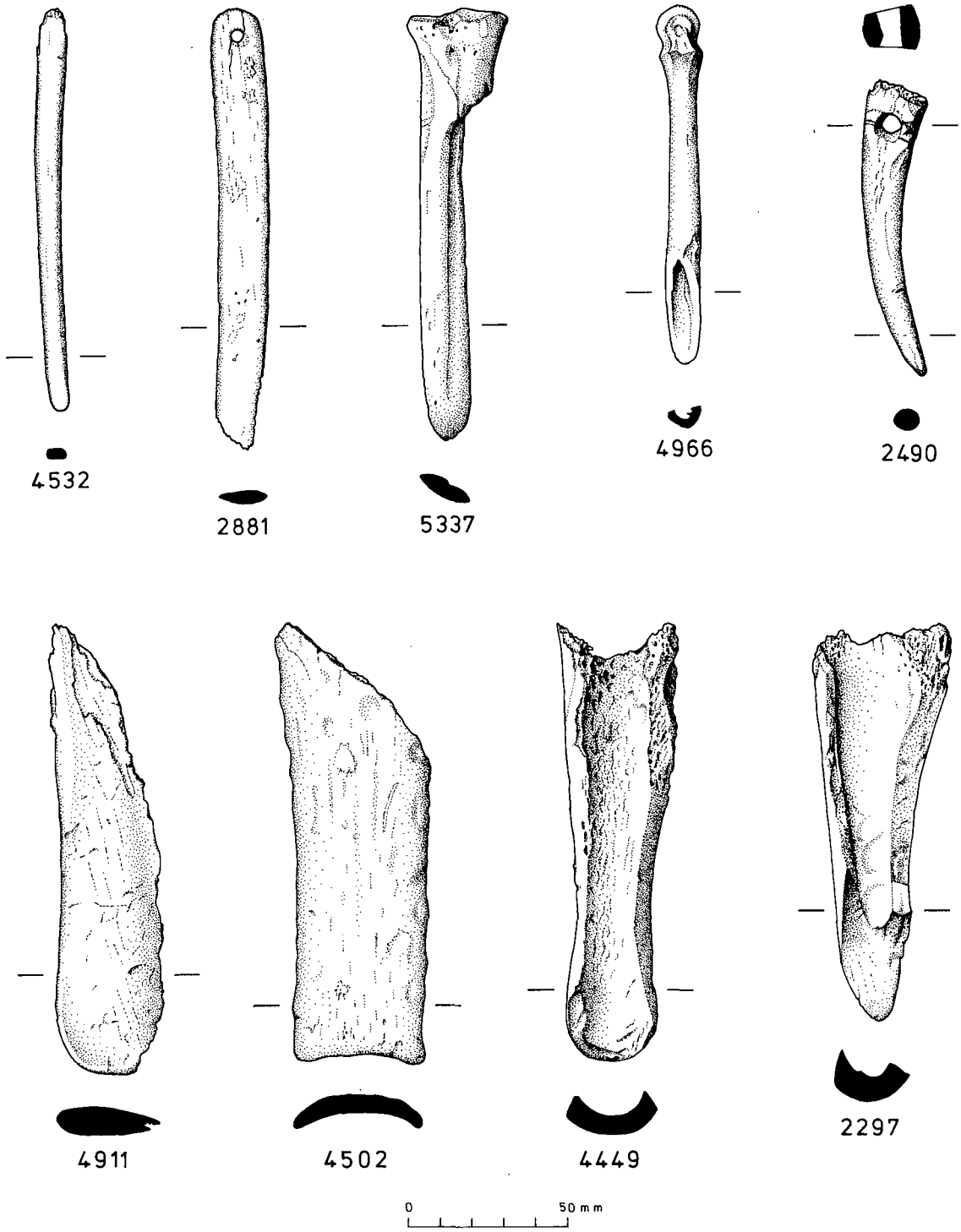
Several tools, which could be described as spatulas, were found in Phase 7, made from cattle ribs and metapodials. SF 2881 (illus 98) has one worn and broken end, the other rounded and containing a small peg hole. SF 4532 (illus 98), 7029 and 7821 are highly polished pieces with one rounded and flattened end and the other broken.

SCOOPS AND GOUGES

These tools were made from various split and hollowed bones of cattle and sheep but mainly from tibia. They have one rounded end which is smoothed with evidence of wear by scraping or scooping. The edges of the tools (eg SF 2297 and 4449 from Late Phase 7 and Early Phase 8, illus 98) are smooth and comparable examples have been noted at Jarlshof in Shetland (Hamilton 1956, fig 8, 4–6).



Illus 97
Bone and antler handles.



Illus 98
Bone spatulate tools, scoops and gouges.

SF 4966 (illus 98) is a sheep tibia with the worked end cut, rounded and polished and it was found in the Late Phase 7 broch abandonment. It forms a common type of Iron Age tool found at Dun Mor Vaul, Tiree, (MacKie 1974b, 145), Burrian, North Ronaldsay (MacGregor 1974, 78, fig 10, 143), Jarlshof (Hamilton 1956, fig 29, 12), Gurness (Hedges 1987b, fig 2.29 150, 151) and Midhowe (Callander & Grant 1934, 487, fig 27). At the latter site these tools are described as chisel-ended implements, but no bone chisels such as those from Clickhimin, Shetland (Hamilton 1968, 114, fig 49, 1) were identified at Howe.

SCRAPERS

Several types of bone from cattle and red deer were used as scrapers probably for skins and leather working from Phase 6 and

Late Phase 7 onwards. SF 5337 and 4911 (illus 98) are long thin-bladed tools with a rounded end, worn edges and polished surfaces. SF 4911 had wear marks along one edge and SF 5337 along both edges.

SHOVELS

The domestic and non-domestic levels of Late Phase 7 and Early Phase 8 produced shovels made from cattle and horse scapulae. The edges of the blades show signs of wear and the the spine of the scapula has been cut away for ease of use. SF 4940 (illus 102) from Late Phase 7, is polished with use above the socket and its blade edges are rounded.

MISCELLANEOUS BONE ARTEFACTS

Gaming piece

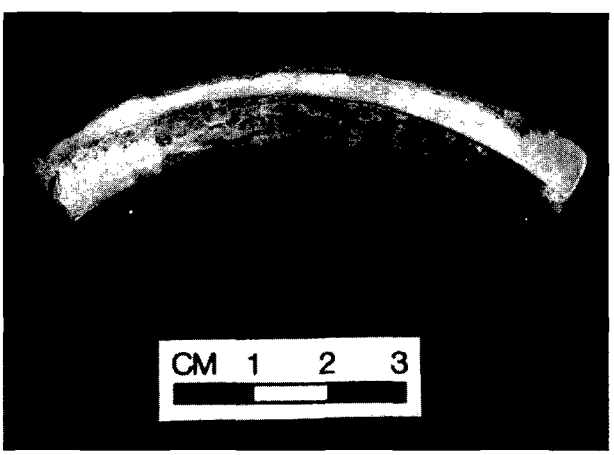
SF 113 (illus 92) from Late Phase 8, although gnawed is a trimmed and cut piece of bone which might have served as a gaming piece.

Rib bone knife

Although only one bone knife, SF 7826, Phase 9, was identified from Howe, several of this type have been found at Dun Mor Vaul, Tiree (MacKie 1974b, 145, fig 11, 35, 45; fig 18, 429) and Jarlshof, Shetland (Hamilton 1956, fig 29, 10). The Howe example is notched at one end and on both edges.

Pin heads

Three examples of bone pin heads for iron or bronze pins have been found from Phase 5/6 and from Late Phase 8 and 9. SF 5058 (illus 92) is made from a trimmed red deer metapodial with a central hole to receive the pin shaft. The other examples are of a common type found on many Iron Age sites. SF 114 and 4821 (illus 92) were cut from animal long bones with the core removed. Both pin heads have a 4mm diameter hole, SF 114 had two, cut into the centre of the base. These pins and pin heads have been described by Stevenson (1955, 292–293) as a native Scottish type, and several have been found at Birsay (Curle 1982, 21), at Burrian, North Ronaldsay (MacGregor 1974, 76, fig 8, 114–117), where the globular head had been polished, and at the brochs of Gurness, Ayre, Lingro and East broch, Burray (Hedges 1987b, fig 2.27 120, 121; 1987c, 77, 82, 100), (see also below).



Illus 99
Polished pig canine (SF 4593).

ARTEFACTS OF TEETH OR HORN

These include cattle and pig incisors, where the root or tip has been sharpened to a point, often with signs of wear. A possible pig canine, SF 4593 (illus 99) from Late Phase 7, has been trimmed and polished to produce a very smooth tool. SF 4469 is a dome shaped roundel cut from a seal or walrus tusk and has a very highly polished surface. There is evidence of a fragment of iron pin set into its lower surface which suggests its use as a pin head. Pin heads such as this have been referred to by Stevenson as being "confined to Orkney" (1955, 292) and have been found at Midhowe (Callander & Grant 1934, 490), and Oxtro (Hedges 1987c, 57).

ANTLER

Almost 100 items of antler were found and the majority of these were used tines. The other antler artefacts fall into six categories.

ANTLER HAIR COMBS

There are two distinct groups within this category: a) single-and b) double-sided.

Single-sided combs

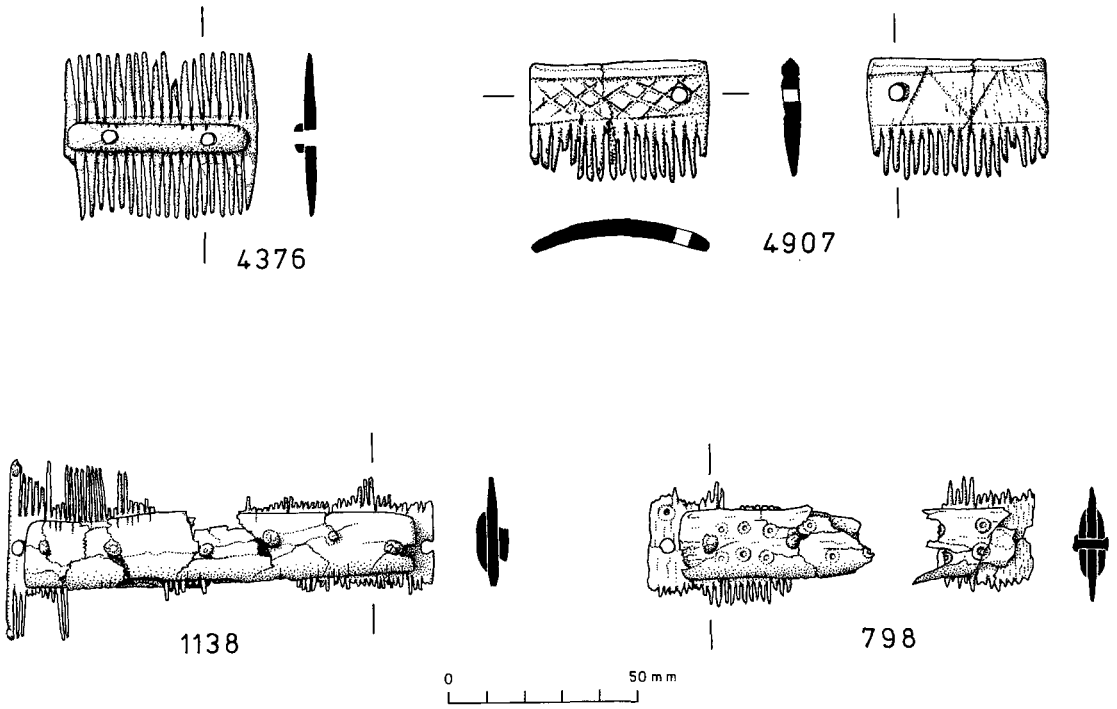
SF 4907 (illus 90a; 100) was found in ditch deposits in Phase 7. It is a small curved comb of one piece with a single edge of teeth, and both sides of its plate are decorated. On one side is a band of incised cross-hatching and the other has a band of diagonal zigzag. The comb is perforated at one end with a suspension hole and is largely complete. A similar comb was noted from Midhowe, Rousay (Hedges 1987c, 115); it is cited as possibly being immediately pre-Roman Iron Age (Stevenson 1955, 287).

b) Double-sided composite combs (illus 100)

Three combs are represented with fragments of others. They are all from Late Phase 8, from stages 6, 10 and 12. Two of the combs, SF 798 and 1138, are made of three pieces. A central piece contains an upper and lower row of teeth, reinforced on either side by a plate held in position by iron rivets. Both combs also have a suspension hole at one end. SF 798 is decorated on both its plates by two rows of small dots with circles and SF 1138 is plain.

Combs from Birsay have been catalogued and studied in detail by Mrs Curle, where she found that all the available space on Pictish combs was decorated (Curle 1982, 21–22, ill 10, 197). The early Norse combs, although of the same construction as the Pictish, were found not to have graduated teeth at the ends. Howe SF 1138 is of this type with a narrow band containing the non-graduated teeth at both ends of the comb and is similar to the Birsay combs 202 and 203. The Howe comb was found in a secure Late Iron Age context and suggests that there may be considerable overlap between the two types suggested by Curle or that there is a gradual development of one type from the Late Iron Age into the Norse period.

The last comb in this section, SF 4376 (illus 100) is a small but distinct rectangular comb. It has long teeth cut into either side of the central piece and originally had two narrow central plates with rounded ends. One plate is lost, but the remaining one is semi-circular in section. The comb is pierced centrally by two holes for bone rivets or pegs which would have held the plates in place. The comb is undecorated and does not have a suspension hole. It is stratigraphically the latest comb from the site, from stage 8 of Phase 8, and similar combs are depicted on Class 1 symbol stones (Curle 1982, 95–97, ill 58).



Illus 100
Antler hair combs.

WOOL- OR LONG-HANDLED COMBS

Of ten combs, five are very fragmentary, either broken across the teeth or the handle. The remaining five combs are illustrated (illus 101). They were found from Phase 4 through to Phase 9 with the majority occurring in Phase 7. Two of the combs SF 2670 and 4178 have long and slightly waisted handles with eight teeth. The teeth of SF 2670 are very short and curved across the width of the tool, the whole of which is polished. Comparable combs were found at Burrian, North Ronaldsay. In contrast SF 4178 has long teeth which are again curved in section and also paralleled at Burrian broch (MacGregor 1974, fig 12, 169; fig 13, 181, 182).

SF 5157 is an incomplete comb which has broken longitudinally. Its handle is shaped into a rounded fishtail and is worn smooth, but only two teeth remain. This extreme waisted or fishtail body has also been seen at Burrian. SF 7018 has a slightly waisted short handle with a swallowtail end, and broad teeth with a flat section. On the smoothed surface of the comb, a broad arrow is incised into the bone.

Handled combs are commonly found at Iron Age sites and are predominantly made of antler, although some are of whalebone. MacGregor (1974, 84) proposed that the handled combs may have had several functions such as carding or teasing wool as well as beating the weft fibres in weaving. It is interesting to speculate whether in fact the slightly different comb characteristics do reflect different functions. Decorated handled combs have been again recorded from Burrian and Midhowe, Rousay (Callander & Grant 1934, 485–6, fig 6, 7), but the decoration is normally in the form of an incised cross or saltire, although other motifs are known from the broch of Burgar, Evie (Hedges 1987c, 59). Bone combs have also been published from the brochs of Crosskirk, Caithness, Gurness and at least eight other sites in Orkney.

PERFORATED ANTLER

This category includes shaped and pierced antler plates or mounts and perforated tines. Six perforated plates are from Early Phase 7 onwards, and four are illustrated – SF 744, 2869, 4121, 4443 (illus 94). All are broken pieces cut from antler beams and are therefore curved in body and section. They are pierced by two to six holes which would have contained bone or antler pegs.

Some of the holes in the antler plates are up to 8mm in diameter and recessed (eg SF 4443). SF 4121 may have been reused because it contains a series of both large and small holes. It is not known whether these pieces were mounts for handles, fragmentary comb plates or parts of horse harnesses, but smaller pieces were found at the brochs of Gurness Midhowe, Ayre, Borwick and East Broch, Burray (Hedges 1987b, fig 2.18, pt 3), (see also Perforated Bone artefacts above).

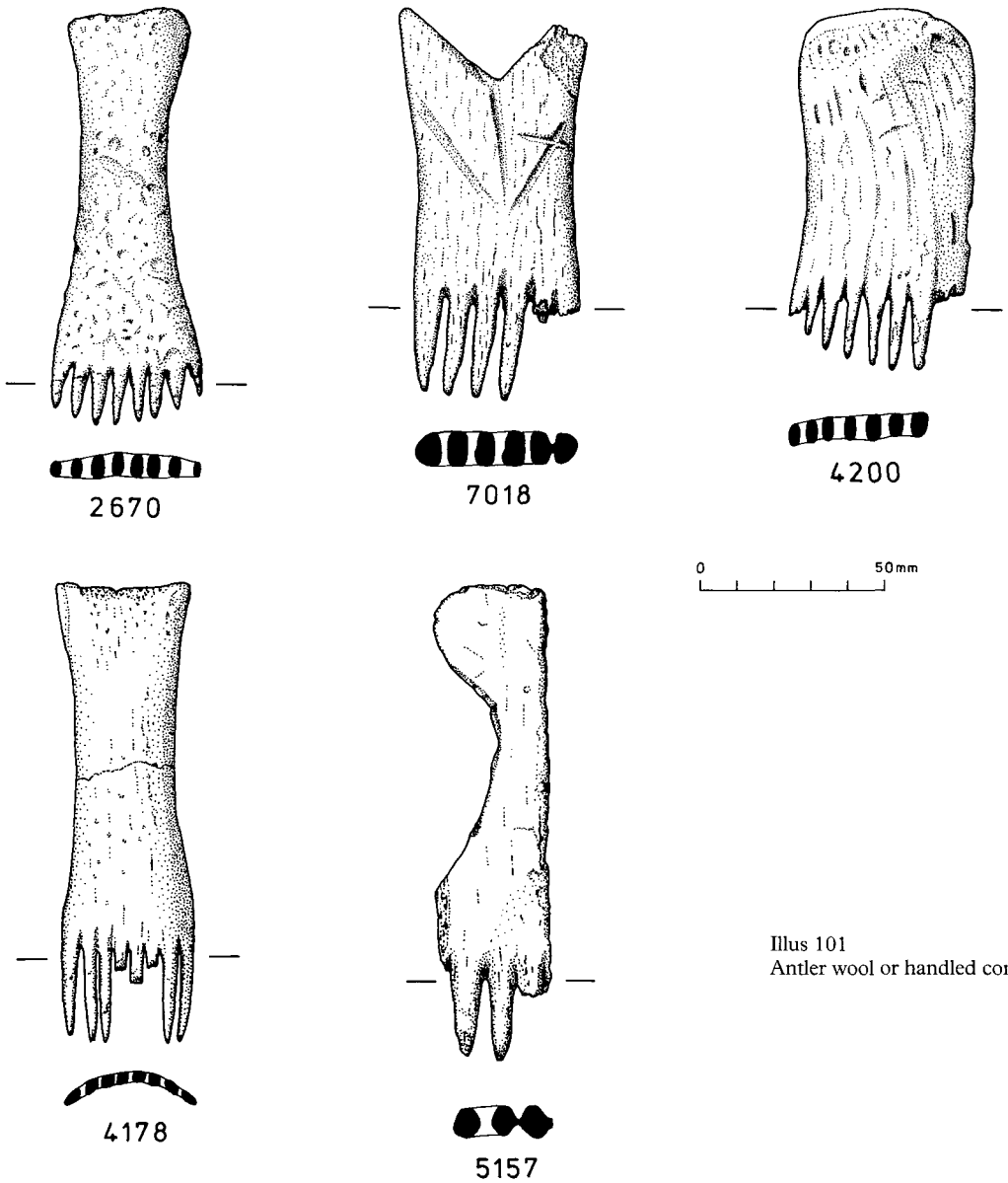
Most of the pierced antler tines from Phase 8 are fragmentary with only SF 2490 (illus 98) from Early Phase 8, being complete. This is a polished tine with a hole at the base. Items similar to this have been described as horse cheek-pieces (MacKie 1974b, fig 17, 326) and others from Midhowe, Gurness (Hedges 1987b, fig 2.23) and Burrian, North Ronaldsay (MacGregor 1974, 78, fig 10, 144) may have had similar functions. Other perforated antler pieces from Howe are either eroded or roughly manufactured (eg SF 4750) and give no clue as to their function. SF 4791 may be a fragment of a perforated peg with a hole bored through beneath the head.

ANTLER POINTS

These are pieces of antler that have been sharpened at one end to form a point. SF 5168 (illus 95) from Late Phase 7, is a worn and smoothed piece but is not polished at the point. A more finished example is SF 5349 which seems to have a partial handle or stop at the end opposite the point.

ANTLER HANDLES (illus 97)

Handles are prominent in Phase 7 with five found within the broch tower walls. All but one are undecorated, and they have been found



Illus 101
Antler wool or handled combs.

in various stages of manufacture. Handles are made of pieces sawn from the beam of the antler and have been hollowed at one end for the reception of an iron blade. SF 2005, and 2007 have smoothed and well polished surfaces. In contrast SF 2997 and 4652 are unfinished as the cortex has not been hollowed out. Handle SF 4373 from Late Phase 8, is the most altered piece of antler with its outer surface completely smoothed and both its ends worn.

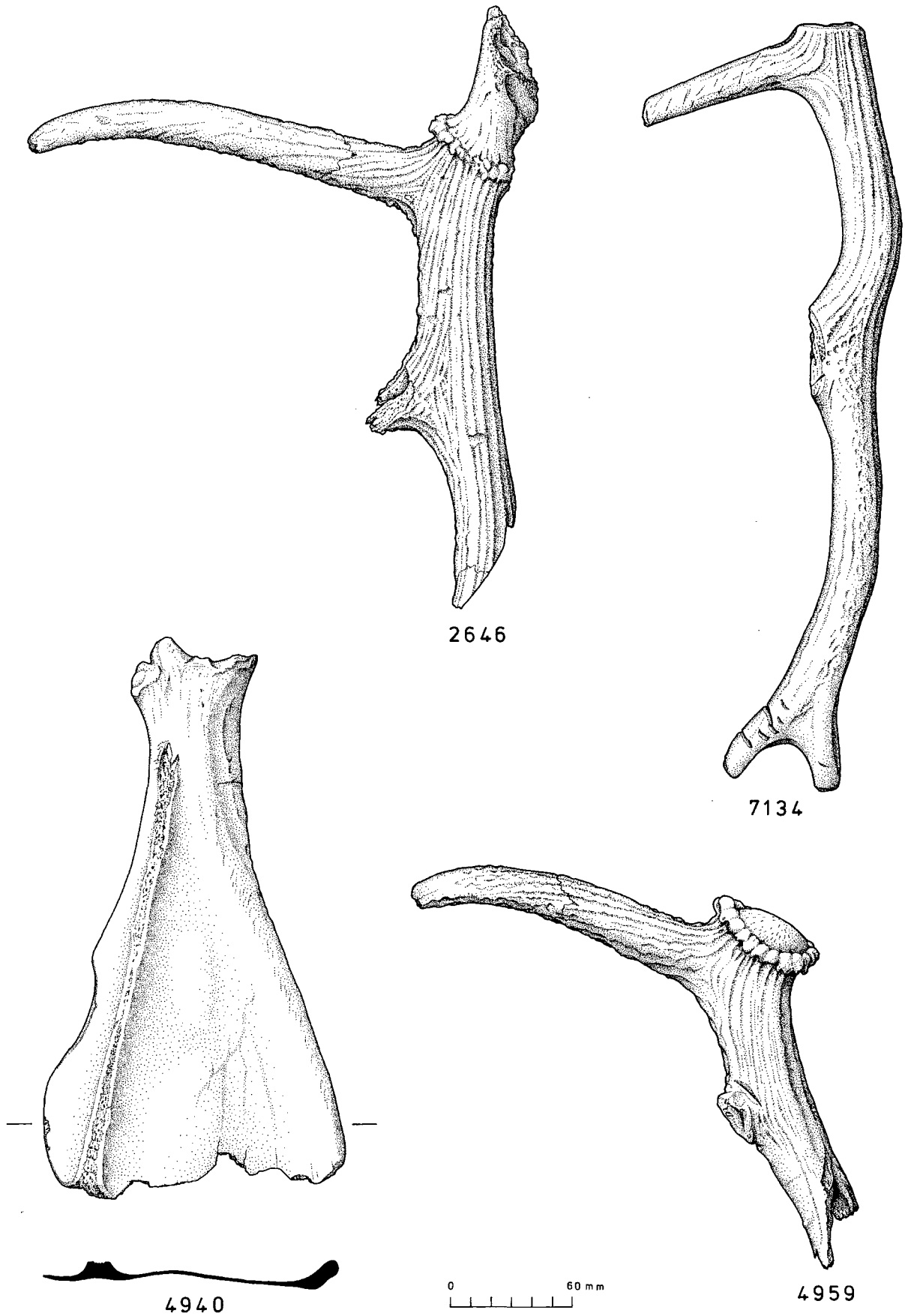
SF 375 from Early Phase 8, had two holes bored at the socket end which lie in an elongated groove, and may have been used for riveting its iron blade in place. Although smaller than the rest, SF 400 from Phase 9 is a cylindrical handle, decorated on its polished surface by two circle and dot designs. Comparable but undecorated handles to this have been found at Gurness (Hedges 1987b, fig 2.22) and at other Orkney brochs but do not seem to be as common as supposed.

ANTLER PICKS

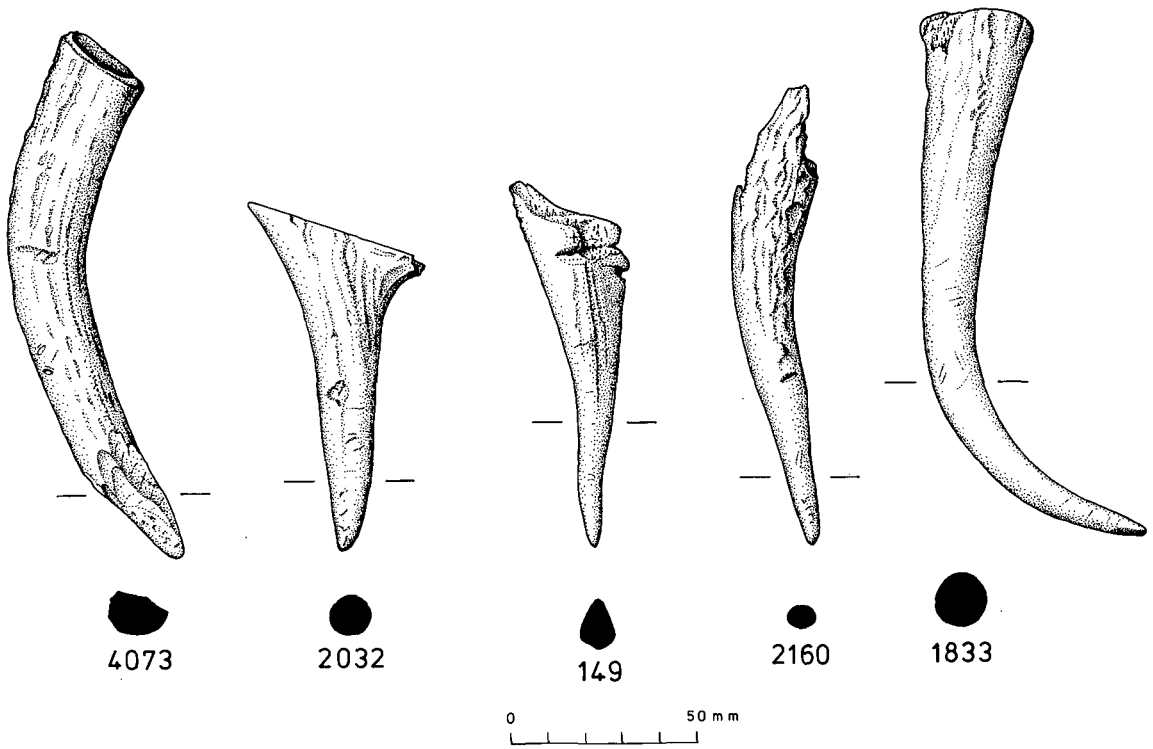
An interesting group of artefacts are the eight picks, both whole and fragmentary, found from Phase 4/6 onwards. They are made from complete antlers with all but the brow tine (the pick) removed from the beam which served as the handle and lever. Half the picks are from shed antlers, while the rest are from slaughtered deer (eg SF 2646 from Early Phase 8). The picks are generally smooth with wear, with the brow tine showing evidence of severe wear and even hollowing, eg SF 4959 (illus 102) which was found in the ***E*** Building in Early Phase 7. The best example, SF 7134 (illus 102), is the earliest found in the Phase 4/6 well in the E part of the site. It is complete with a well-worn and polished brow tine, the second tine being cut away. The antler stump has been completely sawn off and the whole tool has been smoothed artificially or with use. Antler picks are rare from other Iron Age sites, but other examples are known from Midhowe, Rousay (Callander & Grant 1934, 495, fig 38) and Staple Howe, Yorkshire (Brewster 1963, 127, fig 71).

MISCELLANEOUS ANTLER PIECES

Of seven artefacts in this category only one is worthy of special note. This is SF 2139 (illus 95) from Phase 7/8, a possible fish gorge with a central circular perforation.



Illus 102
Antler picks and bone shovel.



Illus 103
Used antler tines.

USED TINES

This is the largest category of antler artefacts from Phase 5/6 onwards, consisting of antler tines broken or cut from the beam with well-shaped or extremely worn points. Illustration 103 shows the range of size and shape of these used pieces. Some of the tine points have been artificially sharpened as in SF 4073 and 1833, and others bear surface cut marks and polishing. As can be judged from the numbers of tines found at Howe (Table 51), they must have been common at other sites, and have invariably been described as points, cut pieces, awls and handles ((MacKie 1974b, fig 16, no 285) (see also 7.3 Mammal Bone report, above, for natural polishing).

WHALEBONE

Only 28 whalebone artefacts were discovered, but this report does not include whalebone debris or cut pieces which are discussed in the mammal bone report (7.3 above). Four categories of artefacts are described.

WHALEBONE VESSELS

The very fragmentary nature of these pieces has only allowed four vessels to be recognized from Phase 5/6 to Late Phase 8. All were constructed from whale vertebrae after the vertebral spines had been cut away. The bones were hollowed out to produce a thick based but relatively thin walled container. The lack of epiphyses on two of the vessels indicates that the remains of young whales had been used. The porosity of the bone suggests that their use was for dry storage rather than for wet.

VESSEL RELATED FRAGMENTS

Most of these artefacts were formed using vertebral epiphyses. Vessel lids and rims were identified, and the latter may have become detached from the main body of the vessel. The epiphyses formed flat lids ranging from 12–27mm in thickness. SF 2054, found in Early Phase 8, has a central circular hole which may have been for lifting the lid from its vessel. The vessel rim fragments are largely reconstructed and show cut marks where the bone core has been hollowed away.

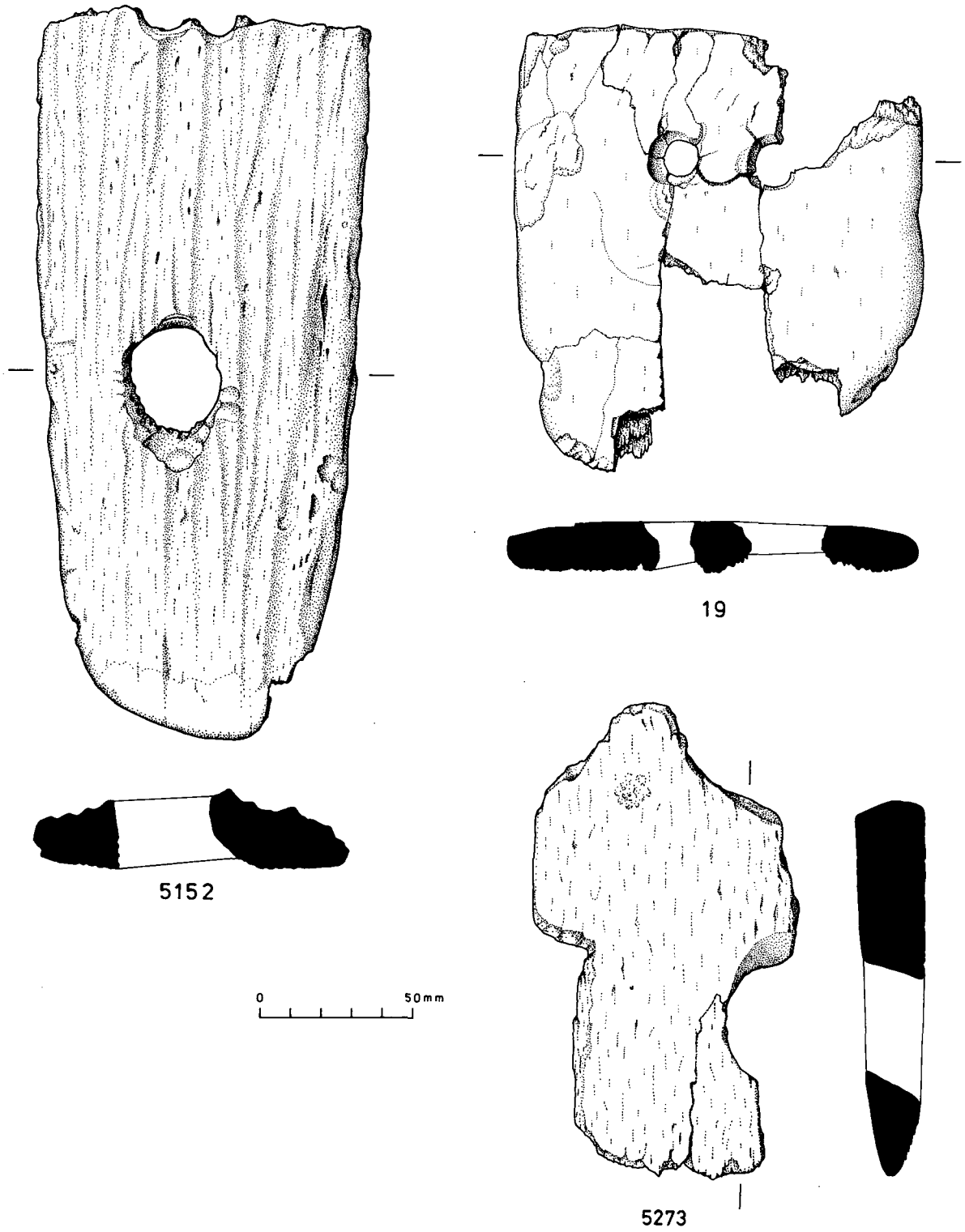
WHALEBONE HOE AND MATTOCKS (illus 104)

These socketed tools form a uniform group, mainly from Early Phase 7 and 8. They are large flat pieces of whalebone cut longitudinally from the bone. Other common factors are that they are blade-shaped with evidence of worn edges (eg SF 19 from Early Phase 8). All the tools are pierced with up to three holes, by which they were hafted and tied to a handle. The central hole is usually large, elliptical or round, and cut through the bone at an angle. SF 5152 and 5273, from the ***E*** Building and the broch wall in Early Phase 7, show this characteristic. These holes are *c* 23–60mm long and 22–23mm wide. Most of the artefacts are broken at these holes where a weakness in the tool had been created.

The three illustrated examples show evidence of other holes cut through the tool. SF 19 (illus 104) and 5152 have two waisted holes *c* 16mm in diameter aligned side by side, presumably for tying the tool to the handle, or, as in SF 5152, for extra support and rigidity. SF 5273 has a further larger hole above its elliptical central one, suggesting that a stick and thonging may have secured it to the handle at an angle. All these tools show excessive wear and trimming along their lower edges, some with the addition of grooves or cut marks on their smooth surfaces.

MISCELLANEOUS WHALEBONE

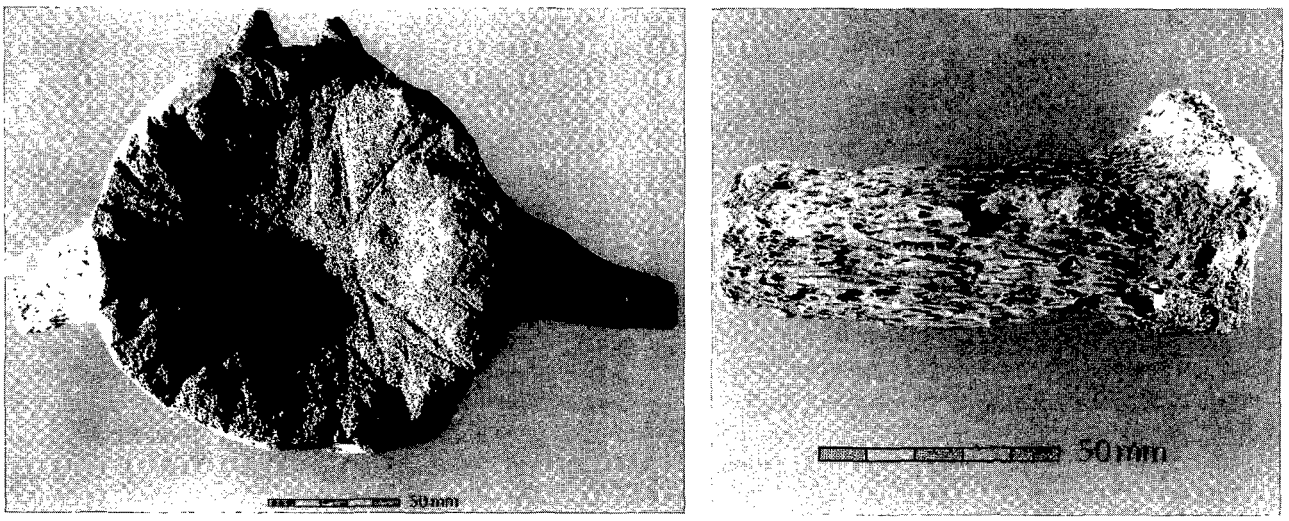
Few pieces are worthy of special mention. Apart from vessels, whale vertebrae were also used as chopping blocks. SF 2523 (illus 105a) from Late Phase 8, shows slight concavity of both surfaces



Illus 104
Whalebone hoe and mattocks.

where the core of the bone has been exposed by cut marks. SF 850, also from Late Phase 8 (illus 105b), is a roughly square-sectioned peg cut from a vertebra. The head is formed from the epiphyses and the shaft is of cortex. Other artefacts in this category include a toggle, scoop or scraper SF 4502 (illus 98) and a grooved bone.

Whalebones may have been used as structural elements in buildings for roofing etc, but no evidence has survived from Howe. Two perforated whalebone vertebrae were found at Dun Mor Vaul which could have been sockets for posts (MacKie 1974b, 146, plate 3). The majority of whalebone artefacts from Iron Age sites are vessels, lids, cups and chopping



Illus 105
a) Whalebone vertibra chopping block (SF 2523), Phase 8; b) whalebone peg (SF 850), Phase 8.

blocks. Clickhimin produced whalebone lids, chopping blocks and a perforated peg (Hamilton 1968, fig 38, 18, 22, fig 48, 3–4), whereas Jarlshof, also in Shetland was almost devoid of whalebone. Vessels have been found at Bu, Gurness, Ayre and the East Broch, Burray (Hedges 1987a, fig 1.16, 1.17; 1987b, fig 2.30–2.33; 1987c, 77, 100), while perforated tools or mattocks similar to those from Howe have been recognized at Burrian, North Ronaldsay (MacGregor 1974, 86, fig 15, 199–201) and Birsay (Curle 1982, 77, ill 31).

CONCLUSIONS

The preservation of bone and antler material, some of the more durable organic substances at Howe, was good and all sizes of artefacts were recovered. It is obvious that bone was a primary local resource as bone from wild as well as domesticated animal species was used. Bone-working at Howe is seen as a by-product of meat consumption and the gaining of pelts and hide. It was a material which was in reasonable supply, could easily be worked and the artefacts could be readily replaced. From the artefactual evidence bone-working also required no special skills or tools and was a craft that was in the main non-specialist. On the whole, bones were simply modified to produce the required tool, such as the cutting off of the central rib on a scapula to make a shovel. Knives were probably the most common tool used to make artefacts from bone, by cutting, splitting, boring and scraping. Pumice may have also been used for smoothing and polishing. The exceptions to this are the composite combs found from Phase 7 onwards requiring the use of saws, possibly files, and the use of another medium, metal, for rivets.

From Table 51 it can be seen that bone artefacts were ubiquitous throughout the Iron Age period, and even when the settlement was in decline during Later Phase 8, bone artefact numbers remained fairly high. During phases 7 and 8 there was a preference for antler for delicate artefacts such as combs and for tools with more demanding use such as for handles for iron knives and as picks. The durability and relative hardness of antler over that of bone, was put to good use.

Only two places on the site indicate that bone and antler working took place there. The first, being the more definite, is that of the broch tower during Phase 7/8. There, 27 items were found on the floor and in recesses in the broch wall, mainly unfinished and finished antler handles. The second place is that of the S workshop in Late Phase 7 where 35 artefacts were recovered. However, in neither area was bone-working debris recovered. The items in the broch may alternatively represent a cache of handles which were prepared ready for the fixing of new iron knife blades.

The standard of bone-working at Howe was basic and simple, reflecting the dominance of functional items in the assemblage. Only five items were decorated using incised straight lines or incised dots and circles, two composite combs, a long-handled comb, and two handles, all made from antler. Only in the antler composite combs was an attempt made to manufacture an item from more than one piece, thus producing an item which looked very different from the material from which it was made.

All the artefacts of bone at Howe, reflect a domestic production for immediate local need. There is nothing in the artefact assemblage to suggest that any of the artefacts were imported or came from elsewhere on Orkney. The use of whalebone reflects a local stranding of whales, and from the numbers of artefacts, the strandings were possibly as infrequent as they are in Orkney today. New work has thrown up one possibility of imported material: reindeer antler from Norway. A note at the end of this section reviews the evidence.

The categories of bone artefacts (Table 51) are based on their function as well as form. It is also possible to analyse the material from a purely functional aspect. What activities are typified by the range of artefacts, what activities took place at Howe using bone as a tool? Of importance are agricultural and heavy duty tools such as picks, shovels, and mattocks. There is a paucity of stone mattocks at the site, where perhaps whalebone was the preferred material. Agricultural tools may have been kept outside the settlement which may explain their generally low numbers.

Other bone artefacts indicate domestic activities within the settlement such as cooking, food preparation and storage with the use of spatulas, scoops, scrapers, knife handles, whalebone vessels with lids and a chopping block. Leather working is indicated by knife handles, awls needles and scrapers, and woollen cloth production with the survival of spindlewhorls, needles, pins, long-handled combs and pierced bone bobbins. Personal items are represented by toggles and pins for fastening leather and woollen garments, and composite combs and pins for grooming and adornment. Other activities indicated are recreational, bone counters or playing pieces used with stone gaming boards, and finely finished bird bone flutes or whistles for music making and possibly hunting. From approximately 300 bone and antler items, it is possible to get a little closer to the people at Howe.

It is difficult to compare the assemblage of bone items from Howe with other similar contemporary sites because of their rarity, the incompleteness of their excavations and problems of stratification. The excavation at Bu, a roundhouse within sight of Howe, produced similar but very few bone artefacts. The Broch of Gurness, a much larger Iron Age settlement than Howe, yielded fewer bone artefacts but of more varied types. The later and extensive high status Iron Age or Pictish dwellings at Gurness, and the possible Norse habitation, are reasons for the slight differences in the assemblage types. In comparison with other sites perhaps it is the similarities which are important rather than the differences. Sites such as Pool, Sanday, excavated in the 1980's should produce more of a useful comparison. In this respect Howe has a bone artefact assemblage which is probably typical of Iron Age sites in Orkney. The artefacts produced were those which were needed for the smoother running of life, made and used within the community. The finer and better crafted bone and antler goods produced at Pictish and Norse Birsay, for example, are not to be found at Howe. By that time, the settlement at Howe was over or reduced to a single farmstead.

POSTSCRIPT TO BONE ARTEFACTS REPORT

Since the completion of the above report, research by Birthe Weber, Oldsaksamlingen, University of Oslo, Norway, has produced some interesting new results on some of the combs.

Mrs Weber has had long-handled and hair combs analysed from Late Iron Age/pre-Norse sites in both Orkney and Shetland. These sites include Howe; Skaill, Deerness; Birsay Brough; Buckquoy, Birsay; Saevar Howe, Birsay, on Orkney and Jarlshof and Sandwick, Unst, from Shetland. The raw material of the combs was identified by Rolf Lie of the Zoological Museum, University of Bergen, Norway. Several of the combs have been identified as made from reindeer antler and not red deer antler as originally thought.

Six antler combs from Howe were re-examined. One long-handled comb, SF 3648 from Phase 8, is definitely of reindeer, and two composite hair combs, SF 307 and 308, both from Phase 8, are probably of reindeer. The antler of the latter two combs is, however, in poor condition denying positive identification.

The evidence Mrs Weber has accumulated, indicates that reindeer antler was imported into, and distributed widely within the Northern Isles, before the Viking period. The Phase 8 composite combs from Howe are dated to before the 7th century AD, with the long-handled comb to possibly as late as the 8th century AD, as it was found in a late abandonment horizon. The lack of comb-making debris on the site may suggest that the combs themselves were made elsewhere, perhaps at a distribution centre in Orkney, as composite combs were not made in Norway until the 13th century (B Weber pers comm).

As mentioned in the conclusions above, the number of antler artefacts remained high during Phase 8, even when the numbers of red deer were in marked decline (7.3 Animal Bone Report above). This discrepancy between numbers of antler artefacts and red deer may well be accounted for if artefact numbers were supplemented by reindeer antler from Norway.

It is hoped that future research will provide further evidence of trade between the Northern Isles and Norway, during Late Iron Age times (Weber 1992 and forthcoming).

8.3 • STONE ARTEFACTS
including geological identifications and report by the late Geoffrey Collins

The excavation at Howe yielded over 800 individual stone artefacts. At the time of excavation, it was the largest collection from a well-stratified site in the Northern Isles. It forms an interesting and comprehensive group. The catalogue, 8.3.1, is available in fiche (2:A3–G14).

GEOLOGY AND LOCATION

The almost homogeneous geology of Orkney is to a large extent reflected in the tool petrology, emphasizing that the prehistoric Orcadian used the available natural resources to the full to fulfil the need for a range of different tools (Table 52). Most of the tools are derived from the local Stromness Flags, which are a fine grey sandstone or siltstone. Stones were collected as pebbles from the beaches less than half a kilometre away, to the S and E of the settlement, or quarried from the shallow coastal cliffs where outcrops of bedrock are easily accessible, or more rarely from the bedrock of the ditch surrounding the site. Beaches close to Stromness also yielded granite-gneiss pebbles and dyke rocks derived from Orkney's Basement Complex (Mykura 1976, 40). These are mainly camptonites, monchiquites and bostonites and have been described elsewhere (Flett 935, 173–187). All three rock types are found within 10km of the site, mainly along Orkney's west coast at Stromness, Warebeth, Graemsay and Yesnaby. All these beaches provide pebbles and stones in suitable shapes and sizes for easy transformation into required tools.

Coarser grained yellow and orange sandstones are probably of the upper and middle Old Red Sandstones of Hoy, while the bright coloured yellow sandstone matches the Lower Eday Sandstone, found in Eday, South Ronaldsay and on the N coast of Scapa Flow. Both Hoy and Scapa Flow rocks were within easy reach of the settlement at Howe and loose stones could have been transported to accessible beaches by tides and currents.

Many of the felsites, schists, quartzites, quartzose sandstones and granites can be matched with material from the glacial till of the Mainland (Mykura 1976, 113), and some of the brick-red siltstones, which are probably derived from the Eday Marls, may have also come from the glacial till. The granite outcrop at Stromness and the marly sandstone Passage Beds of the SE coast of Hoy may also have been exploited when necessity dictated.

Rocks have also been identified that are obviously foreign to Orkney, imported as the manufactured articles such as jet armlets and spindlewhorls, probably from Brora, and steatite from Shetland. These rocks reflect trade in small personal items which were easily transported, of some value and demand.

Table 52 displays the types of stone used and the tools formed from them. Fine and medium grained sandstones were used for most tool types, as the stones were well suited for objects that could be shaped by pounding, pecking, grinding and chipping. Sandstones could also be fairly easily bored to produce whorls and beads, and smoothed to form counters and balls. Pivot-stones, although collected as small finds, were part of the structural fittings of the buildings of the settlements and were all produced in sandstone. In contrast, objects and tools like potlids and mattocks were shaped on siltstone which could be chipped or split. All but one of the 98 potlids were made on siltstone. Large objects such as querns and pecked and hollowed stones were made on coarse sandstone.

The hard basement complex rocks of bostonite, monchiquite and camptonite were used for two Neolithic axes, some hammerstones/pounders, polishers and collections of pebble caches. These seem to be isolated uses of these rock types. Granite was used for a number of hammerstones, pounders and polishers, while other rock-types, including felsites, quartzites, granite-gneiss and hornbendic granite-gneiss are only represented by a very few items.

Represented in the stone artefact assemblage are structural items, domestic and work tools, objects, as well as personal items. This reflects to some extent the versatility and skill of the craftsman and the paucity of other available raw materials.

LOCATION AND DISTRIBUTION (Table 53)

EARLY PHASES 4–6

From the early phases of the site, 106 tools (8%) were retrieved, but only Phases 4 and 5/6 produced stone items in any quantity. Pounders, hammerstones, polishers and their variations formed the main groups of small hand tools. Rotary as well as non-rotary querns were noted from these Phases with the earliest from Phase 3, and another four from Phase 5/6. In this latter phase the different types of querns were found together for the first time. Mattocks, potlids and pecked and hollowed stones formed some of the other numerous items.

Many of the finds were scattered in post-Neolithic ditch fills as well as within floors in Phase 4 and the Phase 5/6 roundhouse village. Pivot-stones found both in situ and in rubble horizons emphasis the structure and planning of some of these Early Iron Age phases.

Table 52: Geology of stone artefacts

Artefact Type	Simplified Rock Types																					Total
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	
Incised stone	1		2			2																	5
Armlets						2									2								4
Counters			3			2																	5
Stone balls			1			2								1									4
Sm. miscellaneous		1	3			1									2	2	1						10
Beads					1	4								1									6
Spindlewhorls			7		2	23	1							2	1								36
Perforated stones			1			2	3		1														7
Axes										1	1												2
Skaill knife							1																1
Hammerstones			9	2	1	36	5					2	1					1	10	1			68
Grinders						20	1																21
Pounders						22	6			3		3							3				37
Pestles			10			18	1	1															30
Grinder/h'stone			11			15	1			1	1							1	1	1			32
Pounder/h'stone			5	2		32	3					1						1			1		45
Pestle/h'stone			20			10												1	2	1			34
Pebble polishers			4			3						1						1	2				11
Elong. polishers			12			4																	16
Worn polishers	1					4	11	1				1							1				19
H'stone/polisher			2			1	2																5
Pounder/polisher			5		2	17	11	2	1									1		1			40
Grinder/polisher			2		1	2																	5
Pestle/polisher			5			11	3					1								1			21
Whetstones			17			4																	21
Cleavers			1			3																	4
Mattocks			4																				4
Shovels			9			2																	11
Strike-a-lights					2	2																	4
Pebble caches			8			11	5	1	2			9								2			38
Potlids/bakestones			97		1																		98
Non-rotary querns						8	48	1	2														59
Rotary querns						6	19	1												1			27
Unclassified querns							1	4											1				6
Querns rubbers							6	2											1				9
Mortars							3	5															8
Pecked & hollowed			2		1	18	18		2														41
Pivot stones						15	8																23
Pecked & decorated						1	1																2
Reused stones							3		1														4
Miscellaneous	1		1	1	1	5	9		4					1					2				25
Unworked										1		5							1				7
Total																							855

Table 52: Key to simplified rock types

A – unkown	I – coarse-grained sandstone	P – hornblendic mica schist
B – carnelian	J – camptonite	Q – quartzite
C – siltstone	K – monchiquite	R – felsite
D – silt/sandstone	L – bostonite	S – granite
E – *sandstone*	M – *porphyritic felsite*	T – granite-gneiss
F – fine-grained sandstone	N – steatite	U – hornblendic granite-gneiss
G – medium-grained sandstone	O – jet/shale	V – tuffaceous acidic conglomerate
H – medium/coarse-grained sandstone		

Tools missing from these assemblages but found in later phases are grinders, large sub-rectangular querns, whetstones, cleavers and strike-a-lights as well as more personal items such as beads, armlets and stone balls.

EARLY PHASE 7

This phase produced the majority of stone tools (41%) with 353 items found. The ***SE*** Building produced the fewest (17), and the broch produced the most (35). There were large numbers of combination tools but few elongated polishers. Non-rotary querns out-numbered the rotary and sub-rectangular querns, although in some buildings such as the ***SE*** and ***SW*** all types occurred together. Potlids were the most numerous individual items.

Most of the tools were found in rubble contexts or reused in a fragmentary form as packing for structural features such as orthostats and hearth kerbings. Some of the broch tower artefacts were located within the interstices between the wall stones. Some

Table 53: Distribution of stone artefacts by phase

Artefact Type	Phase 1/2	2	2/3	3	3/4	4	4–6	5	5/6	5–7	6	6–9	E 7	L 7	7/8	E 8	L 8	8/9	9	Total
Incised stone														1			3		1	5
Armlets													2	1		1				4
Counters				1										2		1	1			5
Stone balls													1	1					2	4
sm miscellaneous				1									2		1	4		1	1	10
Beads													3			2	1			6
Spindlewhorls				1		1							7	9	3	7	4		4	36
Perforated stones						1			1				3	1					1	7
Axes	2																			2
Skaill knife	1																			1
Hammerstones				1	1	2			6		2	1	18	10	2	6	14		5	68
Grinders													13	6		2				21
Pounders	1		2			2	1		5				15	4		3	2		2	37
Pestles				1				1	4				16	6		1			1	30
Grinder/h' stone					1				1			1	19	6	1		3			32
Pounder/h' stone			1			2		2	2				21	10	2	3			2	45
Pestle/h' stone						1			5				18	7					3	34
Pebble/polishers													3	6	1	1				11
Elong polishers				1									8		5	2				16
Worn polishers									4				8	2	1	2	2			19
H' stone/polisher											1		1			1	2			5
Pounder/polisher	1		1						1				21	12	1	1			2	40
Grinder/polisher									1			1	1	2						5
Pestle/polisher									2				10	3	1	1			4	21
Whetstones														2	1	5	6		7	21
Cleavers													3	1						4
Mattocks								1	2				1							4
Shovels									1				9	1						11
Strike-a-lights																1	2		1	4
Pebble caches						8							30							38
Potlids & bakestones		1			1	1		1	3	1			38	12	4	22	9		5	98
Non-rotary querns									3				27	12	4	6	4		3	59
Rotary querns				1					4				10	6		1	1		4	27
Unclassified querns									1				1	2			1		1	6
Quern rubbers									1				1	1	2	1	2		1	9
Mortars									2				3	3						8
Pecked & Hollowed						2			4		1	1	12	8	1	4	3		5	41
Pivot stones								1	1				15	1		1	2		2	23
Pecked & decorated						1								1						2
Reused stones													4							4
Miscellaneous						1			1	2			7	6		1	4		3	25
Unworked												1	2	2			2			7
Totals	5	1	4	7	3	22	1	6	55	3	4	5	353	147	30	80	68	1	60	855

domestic floors were very productive, such as the primary floor of the ***NE*** Building, which yielded everyday tools of potlids and spindlewhorls.

There seems not to be a pattern in the distribution of tools between the buildings of this phase, nor in the distribution within each building. Only pounder/hammerstones and potlids are common to all the buildings. Many of the tools, and especially broken querns, were reused in masonry features. Only floors that seem to have been in use for a long time produced more than a dozen items, but in general both floors and yards of the structures were kept clean and contemporary ditch deposits were largely devoid of stone tools. It was not possible from the evidence to deduce work areas within the individual buildings during this phase.

Groups of tools, worked and unworked, identified as pebble caches, hint at the deliberate placement or collection of tools, such as a group found within the broch wall, or a collection within a small stone setting in the ***S*** Building, and two isolated groups within floors of the ***SW*** and ***E*** Buildings. Sparsely represented are personal items and tools such as some types of polisher, mattocks, whetstones and identified quern rubbers.

LATER PHASE 7

Approximately 17% of all tools came from this phase. The second workshop floor within the broch tower contained 18 tools including shovels, grinder/hammerstones, combination tools, polishers, a non-rotary quern and a pebble cache, which suggests both industrial as well as domestic activities and perhaps stone tool manufacture. The ***S*** workshop contained 78 tools mostly found in demolition and levelling rubbles and incorporated into walls. Sub-rectangular querns were numerous, but both rotary and non-rotary querns were also present. In contrast, the ***E*** Building yard workshop produced only rotary querns. Only the ***NE*** Building and yard yielded more than a dozen tools, while tools from the other small workshops were only found as part of walls and within rubble areas. Items in small numbers or missing from this phase are beads, quern rubbers, mattocks, shovels, whetstones and cleavers. There were no tools common to any of the workshops.

PHASE 7/8

The third and fourth secondary, workshop, floors within the broch tower are characterized by the lack of rotary querns and a declining number of tools with no common item apart from potlids. Only 16 tool types are represented during this phase, which forms only 3.5% of the total collection.

EARLY PHASE 8

Excluding rubble contexts, only three areas are represented by tools from this phase, the ***SE*** and ***E*** yards which produced only one pounder, and the ***NE*** and ***S*** complexes produced 50 and 26 tools respectively: in all, 9.3% of the total. Most tools were found in rubble contexts, including most of the querns, these being mainly non-rotary. Only the floor of the ***NE*** Building produced any quantity of tools, nine, while the other floors throughout this phase were sparely productive. No pestles or pestle types, perforated stones, mortars, mattocks, shovels, cleavers and pebble caches were found, nor were they located in any of the succeeding buildings.

LATER PHASE 8

This phase produced 8% of the tools, with only Stage 5 yielding more than 6 finds. Finds from this phase were sparsely scattered throughout the stratigraphy and predictably the rubble abandonment horizons produced the most finds. Potlids, whetstone and double-ended hammerstones were the most numerous articles. Only one miscellaneous quern was found in a stratified context apart from those in abandonment rubbles. Again there was no discernible pattern to the tool distribution.

PHASE 8/9

Only 1 find, a jet pin.

PHASE 9

60 unprovenanced tools (7%) came from the topsoil and unstratified contexts, encompassing nearly all categories of finds.

ARTEFACT TYPES

From the total assemblage of stone artefacts 41 categories have been identified, with one category of unworked stone. The tools were divided according to their main characteristics of morphology, tooling and patterns of use and likely function. In the categories below the general characteristics of the tools are described as well as comparisons with other sites, but the comprehensive catalogue of all the stone artefacts is not included as this can be found in microfiche (2:A3–G14). The catalogue contains a detailed description with measurements of each find and the phase to which it belongs.

The rubbly nature of the site and the amount of stone chippings weathered and broken from larger stones, even on domestic floors, prevented any serious research into areas where stone tools could have been manufactured. Areas of chipped debris from tool making were either not present or could not be determined from the general scatter of stone chippings. It would seem likely that most tools, of local rock types were made at or near the settlement but evidence to support this could not be retrieved.

INCISED STONES

Both quarried and flat beach pebbles were used for five stones which have incised marks. Two flat siltstones have been interpreted as gaming boards with measurements of 150–190mm long by *c* 150mm wide and *c* 30mm thick. SF 700 (illus 90c; 106) has both vertical and horizontal lines with small circles at some of the intersections. The other, SF 4933, is unfinished. Gaming boards have been found at many other sites. A whalebone board from Birsay (Curle 1982, ill 50, 274), is very similar to SF 700 with circles at the cell intersections, likewise are the ones found at Buckquoy, Birsay (Ritchie 1976, 199, fig 9, 10), which are described as from mid-Norse levels, and another simpler one from Birsay, probably of the same date (Morris 1989, 215–217). A larger stone from Jarlshof, Shetland, has games on both sides and seems more complex in its execution than the one from Howe (Hamilton 1956, 145, 48, pl 31), while a large but fragmentary stone from the Broch of Gurness seems less formalized (Hedges 1987b, 127).

Although the gaming boards from Howe are from rubble layers and are therefore unstratified, they probably came from dwellings during Late Phase 8, probably from the 6th and 7th centuries and possibly as late as the 9th, whilst comparable finds from other sites are said to be of mid-Norse date.

The three other stones in this section have incised designs cut into their faces and come from Late Phase 8 and Phase 9. One has a fragmentary fan design, another has an incised double bow and the third has the initials 'A M' which are underscored.

ARMLETS AND BRACELETS

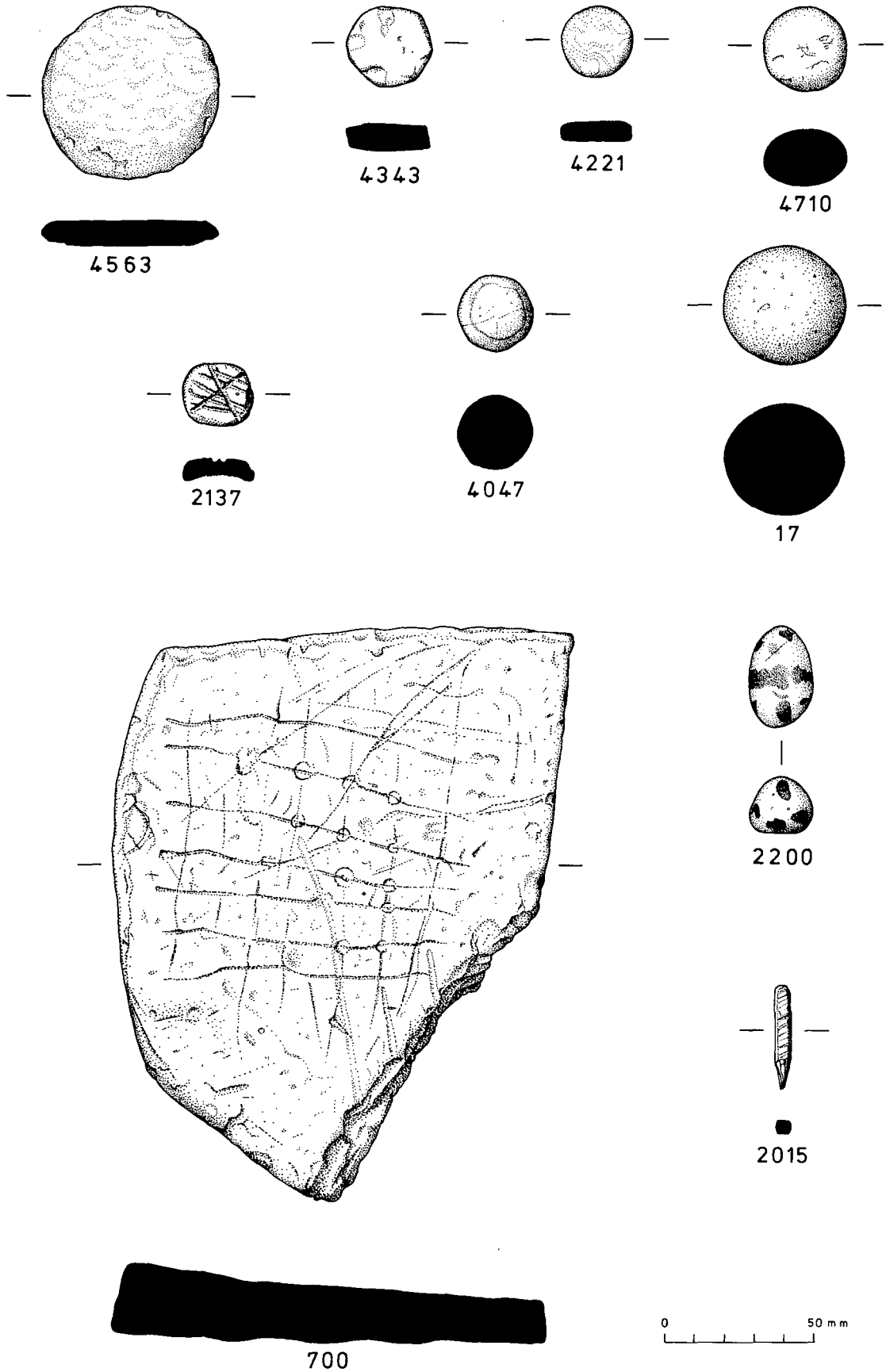
Four armlet fragments were found, with diameters of 60–90mm. Two, SF 4594 and 7236 (illus 107), are of polished jet or jet/shale and two are of fine-grained sandstone, SF 7082 and 2087. The sandstone armlet SF 2087, is from Phase 8 and is coated with a black substance which has taken a polish (see below). All these pieces are roughly semi-circular in section and very fragmentary.

Most comparable armlets from other sites such as Dun Mor Vaul, Tiree (MacKie 1972, 135, fig 15, 223) and Birsay (Curle 1982, 67, ill 42) are normally broader in section. Armlets from Jarlshof (Hamilton 1956, 36–37, fig 17), are of polished steatite and again wider than those from Howe, whereas the eight steatite fragments from Mavis Grind, Shetland, are more comparable (Cracknell & Smith 1983, 27, fig 9). A shale armlet was noted from Midhowe Broch (Callander & Grant 1934, 496), and Curle remarked that the 24 armlet fragments found at Traprain Law, East Lothian, were from the lowest level but had passed out of fashion by the second half of the 2nd century AD (Curle 1920, 98).

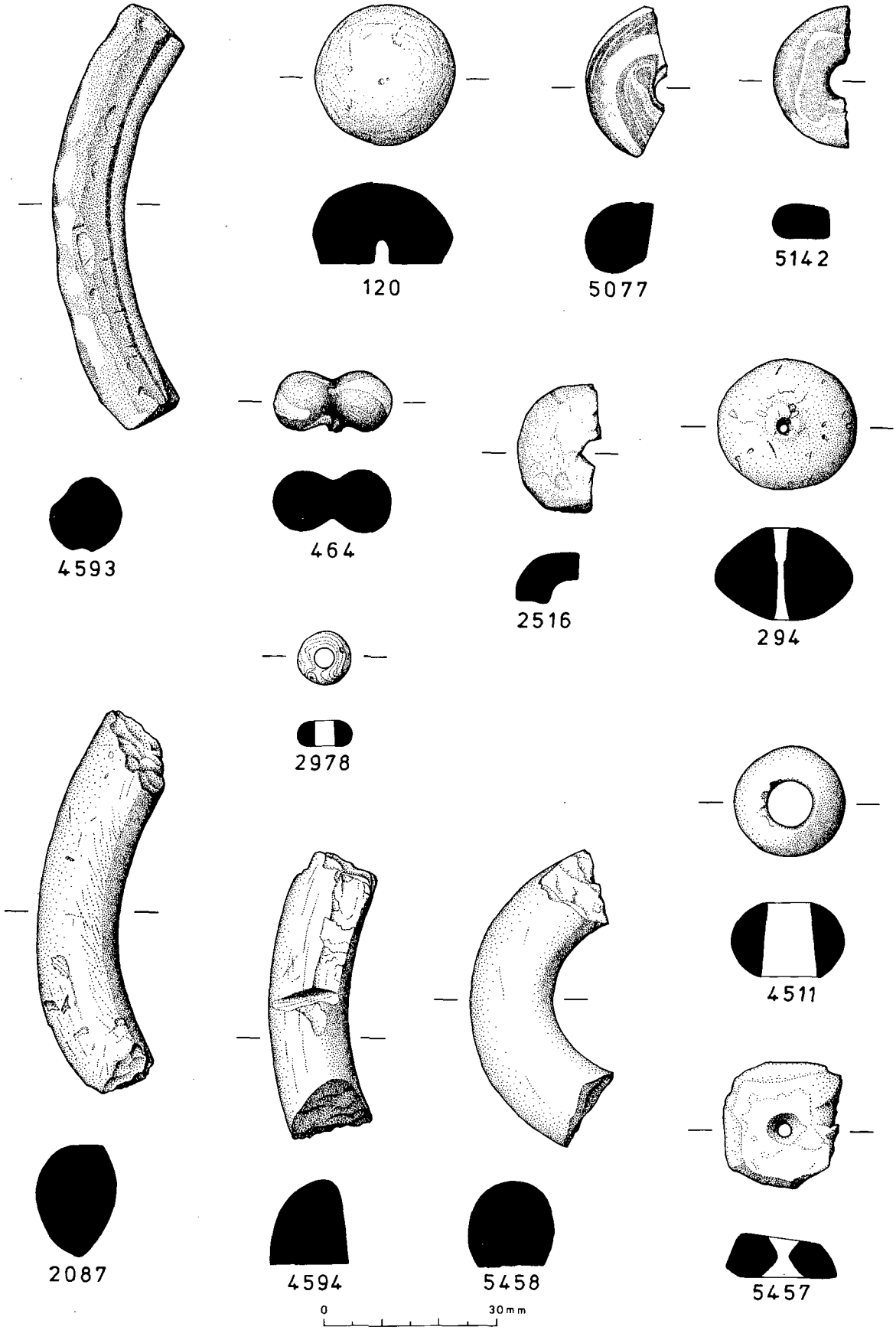
COUNTERS AND PLAYING PIECES

Five rounded and flattened discs of silt and sandstone were identified as counters. They predominantly have flat surfaces and ground sides or edges. SF 4221 (illus 106) is highly polished and SF 4343 has irregular sides. SF 7391, from Phase 3, has, however, only one flat surface. The counters are less than 27mm in diameter and less than 10mm in thickness.

Counters are numerous from broch settlements on Orkney and Shetland (Hedges 1987a; 1987c), although contemporary stone and bone playing boards are rare (see Incised Stones above). Other boards may have been of more perishable material such as leather or wood, or scratched into an earth floor, and as such have not survived to be added to the archaeological record. Jarlshof (Hamilton 1956, 64) produced two counters from the Iron Age settlement and Clickhimin (Hamilton 1968, 80, 84, fig 35, 114; fig 147, 142), had more than 12 disc counters or playing men.



Illus 106
Stone gaming board, stone & bone counters, slate pencil and painted pebble.



Illus 107
Polished incisor, stone armlets, perforated stone, and glass beads.

STONE BALLS

Only four stone balls were found, two from the topsoil and two from Phase 7. They are only roughly spherical with diameters ranging from 22–37mm, and are made of steatite, siltstone and fine-grained sandstone. SF 17 (illus 106) is of sandstone and has a high polish on an artificially blackened surface (see below). Several stone balls of a similar size to these were found at Clickhimin and described as steatite and sandstone 'slingstones' (Hamilton 1968, 80, 86, 120, 143).

A partly drilled sandstone ball came from Burrian, North Ronaldsay (MacGregor 1972, 95, fig 20, 275), but few are noted from other Iron Age settlements although a larger serpentine ball was found at Howe of Hoxa (Hedges 1987c, 104). The paucity of stone balls from Iron Age sites precludes their use as slingshots: specialized counters or even amulets are preferable alternative uses.

SMALL MISCELLANEOUS

POLISHED JET

SF 120 (illus 107) is probably an example of a globular pin head, made of polished jet with a basal hole for an iron shank. Stevenson (1955, 293) suggests that 'they may derive ultimately from the considerably larger 'jet' heads, also with iron pins, datable to the Roman Iron Age at Traprain and Crichie, Aberdeenshire'. SF 120, with a diameter of 23.5mm was found within some of the later stratigraphy on the site, in Phase 8/9.

ROMAN INTAGLIO – *Martin Henig*

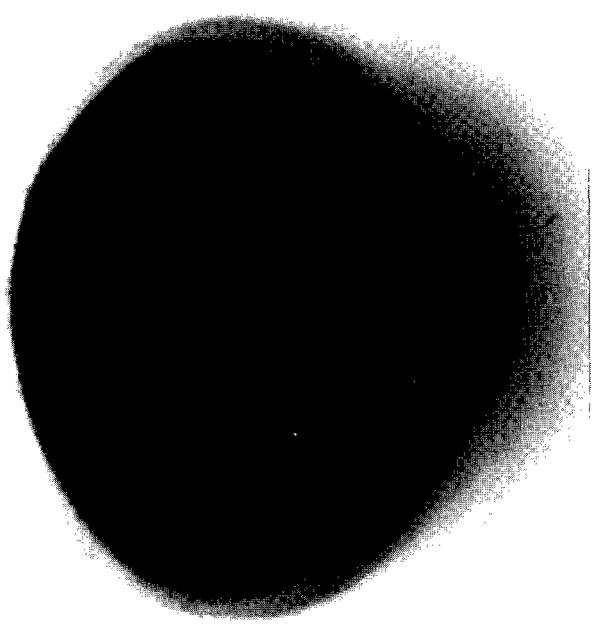
The intaglio SF 609, from Phase 9 and therefore unstratified (illus 108a), is a carnelian with agate banding, conical in form and evidently intended to stand proud of the surface of the ring in which it was set, (for the shape see Henig 1978, 35, fig 1 shape as F3 but edges of upper surface slightly curved). There is some surface wear and the impression is described in accord with the usual practice.

An eagle (108b) stands with its body three-quarters towards the left and looks back to the right. The wings are partly displayed and there is no sign of the usual wreath in the beak or of the ground line. The image is nevertheless an attractive one with the texture of the bird's plumage suggested by groups of parallel wheel grooves. The style of cutting is that of the small-grooves style portrayed in Masskant-Kleibrink (1978, 251–84) where No 798 is an agate cone with a fish engraved on the upper surface and No 795, a carnelian with a much broader surface, displays an eagle as here. Both reveal a comparable delight in texture, executed with short strokes of the lap- wheel.

Eagles are shown on a number of gems from Britain including a yellow jasper one from Bath, probably late first century in date (Henig 1978, 269, pl 21, 689), and another on onyx from London set in a second century ring (*ibid* 314, pl 31, App 188). From Scotland is noted a nicolo paste from Newstead showing two eagles and a legionary standard (Elliot & Henig 1982, 297, 12). The intaglio is the most northerly yet found in the British Isles. As it can be dated in all probability to the middle of the second century it could have reached Howe, perhaps on the finger of a merchant from the south at a time of considerable Roman activity in Scotland, or, like the glass gem from Cairnhill, Aberdeenshire (Henig 1978, 208, 178; Stevenson 1967, 143–5, pl 25, 2a, 9), it might have been valued by its native owner as a charm and have been lost a long time after its date of manufacture.

SILTSTONE PENCIL

SF 2015 (illus 106) is a slate pencil, 35mm long and slightly rectangular in section. One end has been trimmed to a point. It was found in the broch tower early in Phase 8.



Illus 108
a) Roman intaglio; scale 9:1;

b) detail of eagle design.

PAINTED PEBBLE

This small quartzite pebble SF 2200 (illus 106), with measurements of 32 × 20mm, was found in the fourth workshop floor of the broch tower during Phase 7/8. It is divided into two by a brown central band of colour. At one end are five dots and three at the other in the same brown colour. They have been applied however over a faded but earlier and different pattern of dots.

Several painted pebbles have been found at other Iron Age sites and the designs range from all-over circles at Buckquoy (Ritchie 1976, 199, fig 8, 87), a pebble with involuted lines at Clickhimin (Hamilton 1968, 86, fig 37, 1) and one with all-over dots and one with line and dots at Jarlshof (Hamilton 1956, 64, pl 15c, fig 39, 1). A combination of dots and lines can be seen on painted pebbles from the Broch of Keiss, Caithness (Hamilton 1968, 86), and two quartz pebbles from Burrian which have wavy lines and open circles respectively (MacGregor 1972, 95, fig 20, 276, 277).

The actual content of the colour has not been determined nor has a plausible explanation been found for the differences in decoration. The pebbles could have been amulets with magical or medicinal properties, or used in games. Although their use is obscure this type of pebble is well represented at Iron Age sites in the north of Scotland.

HORNBLENDIC-MICA-SCHIST DISCS

Two thin polished discs, SF 4397 and 4563 (illus 106), were found within the ***NE*** building during Early Phase 8. Their diameter is 59mm and the thickness 5.5mm, with edges which have been ground smooth.

Similar discs and plaques of garnetiferous-schist have been found in the Iron Age settlements at Clickhimin, numbering 18 in all (Hamilton 1969, 79, fig 35, 19–21; pl 22a, 114; fig 115, 5, 135, 138, 142). In contrast to this high number at Clickhimin, none were recorded from Jarlshof. A micaceous disc was found at the East Broch of Burray (Hedges 1987c, 100) which may be of the same type. Their uses may, like the painted pebble, have been associated with folklore. An interesting property of these discs is that when wet, the colour is highlighted and the mica becomes shiny and mirror-like.

AMULET

A small irregularly shaped stone, SF 4965 (illus 109), with a hooked narrow end and a polished body. It was found in rubble in the Early Phase 7 ***E*** building yard.

JET RING

SF 5458 (illus 107) was found in the ***NE*** building in Early Phase 7. It is a polished jet ring fragment, circular in section, and estimated to have been *c* 53mm in diameter. It is too small to be an armlet or bracelet with its central hole only *c* 24mm in diameter, and its function is unknown. Jet rings similar to this have been found at Dun Mor Vaul (MacKie 1974b, 135, fig 15, 222) and in the third level at Traprain Law (Curle 1920, 96, fig 22, 14).

STONE POINT

SF 6985 (illus 109) is a stone point of siltstone 91mm long and 10mm wide. Its edges have been smoothed and its pointed end had been worn. It was found in Phase 3.

SANDSTONE MOULD

SF 4302 (illus 109) is a fragment of a stone mould, which has part of a ring cut into the upper face of the block. It was probably used for the manufacture of ring-headed pins as its diameter of 16.5mm is comparable. It was found within the ***NE*** building early in Phase 8.

Moulds for ring-headed pins have been found at both the Broch of Gurness and at Birsay, but made of fired clay, whereas stone moulds were normally used for producing metal bars (Curle 1982, ill 28). It would seem that the Howe mould is earlier than those of fired-clay and was probably used to bend the copper-alloy wire to form the simple ring-headed pins found at the settlement.

BEADS AND SPINDLE WHORLS

There is an overlap in size between small spindle whorls and large beads, each being stone rings with a central perforation. An attempt has been made to differentiate between the two by weight. Whorls of 10 grammes or less have been identified as beads. The beads have diameters ranging from 17–38mm and their holes have diameters from 6 to 11mm. The diameters of spindle whorls range from 23 to 59mm, with clustering around 34–38mm. Their perforations measure between 6 and 21.5mm, with two clusters between 9–13mm and 15–18mm. An attempt has been made to differentiate between the two by weight.

Most of the beads, five of the six, are of sandstone and very fragmentary. Some are irregular in shape and are presumed unfinished (eg SF 7031) and all are from Phases 7 and 8. In contrast, the steatite bead, SF 4511 (illus 107), is a highly polished flattened sphere with a hole that is not splayed or waisted. The incidence of a steatite bead from Early Phase 8 indicates contact and trade with Shetland, where steatite beads were quite common in the Roundhouse and Iron Age settlement levels of Jarlshof (Hamilton 1956, 37, fig 17, 54, figs 31 & 36).

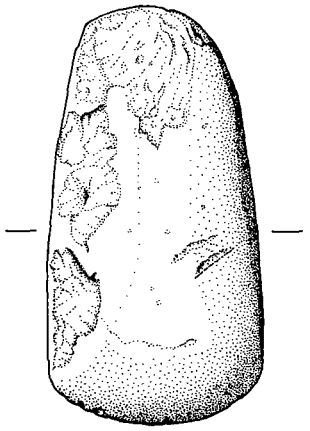
36 spindle whorls were identified (by weight), mainly from Phases 7 and 8, with occasional ones from Phases 3, 4, and 9 (illus 110). Most of the sandstone and siltstone spindle whorls have a flattened appearance with either straight or rounded sides. Some are probably unfinished with rough surfaces and irregular sides, while others have off-centre perforations. Many of the whorls show signs of wear around the central hole where the spindle would have fitted, producing an elliptically splayed or waisted hole. Three of the whorls are made of jet and steatite, and have been introduced to Orkney. As spindle whorls were the only means of thread production during the prehistoric period, they were commonly recognized objects from other Iron Age sites on Orkney and Shetland. As many as 38 whorls were recorded from Clickhimin (Hamilton 1968, 84, 120, 135, 139, 142, pl 24), and 23 from Burrian (MacGregor 1972, 88–89, 92, fig 18) and several from Birsay (Curle 1982, 118–119, ill 68) where steatite whorls were recorded from Norse levels.

LARGER STONE TOOLS

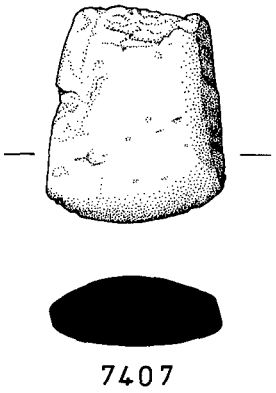
PERFORATED STONES

These are mostly flat rounded cobbles, pecked to shape, each with a waisted central hole (biconical), and made on fine and medium grained sandstones. There are seven tools in all in this category from Phases 4 to 9, but excluding Phase 8. The holes have generally been pecked, but also show signs of wear (eg SF 7246, illus 111 and 5154, illus 111). Although SF 7311 (illus 111) is a much smaller example than the others, it may be related to the perforated discs found at Jarlshof (Hamilton 1956, fig 29, 7). However, their shape and wear patterns do not give a clear indication of their function. Their use as loom weights, especially SF 4176 (illus 111), or as other weights might seem practical. SF 5400 (illus 111) has been chipped at one end, suggesting that it may have been reused as a hammerstone, and SF 4176 may have originally been a quern rubber.

Perforated stones have been found at Clickhimin (Hamilton 1968, fig 58, 2 & 3), Jarlshof (Hamilton 1956, 63), Crosskirk, Caithness

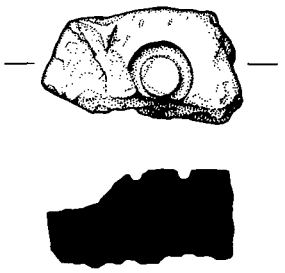


7392

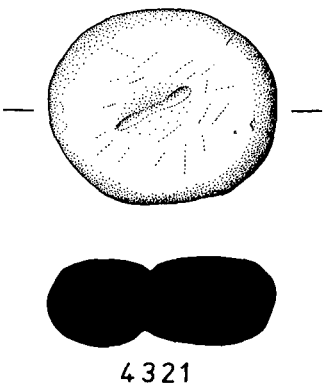


7407

Illus 109
Stone axes, amulet, mould, strike-a-light, point, and pot boilers.



4302



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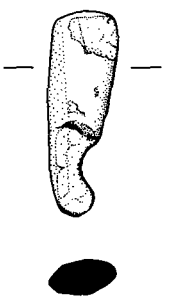
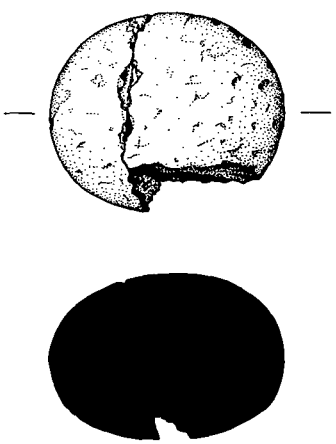


4965



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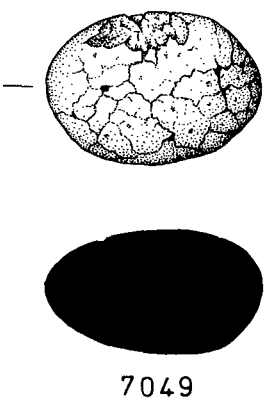

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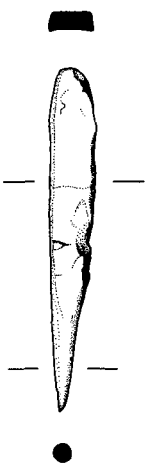

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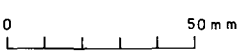
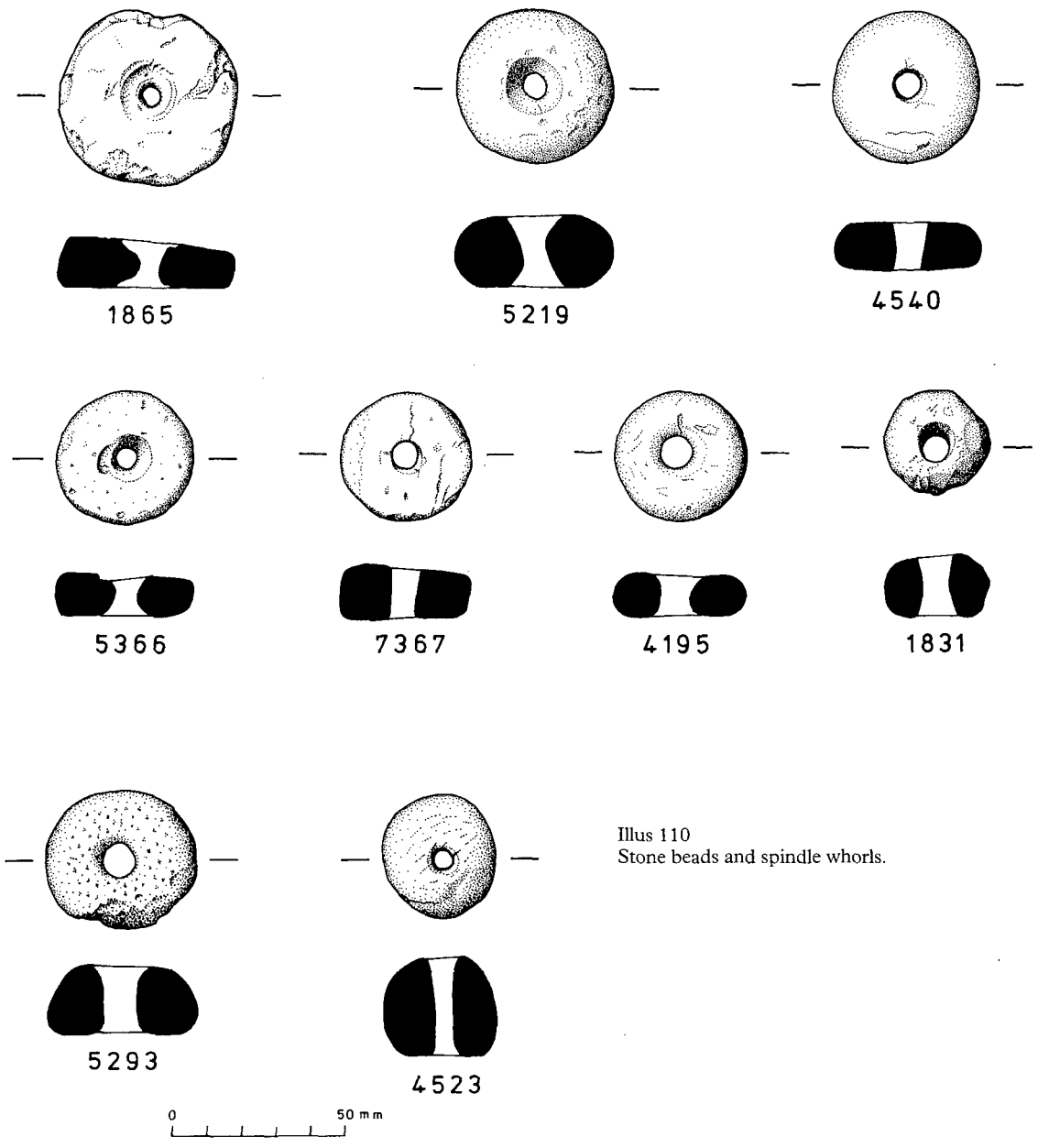




Illus 110
Stone beads and spindle whorls.

(Fairhurst 1984, 132) and at several of the Orkney brochs (Hedges 1987c), where they are described as tether stones or line sinkers. These from Howe seem too light in weight to have functioned as animal tether stones, and any form of fishing tackle was probably left nearer the coast. Their use as weights for looms and counter-weights for doors, or even as upper pivot-stones for the door posts may be plausible alternative choices.

AXES

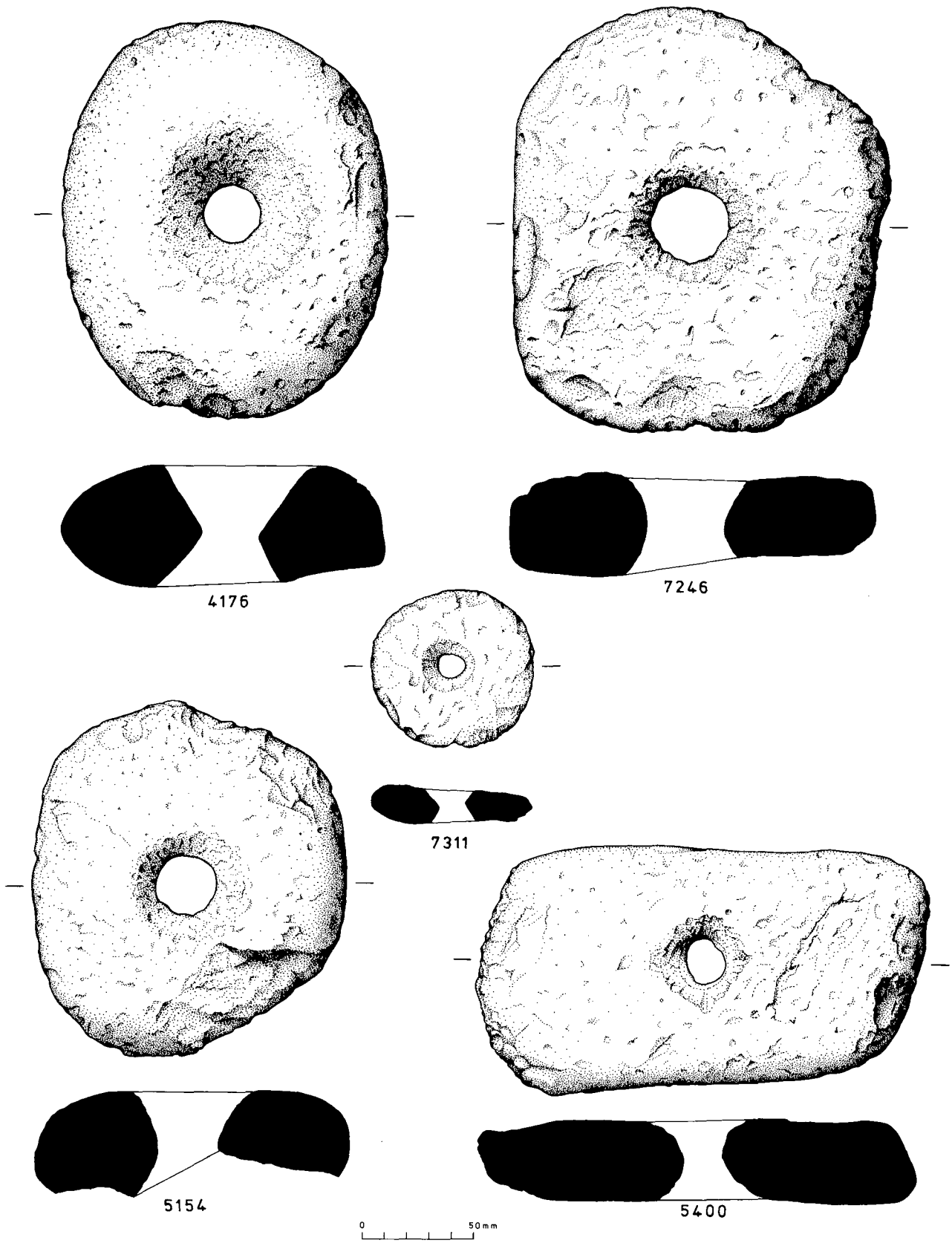
From over the Neolithic levels came a stone axe SF 7392, of monchiquite and a fragmentary one, SF 7407 (illus 109), of camptonite. Both are oval in section, with ground cutting edges and highly polished surfaces. Both show evidence of secondary damage by chipping and flaking.

There are numerous Orcadian examples of stone axes similar in size and shape to these, from Neolithic deposits at Knowe of Lairo, Calf of Eday (Long) and Blackhammer (Henshall 1963, vol 1, 111). The type of material used for the manufacture of these artefacts has not been studied in detail, but other axes from Huntersquoy and Calf of Eday (SE) have been identified as sandstone.

Three axes which correspond closely in size to those from Howe were found at Isbister, South Ronaldsay (Hedges 1983, figs 29, 66, 92 & 93), indicating that such stone axes formed part of the Neolithic funerary ritual and suggesting a similar function at Howe.

SKAILL KNIFE

Only one knife from a split sandstone cobble was found at Howe, from a disturbed Neolithic context. Its edges show signs of wear and it is very similar to those from Skara Brae (Childe 1931, 114) and Pool, Sanday (pers comm John Hunter). Many split pebble knives were found in the earliest levels at Jarlshof (Hamilton 1956, 12, fig 5, 1), indicating the use of an easily available resource.



Illus 111
Perforated stones; loom weights.

An attempt has been made to identify different tool types from the copious numbers of cobble and pebble stone tools, by their wear patterns. However, their precise functions are still the subject of conjecture. Many reports group together these tools, including polishers, paying little attention to their wear patterns or to the multiplicity of functions for which they may have been used. There is obvious scope for further study and analysis. The 405 tools in the following 15 categories comprise almost half the total number of stone tools found at Howe. Their high numbers and their distribution suggest that they represent common everyday tools for the Iron Age.

HAMMERSTONES

The commonest use put to the rounded and elongated beach cobbles was that of a hammerstone. 68 tools of this type were identified from all but the two earliest phases. They were usually made on fine grained sandstone with some on granite and siltstone. The cobbles were hand-sized, averaging *c* 147.5mm long, *c* 68mm wide and *c* 42mm thick, and were used for violent action, producing severe fracture scars or massive shattered areas. The wear could be at one end (eg SF 5350) or at both ends of the tool (eg SF 7080, illus 112). Prolonged use in some cases produced a faceted appearance of the worked end, where the tool had been used from different directions (eg SF 155 and 4275, illus 112). Other examples, including SF 4275, show that the body of the tool and occasionally the sides were fractured by hammering. Hammerstones in all probability were used in building works and other non-specialist activities.

GRINDERS

The 21 tools of this type were mainly confined to Phase 7, with none occurring in earlier phases, and there are fewer of them than the other common types of cobble tool (hammerstone, pounders and pestles). Most of the grinders are made on fine and medium grained sandstones which are the most suitable rocks for this type of tool. One or both ends of the tools were made smooth by a grinding action which could produce a single faceted edge eg. SF 4361 (illus 113) or multiple facets (eg SF 2461 and 5484, illus 113). SF 4361 has also been used along both edges. The paucity of identified quern rubbers may indicate that grinders, or some of them, were used with querns, and that they were used for food processing and especially that of the cereals.

POUNDERS

Pounders are of rounded or elongated pebbles and made predominantly on fine grained sandstone. They were found from the early phases throughout the life of the settlement but most were from Phase 7, and there were 37 in all. These tools were used for, and formed by, continuous pounding to produce a pecked or pockmarked surface, usually at both ends, or, as in SF 7006 (illus 114), all around the circumference. The latter is an extreme example where nearly all the stone surface has been removed by pecking, and concavity of the ends has occurred. The pounding action is gentler than that of hammering and does not produce severe fracture scars, although some facetting of the ends can be produced.

PESTLES

These are tools with two sets of characteristics. They can be ground at one end and pecked at the other (eg SF 1839 and 7336, illus 113). Other pestles have combinations of both actions at both ends of the tool (eg SF 4730, illus 113). Some tools have body and edge pecking and grinding as well, but they are all predominantly made on siltstone and sandstone.

Pestles, 30 in total, appear from Phase 3 and decline at the end of Phase 7. They may have been used with mortars for food preparation. The late occurrence of grinders at Howe may imply differences in food preparation that necessitated the use of a separate tool with a single function. The lack of surface deposits on any of these tools prohibits any constructive suggestion as to their definite uses at this stage.

Hammerstones, pounders and polishers are common tools at all the major Iron Age sites in Orkney and Shetland and are often found in large numbers. Hammerstones with various wear patterns were found at Dun Mor Vaul (MacKie 1974b, 136), and over 100 stones were found at the Broch of Midhowe, Rousay, Orkney (Callander & Grant 1934, 500). These tools from earlier excavations were rarely discussed, simply listed, and numbers of specific tools cannot with any certainty be compared with those from Howe.

The following three categories are variations of hammerstones with other main patterns of ground and pecked areas indicating use. They were made on the same type and sizes of cobble stones as the above categories and they were mainly found in the Phase 7 settlement. The combination of wear patterns was distinct enough to subdivide these tools from those already described and in addition approximately half of the tools also have slight polish marks. This is usually in the form of a dark shiny stain on the body of the tool. Tools such as these, and some of the polisher variations described below, could be termed combination or multiple-use tools.

GRINDERS/HAMMERSTONES

32 stones were found from Phase 3/4 and onwards with hammering scars on one or both ends but also with pronounced wear marks produced by grinding. The ends of SF 4874 (illus 114) are both worn by grinding and shattered by hammering. Some of the tools have evidence of earlier pecking at the ends or contemporary superficial pecking and grinding on the body. These tools are made predominantly on sandstone and siltstone.

POUNDER/HAMMERSTONE

SF 2257 (illus 114) is pecked at one end and shattered at the other, and SF 5429 (illus 114) is pecked and shattered at both ends and pecked down the body. These two variations characterize the large numbers of tools (45) in this group.

PESTLE/HAMMERSTONE

As with the above, pecked and ground areas at the ends of the tools are combined with later wear patterns from hammering. Some tools also have pecked and ground marks on the side or body. 34 tools were found from Phase 4 to Late Phase 7 but in contrast to the other tools, two-thirds of these are of siltstone.

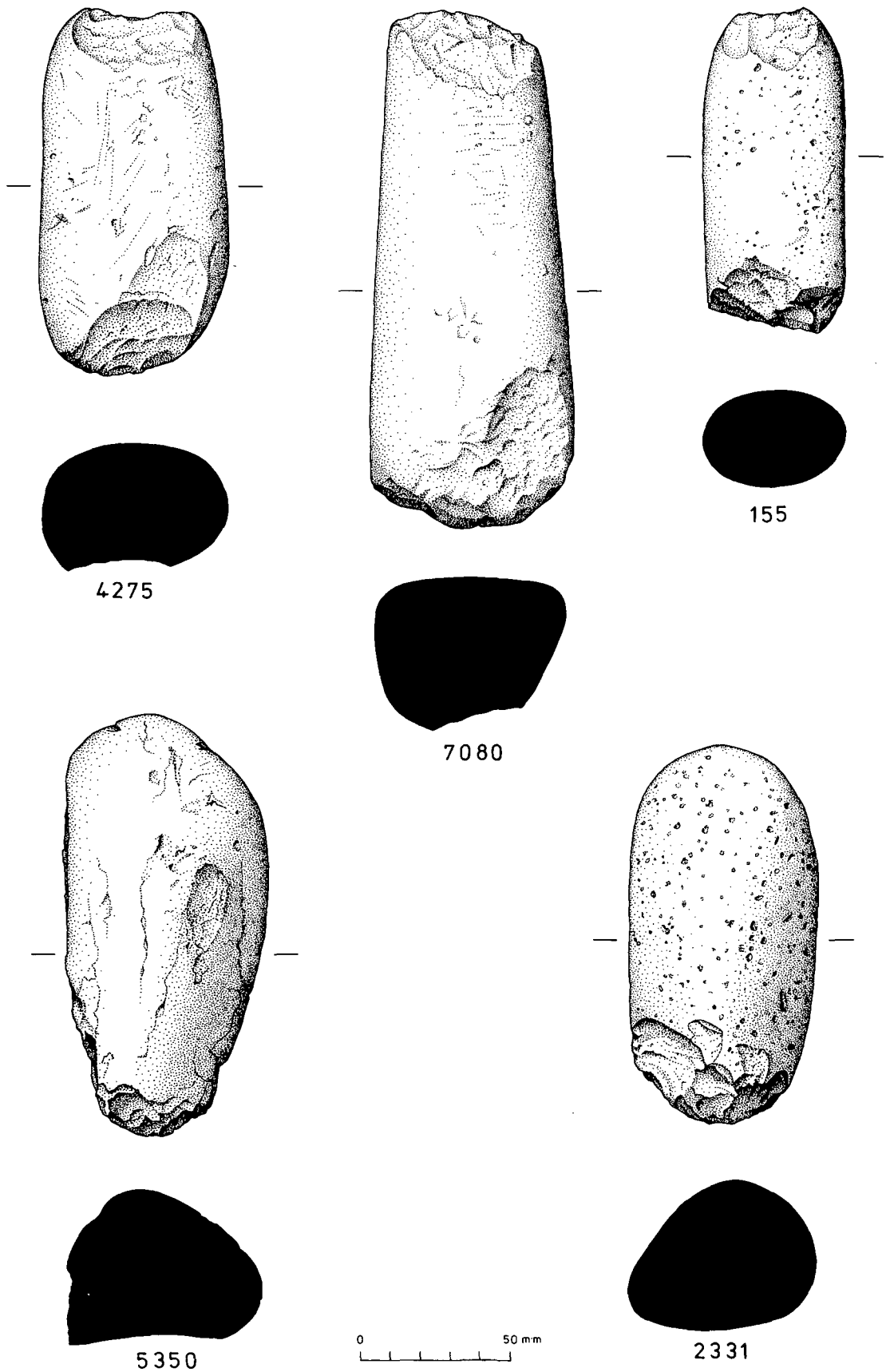
Further research may help to define the variations of tool use as well as the acquisition of wear patterns. The longevity of use and status of a single function tool may be important compared to tools which have had up to three uses. There are also questions concerning which tools were for domestic use and which were for outdoor or industrial use, if indeed there was a distinction. Comparison with other contemporary and well-stratified sites might, in the future, lead to further information about these ubiquitous tools which to now have been neglected in artefact studies.

POLISHERS

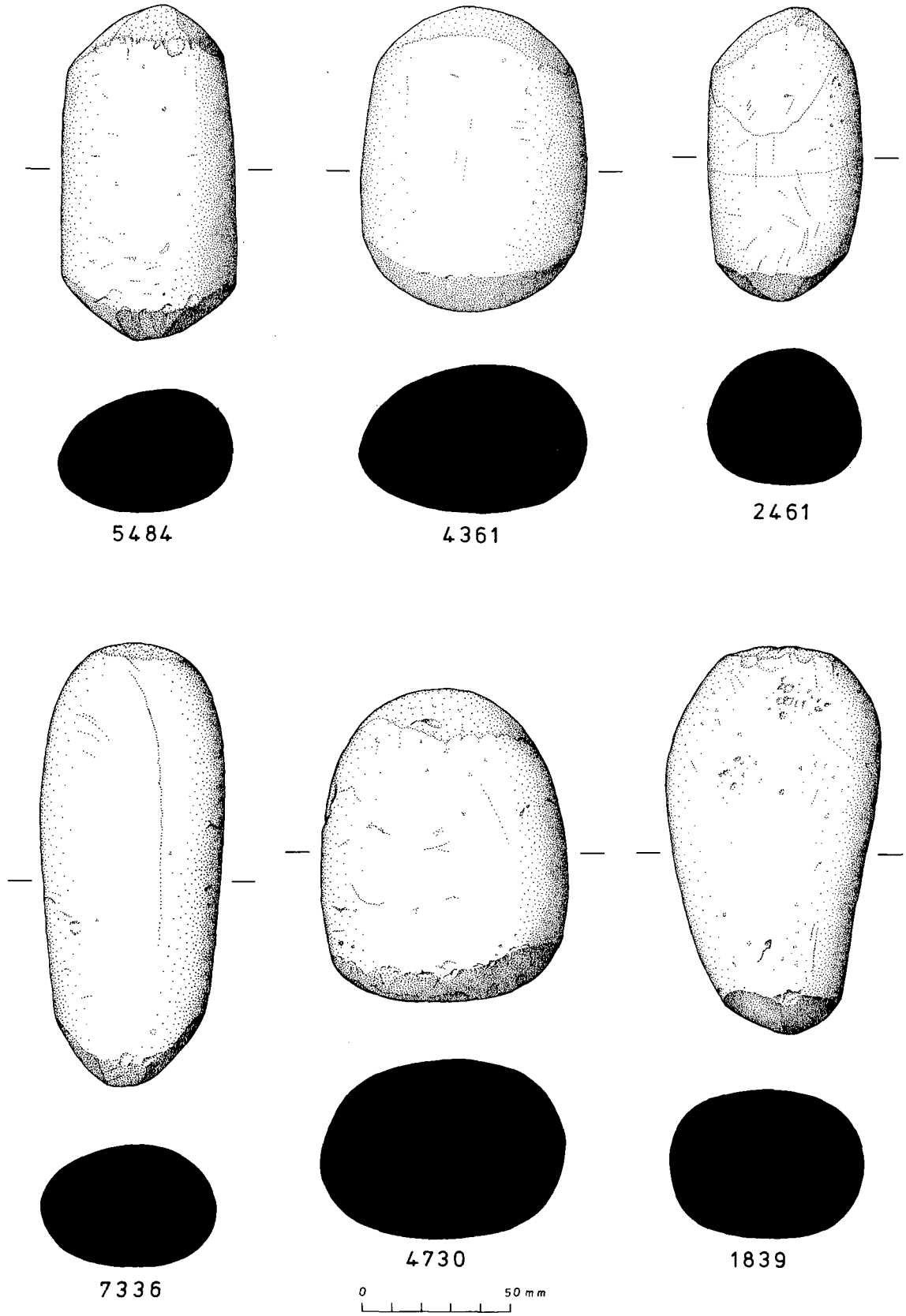
The word polisher might be a misnomer, as we have no clear idea of the uses to which these tools were put. Their uses might be several, such as burnishing pottery and knife blades (as opposed to sharpening), smoothing bone tools, etc. These tools exhibit highly polished surface areas often with a thin dark-brown deposit (see below).

There are three types of plain polisher:

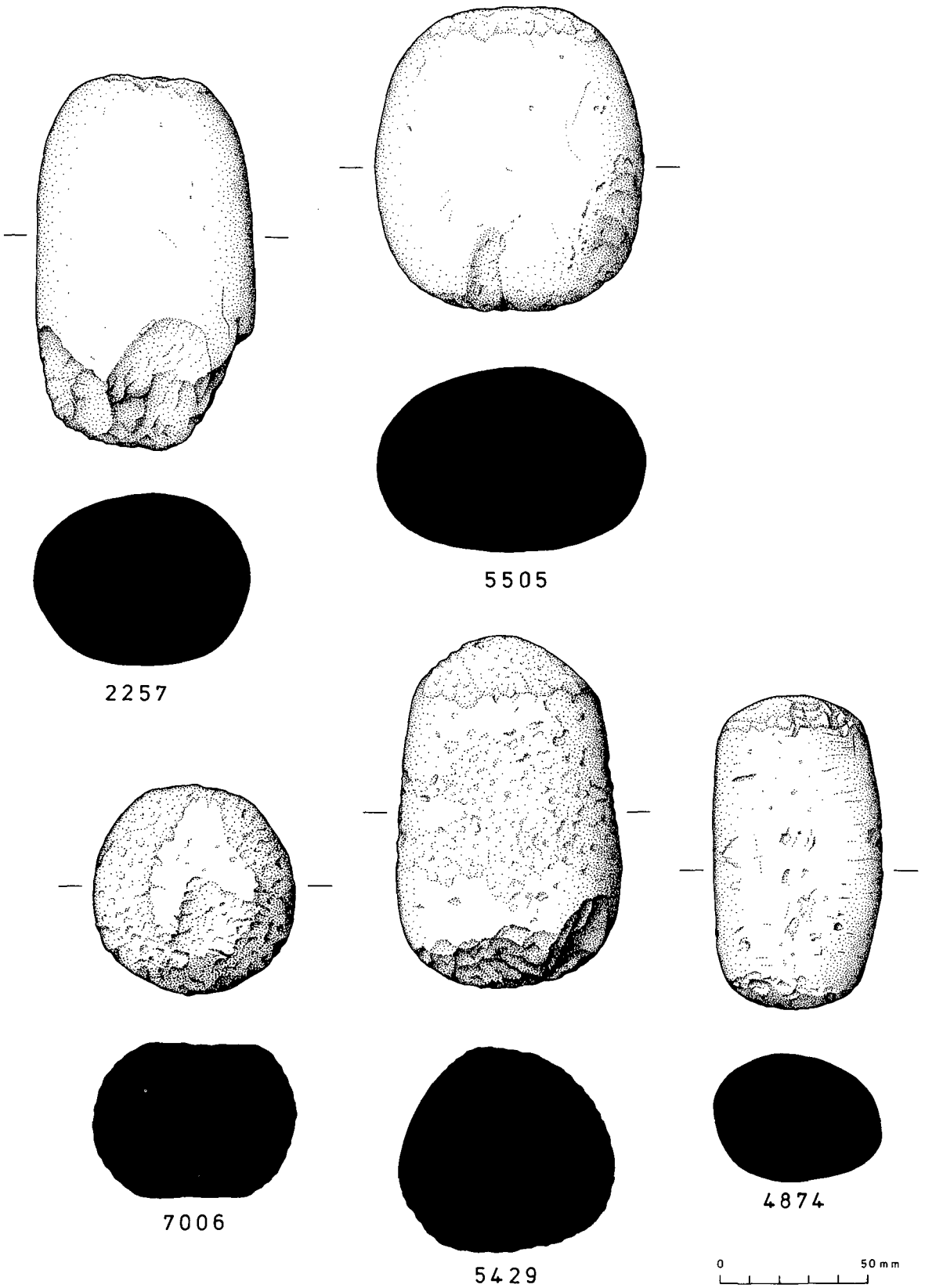
Small pebbles used as polishers (pebble polishers) less than 110mm in length, whose shape has not been altered by wear. The



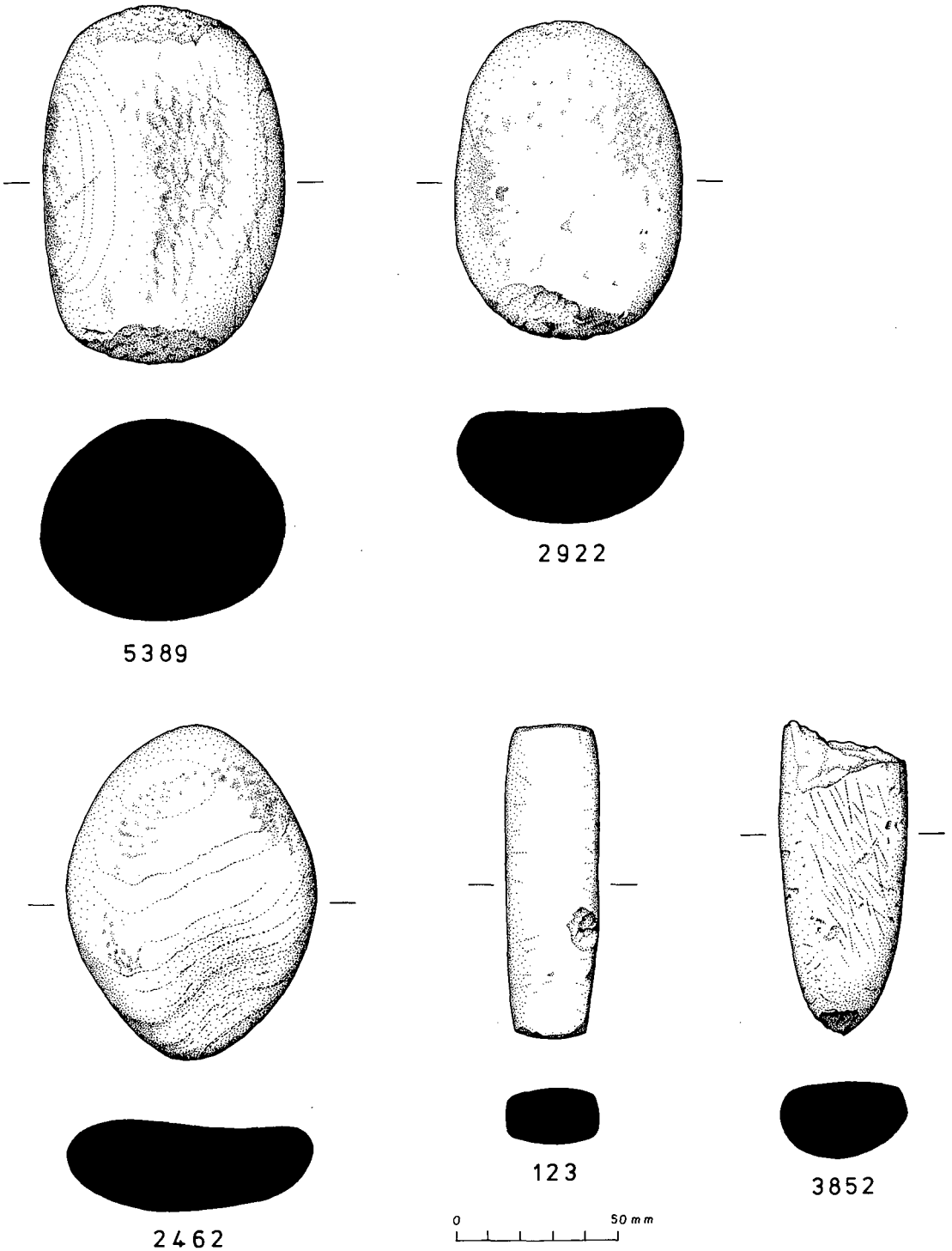
Illus 112
Single- and double-ended hammerstones.



Illus 113
Stone grinders and pestles.



Illus 114
Stone pounders, pounder/hammerstones, grinder/hammerstones and pestle polisher.



Illus 115
Stone polishers and whetstones.

polished surface of some tools has been developed by a circular or side to side motion. 11 tools form this category from Phases 7 and 8 and they are made on siltstone, sandstone and some granite.

Elongated pebble polishers may be related to whetstones. A total of 16 tools were identified mainly from Phases 7 and 8, and mainly of siltstone with some on fine-grained sandstone. These tools are slightly modified by use with polish marks on or around the body. They fall within a range of 68–130mm long and the majority have a rectangular section.

Worn polishers are tools whose shape has been altered by use. These are rounded or irregular shaped tools mainly of medium-grained sandstone, with convex or concave worn surfaces and faceted ends. Some tools have ends or edges which have been flaked by hammering. SF 2462 (illus 115) exhibits these

characteristics, but with polish marks on both surfaces and one end is hollowed with use. 19 tools of this type were found from Phase 5/6 onwards.

COMBINATION POLISHERS

Hammerstone/polishers

These are single or double-ended hammerstones with noticeable polish marks on the body. Of the 5 examples, mainly from Phase 8, some have secondary superficial pecking and grinding along the sides.

Pounder/polishers

These tools, 40, are mainly of fine- and medium-grained sandstone, with some of siltstone, found predominantly in Phase 7. The cobble tools have peck marks on one or both ends and occasionally down the edges, but with polish marks on the body (eg SF 5389, illus 115).

Grinder/polishers

These are small beach cobbles of silt and sandstone, which are ground at both ends with polished surfaces and edges. 5 examples were identified from Phases 5/6 and 7.

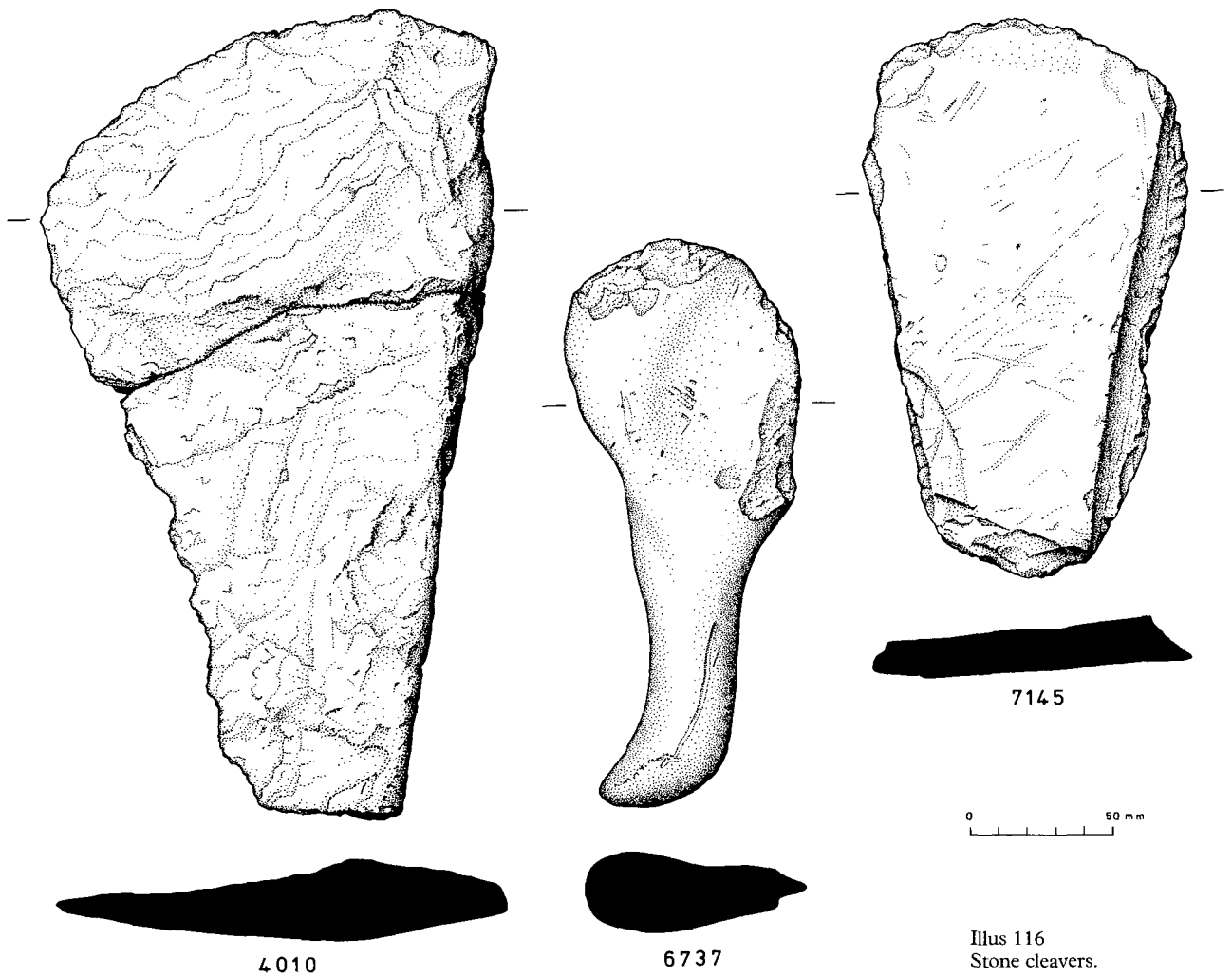
Pestle/polishers

Several tools (21) exhibit characteristics of grinding and pecking with polish marks on the surface or edges (eg SF 5505, illus 114). SF2922 (illus 115) is more altered, with wear patterns on its polished surfaces which are concave and convex in appearance.

WHETSTONES

Rectangular or elongated stones identified as whetstones and made predominantly on siltstone were identified from Late Phase 7 onwards to the end of Phase 8. There are 21 tools in this category. The tools have smooth edges and surfaces but exhibit no polish marks. Cobbles such as SF 3852 (illus 115) have score or cut marks on the body and the main working face has been made level with use. SF 123 (illus 115) is a compact tool from an unstratified context whose surfaces are slightly convex with wear. This tool shape is characteristic of whetstones found at many other Iron Age and later sites.

There is a difference in the distribution of polishers and whetstones. Whetstones, as already mentioned, did not make their appearance till Late Phase 7 and were in use throughout Phase 8. The polishers, especially the elongated and worn, were in evidence from Phase 5/6 and into Late Phase 8, and amongst other uses could have functioned as hones/whetstones. The occurrence of brown staining on these tools may be accounted for by burnishing and polishing tools under manufacture.



Illus 116
Stone cleavers.

The other polisher types were used between Phase 5/6 and Early Phase 8 with pounder/polishers originating in the Neolithic and being the most common tool of this type. Grinder/polishers were confined to Phases 5/6 and Late Phase 7 and hammerstone/polishers to Phase 6 and Early Phases 7 and 8. These tools obviously had several functions but this might be accounted for by the use of existing tools for other and later activities such as polishing. Few polishers are noted from other excavations, but one from Midhowe (Callander & Grant 1934, 497) has been described as a polisher or whetstone and a pebble polisher was identified from Lingro (Hedges 1987c, 82).

Whetstones have been commonly reported from Iron Age levels at Clickhimin and Dun Mor Vaul, including 26 from Crosskirk (Fairhurst 1984, 125) and several from Gurness (Hedges 1987b, 79, 85). Howe did not produce any perforated whetstones that are indicative of Norse levels, found at sites such as Jarlshof and the Brough of Birsay.

CLEAVERS

Only four examples of cleavers or chopping tools exist from Howe, all from Phase 7, of which one is of siltstone and the rest of fine-grained sandstone. They are crudely chipped into handled tools (or a tool which could be gripped along one side), with a sharp cutting edge. SF 4010 (illus 116) is the largest of these tools with a cutting edge formed by bifacial chipping, which shows signs of use. Another example of a handled cleaver is SF 6737 (illus 116) where a natural shaped beach pebble has been utilized as a chopping tool. In contrast, SF 7145 (illus 116), is more crudely finished but has sharp edges along three of its sides. A handled slate chopper had been noted from Jarlshof from Bronze Age levels (Hamilton 1956, fig 12, 4).

MATTOCKS

These four siltstone mattocks are the only agricultural tools found at Howe (apart from nine whalebone fragments – see 8.2 Bone Artefact Report). Two were found in Phase 5/6 and one each in Phase 5 and Early Phase 7. The Later Phase 7 mattock was located in a pit in the ***SE*** building. These tools were formed by chipping the siltstone around the sides and at the ends to produce a working edge. Three of the tools may be broken and SF 7385 (illus 117) is notched on both edges, producing evidence that it was hafted to a handle. SF 7150 (illus 117) has a worn rounded end, and that of SF 7346 (illus 117), a pointed end.

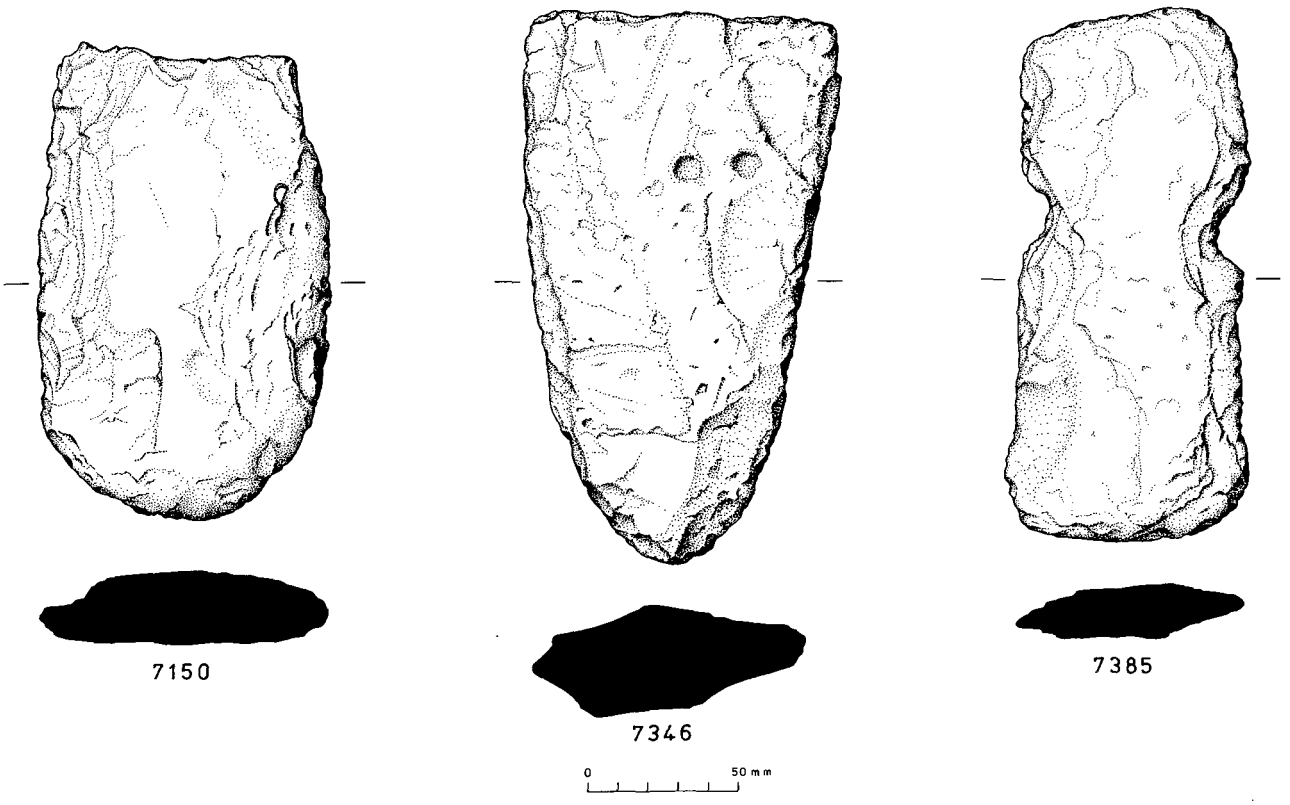
SHOVELS

Shovels are differentiated from mattocks by their size, thinness (less than 20mm) and location, although they are largely made from siltstone. In total 11 were found. They occurred in Phases 5/6 and 7, and several were located in earth floors near hearths. The shovels have edges formed by bifacial chipping (from opposite sides) but the surfaces of the tools, like those of the mattocks are largely unworked. The examples in illustration 118 show the three forms – SF 4270 oval, SF 2459 pointed and SF 4107 round-ended.

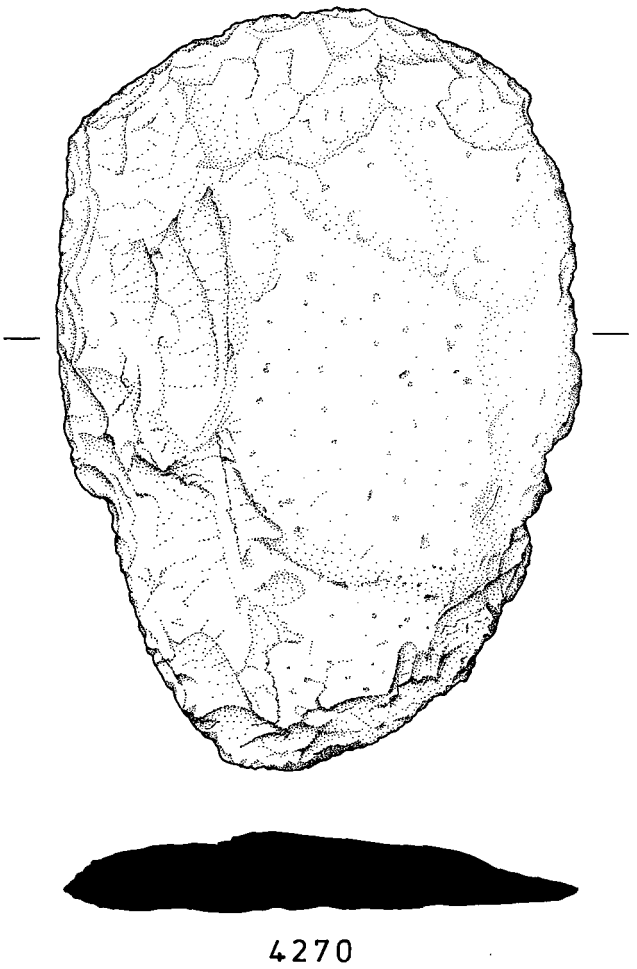
The location of four of the tools near hearths suggests that their function may have been to clear ashes and debris away from the hearth. Howe did not produce any perforated shovels, although rare examples in slate were found in the Late Bronze Age farmsteads at Clickhimin and Jarlshof (Hamilton 1968, 31; 1956, fig 12, 7).

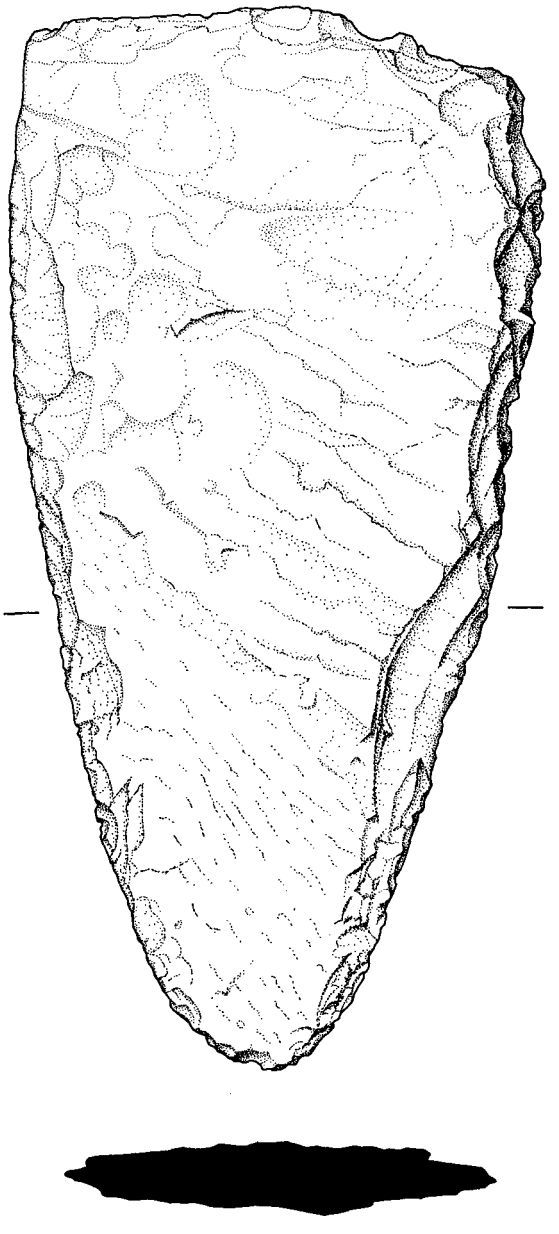
STRIKE-A-LIGHTS

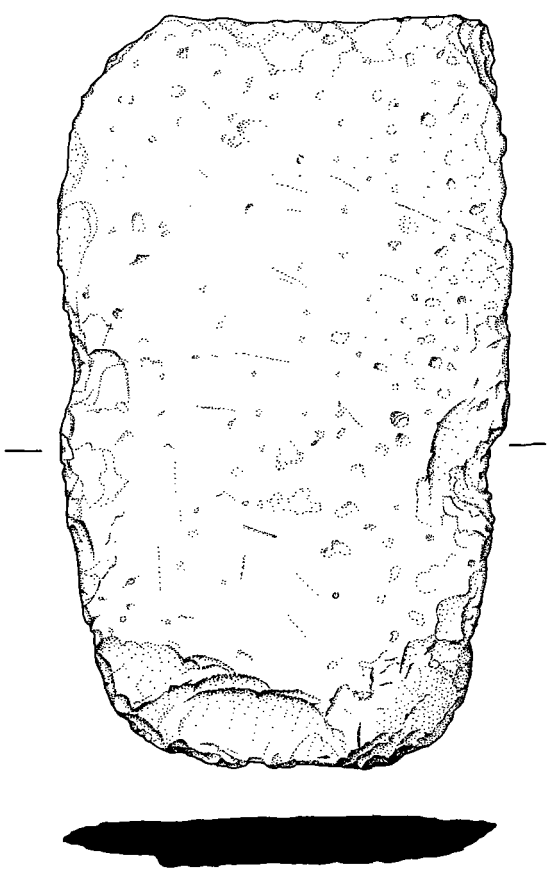
The only stratified examples of strike-a-lights are from Phase 8. These are small rounded and smoothed pebbles of sandstone

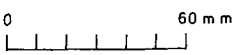


Illus 117
Stone mattocks.









Illus 118
Stone shovels.

(reflecting the paucity of quartz in Orkney), with a broad linear groove on one face. SF 4321 (illus 109) is of quartzose sandstone and has indentations on both faces. It also has ground edges. These examples do not have any iron staining within or around the grooves, but it was traditional to strike with an iron bar or point in the centre of the surface to create a spark to light a fire.

Strike-a-lights made of quartz or quartzite the more common materials, have been found at Gurness (Hedges 1987b, 152) and Dun Mor Vaul (MacKie 1974b, 140) among other sites.

PEBBLE CACHES

This category includes 7 groups of small tools, numbering from three to eight in each group, which were found together within earth floors, stone settings or the broch wall, mainly in Phase 7, with one group from Phase 4. These tools are predominantly of rounded or elongated stones covering a wide spectrum of rock types (Table 52). For example, SF 2503 from the second workshop floor in the broch tower consists of 8 tools; one is of granite, two of medium and two of coarse grained sandstone and three of siltstone; and encompass polishers, pounder/polishers, hammerstones and worn polishers. Other caches include small unworked pebbles.

The individual tools within the caches are not worthy of special note, what was important however was the finding of the tools together and their locations. At the time of writing these well-stratified Iron Age tool caches are quite unique and may represent small tool-kits for metalworking, or even children's toys.

POTLIDS AND BAKESTONES

Formed from thinly bedded shaly siltstone, potlids have been found in nearly all phases of the site. They are of rounded, thin and flattened (discoid) beach pebbles (illus 119) that have been chipped along the edges (eg SF 7216, illus 119a). In all 91 discs were found as well as 7 unfinished forms and two with a handle. These artefacts range from 55mm in diameter to the largest at 760mm, and compare well, except at the highest extremity, to the sizes of the pottery vessels which they were used to cover (see 8.9 Pottery Report below); one Phase 7 example was found in position on top of a broken pot.

The largest discs, above 330mm in diameter, are probably bakestones and would have been used on the hearth as a griddle for the baking of bannocks or bread. There are nine discs in this category and all but one are from Phase 7; they are all broken and show evidence of being burnt.

The two potlids with handles were both found in Phase 8, where the lids have a chipped extension which forms a handle, (eg SF 2115, illus 119a).

Potlids and handled discs are among the commonest artefacts found on Iron Age settlements. Handled potlids were more numerous at the excavations of Jarlshof and Clickhimin (Hamilton 1956, fig 30, 54; 1968, 78, fig 33, 6, 7), where they were found together with circular potlids. A similar range of potlid sizes and bakestones to those from Howe was found at Crosskirk, where they were made on different stone types (Fairhurst 1984, 126–128).

QUERNS

Two distinct types of querns were found at Howe, non-rotary (saddle querns) and rotary. The non-rotary querns are formed on a single oval, rectangular or sub-rectangular stone, used as a platform onto which a smaller upper stone (the rubber) is placed and dragged back and forth to grind an intervening layer of meal into flour. Rotary querns comprise two circular stones of similar diameter, placed one on top of the other. The upper stone revolves around a spindle fitted into the centre of the lower stone, and the meal is again ground between the two. Both types of quern would have been set on the floor on a piece of leather or cloth to catch the flour.

Table 53 shows the distribution over time of the two main types of querns and quern rubbers. There is a considerable overlap in the types of querns used during Phase 7. Rotary querns are the earliest type found on the site, and both types decline throughout Phase 8. There is however, a lack of quern rubbers for the non-rotary type and this indicates that other tools such as grinders and pounders were probably used instead. A total of only nine recognized quern rubbers for a total of 92 querns gives weight to this argument.

Non-rotary querns

There are four different but contemporary varieties of the non-rotary quern described below, and the majority are made on medium grained sandstone boulders and have distinct characteristics that suggest their differences are not due solely to morphology, but to differences in use. The sub-rectangular querns have been traditionally called 'trough querns' and their use for grinding meal is not questioned. They were sufficiently hollowed before or during use to be efficient tools for producing flour. The other three categories are more puzzling with flat or plano-convex and plano-concave faces. They are too large and too heavy to be considered as quern rubbers in terms of being used by one person, and examples with chipped and flattened bases would have been detrimental during use. Two of the concave-faced stones were found *in situ* close to hearths, and all were well worn, with examples with heavy wear in the centre or at the edges.

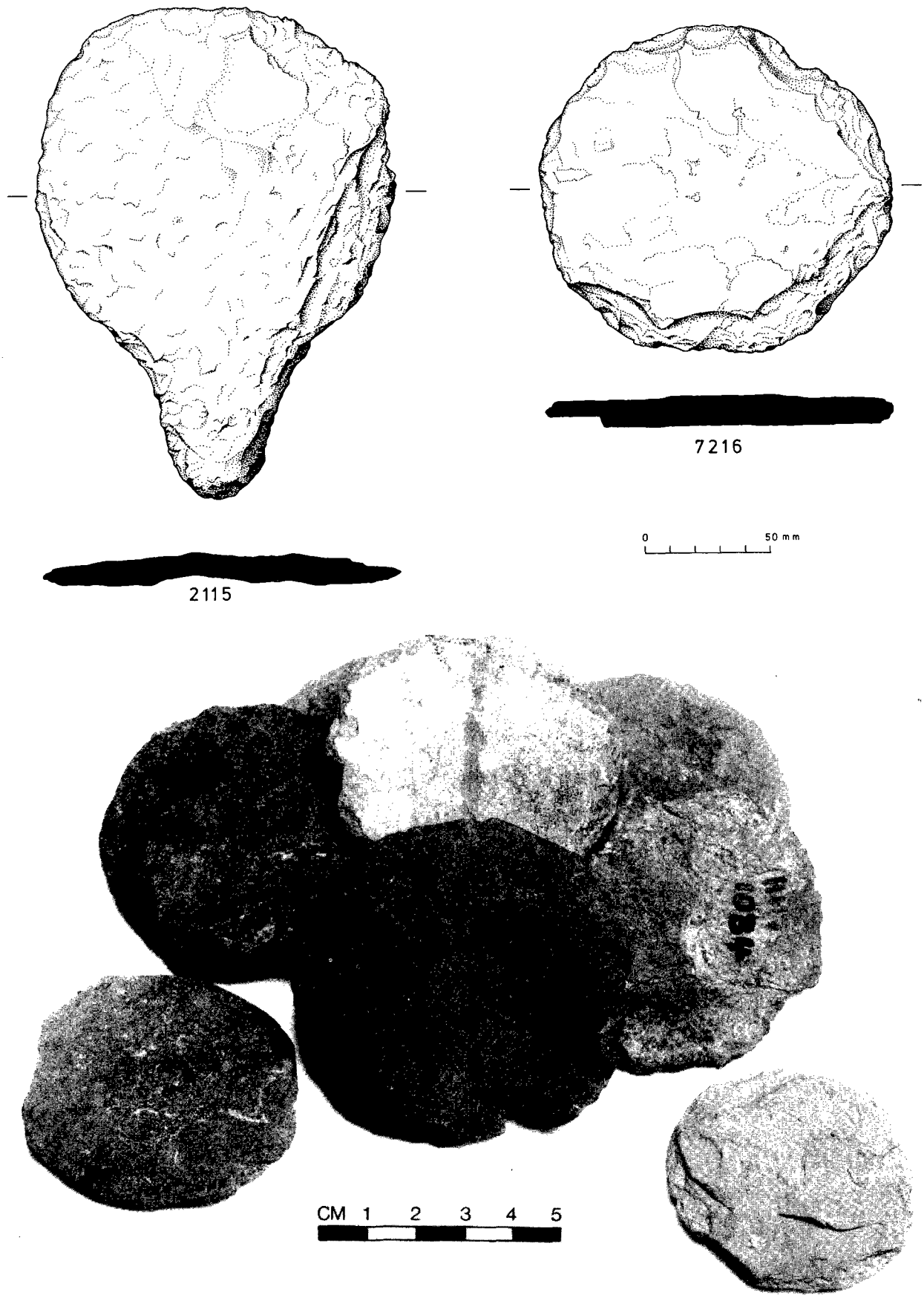
As all these stones were roughly contemporary in the archaeological record, their differences could reflect experimentation with suitable sizes, shapes and weights for the most efficient production of meal. Alternatively their differences might well be attributed to increasing specialization of meal production. Experimentation and more analysis of their wear patterns could lead to a better understanding of these stones and their use.

Flat-faced: The majority of the 6 querns in this category were found from Early Phase 7 rubble contexts, with others from a clay floor or reused as hearth kerbing. The querns are oval – round boulders with a flat upper surface and rounded bases which were formed by extensive pecking, or they were roughly chipped to shape (eg SF 7172). Only half were complete examples but they are *c* 390mm long, *c* 250mm broad and 120–160mm high.

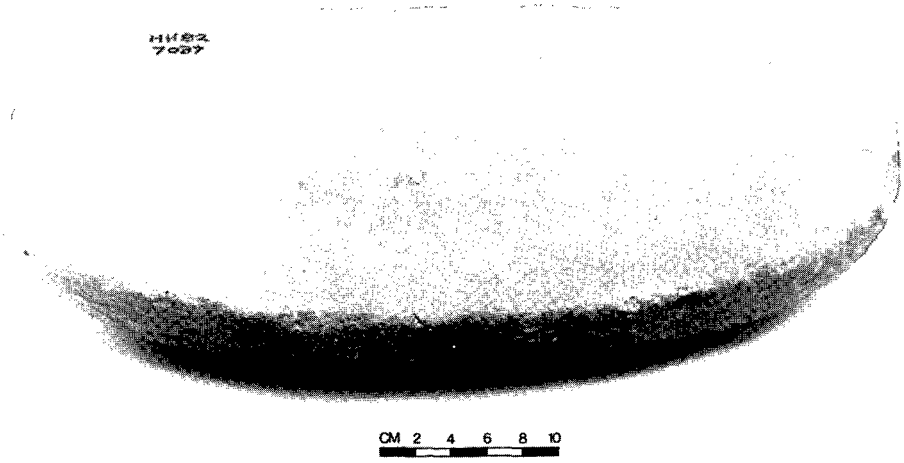
The querns' upper surfaces are worn to a slight plano-convex or plano-concave shape and have areas worn smooth on what was originally a pecked surface.

Convex-faced: Found from Phase 5/6 to Early Phase 8 with the majority in Early Phase 7, these 19 stones came mainly from rubble contexts or part of stone features, which explains their fragmentary state. None of these were found in situ on floors. These stones are kidney-shaped, rounded or an elongated oval, with curved bases which were pecked to shape, or smoothed. The upper surfaces are plano-convex and were initially pecked. There is also some evidence of repecking of areas which have been worn smooth (eg SF 2737). From the four complete examples their measurements are fairly standard – 300–418mm in length, *c* 232mm wide and 80mm high.

Concave-faced: The 11 querns were scattered throughout all phases from Phase 5/6 onward mainly in rubble contexts. Only two were located *in situ* in earth floors and another two were found reused in hearth kerbing, both in Early Phase 7. These querns are elongated-ovals in shape with predominantly flattened bases, which were roughly hewn or pecked. There has been additional pecking around their edges and the upper surfaces which were originally pecked to shape are plano-concave. All the stones show signs of wear with some examples being heavily worn (eg SF 7037, illus 120). There seems to be no obvious repecking as in the convex-faced querns. These querns vary more in their



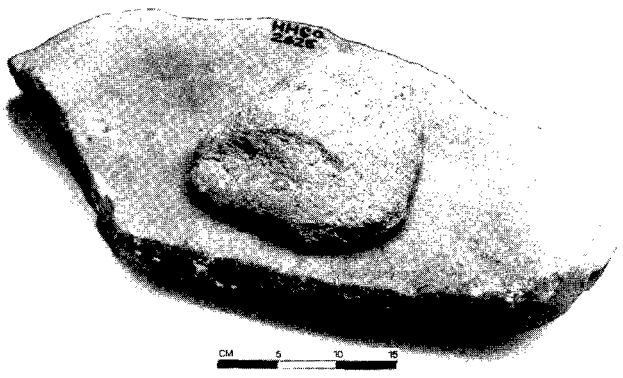
Illus 119
a) Stone pot lid and handled lid; b) stone pot lids, Phases 5/6–9.

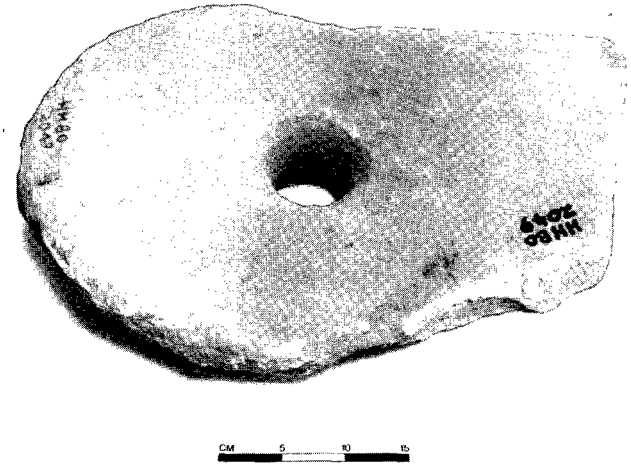


Illus 120 (left)
Concave-faced quern (SF 7037), Phase 7.

Illus 121 (below left)
Sub-rectangular quern (SF 2625), Phase 7/8, with stone rubber (SF 2822).

Illus 122 (below)
Perforated sub-rectangular quern (SF 2049), Phase 8.





measurements but their lengths lie between 364 and 530mm, their widths *c* 248mm and their height from 62 to 138mm.

Sub-rectangular: In contrast to the above, these 22 querns are mainly of quarried stone, all are fragments and were found from Early Phase 7 to Early Phase 8. They are large, 536 × 331 × 153mm (measurements from stones with 80% or more surviving), lozenge-shaped stones with rounded ends. Their bases are roughly flattened or rounded by pecking of chipping, and their sides are pecked. The upper surfaces are mainly concave with evidence of repecking over well-worn areas (eg SF 2625, illus 121). SF 2049 (illus 122), from Early Phase 8, is unusual in that it has a central hole drilled and pecked through the stone, from its reuse as a soakaway lid.

Rotary querns

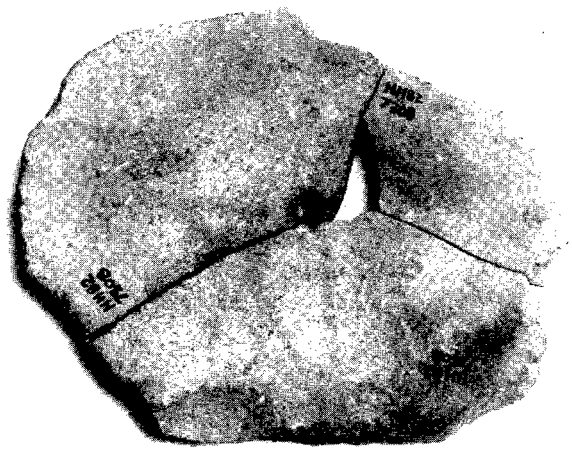
There are two types of worked face represented amongst these stones, the concave and the flat, with 4 unclassified fragments. There are no convex rotary querns present and no two stones fit together as a working pair. In contrast to the non-rotary stones, two stones of equal proportions would have been used together. A central collared hole through each stone allowed the grain to fall down and be ground between the two work surfaces. The top stone would have either a second hole for a wooden or bone handle or a horizontal handle slot, to enable the top stone to be rotated on the stationary lower one.

Concave-faced: As with non-rotary stones these are made predominantly on medium-grained sandstones, but they are of quarried stone and mostly incomplete. They occurred from Phase 3 through to Early Phase 7, and only seven stones survived. Four of these are identified as upper stones, which have been pecked to a flat or lightly rounded shape with off-centre handle holes (eg SF 4434) or with rectangular handle recesses (eg SF 2197). The central holes show evidence of pecking and wear, while some of the holes are waisted. The worn surfaces are concave with grooving and polishing due to wear but originally these surfaces were pecked. SF 7308 (illus 123) is the most complete upper stone. The lower stones have similar characteristics with pecked and flattened bases.

Flat-faced: These 16 were located from Phase 5/6 to Early Phase 8, and are again predominantly of medium-grained sandstone but are very fragmentary. They have similar characteristics to the concave-faced querns, but have flattened worked faces. Mostly upper stones survived such as SF 7009, which has a handle hole, and SF 5385, which is one of the most complete and substantial bases.

Discussion

Only 27 rotary querns, half the number of non-rotary ones, were found at Howe, but their appearance in early contexts at Howe runs contrary to the belief that they are a separate later development (Caulfield 1980). None, however, were found *in situ*.



Illus 123
Upper stone of rotary quern (SF 7308), Phase 5/6.

From the distribution and location evidence (Table 53), both types of querns were in use together throughout Phases 5/6, 7 and Early Phase 8. Rotary querns almost cease in Late Phase 8, where they were still out-numbered by non-rotary ones, again contrary to expectations. Changes in crops and crop production, or in crop processing may account for this distribution and the occurrence of both types of quern together, and perhaps for differences in their use.

The evidence of different quern types from earlier excavations is scant and not reliable. Both large saddle and rotary querns were found in the Iron Age settlement at Jarlshof (Hamilton 1956, 50, 51, 61), and from Crosskirk, where they were made of coarse sandstones and schists (Fairhurst 1984, 128–131), and from Midhowe (Callander & Grant 1934, 500). Querns are sparsely represented at Clickhimin, with a single trough or saddle quern from the Late Bronze Age settlement and one rotary quern from the Iron Age wheelhouse (Hamilton 1968, 31, 141). Three types of rotary quern were discussed from Dun Mor Vaul: bun-shaped, disc-like and flat, but few of them were found and none of the non-rotary types; no bun-shaped examples were found at Howe. One rotary quern was noticed to have been found in contexts that predated the broch tower at Dun Mor Vaul (MacKie 1974b, 138).

Both flat and concave rotary stones came from Gurness and three types of non-rotary from Bu. Hedges (1987b, 77–78) discusses the problem of the introduction of the rotary quern when it, too, was one of the earliest stratified objects at the Broch of Gurness. It is, however, obvious that these stones from early excavations have not been studied in sufficient detail for any firm conclusions to be drawn.

QUERN RUBBERS

Predominantly of fine-grained sandstone, these stones are from Phase 5/6 onwards. There are only nine, which, compared to the number of non-rotary querns, suggests that other stone tools may have been used with the querns. The rubbers are beach stones which have had their upper surfaces roughly shaped and their lower grinding surfaces pecked. Half the stones have a convex grinding surface (eg SF 2822, illus 121), the rest being plano-concave, and one is flat. They are small enough, 230–290mm long × 134–186mm wide × 62–122mm thick, to have been easily manipulated by hand on a non-rotary quern.

Quern rubbers are rarely mentioned from other Iron Age sites. At Jarlshof, where several were found, some of the stones identified as quern rubbers may in fact be non-rotary querns as they are large and well-shaped (Hamilton 1956, 50).

MORTARS/KNOCKING STONES

The distribution of mortars lies between Phases 5/6 and Late Phase 7. They are made on, and hollowed from, medium- and fine-grained sandstone boulders. All the mortars are fragmentary, and were found in rubble contexts and at least one had been reused as a pivot-stone (eg SF 4101). They have either roughly rounded or flattened bases with rims that were rounded or squared-off by pecking. The body of the vessel contains a shallow but wide pecked hollow. In some examples, such as SF 7045 (illus 124), the base of the hollow is worn smooth.

SF 2839 from Phase 7, is a slightly more extreme example,in that the hollow is very deep and sub-oval. The large, coarse, boulder has a flattened top and base which were pecked. It is a slightly crude stone but may be related to the 19th century Orcadian knocking stones, where a wooden mallet was used, in recent history, to separate the chaff from the kernel of bere barley, (Fenton 1978, 396). Stone tools, such as pestles, grinders and pounders, (described above), could have been used with mortars to separate the husk from the grain before further milling on a quern.

Hollowed stone vessels have been identified from earlier excavations, but few have been described as mortars. Hollowed stones could also be tanks or troughs, a category not found at Howe. One unstratified mortar was however found at the Broch of Gurness (Hedges 1987b, 79).

PECKED AND HOLLOWED STONES

The 41 stones in this category can be separated into three types according to their characteristics but not necessarily function: small stones with smooth interior depressions – lamps, those with rough interiors – lamps and unclassified stones, and large anvil stones. Nearly all the pecked and hollowed stones are of fine- and medium-grained sandstones and were found from Phase 4 to Early Phase 8.

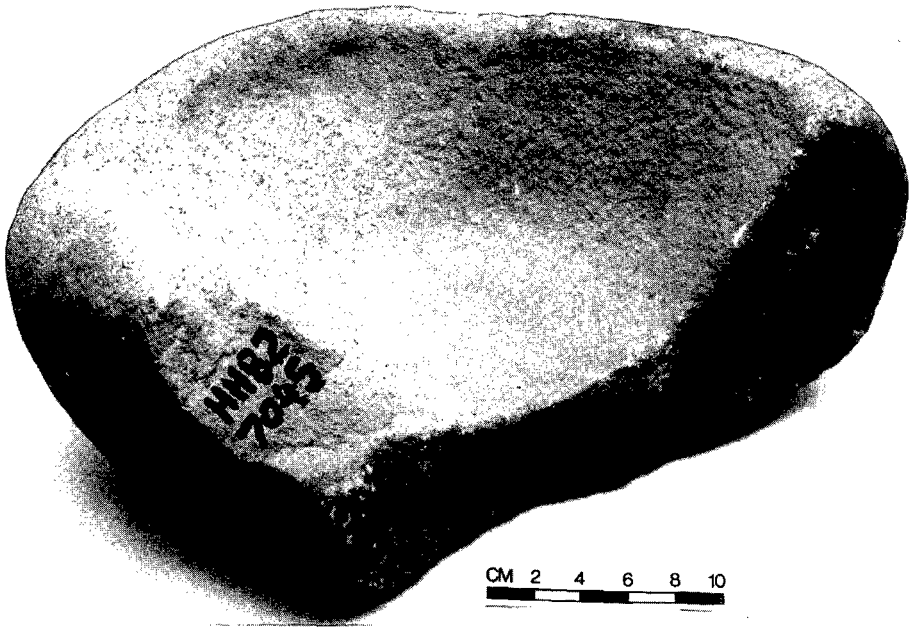
Hollowed stones with smooth interiors

There are 14 in this category, which are small rounded boulders with rounded or flattened bases, pecked to shape, and predominantly from Phase 7. Their single shallow internal hollows, centrally placed in the upper surface, are rounded or flat bottomed, pecked to shape and smoothed. Their average measurements are – 130 × 92 × 80mm with their hollows *c* 90mm in diameter and *c* 43mm deep, although only three of the stones are intact. Half the stones in this category are burnt both inside and out, and are thought to be lamps. SF 2584 (illus 125) is a burnt, round-based lamp.

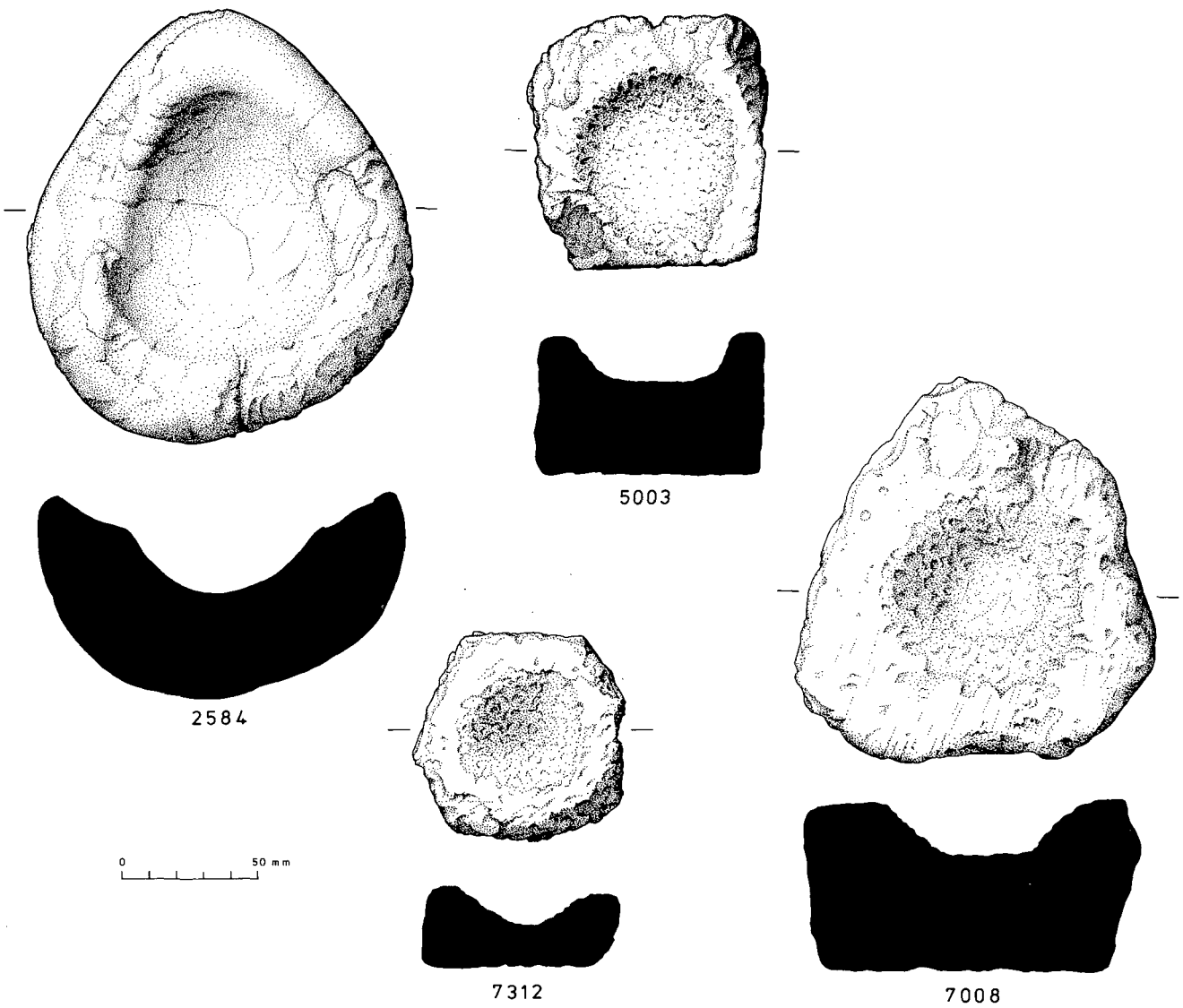
Hollowed stones with rough interiors

These appear earlier than the above category and were more frequent in Phase 8. The 11 stones in this group are irregularly shaped or squared blocks of sandstone and the majority are complete. Their bases are flat and their shallow pecked hollows have prominent peck-marks. The stones are in general smaller than the above type and average *c* 122 × 66 × 49mm, with average hollow dimensions of *c* 64mm diameter × 18mm depth. SF 7008 (illus 125), possibly a lamp, has a single flat-bottomed hollow with scorch marks and may have an unfinished wick-rest, while SF 7312 (illus 125) is the smallest in this group, and has an almost conical-shaped depression. SF 5003 (illus 125) has a suggestion of a wick-rest, while the rest of the hollow is burnt, thus indicating its use as a lamp. Two of the examples in this group have two hollows, either in the upper face, on in both faces.

Some of these stones were probably unfinished or crudely executed lamps, but with their flat bases would have been more versatile than the round-based lamps. There is an overlap in the distribution of these two categories, which might imply that their differences in shape and appearance were functional rather than developmental.



Illus 124
Stone mortar (SF 7045), Phase 7.



Illus 125
Pecked and hollowed stones and stone lamp (SF 2584), Phase 7.

Large hollowed stones

These are a mixed group of nine large stone blocks with pecked hollows. They are from a number of phases but are almost absent from Early Phase 7 and Later Phase 8. These stones are irregular in shape and their holes vary from single large shallow depressions to 18 small, deep hollows, between 50–90mm in diameter to 10–35mm in depth. The latter is typified by SF 4644 which has many deeply pecked hollows, both round and linear as well as cut marks, and may indicate that this is an anvil stone. Other stones with single large hollows might be upper pivot-stones, but their functions are uncertain.

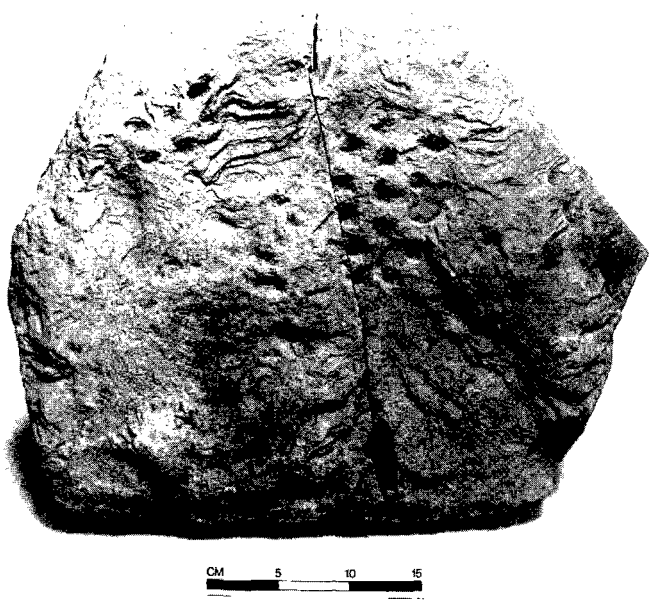
Many of the sandstone lamps found at Jarlshof and Clickhimin (Hamilton 1956, 76, 79; 1968, 83, 113, fig 59) are similar to those in the first category of hollowed stones from Howe, as they are rounded boulders with shallow depressions, but they were often found with lugs or handles with thumb grips. This variation was not found at Howe, but was noted at the Broch of Lingro. Other simple lamps are known from the brochs of Oxtro, Ayre, Gurness, the East Broch of Burray (Hedges 1987c), Midhowe (Callander & Grant 1934, 498) and from Crosskirk (Fairhurst 1984, 125) where they are not clearly distinguished from mortars or stone troughs.

Pecked and hollowed stones are recorded from Bu, as unclassified stones, or shallow mortars (Hedges 1987a, 42, 67, 68) and from Gurness. At this latter site, anvil stones were found from the broch settlement as well as lamps, and other pecked and hollowed stones, described as "being of unknown use" (Hedges 1987b, 78, 79, 130–137). Some of the pecked and hollowed stones which are recorded from the brochs of Jarlshof and Clickhimin, could represent pivot-stones (see below) or anvil stones as at Dun Mor Vaul (MacKie 1972, 135).

Illus 126
Pivot-stone (SF 7144), Phase 7.

Pivot-stones

Although formed by pecking to produce a hollow, 2/3 of these stones were found in situ, on the inside of doorways, with hollows smoothed by use as swivel stones for door posts. In all 22 pivot-stones were found from Phase 5 onwards. All are fine- or medium-grained sandstone boulders and usually finished



Illus 127
a) Pecked and decorated cup-marked stone (SF 7309), Phase 4; b) pecked and decorated stone (SF 4043), Phase 7.

externally to produce a smoothed and rounded surface. In their upper surface, usually single hollows were pecked and probably ground smooth through use; an example, SF 7040, from the Early Phase 7 ***E*** Building, has an extremely smooth hollow. Although mainly of small diameter, 77–90mm, and shallow, 15–60mm, some of the hollows are large, up to 180mm in diameter (eg SF 7144, illus 126, from the ***SE*** Building in Phase 7). SF 7152 from a rubble context, has an elliptical and deep hollow which implies that it was in use for a considerable period of time.

Four of these artefacts have two holes, one usually on the lower surface, suggesting the reuse of suitable stones. Pivot-stones are also known as swivel or socket stones, and 23 of them were recorded from Midhowe Broch (Callander & Grant 1934, 500). However, they seem curiously absent or unidentified from both Jarlshof and Clickhimin, but one was found *in situ* at Dun Mor Vaul with two others (MacKie 1974b, 137) and eight were found at Crosskirk (Fairhurst 1984, 131). Some from the latter site were reused rotary stones, and this reuse also occurred at Howe (see Catalogue 8.3.1mf 2:A3–G14). Many of the pivot-stones at the Broch of Gurness remain beside their doorways, and several others were noted from the brochs of Lingro and Ayre (Hedges 1987c, 77, 82).

Pecked and decorated stones

Only two stones can be classified as decorated by pecking. SF 7309 (illus 127a), from Phase 4, has small but grouped pecked hollows, and SF 4043 (illus 127b), from a rubble context in Late Phase 7, is an end fragment of a larger block with a pecked zigzag design. The latter is reminiscent of Neolithic chambered tomb motifs, such as that depicted at Papa Westray (S).

MISCELLANEOUS STONES

There are a number of unique pieces, both large and small, which fit into none of the above categories. They derive from nearly all phases, and from a range of different rock types. The lid from the Phase 4 well in the E of the settlement, SF 7271 (illus 128) is placed here. It is an irregular sandstone piece which has concentric arched grooving on its lower surface formed through use.

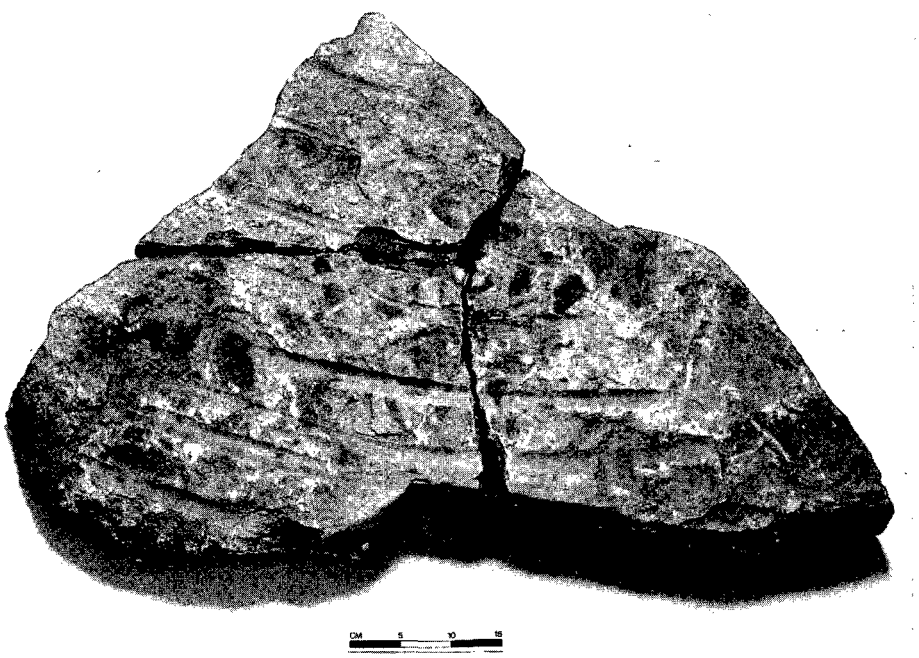
UNWORKED STONES

This category contains five rounded stones, egg-sized and egg-shaped in appearance from Phase 7 and Late Phase 8. They are of hard igneous rocks of bostonite and granite and have been burnt and cracked (eg SF 3832 and 7049, illus 109). They are probably pot boilers: small stones that would have been heated on a domestic fire and then dropped into pottery vessels to heat the liquid contents. Alternatively these stones were heated and then possibly used to dry cereal grains as corn-driers (Fenton 1978, 375).

COATED STONES

Several artefacts were identified (by the late Geoffrey Collins) as being coated with a black oily substance: armlet SF 2087, from Phase 8, an unstratified stone ball SF 17, two pebble polishers, SF 1840 and 372 from Phases 7 and 8, a worn polisher SF 6527 from Phase 5/6 and a Phase 7 pounder/polisher SF 7056. Only one, the last, has been analysed and found to contain a high percentage of iron oxide although there was no trace of any organic substance present. (Analysed by Dr RA Nicholson of the Analytical Chemistry Unit of the Geochemistry and Petrology Division of the British Geological Survey, London). It seems likely that the polishers were used with the iron-working activities, as the mineral coating on SF 7056 is similar to the composition of the iron slags and ores (see 8.7 Slag Report below). Dark stained polish marks on other artefacts might be a similar substance.

Alternatively, the substance coating the armlet fragment and the stone ball may be of different composition and based on organic compounds. They have not been analysed but the fine-grained sandstones of these two artefacts was deliberately coated; in the case of the armlet, this was done after breakage, perhaps for aesthetic reasons.



Illus 128
Grooved well lid (SF 7271).

CONCLUSIONS

More stone tools have been found at Howe than at most other comparable sites in the Northern Isles because of the preservation, recognition of artefacts and techniques of excavation which included the demolition of the Iron Age structures, for the first time at an excavation of this type. This demonstrated that many stone tools were either pushed into wall cavities or built into the matrix of the stone walls. More categories of tools have been identified from stratified contexts than was previously possible.

Over 98% of the artefacts were made on, or of, stone available from coastal locations less than 6km away from the site. This does not however, exclude the possibility that some artefacts were made of stone quarried from the bedrock underlying the site, when the Phase 3 well and the Phase 5 defences were excavated. Apart from one possible area within the broch tower during its later use, there was no other evidence to suggest that stone tools were manufactured on the site. In contrast to sites such as Bu, floors with chipping debris were not found or recognized, because of the stony nature of the site from Late Phase 7 onwards. However, it is not inconceivable that the majority of artefacts were finished at the settlement from being roughly shaped at beaches and cliff locations, but few roughouts were found at the site, and other evidence is negligible.

In general the artefacts found at Howe were the everyday tools – spindle whorls, pestles, polishers, querns etc. These were objects which could be made easily and which required the minimum use of other tools and technology to produce. In contrast there are a small handful of imported artefacts, made on stones not found within Orkney. These include steatite, hornblendic mica schist and quartzite from Shetland and jet or shale probably from the NE coast of Scotland. One other exotic stone, carnelian, was imported as a gem stone from a Romano-British source. The numbers of these imported goods are so small that a regular trade is not implied. They were most likely acquired occasionally with other goods, from as early as Phase 3, through Phase 7 till Early Phase 8. The manufacture of jet armlets and the carnelian gem stone required the use of a lathe and a lap-wheel, the use of which was not seen on any other stone artefact at Howe, indicating that this machinery was not available in the settlement.

The artefacts can be divided into categories related to: building and structural items, food processing, industrial activities, and personal and recreational items. There are problems of identification of the main characteristics of some of the artefacts in these groups and more especially defining their main function. For example, there is an under-representation of whetstones, especially in Phase 7, when considered in relationship to the settlement's iron-working activities. It cannot be ruled out that other tools, such as polishers, functioned as whetstones before true whetstones came into use. There is, perhaps, also the problem of recognition of stones which may have functioned as industrial tools in the iron-working processes. Another problem exists with querns and the general lack of quern rubbers. Are some querns very large quern rubbers? Were other tools such as grinders used with querns or were all querns used for food processing? These are problems which may only be solved with detailed analysis of artefacts from previous as well as more recent excavations which covered a similar time scale to Howe.

Occupations which have not been possible to define further from the stone artefact assemblage, are fishing and agriculture. No stone was identified as a line-sinker, tether stone or ard. It is highly likely that fishing gear was left close to the shore and not transported to the settlement. Compared though to sites such as Bu, and the excavations in Deerness by the late Peter Gelling, there is a total lack of ard points. There were only 4 stone and 9 whale bone mattocks found on the site, from Phase 4 to Phase 8, which may suggest either they were the main agricultural digging tool, or alternatively they were used around the settlement with the agricultural tools kept elsewhere, perhaps close to the fields. It is not inconceivable that from Phase 7 onwards, iron digging tools, and plough shares had replaced those in stone.

Over the life of the settlement there was little variation in the types of stone used for specific tools. The changes seen in the distribution of artefacts normally occurred around Phase 7 with the increasing use of iron-working, and due to better preservation. New tools that came in in Early Phase 7 are grinders, cleavers, pebble polishers; in Later Phase 7, whetstones; and strike-a-lights in Early Phase 8. The introduction of iron necessitated a development in the use and working of some stones: fine grained sandstones made into linear

whetstones for the sharpening of knives and razors, and the use of quartzite with an iron striker for fire lighting.

Artefacts which declined in use during the settlement life are mortars, pebble caches, shovels, mattocks and cleavers, which end during Late Phase 7, and grinders which end in Early Phase 8. Grinders are not found prior to Phase 7, although the action of grinding was known from Phase 3 on pestles. This distribution of grinders has been noted on other sites such as Jarlshof (the late RBK Stevenson pers comm) and may, with the use of mortars, reflect changes in food processing. The introduction of hulled six-row or bere barley, with naked barley, seen from Late Phase 7 (see 7.2 Plant report above), may in part be responsible for the change in equipment, but does not account for the non-appearance of both grinders and mortars after Early Phase 8, when naked barley was still present.

The early appearance of rotary querns from Phases 3 and 5/6 runs contrary to other sites, but is unequivocally determined by the stratigraphy of Howe. So to, is the simultaneous use of rotary and non-rotary querns during Phases 7 and 8. The higher numbers of non-rotary querns, even in Late Phase 8, may reinforce the idea that some of them were used for non-food-processing activities or for different grain processing such as grinding malt or burstin (Fenton 1978, 393–396).

The numbers and types of stone artefacts at Howe compare well with sites such as the Brochs of Gurness, Midhowe, Clickhimin and the Iron Age levels at Jarlshof. In fact, the greater number of stones from Howe indicate the potential which is still available at the larger, guardianship, site of Gurness. The slightly higher numbers of querns and anvil stones seen at Gurness may simply reflect the larger size of the settlement. Other differences are detectable between the Howe assemblage and the collection of stone artefacts from the roundhouse at Bu (equivalent to Howe's Phase 5). At Bu, artefacts and chipping debris survived on and above the floor level, but this was not the case at Howe where the roundhouse was reworked in Phases 6 and 7. Stones such as ards, roughouts for ards and mattocks, together with the chipping debris found at Bu, but not at Howe, imply differences due not only to survival but also to location, as discussed above.

Stone artefacts are not easy to date accurately, either individually or as a collection, but at Howe a sequence has been established relative to the stratigraphy. The stone artefacts from Howe, together with those from more recent excavations, can be used as a base collection to help the interpretation and understanding of Iron Age sites previously excavated in the north of Scotland and in the islands.

8.4 • PUMICE

Only 29 pumice pebbles came from the site, with one piece lost. A catalogue is available in fiche (3:D3–D4); the pieces are not illustrated.

DISTRIBUTION

The pebbles occurred from Phase 1 onwards with a small concentration from Neolithic levelling layers (see Table 54 below). In Phases 7, 7/8 and 8, pieces occurred in earth floors as well as rubble horizons and walls. The pumice distribution, is however very scattered and most likely reflects chance coastal finds, during the Neolithic and Iron Age periods.

THE PIECES

The pieces are of grey-brown vesicular pumice, with little variation in colour or composition. Most of the pebbles, 24, show signs of being worked and smoothed, while the four remaining pieces are unworked and irregular in shape. It is possible that some of the smoothed pieces have been worn naturally in the process of being water borne, but most of them are faceted by wear eg SF 5402. Six pieces, as well as being rounded have been worn by various degrees of intensity into hollows. SF 4250 was broken through the middle by hollowing on both sides. Three pebbles SF 7408, 7541 and 7883, have linear hollows that lie across the width or at one end of the piece.

Table 54: Distribution of pumice by phase

Phase	1	1/2	2/3	4	7	7/8	8
No of pieces	1	3	1	2	12	2	7

The hollowing and faceting suggests that the pebbles have been used for specific purposes such as smoothing bone and wood. Pieces from SF 4072, 3814 and 2556 have their faces smoothed which indicates their use as polishing tools perhaps for burnishing leather-hard pottery. The other worked pieces have only single worked edges, sides or faces smoothed.

DISCUSSION

Considering the small number of pumice pebbles over the time span involved, it is interesting to note that nearly all the pieces were put to some use which is in contrast to other sites, such as Bu, where the majority of pieces were unused. Pumice has been a fairly common find on coastal sites in the Northern Isles. Mavis Grind, Shetland produced over 500 pieces of which *c* 20% were worked (Cracknell & Smith 1983, 29, fig 18, fiche 22–23). Some grooved, flattened and smoothed pieces have come from Bu (Hedges 1987a, 108–109), Gurness (1987b, 248), Broch of Ayre (1987c, 77), Broch of Burrian (MacGregor 1972, 92) and Jarlshof (Hamilton 1956, 34, 61). None of the pebbles from Howe had suspension holes, but several have been found at Birsay (Curle 1982, 120, 601a, b) and Broch of Burrian, North Ronaldsay (MacGregor 1972, 112).

8.5 • SMALL FINDS OF FLINT AND CHERT

Daphne Home Lorimer

A total of 57 pieces of flint and chert were retrieved from the Howe site, the majority from disturbed Neolithic tomb contexts. Of these, 57% were chert and the remainder were flint. These finds comprised: 18 tools (illus 129), mainly scrapers or pieces with secondary retouch, 3 struck flakes with obvious macrowear, 16 struck flakes and 23 natural flakes and chips which are only of interest as the material is foreign to the area (Table 55). A catalogue is available in fiche (3:D5–D8).

RAW MATERIAL

The size of the artefacts which, with one exception, were small, suggested beach pebbles as a source of raw material. One thumb-scraper, SF 6585, in particular, retained a typical appearance. Chalk flint has been reported (Wilson *et al*, 1935) to have been collected with other foreign pebbles, by Traill from boulder clay in North Ronaldsay. It has also been found in boulder clay in the South Isles, South Ronaldsay, Burray, Hunda, the Pentland Skerries and in particular, from Swona and Stroma. A chert source in fact, occurs 2.5 miles from the site in Nethertown Noust, west of Stromness, where the raw material can be found as nodules 14 and 59 metres below the Sandwick Fish Bed Horizon in layers of the Lower Stromness Flags (Mykura 1976). It also outcrops on Hoy (pers observ). Chert may also be found on beaches in other islands. The find-spots for flint and chert have been tabulated by Wickham-Jones & Collins (1977) and charted by Fraser (1983) together with information supplied by Rae (1976) to give 19 localities in the islands as a whole.

MANUFACTURE

No cores were found among the assemblage and only 3 primary flakes (where the cortex covered more than 50% of the dorsal surface) were noted. These had all been retouched to make scrapers. Three secondary flakes (with less than 50% cortex) and 20 struck inner flakes do indicate that some trimming took place on the site. However, the fact that 3 struck flakes showed signs of considerable macrowear may indicate that struck flakes were brought to the site for use in an unretouched state.

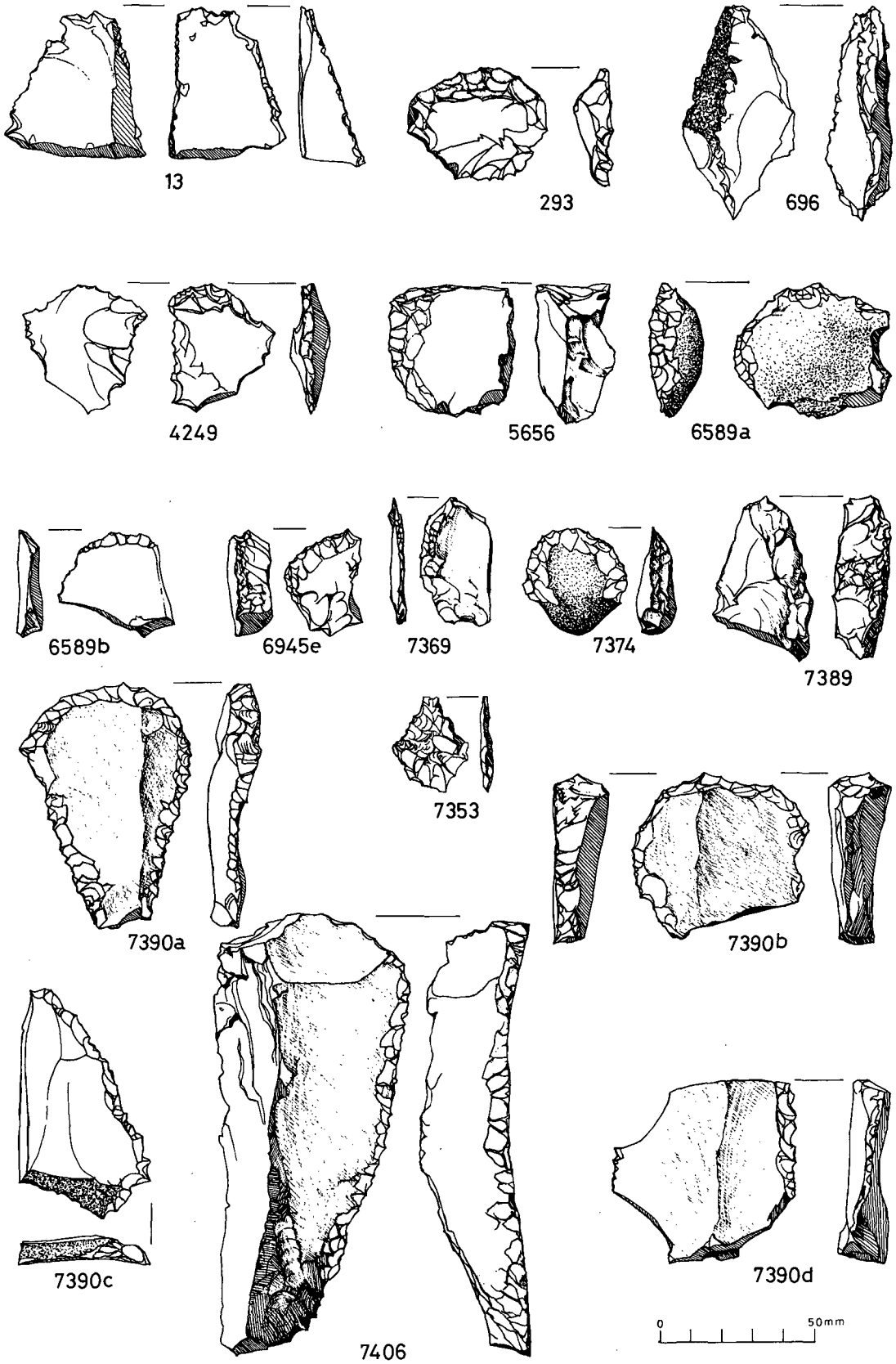
There was indication of burning on one tool, four struck flakes, one natural piece and eight chips (which came from Phase 3 pit fill) and could well be the result of shattering from heat rather than debitage of manufacture. Most of the natural pieces showed signs of debitage of manufacture and many of the natural pieces showed signs of plough damage.

Shallow invasive retouch has been used on the leaf-shaped arrowhead, SF 7353, and on the back of one thumb-scraper, SF 5656, which may indicate pressure flaking. Semi-abrupt retouch has been used on the scrapers but the large end-scraper, SF 7406, has abrupt retouch at the distal end. Two of the scrapers showed thinning of the distal end of the ventral surface.

The disturbed nature of some of the later finds does have to be borne in mind but the nature of the raw material, of necessity, dictates the size and shape of the tools, and, with the exception of the large end-scraper SF 7406, all the scrapers, regardless of period, do bear a similarity. The quality of workmanship was high.

Table 55: Distribution of flint and chert by phase

Type	Phase 1/2	2	2/3	3	4	5	5/6	6	7	7/8	8	8/9	9	Total
Arrowhead		1												1
Knife													1	1
Scrapers	4		3	1					3	1	1		1	14
Struck Flakes	1		5	3					1		5		3	18
Natural Fragments			4	8		1			1		5		4	23
Total														57



Illus 129
Worked flint.

COMPARISONS

Most prehistoric sites in Orkney have produced flint and some chert artefacts, but comparison of the Neolithic artefacts (14) from Howe with the assemblages from Neolithic domestic sites such as Skara Brae (Childe 1931), Rinyo (Childe & Grant 1939) and Knap of Howar (Ritchie 1983) showed a marked difference. This difference was in the lack of debitage and cores found. Instead, the assemblage from Howe was much closer to those found in the chambered tomb of Yarso, Rousay, and the Calf of Eday (Long). Both these sites produced quantities of flint including scrapers, knives, flakes and chips, but also large arrowheads (Henshall 1963, 95, 110). This comparison is not surprising considering the derivation of the Howe tools from mostly disturbed Neolithic tomb contexts.

More recently, the excavation at Pierowall Quarry, Westray, yielded nearly 600 flint pieces, mostly scrapers and edge or retouch flakes (Wickham-Jones 1984, 95). In common with the Howe pieces, many of these retained some of the cortex which, according to Henshall (1963, 111), is frequently seen on the majority of Orcadian scrapers due to the small size of the flint pebbles used.

Another cluster of tools, especially scrapers and struck flakes, is seen in the Iron Age Phases 7 and 8 from Howe. It is not clear whether, as with other artefacts, contamination from the reworking and cleaning down to earlier contexts accounts for this occurrence, or whether it represents a revived interest in the Iron Age for chert tools for specific purposes. In spite of four of the Phase 8 tools being found in floor levels, it seems unlikely that flint working was ever undertaken at this time. The occurrence in Phase 9 of a thumb-scraper and knife fragment from recent disturbances and top soil reflects the movement and deposition of possibly Neolithic or Early Bronze Age finds into more recent contexts.

Flint artefacts have been found at other Iron Age and later excavations in Orkney but in varying numbers, Gurness with 34 pieces (Hedges 1987b, 248), 67 pieces from the Brough of Birsay (Hunter 1986, 192, 195–6) indicating deliberate collection and use especially in the Norse period and two pieces from Bu Broch (Hedges 1987a, 108). The numbers of artefacts from these sites do not significantly aid our understanding of the occurrence and use of chert and flint in the Iron Age. Iron Age sites in Shetland are also of little use for comparison as quartz was more readily available there than flint or chert.

8.6 • METAL ARTEFACTS

The number of metal artefacts appears scant compared to the amount and duration of metal working activities in the Late Phase 7 and Early Phase 8 settlements. In all, 205 items were recovered, the majority being of iron and the rest copper alloy, apart from one lead artefact (see Table 56). This ratio accords well

Table 56: Types of metal objects

Description	Iron	Copper-alloy	Lead
Ring/chain link/coil	4	11	
Projecting ring-headed pins		6	
Decorated pins	2	3	
Pins/points	3	8	
Pin heads		3	
Decorated brooches		5	
Tweezers	1	1	
Bodkin/needle		2	
Wire	2	3	
Razor	2		
Key		1	
Metal plate	1	6	
Knife/blade	7		
Chisel	2		
Strap/bar/blank	12		
Nails	30		
Miscellaneous	5	5	1
Waste/unconserved fragments	63	18	
Ore	1		

with the evidence of metal working on the site. In Phase 7 and 8 there was both iron smelting and smithing which served the domestic needs of the settlement in knives, nails and blanks. The community's iron-working skills may even have led to the production of more elaborate articles, but of this there is some uncertainty, as the site yielded very few iron-working tools.

Copper-alloy working is shown by the rare fragment of crucible (8.10 Other Fired Clay below) but there were no clay moulds to suggest copper smelting and only one possible stone mould (8.3 Stone Artefacts above). A catalogue of metal artefacts, 8.6.1, is available in fiche (3:D9–E8).

DISTRIBUTION AND DESCRIPTION OF ARTEFACTS

A summary of the distribution by phase can be found in Table 57.

The earliest metal artefact is a lead stud from Phase 4/5. Both the copper-alloy and iron artefacts make their first appearance in small numbers in Phase 5/6 and from Phase 7 onwards there is an increasing number of objects. Rubble contexts contained many of the pieces of metalwork, but others were found on floors of the Phase 7 houses and in the broch tower, including a disc-headed pin, SF 2688. Small pieces of iron and copper-alloy were scattered throughout walls and floors suggesting the working over of earlier building material and debris as well as the contemporary loss and discarding of objects.

The rubbles and building floors of Late Phase 7 produced quantities of irregularly shaped lumps of iron as well as nails and copper-alloy pins and plate fragments. Finished, and sometimes dateable, artefacts have been found in floors, yards and in building debris throughout Phases 7 and 8. Early Phase 8 was characterized by more nails and irregularly shaped lumps. Although artefact numbers declined in Later Phase 8, a more diverse range of artefacts was produced, reflecting the late iron smelting activities of the settlement. A number of interesting artefacts were also found unstratified in Phase 9.

LEAD ARTEFACT

Only one fragmentary lead object, SF 69, associated with some small pieces of iron, was found in rubble in Phase 4/5. Reconstructed, it resembled a rounded stud and may have been the head of an iron pin shaft. Lead objects are known from other sites but are comparatively rare. A lead whorl was found at Dun

Table 57: Distribution of metal artefacts by phase

Artefact Type	Phase 4/5	5/6	6/9	E 7	L 7	7/8	E 8	L 8	8/9	9	Totals
LEAD											
Miscellaneous stud	1										1
IRON											
Ring, chain, coil					1			1	1	1	4
Decorated pins				1				1			2
Pins, points				2			1				3
Tweezers					1						1
Wire					1		1				2
Razors				1			1				2
Metal plate										1	1
Knife blades				1	1		1	3		1	7
Chisels				1	1						2
Strap, bar, blank				2	3		4	2		1	12
Nails		1		6	3	2	4	12		2	30
Miscellaneous					1		2	1	1		5
Waste frags		1		9	40	2	7	2	1	1	63
Ore								1			1
COPPER ALLOY											
Ring, chain, coil			1	3	1			4		2	11
Ring-headed pins		1		2	1	1		1			6
Decorated pins				1			1			1	3
Pins, points				3	2		2			1	8
Pin heads		1			1		1				3
Decorated brooches					1		1	2		1	5
Tweezers								1			1
Bodkin, needles					1					1	2
Wire				3							3
Key								1			1
Metal plates				2	2		1			1	6
Miscellaneous				1	1			1		2	5
Waste frags				8			2	4		4	18
TOTALS	1	4	1	46	62	5	29	37	3	20	208

Mor Vaul (MacKie 1974b, 132, fig 16, 297) and several lead and tin objects came from the Meare Lake Village where preservation of this material was good (Bulleid & St Gray 1953, 249–252).

A coastal lead vein is known at Warebeth *c* 7km NW of Howe where the surface deposits can be easily worked. This ore could have been exploited during the life of the settlement at Howe, but no other lead objects have survived to be recognized from the site. At Birsay, lead whorls and discs were identified but these were mostly confined to Norse levels (Curle 1982, 65).

IRON ARTEFACTS

131 iron objects were recovered from Phase 5/6 onwards (see Table 52). Conditions were not good for preservation and most of the iron objects are small and fragmentary. The most numerous pieces were strap, bars or blanks – indeterminate oblong pieces, and iron nails. Many lumps of iron were distinguished from the iron-working slags by their strong attraction to a magnet and their high density (identified by Dr Gerry McDonnell) but X-radiography could do little to further their identification.

RINGS, CHAIN-LINK AND COILS

Only four items belong to this category. The earliest, SF 2709, from the Late Phase 7 S buildings, is so badly corroded that a positive identification has not been possible. SF 212 through X-radiography has been identified as an elongated oval chain-link from Late Phase 8. A heavily corroded ring, SF 216, was found in Phase 8/9, and one of similar size but distorted, SF 148, came from the topsoil. It has been suggested that rings of this size, 30–40mm, could be vessel handles or parts of harness mounts (Curle 1982, 65).

DECORATED PINS

Both the pins in this category are unusual examples. SF 5502 (illus 90e; 130) was found within a yard wall of the Early Phase 7 ***NE*** Building. It is a simple iron pin, which may have a T-bar at the top, around which a glass paste bead has been applied. The paste is cracked, whitish and partly discoloured. No immediate parallel has been found for this, but it may be an adaption of the native bone or jet-headed iron shanked pin (see below).

SF 284 (illus 130) is a long pin surmounted by a decorated drum head found in stage 6 of Late Phase 8. On both faces of the drum are stamped discs of gilt metal with a dot-in-ring design. On either side of the head is a milled strip of the same metal which may have originally encircled the drum. On the shaft of the pin is a narrow gilt strip on either side of which is a 5mm band of slanting incisions, originally filled with copper inlay. The pin is unusual for the amount of decoration on an iron base.

From the East Broch, Burray is a very similar pin but in bronze which was found and recorded by Anderson in the late 19th century (Anderson 1883, fig 210, NMAS no GC 45). It has milling around and beneath the head and a decorated shank with incised lines in bands around the middle, below which the pin was octagonal. The diameter of the head is almost identical with SF 284, although the head of the latter is thicker. Stevenson dates these pins to no earlier than the 7th century but radiocarbon dates from the Howe stratigraphy place the type between the 4th and 7th centuries cal AD (Stevenson 1955, 286, fig A, 17).

PINS AND POINTS

From corroded bits of iron it is difficult to distinguish between nails and pins and only three pins have been positively identified, two from Phase 7 and one from Early Phase 8. Two are rounded in section and one is square, but none are complete, with points or tops missing. SF 4924 is the longest at 81mm and may have been a dress pin, but it has no visible characteristics or decoration.

TWEEZERS

A single pair of tweezers, SF 2442 (illus 130), is the only iron find from the second broch tower floor in Late Phase 7. Made of one piece of metal, the tweezers have a central suspension loop and splayed square ends (for discussion, see copper-alloy artefacts below). They are similar to copper-alloy tweezers found at Howe and Staple Howe in Yorkshire (Brewster 1963, 13, fig 61, 4).

WIRE

X-radiography helped to identify two pieces of thin wire from the S buildings in Late Phase 7 and Early Phase 8. One piece, SF 2500, is looped, squashed and bent and may have been a coil of wire. The other piece, SF 2031, has a curved end suggesting an elongated hook.

RAZOR AND BLADE

SF 5319 found in the earliest floor of the ***NE*** Building during Early Phase 7 is an almost complete iron razor in a polished bone handle (illus 90b; 130). The plain handle is grooved and the blade, presumably curved, would have pivoted on an iron rivet or pin at the wide end of the handle, very much like a cut-throat razor.

The Early Phase 8 S buildings produced another small crescentic blade, SF 2065 (illus 130), identified as a similar razor.

KNIVES AND KNIFE BLADES

The poor preservation of the metal has made the identification of some of these pieces difficult. Four fragmentary blades were distinguished from straps and blanks by virtue of having a pointed end, a sharp edge or a wedge-shaped section and all are thin, narrow blades. SF 725 (illus 130) from Late Phase 8 is similar, with the part of the tang present but the tip of the narrow blade is missing. A complete tanged knife blade, SF 4257 (illus 130), is from the abandonment levels of Late Phase 8. It has a slightly tapering angled blade and the tang may have been square in section, but is now corroded.

A longer and more complete knife blade with tang is SF 5165 (illus 130), from the ***NE*** Building during Late Phase 7. The tang is long, with a shaped bone piece at its end. The blade is curved and thin towards the point.

CHISELS

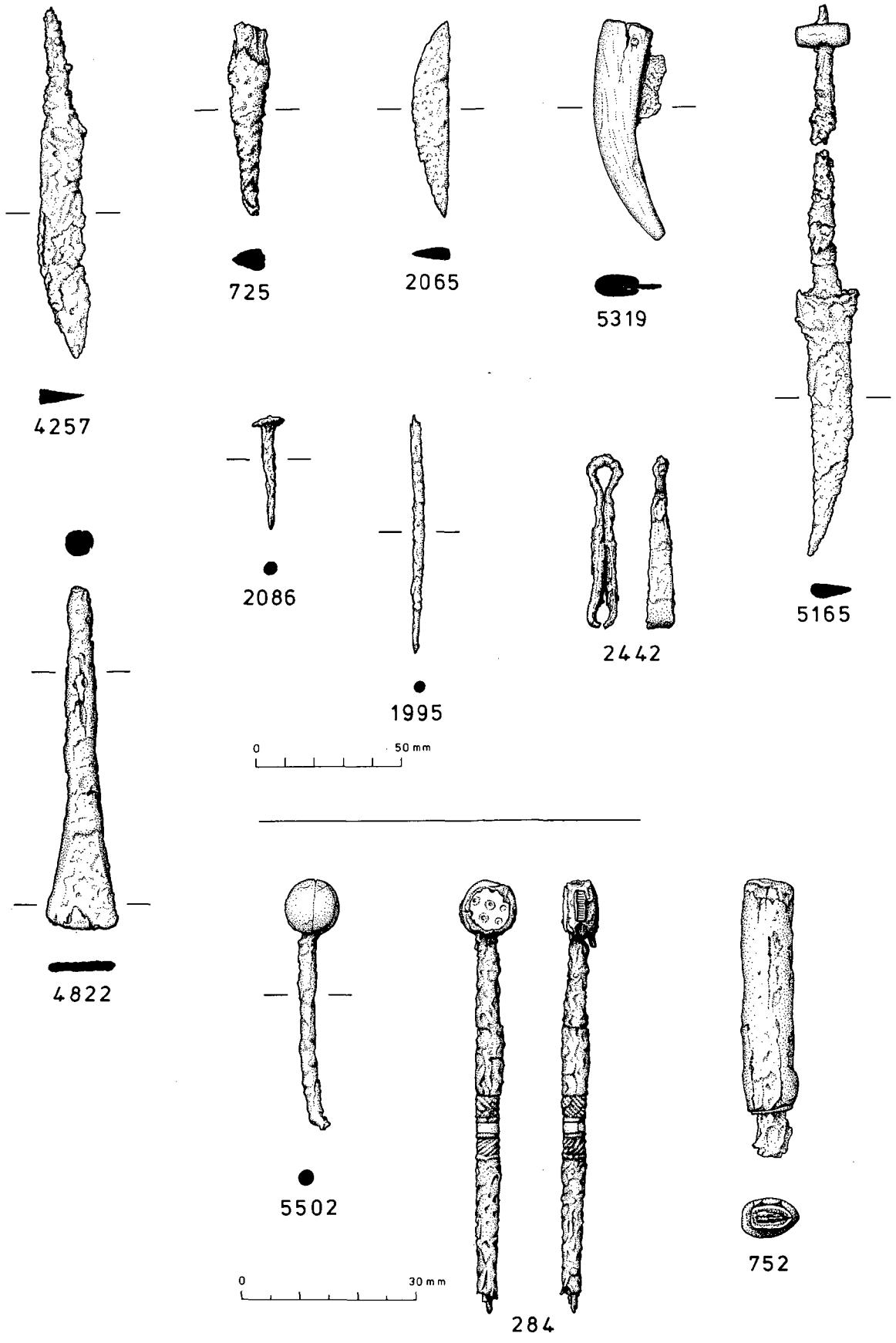
From the Early Phase 7 ***E*** Building yard is a metal tool which has been identified as a chisel SF 7001. Another chisel or chaser SF 4822 (illus 130 & 131), which has rounded ends to the blade, was found in the yard to the ***SE*** Building in Later Phase 7. This latter object may indicate that the production of decorative metal objects took place on the site.

STRAPS, BARS OR BLANKS

These small pieces of iron were numerous from Early Phase 7 to Late Phase 8, and 12 pieces were recovered. Their length varies from 40–117mm and from 4–7mm in width. SF 2135, found in Phase 9 is 23mm wide and may be a fragment of a bar clasp. The presence of straps, bars or blanks is indicative of a smithy from evidence found at York and Helgö (Holmqvist, Lamm & Lundstrom 1978, pt 2; Gerry McDonnell pers comm).

NAILS

Nails form the most numerous type of artefact, with 29 found from Phase 5/6 onwards. Their fragmentary and corroded state has hindered any firm conclusions about their size and form. There does however, appear to be two size groupings, 20–31mm in length with a



Illus 130
Iron knife blades, pin, wool comb tooth, tweezers, decorated pins, bone and iron razor and knife.

Illus 131
Iron chaser (SF 4822), Phase 7; scale 2:3.

width of 10–16mm, and a second group, 30–39mm long with a width of 2.5–7mm. Larger nails have been found, including SF 50. This is 78mm long, and although bent, it has a broad rounded head and a square shaft and was found in the Phase 7 ditch.

Most of the best preserved nails have square sectioned shafts and are mainly from Phase 7. Only two nails have been recognized as having a round shaft and both of these are from Phase 8 (eg SF 2086, illus 130). Few of the heads of the nails have survived, but those that do are small rounded and flat like SF 2086. SF 50 has a 24mm diameter round head and is the largest recovered. Included in this section is a large spike or nail 93mm long, with a square shaft also found in the Phase 7 ditch fills.

MISCELLANEOUS

Included here is a large, thin blade or sheath with a narrow turned end, which might be part of a plough culter or turf cutter. The object SF 4164, was found in Late Phase 7. SF 48 is a strip of metal with a loop at one end, and SF 43 may be a small fish hook. Both were found in Phase 8 abandonment horizons. SF 1995 (illus 130), from the S buildings in Early Phase 8, is a long pointed tooth of a wool comb.

Waste and unconserved fragments

Many fragments of magnetic iron were found from Phase 5/6 to Phase 8/9. These were predominantly small irregular or rounded lumps 28–61mm × 17–57mm found mainly in Late Phase 7 and Early Phase 8 in association with the settlement's iron-working activities and deposits of slag. They may represent smelted iron ready for secondary processing and smithing.

COMPARISONS

Several of the Orkney brochs have produced iron objects and slag, but corrosion and lack of conservation has precluded their further investigation. Metal work identified as spear- and arrowheads from the Brochs of Ayre and Burrian, North Ronaldsay (Hedges 1987c, 77, 108) are a category not found at Howe. Pins, spikes, knife blades, chisels, nails and rings have been found in small numbers at the latter two sites, and also at the East Broch, Burray. At Gurness not only were there slag samples but also a few iron finds which were mostly associated with the Norse period (Hedges 1987b).

The amount of ironwork from the 1930's excavations at Birsay was also small, although this included several nails of Pictish and Norse origin. More metalwork was produced from the 1972–4 excavations (Curle 1982, 117, 127–32) but again mainly nails and unidentified fragments. Evidence for iron-working was produced at Gurness and at Crosskirk, Caithness, but the latter site produced few iron objects (Fairhurst 1984, 118–9). This is a pattern that occurred at Ingashowe and Midhowe where no iron finds were recorded (Hedges 1987c, 67, 116). In contrast, at Traprain Law iron objects were found in nearly all levels of the site, including chisels, knife blades, bars or blanks, rings and flat-headed square-sectioned nails (Curle 1920, fig 9; Burley 1955, 204–219). The numbers of iron finds in Orkney and Shetland seems to be limited by the burial and preservation conditions.

COPPER-ALLOY ARTEFACTS

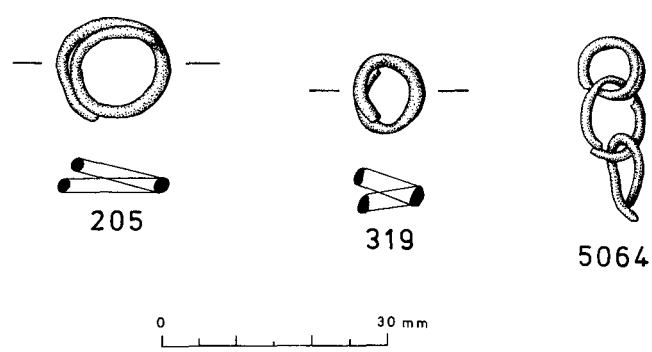
Two types of copper-alloy artefact have been recognized although their mineral content has not been analysed. The majority are of a hard, dark green-blue or dark green metal which has been cast or worked from wire. A few items are made from sheets of a soft golden copper-alloy which have been rolled or bent to produce items such as the spiral ring, SF 205, and the key, SF 603. This difference in bronze types may indicate different production centres, imported objects or locally produced artefacts whose metal composition has varied with time. All of the sheet metal artefacts are from Phase 8 or later. Table 56 shows the number and types of artefacts.

RINGS, CHAIN-LINK AND COILS

This group of small rounded objects, eleven items in all, forms one of the largest categories of copper-alloy artefacts found at Howe. It includes artefacts that have been made of wire and cast or tooled from thin sheeting. Several small fragments of chain-link rings were found in stages 5–9 of Late Phase 8. The largest piece, SF 5064 (illus 132), is from an Early Phase 7 floor in the ***E*** Building. It consists of two misshapen rings and a smaller double coiled terminal, all made of cast wire. A short length of bronze double chain link of this type was found in the Iron Age fort at Clickhimin, Shetland (Hamilton 1968, 90, fig 40, 3). Another piece of coiled wire, SF 319 (illus 132), is unstratified and may also have come from a chain.

Other pieces in this category come from Early and Late Phase 7. SF 4704 is half a plain cast ring and SF 5099 may be the same. The largest piece SF 205 (illus 132) is unstratified, but is a coiled ring of sheet metal with cut ends. The ring may not be complete as its diameter is very small. Hamilton refers to these as finger or toe rings and one with a slightly larger diameter than SF 205 was found in the broch levels at Clickhimin (1968, 116, fig 50, 3).

A silver spiral ring came from Dun Mor Vaul and two from Traprain, but bronze seems to be the more common medium. Three coiled bronze spiral rings were found at Gurness on skeletal hands with other rings but Hedges has suggested these are of Norse date (1987b, 87, 116). Several bronze rings of 2–3 coils were recovered from all levels at Traprain Law (Curle 1920, 65–67, fig 7, 14; Burley 1955, 173–4). This type of ring has been ascribed by Clarke (1971, 22) from the mid Bronze Age to *c* 5th century AD, indicating the problem of dating, a problem which the Howe ring does not solve.

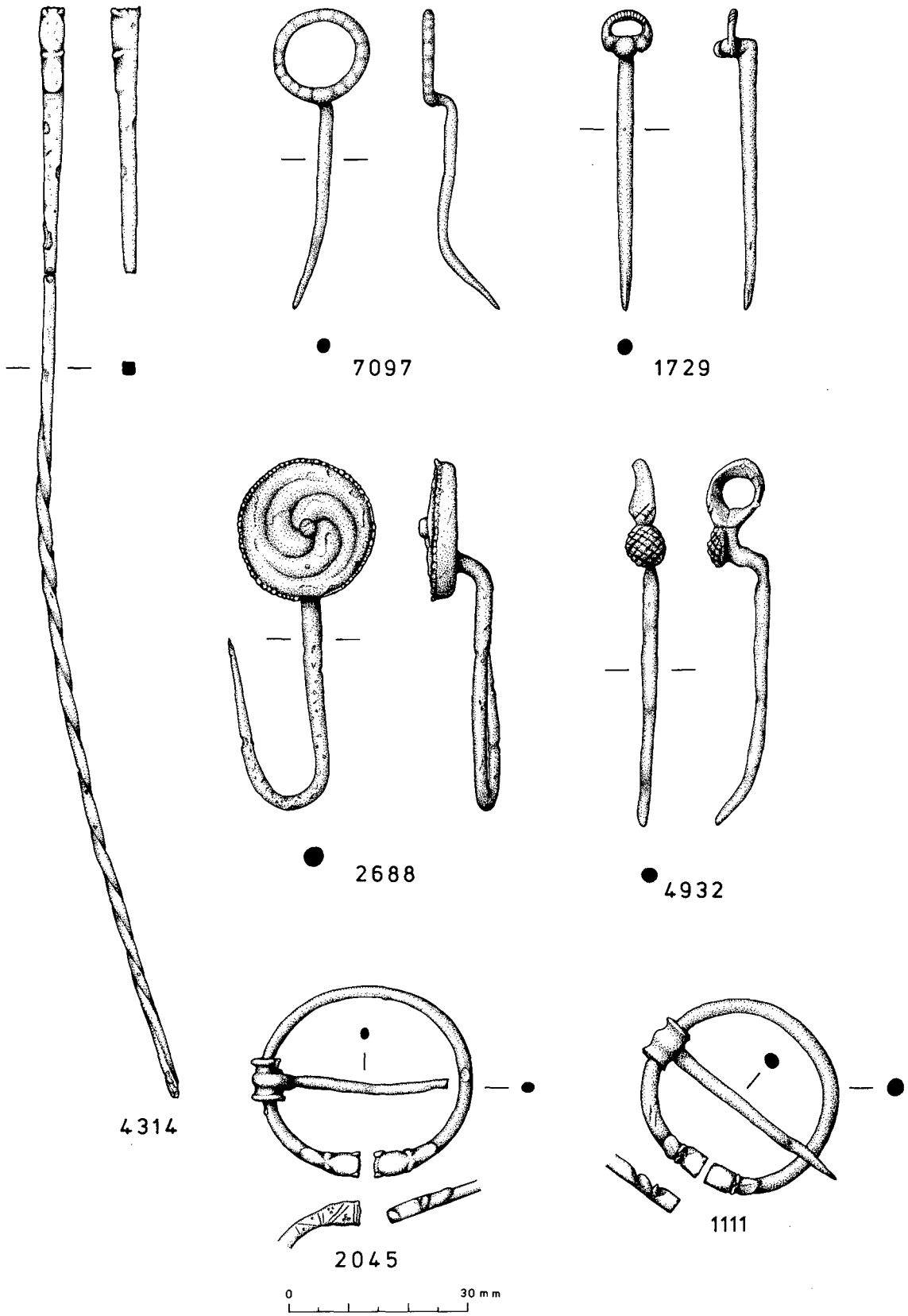


Illus 132
Copper-alloy rings and chainlink.

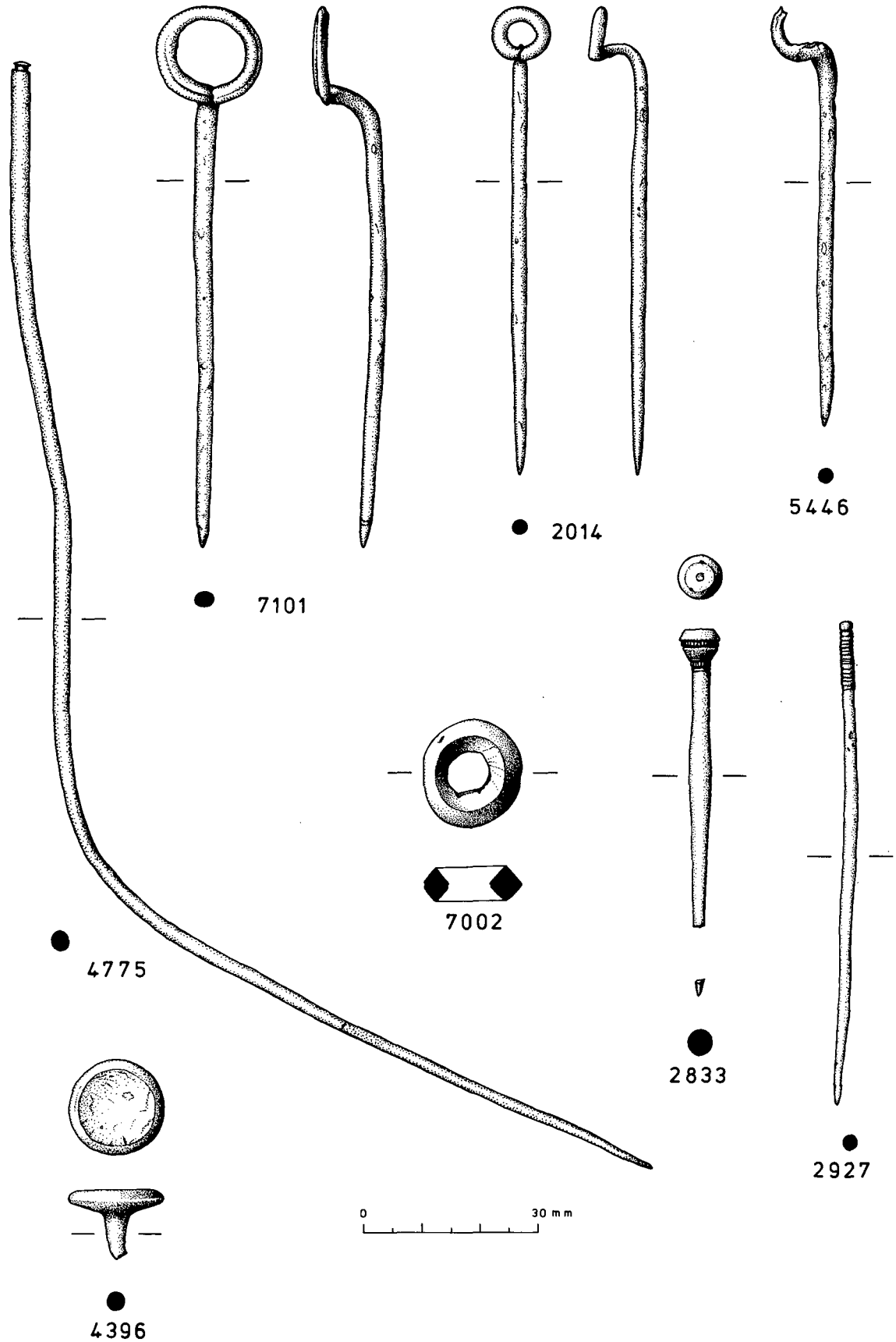
PINS

Projecting ring-headed pins

Several projecting ring-headed pins were found, from Phase 5/6 to the broch abandonment of Early Phase 8. They were used in fastening garments and were secured in the fabric by a thong or thread wound around the pin and tied to the head. Four of the recovered pins are complete and the other two fragmentary. Only two are cast in one piece, SF 7097 and 1729 (illus 133), the others



Illus 133
Copper-alloy decorated pin, projecting ring-headed pins, disc pin, elbow studded pin and two zoomorphic penannular brooches.



Illus 134
Copper-alloy long pin, projecting ring-headed pins, decorated pins and pin heads.

are of copper-alloy wire which has been bent and cut to form the circular head.

Stratigraphically the earliest pin is SF 7101 (illus 134) from Phase 5/6; it its also the largest at 91mm in length. Two other pins SF 2014 and 5446 (illus 134) are similar but have respectively a smaller and a fragmentary head. All are plain apart from a ridge around the head of SF 7101.

Of comparable dimensions to these is a plain pin from Gurness (Hedges 1987b, fig 2.39, 236) made of bent wire and one from Jarlshof from the Iron Age settlement (Hamilton 1956, 64, fig 34). Several pins found at other sites are similar to SF 7101, such as one with a bevelled head from Midhowe (Callander & Grant 1933, fig 4, 1), one from the Mackenzie Collection (Close-Brooks & Maxwell 1972, 288, fig 1) and one supposedly from Anglesey (BM Guide 1925, fig 109).

Projecting ring-headed pins are common, but not exclusively, to Scotland, where they have been found at many Iron Age sites from Dun Mor Vaul in the west to Crosskirk in the east and as far north as Shetland, and can be made of iron as well as copper-alloy. Clay moulds for cast pins have been found at Traprain Law (Burley 1955, 219) and at Gurness (Hedges 1987b, 158). It is possible that this type of pin is a native development as Stevenson remarked (1955, 288), but from the influences of the Late Bronze Age sunflower pins and the Early Iron Age British ring-headed and swan's neck pins, producing the ring-headed pin which is projected (Coles 1958). Stevenson puts these pins at a date between the 2nd to 3rd centuries AD but also suggests that an earlier date is possible (1966, 20–22). All the Howe pins, so far described, are from Phase 5/6 and from Phase 7, from *c* 2nd century cal BC to the 4th century cal AD.

Beaded ring-headed pins

Another type of projecting ring-headed pin from Howe is SF 7097 (illus 133). It was found in a wall in Early Phase 7, and its ring head is decorated with large flattened beads. One beaded example similar to this was found at Traprain Law which Stevenson (1955, 290, fig B, 3) dates to the 3rd and 4th centuries AD, and another from Tentsmuir, Fife (Kilbride-Jones 1980a, fig 59, 11). An unstratified example with a slightly longer pin was found at Gurness, with incised lines on its face (Hedges 1987b, fig 2.39, 235). These pins may be earlier than thought and developed along side and not from the plain projecting ring-headed pins.

Proto ibex-headed pin

The last pin, SF 1729 (illus 133), in this category is the latest stratigraphically, from stage 5 of Late Phase 8. It is a small pin with a squat decorated head. At the base of the ring are three beaded projections and the rest of the ring is ribbed. Several silver examples of this type of pin were found at Covesea, Morayshire, each with three beads and a ribbed head (Stevenson 1955, fig B, 6–11), and another at Haddington, North Berwickshire (BM Guide 1925, fig 111). Stevenson also cites an unpublished example from Swandale, Rousay, but suggests that the Covesea pins are 2nd–4th centuries AD. The Howe pin does not have wedge-shaped beads and is not a true ibex-headed pin for which a 4th century date had been suggested (Stevenson 1955, 290–1), but it is quite likely that SF 1729 is an import derived from the eastern seaboard of lowland Scotland.

Decorated pins

Five pins are decorated, each with different characteristics and possible origins.

Disc-headed pin: The earliest stratigraphically is a projected disc-headed pin with a bent stem, SF 2688 (illus 133), found in the earliest floor of the Phase 7 broch tower. It is a very unusual pin and so far a unique example. It comprises a circular beaded dish into which is set a repousée or beaten copper-alloy disc, held in place by a central pin. The disc is decorated by three swirls which radiate from the centre. The plain pin shank tapers to a point and is bent back upon itself. The head of the pin does not fit centrally into the dish, but lies below the centre.

According to Hattatt (1982, 31–41, 145) this is a rare class of pin and has what he refers to as 'beautiful swirling native Celtic designs'. The technique of repousée may have been introduced in the 1st century BC, and the earliest examples of brooches of this design date from the 1st to 2nd centuries AD. The Howe pin could be earlier and imported. It has also been indicated (Valerie Rigby pers comm), that the pin is related to the Late Bronze Age–Early Iron Age swan's neck sunflower or disc-headed pins found in Yorkshire, Scotland and Ireland, but with a design using Celtic traditions. She also thought the repousée disc may originally have been highly decorated.

Elbow studded pin: From the Phase 7 broch wall came a pin SF 4932 with a non-projecting ring head, but with a decorated elbow stud beneath it (illus 133). From the 3rd and 4th centuries BC, La Tène brooches are known with a solid head loop and a stud on the bow (Hattatt 1982, 74–79). A variation of the La Tène brooch is known from Gotland, Sweden, dated to *c* 2nd century BC with a cross-hatched stud below the spring (BM Guide 1925, 84, fig 77).

Ring-headed pins with bent shoulders have been described from Britain during La Tène 1, *c* 4th century BC, and pins with a coral-studded elbow have been found in Yorkshire and London dated to the 3rd century BC (Dunning 1934, 274, 282, 284). Ring-headed pins have been found along the east coast of Scotland and also in the Antrim district of Northern Ireland. The pins from Ireland are highly ornate and many of them support an enamelled shoulder stud such as the Lisnacroghera example, from late La Tène 1 (Dunning 1934, fig 8, 3; Raftery 1984, fig 86). An example similar to SF 4932 was found in Clough, Co Antrim, now in the British Museum. It has a cross-hatched decorated ring head and elbow stud, and is dated from the 3rd or 2nd centuries BC to the 1st century AD (Raftery 1984, 171,173). Whether the Howe pin is a native copy of an Irish example or an import from Ireland, the dates would fit in well with its location in the broch wall, presumably derived from reworked material.

Swollen shanked pin: The only pin of this type is SF 2833 (illus 134) from the ***NE*** Building yard in Early Phase 8. Its shaft has a slight central swelling and its decorated hexagonal head has a flat and circular top. Around the centre and base of the head is a line of incised dots. Stevenson (pers comm) suggested that this is not a hipped pin but bears similar decoration on an example akin to Roman period pins. In his opinion it could be late Roman in date, *c* 5th–6th centuries AD but no direct parallels have been found.

Ribbed pin: Another pin in this category is SF 2927 (illus 134) found in ploughsoil overlying the Phase 7 ditch in the SW. It may also have Roman origins as similar pins have been found in the S of England. It is composed of a plain, slightly tapering shaft with a ribbed top which is slightly narrower in diameter. Two similar, but slightly longer pins were found at Shakenoak, Oxfordshire, from Roman levels dated to the first half of the 3rd century (Brodribb *et al* 1968, fig 30, 35; 1971, fig 49, 84), and another comparable pin was found during the excavation of Roman Winchester in deposits of the mid to late 2nd century AD (Hull 1964, fig 24, 19). A similarly described pin came from the second level at Traprain Law (Burley 1955, 170, 121) and an unprovenanced and undated example from Birsay, now in the National Museums of Scotland, Edinburgh. These latter and northerly examples, together with the Howe pin, could perhaps be explained by coastal trade along the east coast of Britain, during the 2nd and 4th centuries AD.

Long zoomorphic pin: Last in this category of decorated pins is an unstratified pin SF 4314 (illus 133), 183mm long. It has a twisted square-sectioned shaft which terminates in a zoomorphic head with eyes, ears and a snout on one of the faces. The decorated head is very similar to the zoomorphic terminals on the penannular brooch SF 2045 described below. It is not known whether this type of pin developed in parallel with zoomorphic

brooches, which seems most likely, or developed separately and prior to the brooches.

Zoomorphic pins are an almost exclusively Scottish development concentrated in the highland area. In 1963 Elizabeth Fowler (1963, 103, 121–2), noted 26 pins, some with rounded zoomorphic heads and 10 with square heads. The latter she dates to the 4th–5th centuries AD; these are very similar to her E type zoomorphic brooch terminals (see below). It is thought that pin SF 4314 is of this type.

Several of the zoomorphic headed pins from Traprain Law have incised lines on the stem which is a feature not found on the Howe pin, but also SF 4314 is most like the pins from the highest levels (Curle 1920, figs 13, 23, 1, 2; and Birley 1955, 168–9, 108, 109). A fragment of a headless long pin partly twisted towards the top of the shank was found in wheelhouse levels at Clickhimin (Hamilton 1963, fig 61, 2). Kilbride-Jones (1980b, 31) remarked that zoomorphic pins and brooches have only been found together at one site, the factory site at Traprain Law, but they both occur together at Howe. No other Orcadian site has produced a zoomporphic pin nor has any site produced one of this length. If the pins and the brooches are contemporary then a mid to late fourth century date cannot be ruled out for this artefact (see below).

Pin heads

Three pin heads come from Phase 5/6, Late Phase 7 and Early Phase 8. The latest piece is a corroded fragment SF 4665, which through X-radiography seems to be a circular pin head with part of the shank still in place. SF 7002 (illus 134) is a heavy ring from Phase 5/6 which is slightly flattened on part of its surface where the pin shank may have been attached. The ring diameter is small and a terminal to a pin seems a fitting interpretation for this object.

From the Late Phase 7 ***E*** yard came a circular pin head SF 4396 (illus 134) broken from the shank close to the head. Cup-headed pins of which this is possibly an example, have been found mainly in Ireland with isolated examples in Scotland and England. Pins with shallow cup heads have either a straight or bent pin and were developed in central and northern Europe and may have reached Ireland in the 7th century BC (Eogan 1974, 99, 101). Most of the Irish examples are straight stemmed but SF 4396 may have had a bent or swan's-neck type shaft, like the example in the British Museum from Late Iron Age Gotland, Sweden (BM Guide, 1925, fig 78). Alternatively the late Robert Stevenson suggested (pers comm) that it might be a 2nd century AD dress fastener which has lost its loop.

Pins and points

This category includes plain pins as well as brooch pins which have become detached and other bits of pointed copper-alloy. Four are brooch pins, including SF 2028 which may be a hinged pin from Early Phase 8. These pieces vary between 33–57mm in length and between 1.5–4mm in width. The other pieces are from the Phase 7 ditch, Late Phase 7 and Late Phase 8. All are plain, but SF 4598 from Late Phase 7 is hollow and is probably formed from sheet metal.

Long pin: Included here is a plain tapering pin SF 4775 (illus 134) of 250mm in length, found in the Phase 7 deposits of the ditch in the SW. It does not have a formal head, only a small terminal knob, and gives the appearance of once having a metal, bone or jet pin head. Long dress pins are not uncommon in the Iron Age (see above), but normally have a zoomorphic terminal. This pin may belong to the Irish type of disc-headed pins of the Late Bronze Age, where very long straight pins are surmounted by a horizontal, plain or decorated metal disc-head. The disks are held in place by a central conical boss fitting on top of the shaft. SF 4775 could have supported a disc-head which would have fitted on top of the terminal knob. This type of pin developed from the middle Bronze Age in central and northern Europe, but no examples have been found in Britain except Ireland, where they are dated to the Late Bronze Age (Eogan 1974, 75–77, figs 2, 3). The Howe pin fits well into the size and length range of these Irish pins, the longest being 477mm.

DECORATED BROOCHES

Insect brooch

Stratigraphically the earliest in this category SF 2347 (illus 91; 135) is a most unusual brooch found in the broch tower in Late Phase 7. It is in the shape of an insect, with a zoomorphic head, a raised body and hinged pin, resting on a substantial catch-plate. The tinned wings, the nature of the catch-plate and the hinged pin initially suggest a Roman derivation or manufacture under Roman influence. Brooches representing animals, to some extent reflect the native Celtic beliefs and religions, and many of these brooches were made in Britain, Gaul and Belgica from AD 50–150 (Hattatt 1982, 158).

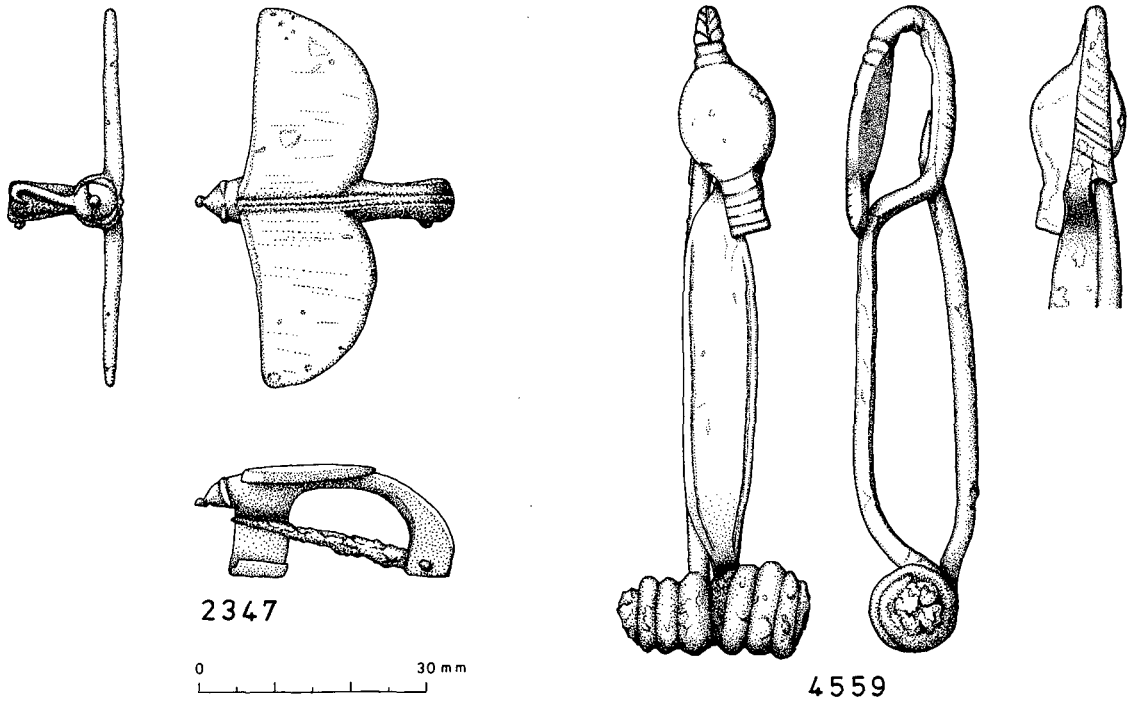
The following report was supplied by the late Richard Hattatt.

> The more common types of brooches are the trumpet-headed fly brooches, usually enamelled, some with silver, which are a variant of the native British trumpet brooch and belong to the 2nd century AD (1985, 459, 460). These all have a perfectly thin flat body, or rather no body between the flat wings, the trumpet head being a non-zoomorphic appurtenance. The rarer type have a distinct body under the wings, with the abdomen curved downwards and a more realistic head, or at least a more detailed head, sometimes with a thorax. These seem to be wasps rather than flies.
>
> Two other examples of the wasp-type are known from Oxford, found at Kidlington. One is hinged at the tail with wings in a backward triangular position and was enamelled. More interesting is the second, notwithstanding that the pin is sprung, because the wings are distinctly widespread as if in flight and they are tinned (Oxoniensis Vol 17–18, fig 26, 6, 7). Their eyes are clearly defined also and the downward tail has lateral grooving representing the wasp's striped abdomen. Another example is from South Shields in the north of England. This has the downward turning abdomen, with a hinged pin at the tail, a clearly defined thorax, wings half spread outwards and tinned, and it has a rib running the length of its back (Miket 1983, fig 72, 87). These brooches will probably be of a 2nd century AD date as, prior to that, plate brooches were only just being developed and were of tinned flat metal.
>
> Brooches in the round, animal type, all belong to the 2nd century AD when tinning was giving way to enamelling; as the Howe brooch displays both processes, it is probably of the early 2nd century AD as such brooches had ceased entirely by the 3rd century. Too few have been found to indicate with any certainty a probable area of manufacture, but they are most likely of native British production (as are the trumpet variants), because a search through continental references reveals not one from Gaul to Pannonia.

La Tène 1 brooch

From the abandonment in Late Phase 8 came a fibula, SF 4559 (illus 135), identified as a La Tène 1 brooch. It is a flattened brooch with a sprung pin. The bow is incised with a parallel line at either edge and bent to form a moulded catch-plate and a 'cobra-head' foot. The catch-plate and foot are decorated, the former with incised lines and the latter with feathering and incised ribbing.

The following information was supplied by the late Richard Hattatt.



Illus 135
Copper-alloy insect brooch and La Tène fibula.

La Tène brooches are extremely rare north of the English Midlands, except in the burials of the Arras Culture in N Humberside, and only three fragmentary brooches are known from Scotland. SF 4559 is of the native British 'Swallowcliffe' type which might also be classed as a sub-type of the La Tène 1 brooches, similar in practically all respects except for the bow being lengthened and straightened. Dating of La Tène brooches is extremely vague and the best estimate is probably around the 2nd century BC.

The Howe fibula is probably the most northerly 'Swallowcliffe' yet found. Until recent years all known brooches were from the Wessex area, a considerable proportion being of iron, but some of bronze. Since the excavation of the graves of the Arras Culture in N Humberside, an appreciable number have been found there also and they are nearly all of iron (Dent 1982, fig 4; Stead 1979, fig 24 ; Stead forthcoming on the Burton Fleming excavations). There seems to have been two centres of manufacture, Wessex and N Humberside, but SF 4559 must have travelled to Orkney and from its features it most probably came from Wessex.

Only the external chord is missing from SF 4559, but although no two are quite alike, it conforms generally with the characteristics of the type. A number have the disc foot with the small extended finial (cobra-head foot), and as in the case of La Tène 1 fibulas, a number have an apparently non-functional axis bar. However, some with the axis bar are of the mock spring mechanism where the pin is not continuous with the coil, but has one turn round the axis bar and is free to move independently. SF 4559 may well be like this.

The brooch has two unusual features. The 6-coil spring is rare on Swallowcliffe brooches. On the two or three which are known, nearly all have the usual four coils. Second the comparatively wide bow. Nearly all are rod-like and therefore with minimal decoration. One or two are known which have a single median incised line along the bow, but only one is similar to SF 4559, from Charnage, near Meare in Wiltshire, in the Devizes Museum. One further oddity is the incised decoration each side of the disc on the foot. The decoration is more usually punch marks or dot in circles. Nearest examples are from Maiden Castle (Wheeler 1943, fig 81, 3–5) and from Ham Hill, Somerset (Fox 1958, fig 13g).

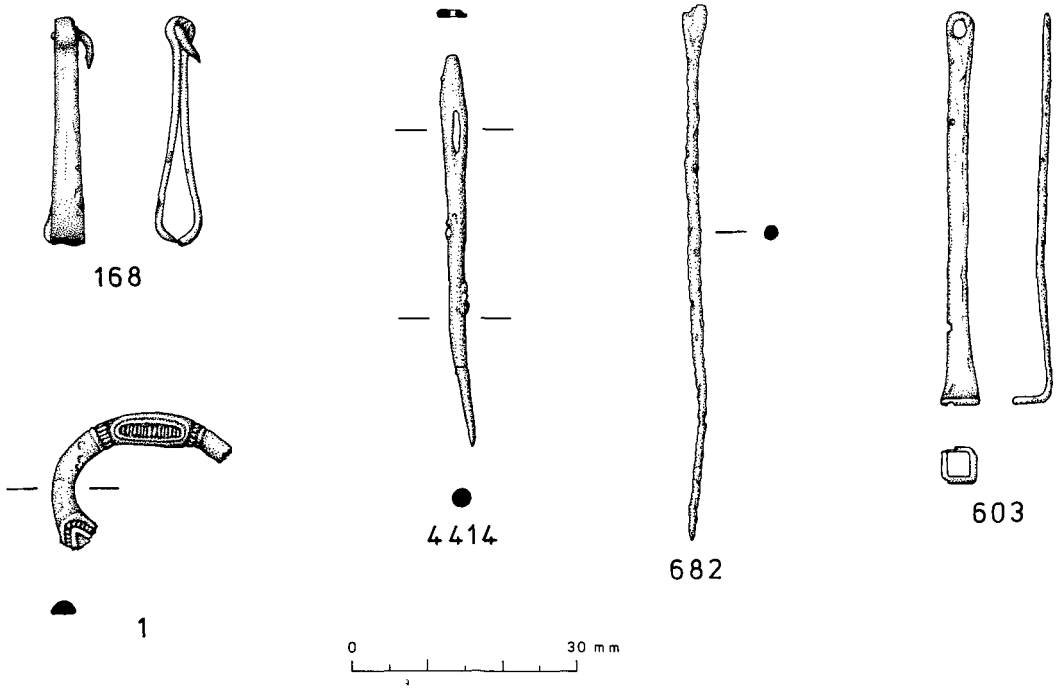
Zoomorphic penannular brooches

The last two brooches in this section SF 2045 and 1111 (illus 133) are complete penannular brooches with zoomorphic terminals and pins. SF 2045 has decoration beneath its terminals and a well moulded pin. It was found in a ground surface associated with the ***NE*** Building in Early Phase 8 and SF 1111 was found in stage 5 of Late Phase 8.

Penannular brooches developed in areas bordering the main centres of La Tène culture in Britain, Iberia and northern Europe. The Fowler E and F type zoomorphic brooches probably developed during the 4th and 5th centuries AD in the highland zone of Britain, because of the occurrence and distribution of zoomorphic pins (Fowler 1960, 150, 169). The zoomorphic pin, SF 4314 (illus 133), has already been described and as far as is known only Traprain Law and Howe have produced both zoomorphic pins and brooches (Kilbride-Jones 1980a, 131).

According to Fowler's classification, both brooches can be likened to her Type E which are small zoomorphic penannular brooches *c* 25mm in diameter (Fowler 1963, 101), and early, dated to the mid to late 4th century. SF 2045 has an elongated snout with well defined ears and eyes, and a well moulded barrel-type pin head. It is slightly smaller and lighter in appearance that its nearest parallel, a brooch from the native British site of Traprain Law (Kilbride-Jones 1980b, fig 20, 4). The decoration on the reverse is interesting, and most like a larger Irish brooch from the Roman site of Kirkby Thore, Westmorland, and brooches from Terwerd Terp, Netherland and an unprovenanced brooch of type F1 from Ireland (Kilbride-Jones 1980b, 93, fig 23, 24; Fowler 1963, fig 3, 2, 4). The latter are however dated to the 5–6th centuries.

Discussion of these brooches is not straightforward because of



Illus 136
Copper-alloy brooch fragment, tweezers, needles and key.

conflicting ideas on dating and origin. Suffice it to say that SF 2045 could have been made any time during the late 2nd to 5th centuries AD. If it is of Scottish origin it might have Irish influence in the decoration of its terminal reverses. Its deposition during the 4th–7th centuries AD would accord well with a manufacture date no later than the 5th century AD.

Brooch 1111 is a slightly heavier and smaller brooch than 2045. It has a shorter zoomorphic snout on the terminal, almost bead eyes and no ears and the pin head is only roughly moulded compared to SF 2045. Although later stratigraphically, it may be a copy of the earlier brooch and might date to the 5th–6th centuries AD.

TWEEZERS

From stage 8 of Phase 8 came a small pair of flat ended tweezers SF 168 (illus 136). The enclosed loop at the top holds a fragment of ring from a suspension chain and the tweezers are not dissimilar in shape, but slightly smaller than the iron pair found in Phase 7 (see above).

Although these are probably of native origin, several examples exist from Roman Britain. A pair of large tweezers with a nail cleaner in bronze was found in Roman levels in London (BM Guide 1964, fig 5, 10), and at least two comparable pairs were found at Shakenoak, Oxfordshire dated to the late 3rd and late 4th centuries (Brodribb *et al* 1968, pt 1, fig 29, 18; 1971, pt 2, fig 46). Copper-alloy tweezers and other toilet articles were found at both Traprain Law and Covesea. At the latter site examples of a similar shape and size to SF 168 have been noted (Benton 1930, fig 17, 1, 3, 5, 6). At Traprain Law the tweezers occurred in the later levels and Burley (1955, 131, 181–2) thought that these personal objects were imitations of Roman ones. It seems that tweezers were not particularly common during the Iron Age in the Northern Isles and this might suggest that SF 168 was imported. Alternatively, as the iron tweezers SF 2442 are in the same style, it might be suggested that they are both of local manufacture or the iron ones are a local copy.

BODKINS OR NEEDLES

From the topsoil was found a long needle broken at the eye, SF 682 (illus 136), and from the ***E*** building in Late Phase 7 another example was found, SF 4414 (illus 136). These everyday objects must have been fairly common and similar items are illustrated from Gurness, from the broch settlement (Hedges 1987b, fig 2.39). A damaged bronze needle similar to SF 682 was found at Kingdon's Workshop, Winchester, dated to the 3rd century AD (Hull 1964, fig 24, 18).

KEY

This artefact, SF 603 (illus 136), is made of folded copper-alloy sheeting with a punched rounded hole at one end of the shaft and a square hole in the other angled end. It has been identified as a key and was found in stage 10 of Late Phase 8, where contemporary stratigraphy produced a radiocarbon date of cal AD 560–655. Larger examples in bronze and iron are common from Roman sites, and these keys were used with a spring, barrel or barbolt padlock. Few examples have been found from native sites in the north of Scotland, but the Sculpture's Cave, Covesea, Morayshire produced both a key and a lock (Benton 1930, fig 15, 3, 4). A key formed of folded sheet bronze was found, also with a lock at Traprain Law (Burley 1955, fig 7, 461) and indeed these examples may be of Roman rather than native origin because of their design (Caroline Donaghy pers comm).

Recent research by Caroline Donaghy suggests a 7th–9th century AD date for keys of this type. 15 keys of similar size and form have been found in the Early Christian Irish crannog sites such as Lagore, Lough Faughan, Moylarg and Creevenamanagh or from the ring forts of Garryduff and Cahercommaun. She indicates that the padlocks are very similar to Romano-British types but the Irish bolts have an insular development which have no comparisons in Britain at this period. The closest parallel to SF 603 is one from Talon, Ireland, unfortunately unprovenanced, but the site was important in the Early Christian period (Caroline Donaghy pers comm).

WIRE

Only three small pieces of copper-alloy wire were identified and from their curved appearance it is suggested that they formed part of a ring or chain-link. They were found in the settlement entranceway in Early Phase 7.

METAL SHEETING

From Early Phase 7 onwards, several bits of thin copper-alloy plate or sheeting were found. Most were less than 1mm thick and some were obviously bits of metal folded over such as SF 4610 and 5034.

SF 4120 is the largest piece, rectangular in section and punched through by holes along the edges and through the middle, as if it had been nailed or sewn onto a backing sheet. It was found in the ***SE*** Building during Late Phase 7. Two other examples, SF 2132 from topsoil and SF 2358 from the Late Phase 7 S buildings, are of two broken pieces, squared along their edges, but broken across the middle. They might have formed parts of hinges or strapping.

MISCELLANEOUS

In this category are five objects from Phases 7 to 9. A small perforated disc was found in the Phase 7 broch walls and a fragmentary small boss found in stage 6 of Late Phase 8, need no further discussion. From the Late Phase 7 S buildings was a fragmentary plain staple or buckle, but Phase 9 produced two items of slightly more interest. One is a badly corroded coin, identified as a Charles II bawbee with a thistle on one face.

Decorated brooch

The second item from Phase 9 was the first item found on the excavation: SF 1 (illus 136). This is a fragment of a decorated brooch, semi-oval in shape with incised decoration in an enclosed and bordered cartouche on the main part of the piece. It also has a bordered dot design on the surviving arm. This was latterly identified by Stevenson (pers comm) as a post St Ninian's Isle Pictish brooch and comparable to one thought to come from Rogart in Sutherland (Wilson 1973, pl 37a). Stevenson suggested a date of the mid 9th century AD for this artefact.

Unconserved pieces

Several very small pieces of fragmentary and unidentifiable copper-alloy were found, eight from Early Phase 7, two from Early Phase 8, five from stage 7 of Late Phase 8 and four from Phase 9.

CONCLUSIONS

Only three main metals are represented at Howe, from which all the objects have been made, these are iron, copper-alloy and lead. Lead is accounted for in only one object, whereas there are almost twice as many iron artefacts as there are of copper-alloy. Some copper and a little silver has been identified on two items, but these were incidental occurrences.

The distribution of the metals (copper-alloy and iron) changes over time as described above. Iron remained the dominant metal during Phases 7 and 8, with a high point in Late Phase 7 when iron production at the site was at its peak. In contrast, copper-alloy artefacts gradually declined in numbers during Late Phase 7 and Early Phase 8 to rise again in Late Phase 8. Copper-alloy was exclusively used for personal items, which survived in remarkably good condition. The majority of iron finds are of artefacts – nails, blank pieces and waste or partly processed iron. The use of iron for personal objects remained constant at 2 to 4 pieces throughout Phases 7 and 8, but in general their preservation was poor.

Of the iron artefacts, 60 items are identified as waste fragments and ore, and combined, with the evidence of smelting and smithing on the site, this suggests that almost all the iron objects were produced at the site. The iron-working evidence (see 8.7 Slag report below) indicates a small, intermittent production which was technologically not very advanced, using locally available ores in small furnaces, producing iron for purely a domestic market. The Later Phase 7 industrial hearths in the ***NE*** building indicate a smithy (although no smithing tools were found), which probably produced the knives, chisels and nails found on the site. All the items were relatively small, which may indicate that any larger, heavier and therefore more costly items had to come from elsewhere.

The decorated pin, SF 284 (illus 130), is probably the only iron item which was not made at the site. The techniques of milling and the application of stamped gilt discs and inlay, are unlikely to have been carried out at Howe as all the other iron objects were undecorated. As a similar pin was found at the East Broch of Burray, it is highly likely that the Howe example was imported.

Although items such as the iron pin with a paste head, SF 5502, and the razors are of local production (both from Early Phase 7), they are extremely difficult to date accurately within the Iron Age period, largely because of insufficient parallels and related C14 dates. Therefore the iron artefacts can be of little use in dating events at the site.

The circumstances of the copper-alloy artefacts is the reverse of the iron finds. The copper-alloy items are

well-manufactured, but there is little evidence to suggest they were produced on the site. Only four or five pieces were identified as crucible fragments (see 8.10 Other Fired Clay below), used for the melting of copper-alloy. Only one of these was from Phase 7, when the highest number of copper-alloy artefacts occurred. Waste fragments of copper-alloy from both Phases 7 and 8 only amount to 14 pieces, and may represent corroded and fragmentary objects rather than actual waste copper or bronze. The total absence of clay moulds, in contrast to the later phases at the Broch of Gurness or the Brough of Birsay, indicates that few, if any, of the copper-alloy pieces were manufactured at Howe. The exceptions are the simple projecting ring-headed pins which could have been produced with the aid of the stone mould, SF 4302, found in an Early Phase 8 context.

A wide range of copper-alloy jewellery was recovered from Howe even though the numbers in the individual categories were small. The collection compares well with comparable sites such as the Broch of Gurness, Dun Mor Vaul, Clickhimin and Jarlshof, where manufacturing equipment was present, in particular at the two former sites. The range of both copper-alloy and iron artefacts from Howe is in fact more varied than at Gurness, although the differences may be due to excavation techniques and preservation rather than the site economy.

The earliest dated copper-alloy artefacts from Howe are the La Tène brooch, SF 4559, and the La Tène type elbow studded brooch, SF 4932. The former is possibly Irish or a copy of an Irish design and the latter is probably from Wessex. Both are attributed to the 3rd and 2nd centuries BC, but were found in rubble contexts in Phase 7 and 8. It would appear that these, as well as one of the projecting ring-headed pins from Phase 5/6 (also dated as early as the 2nd century BC), indicate an importation to the site of foreign jewellery from the beginning of Phase 7, if not from as early as Phase 5/6.

From Early Phase 7 (*c* 1st–2nd century cal AD) are two items, the beaded projecting ring-headed pin, SF 7097 (illus 133), and the disc-headed pin, SF 2688. The former is placed in the 3rd or 4th centuries cal AD or earlier and from its context within a wall of Early Phase 7, it is probably earlier. The disc-headed dated to the 1st century BC–2nd century cal AD, was found on the earliest floor of the broch tower. The dates complement each other but what is of equal importance is the influx, or continued influx of jewellery from Celtic areas (of Scotland or Ireland) and from coastal Eastern Scotland.

In Later Phase 7 (*c* 2nd–4th centuries cal AD), the western and eastern coastal trades are maintained with both jewellery of Irish origin (long pin, SF 4775, and a pin head, SF 4396 (illus 134)) and Romano-British (ribbed pin, SF 2927 (illus 133), and the insect brooch, SF 2347 (illus 91, 134). Both the ribbed pin and the insect broch are mainly confined within the 2nd century AD (certainly no later than the mid 3rd century for the pin), and dated stratigraphically to earlier than the 4th century cal AD.

The simple rings, chain links, a spiral ring and projecting ring-headed pins found throughout Phase 7 (and from as early as Phase 5/6) indicate the links with a common Iron Age culture from the Late Bronze Age to the 5th century AD. These probably were some of the most ubiquitous copper-alloy artefacts in the Northern Isles and Scotland with their fashion persisting for a long period of time.

Late Roman influence persisted into Earlv Phase 8 (from the 4th century cal AD onwards), with the occurrence of the swollen shanked pin (SF 2833, illus 134) of the 5th–6th centuries AD. One of the two zoomorphic penannular brooches (SF 2045, illus 133) was also found in Early Phase 8, dated from the late 2nd to the 5th centuries AD from the Highland zone of Scotland.

Roman type tweezers of the 3rd–4th centuries AD and the East Scottish proto ibex-headed pin SF 1729, of a 2nd–4th centuries AD date, were found in Late Phase 8 (7th to possibly as late as the 9th century cal AD), along with the second Scottish zoomorphic penannular brooch, SF 1111, dated to no later than the 6th century. A related zoomorphic pin SF 4314, also from Scotland, although unstratified is dated to the 4th–5th centuries AD, and was no doubt in use during Phase 8.

Two last items, a key SF 603, and a post-St Ninian's Isle Pictish brooch fragment SF 1, can be assigned respectively to the 7th–9th centuries and to no later than the mid 9th century AD. The key was found in a context dated to the mid 7th century cal AD by C14 which does not help in the decision as to whether this is

a contemporary Irish artefact or a slightly earlier Romano-British one. The post-St Ninian's Isle brooch came from Phase 9 and suggests a date for the final occupation of the site.

The copper-alloy artefacts are remarkably consistent with the site stratigraphic phasing and the C14 dates, given the problems of finding realistic comparable examples from other sites with good stratification and datable events. The artefacts indicate that, from as early as the 3rd century cal BC to possibly as late as the 9th century cal AD, the inhabitants of Howe came into possession of pieces of jewellery which were in current circulation. These pieces entered Orkney from the west, from Ireland and the east and south from Scotland (and England), presumably along coastal routes. The iron drum-headed pin, was however probably made in Orkney, but not at Howe. During Phase 8 when the apparent wealth of the settlement was in decline, the movement of jewellery into the site was maintained from the same areas.

8.7 • SLAG REPORT

JG McDonnell
with an additional note by D Ferguson

Evidence of iron-working at Howe was found in the form of slag, ores, hearth and furnace lining, fuel ash and cinder as well as iron objects. Almost 200kgs of this material was found mainly from Phases 7 and 8 (Table 58). The bottoms of furnaces, were located on the site in both domestic buildings and workshops, and one smithy was positively identified (illus 55).

All the slag material was weighed and identified (Table 59); certain samples were selected for further scientific examination. Although slag and iron residues have been found on other Iron Age settlement sites in the north of Scotland and the Northern Isles, the excavation of Howe represents one of the best stratified and longest sequences of iron manufacture in the region.

Table 58: Slag Distribution by Phase (weight in kgs)

Phase	Smelting Slag	Smithing Slag	Ore	F/H Lining	Cinder
4					0.600
4/5					0.001
5		0.425	0.050	0.020	0.015
5/6	0.020	0.155	0.030	0.010	0.020
6				0.020	
Broch Phases					
7	36.811	31.310	14.226	30.620	14.950
7/8	0.050	0.090	0.300		0.625
8	34.365	15.169	14.235	1.040	3.402
9			0.030	0.350	0.015
Total	71.246	47.149	28.871	32.060	20.528

Table 59: Slag residue classification

Residue type	Weight (Kg)
Smelting Slag	68.7
Slag Cakes	11.0
Ore	28.0
Smithing Slag	32.3
Hearth Bottoms	6.4
Furnace/Hearth Lining	32.1
Cinder	10.8
Fuel Ash Slag	9.7

IRON-WORKING PROCESSES

Before looking in detail at the material from Howe, it is important to look at the nature of the processes from which it would have derived. The action of obtaining iron from its ore and manufacturing artefacts can be divided into two processes. Firstly the extraction of the metal from the ore, the smelting process, and secondly the production of artefacts and their subsequent repair, the smithing process.

THE SMELTING PROCESS

The smelting process is the reduction of the iron ore by a reducing medium, carbon monoxide, to form a bloom of metallic iron. During the process the iron never becomes fully liquid, but remains in a pasty state. The non-metallic content of the ore – the gangue – forms slag which becomes fluid with a varying degree of viscosity, and is removed during the process. Three components are required for the smelting of iron: ore, fuel and furnace building material. Ore sources are widespread in Britain, and in the upland zone, bog ore may have been the primary ore source. Hardwood charcoal was the principal fuel, although peat charcoal could have been used. Furnaces were normally built in either clay or stone, or both. Various furnace typologies have been proposed (Cleere 1972, 8–23), but none have proved fully satisfactory. The common furnace type was a shaft 0.3–1.0m in diameter, and up to 2.0m high, with variations in methods of slag removal and air input, via tuyäres. The furnace would have been charged with a suitable fuel and ore mix, and air was blown in at the base of the furnace. The slag may have been removed periodically until a large enough bloom of iron had formed, *c* 10–20 hours after commencing the smelt. The bloom was removed and was then subjected to primary smithing to remove entrapped slag. The refined bloom could then be either used to produce artefacts directly or traded, perhaps as bar-iron.

THE SMITHING PROCESS

The secondary process, that of smithing, was the manufacturing of artefacts from the bloom or bar-iron. The process was carried out in an open smithing hearth which could be a simple ground level domestic hearth, or a purpose-built forge. The iron was worked at various temperatures depending on the work being carried out, from simple forming to high temperature fire welding at 1100°C. The smithing process encompasses a number of manufacturing techniques: metal forming, welding, heat treatment (quenching and tempering), and carburization.

Smelting and smithing processes can be carried out either on the same site or different sites. Smelting furnaces can occur singly, supplying an immediate local need, or in groups on an industrial scale. Similarly, smithing can be an occasional operation in a simple hearth or a permanent, full time, smithy.

EVIDENCE FOR SMELTING AND SMITHING

A classification of early iron-working residues has been proposed (McDonnell 1986), and the following discussion outlines the residue types associated with each process (Table 59).

The products from smelting are the bloom of iron and the residues, which comprise the furnace itself and the slags removed from the furnace during or after the completion of the smelt. The bloom is rarely recovered and only the residues survive. The furnace structure rarely survives above the base and normally not more than about 0.5m is found such as Levisham, North Yorkshire (Hayes 1983). Fragments of the vitrified furnace lining are recovered, but much of the structure would only have been mildly fired and may degrade after burial.

The smelting slags occur in a number of forms, most characteristically as tap slag, lava-like plates, with a ropey morphology. This slag is tapped out at high temperatures of 1000°C plus, and is normally associated with Roman or medieval technologies. The slag could also have been tapped out into small pits in front of the furnace, resulting in plano-convex cakes of slag varying in size from 0.1–0.5m in diameter. Mineralogically smelting slags normally comprise three phases: firstly, iron silicate ($2FeO.SiO_2$), occurring as laths or massively; secondly, iron oxide, usually Wustite (FeO) in dendritic form and thirdly a glassy phase containing other gangue elements, principally the alkaline metal oxides. The quantity of free iron oxide is indicative of the efficiency of the smelting operation, the more free oxide present the less efficient the process. Other residues are present including cinder/clinker, partially consumed ore fused with charcoal.

The products of the smithing process were the artefacts, and the residues which are similar to those from the smelting operation. The structural remains depend on the type of hearth used, but vitrified hearth lining is commonly found. The principal residue is smithing slag occurring characteristically as hearth-bottoms, plano-convex accumulations of slag, ranging from 0.05–0.2m in diameter. Smithing slag derives not from the slag inclusions in the metal but from the application of a flux, normally a sand, to the surface of the iron during heating to inhibit oxidation, *burning* of the metal and to facilitate welding. It has a similar chemical and mineral composition to the smelting slags. The second characteristic smithing residue is *hammer scale*. It occurs in two forms, as flake (similar to fish scale) and as spheroidal (spheres 1–5mm in diameter). Hammer scale is formed in two ways, either from oxide layers flaking off the iron during hammering or as slag particles forcibly ejected during hammering and particularly during welding. Hammer scale is often strongly magnetic due to the presence either of small particles of metallic iron or the magnetic iron oxide, magnetite (Fe_3O_4). Smaller quantities of other residues also occur including cinder and fuel ash slag.

IDENTIFICATION OF IRON-WORKING ACTIVITY

The recovery of iron-working residues does not in itself indicate that smelting or smithing was practised on the site in antiquity, since there are great problems of residuality and the common use of slag for hard core and similar uses. Slags are commonly found in features contemporary with, but not technologically associated with, iron-working such as pits and ditches.

The identification of iron-working activity relies on the correct identification of the residues, in particular the slags. The slags produced by early smelting and smithing technologies are often difficult to distinguish visually, and may prove equally difficult to identify after chemical and mineralogical analysis. The quantity of slag encountered from archaeological excavations inhibits detailed analysis of a large number of samples. Therefore there is a heavy reliance on visual, morphological analysis with a limited scientific analyses.

The diagnostic slags (Table 59) are the smelting slag and slag cakes indicative of the smelting process, and the smithing slag and hearth bottoms indicative of the smithing process. A number of hearth soil samples were examined for the presence of hammer scale, and the distribution of furnace/hearth lining is indicative of periods when hearths or furnaces were in operation. Vitrified clay lining is not diagnostic of the iron-working process and may derive from other pyrotechnological processes. The distribution is shown in Table 58, where slag types have been added together to show total smelting and smithing slag for each phase.

There were a number of hearths or furnaces that were structurally different to the domestic hearths to suggest that they were industrial. The nature of the smelting process dictates that the greater portion of the furnace was super-structure, above ground, and therefore unlikely to survive in the archaeological record. It is

consequently difficult to interpret a burnt clay base as a furnace, and then to ascribe it to a typology. The smithing hearth is more difficult to identify, as mentioned above, as any hearth can be used to smith iron. A purpose-built smithing hearth may be waist high (as indicated by documentary evidence, for example representations of Regin and Sigurd (Clarke 1979, 103)), and the difficulties of interpretation arise again.

THE HOWE RESIDUES

Approximately 200kg of residue was recovered from the excavation and was sorted into eight categories (see Table 59). A general description of the morphology of each is given below.

RESIDUE TYPES

SMELTING SLAG

This was of the raked type, although some of the more typical tap slag was present. The smelting slag occurred as randomly shaped lumps of differing weight and dimensions, and was characterized by its vesicular texture. Some of the pieces had *run* surfaces and charcoal impressions up to 2cm in diameter and 4cm in length.

SLAG CAKES

These were plano-convex lumps of smelting slag. Nine cakes were recorded and had mean dimensions of:weight 400gms, maximum diameter 100mm, minimum diameter 75mm and depth 30mm. They were formed by raking out the slag into a pit in front of the furnace. The morphology of the cakes was similar to that of the smelting slag, although the cakes tended to be less vesicular and lacked charcoal impressions, but had run surfaces similar to tap slags.

ORE

The material identified as ore occurred as large plano-convex lumps and as individual small lumps. The ore was probably deposited in a water environment, and was generally classed as a bog ore. The source, presumably local has not been identified. The ore had a friable texture and contained black inclusions, possibly manganese, which would accord with a bog ore source.

SMITHING SLAG

This is the randomly shaped pieces of slag formed in the smithing hearth that were removed before developing into hearth-bottoms (see below). It has a lower apparent density than smelting slag due to the greater number of vesicles. It may also contain foreign matter such as pebbles and other hearth debris.

HEARTH BOTTOMS

These are lenticular accumulations of slag that develop in the smithing hearth. Only a small part of the hearth is utilized to heat a short length of the iron being worked, hence the accumulation of slag in one region of the hearth. The hearth bottom would be removed when it became too large and interfered with the efficiency of the hearth. The site produced fewer hearth bottoms than was expected, but with average dimensions of: weight 255gms, maximum diameter 90mm, minimum diameter 65mm and depth 30mm. The dimensions are similar to those of the smelting slag cakes, except that they weigh significantly less, confirming their lower apparent density.

FURNACE/HEARTH LINING

This was typical vitrified clay lining. It is not possible to distinguish between hearth and furnace lining on a morphological basis. Only the areas of highest hot face temperature became vitrified, and these areas normally occurred only in the tuyäre region of the furnace or hearth. The tuyäre mouth, the hole through the lining through which the air was blown, was often preserved. It was usually 10–20cm in diameter, and one possible tuyäre mouth was recovered SF 7208, from Phase 7 (see 8.10 Other Fired Clay below).

CINDER

This was slag which contained a greater silica content and had a lower density than other slags. The majority of cinder probably derived from the smithing process and the quantity which containing unreduced ore from the smelting process, was small.

FUEL ASH SLAG

This type of slag derives from a high temperature reaction between the ash content of the fuel and siliceous material such as clay. It may also contain high alkali metal percentages. Fuel ash slag may derive from any pyrotechnological process, including the domestic hearth. It is therefore non-diagnostic of iron-working processes.

HAMMER SCALE

This is scale which falls from the iron during hammering. Some soil samples were specifically checked for hammer scale from Early and Later Phase 7 (see archive report) and some possible hammer scale was recovered from sieving of other samples.

DISTRIBUTION AND LOCATION OF RESIDUES (Tables 58, 68mf)

PHASES 3–6

From the Early Iron Age, Phases 4 to 6, small samples of iron-working debris occurred. However, a bowl hearth from Phase 3 was excavated but it was of indeterminate function and could not be ascribed to the iron-working processes. There was no evidence of iron-working prior to Phase 5, although a significant quantity (600gms) of fuel ash slag was present in a Phase 4 floor. The presence of this slag in a single context suggests that it derived from a single series of fires, hearths or kilns.

Slag residues were also found in Phases 5 and 6. A little slag was found within the Broch 1 building, but residues were also located in ramparts and ditch fills associated with both Phases 5 and 6. One clay-lined bowl hearth was noticed in Phase 5/7, but again it could not be ascribed to the iron-working processes with certainty. The earliest deposit of smithing slag occurred in Phase 5, in a rubble context. Although it was not a sufficiently large quantity, it shows that iron was being smithed in this period. In Phase 5/6 a small quantity of smithing slag was associated with a hearth in a building in the enclosure, and a large quantity of fuel ash slag with a heavily burnt area. The latter was not associated with smithing activities and was probably generated by similar processes proposed for Phase 4.

Indeed, it is possible that most of the residues were derived from the later activities of Phase 7. The working-over of rubble layers, rebuilding of ramparts, and the clearing of buildings could account for the small amounts of residue and their wide dispersal in Phases 4 to 6.

PHASE 7

Constructional work in Early Phase 7 with later demolition and levelling, caused slag to be incorporated into contemporary walls, other structural features, floors and ditch and rubble fills. However, there were significant concentrations of slag in certain buildings, usually associated with other related features, which suggested that iron-working took place.

Evidence for this activity mainly survived in the ***E*** building and its yard of Early Phase 7 where 3.4kg of ore (of which 2.9kg derived from a single, rubble levelling, context) was found. Two furnaces, identified from their burnt circular form, were found in floor levels of the building and in one of its cells, and a number of small stake holes were probably related to the superstructures of these. Both furnaces had been cleaned out completely and no residues were found with them, Their interpretations as furnace bases must, therefore, be conjectural.

A base of a smelting furnace in the ***NE*** building was found along with its tapping pit, the pit into which the slag was raked out or flowed out of the furnace. The absence of diagnostic slag within these contexts is not unusual as the slag was removed and thrown away. The furnace cannot be ascribed to any type with certainty, but was probably a *shaft furnace* which was raked out or tapped. More substantial remains of similar furnaces have been excavated at Levisham (Hayes 1983) and Ashwicken (Tylecote 1986).

SMITHY IN THE ***NE*** BUILDING

In Later Phase 7, the highest amounts of slag residues were found in the ***NE*** building and the ***NE*** and ***E*** yards, with smaller amounts in the ***SE*** building and the ***S*** workshop. Many hearths, and indeed some buildings, were exclusively used at certain periods for iron-working. From the evidence presented below, it is certain that the ***NE*** building functioned as a smithy during most of this phase. A hearth and its ash fill, from the middle stage of occupation of the ***NE*** building, contained a small quantity of smithing slag and the ash also contained spheroidal hammer scale.

From the last occupation of the ***NE*** building in this phase, two contexts contained sufficient evidence to indicate the area had been used as a smithy. Smithing slag weighing 8.5kg, hammer scale, hearth lining and cinder were present. Both contexts could have been smithing hearths; although the fill of 1634 did not contain hammer scale, it did have highly magnetic material and a large quantity of cinder (4.35kg) was also recovered. These two consecutive groups of contexts suggest the use of the building as a smithy.

A quantity of smelting slag (45kg) recovered from Late Phase 7 indicates a single smelting operation, rather than a sustained 'campaign'(see evidence from Amersham Mantles Green, Bucks, (McDonnell 1987?)). Seven rubble contexts in the ***NE*** and ***E*** yards contained more than 1kg each of smelting slag, the largest quantity recovered was 26.5kg from context 1323. Within the ***NE*** building yard was a furnace dump which included 13.5kg of furnace lining, 10.5kg of fuel ash slag / cinder and 3kg of smithing slag. It is therefore clear that both smelting and smithing were carried out in the vicinity of this building.

10.7kg of ore was recovered from the rubbles of the Late Phase 7 S workshop and from rubble in the ***NE*** building, which indicated smelting activity on the site and suggested stages in ore processing or storage. It may be assumed that the ore recovered from the rubble, which was associated with slag, was ore that had been rejected.

PHASE 7/8

Small amounts of slag came from the later workshop floors within the broch tower during Phase 7/8. Also present in the third floor was a clay-lined pit with its bottom layer of cross-laid willow (*Salix*) charcoal still intact (see 7.2 Plant report above). There were, however, no specific residues found with it. It may have been a failed furnace base, but it was not associated with any other iron-working features or residues.

PHASE 8

Early Phase 8 contexts produced small quantities of slag which was probably residual material from the Later Phase 7 activity in the ***E*** and ***NE*** parts of the site. Most of the contexts contained less than 0.5kg of residue, but larger quantities were present in levelling rubbles, indicating the reworking of areas containing slag.

A detached building, on the SW side of the site, may have been used exclusively for iron-working during a second period of activity. Smithing slag was recovered from the hearth and associated levels. It could either have been a smithing hearth or a dump of hearth material within the ***W*** workshop. However, the evidence may indicate this building was a smithing shed. During this period, the abandoned broch tower was infilled with rubble and other debris, including a 12.5kg quantity of iron ore, which could have been associated with the Late Phase 7 activities in either the ***S*** workshop or the ***NE*** building.

The second period of major iron-working activity occurred in Later Phase 8. 25kg of smelting slag was recovered, the major part from a single context within ash during stage 7. Smithing slag, both primary and secondary, was also identified from the same context. There was no large deposit of furnace lining and no ore as there was with the Later Phase 7 activities, but an iron-working shed is probably indicated.

The high amount of slag from this area is probably accounted for by a short period of intense activity related to smelting and smithing, before a dramatic and almost total decline of iron-working on the site. Small quantities of iron-working residues found in later stages of Phase 8 suggest residual material which had been reworked into walls and rubble layers. The quantities are considerably lower than what is expected for phases containing residual amounts of slag from earlier activity. This suggests that there was very little disturbance of the Late Phase 8 deposits by subsequent activity.

A reasonable correlation is found when comparing the amount and distribution of iron-working activities to the location and numbers of iron artefacts (8.6 Metal Artefacts above). Artefacts begin with low numbers in Phase 5/6 and gradually increased to a peak (31 items) in Later Phase 7, associated with the ***NE*** building smithy. From then on numbers of artefacts declined, but there was a slight surge to a maximum of 10 in Early Phase 8, linked to the ***W*** workshop. There was not however, a corresponding increase in the number of artefacts associated with the stage 7 iron-working activities, and only one or two more iron artefacts were found before the end of the settlement.

ANALYSIS

For more positive identification of some of the slags, seven samples were selected for further analysis by a Scanning Electron Microscope for bulk and phase chemical analysis. These were a smithing slag hearth bottom from Phase 5, smithing slag from the ***NE*** building during Later Phase 7, smelting slag from the ***NE*** building yard in Late Phase 7, and a smelting slag from stage 3 of Late Phase 8. The detailed analyses and the accompanying Tables (60–68) are available in microfiche (3:E9–F5).

The bulk analyses revealed that the Howe slags all showed, relatively high levels of MnO (manganese oxide), the exceptions were a sample in the Later Phase 7 ***NE*** building and the stage 3 Late Phase 8 sample. The results of the latter sample as it came from a Later phase of iron smelting on the site, may indicate that it derived from a different ore source which may not have been as rich in MnO as the ores used in Phase 7.

In general the smithing operation was very inefficient, indicated by the high percentage of free iron oxide present in the smithing slags. Efficient smithing would have used sufficient sand to inhibit the oxidation of the metal.

A NOTE ON THE ANALYSIS OF ORE AND SLAG
David Ferguson

It is clear from the slag analysis (Tables 60–67mf) that in general the iron ore used had an extremely high manganese content. It is also to be noted that certain of the analyses indicate relatively high NiO, CoO and CuO contents. Psilomelane (the principal ore of manganese) is chemically surface active and would act to some extent as an ion exchange medium on any groundwater or ascending hydrothermal fluids containing Co, Ni, and Cu even in trace amounts leading to their concentration in the manganese phase. Dana (1932, 509–510), describes a suite of minerals which are basically oxides of manganese with enhanced values of Co and Cu. Although not specifically stated it would be expected that Ni would also be concentrated to some extent given its close chemical similarity to Co and Cu.

Although oxides of iron occur with the manganese deposits at the Lead Geo, Hoy, it is clear that the early Orcadian miners found it impossible to separate the two ore types. It is suggested that MnO contents of primary slags are extremely fortuitous and dependent on the chance selection of batches of high and low MnO ores, as the ore body as described by Heddle (1878) seems to be quite variable in composition as regards FeO and MnO. Even with today's sophisticated metallurgical techniques, separation on a purely physical basis would be almost impossible.

CONCLUSION

On this evidence, it could be proposed that the iron ore used at Howe was extracted from deposits at Lead Geo, Hoy. So far as can be determined no bog ores high in MnO have been reported in Orkney. It is also suggested that the texture and general appearance of ore recovered (described above) will be identical to that described by Heddle (1878) as coming from the Lead Geo.

DISCUSSION AND CONCLUSIONS

From the evidence of iron-working discussed above, it would seem that the activities were rather sporadic, domestic in character and rather inefficient. Iron-working was not clearly identified before Phase 5 although some of the Phase 5 samples could be as early as Phase 4, as they were found in rubble connected to rampart construction, or as late as Phase 6 from domestic contexts as well as from the defences. The rebuilding of the defences and the wholesale clearance of the enclosure buildings, as well as the floors of both roundhouse and Broch 1, have left little *in situ* evidence to establish the beginnings of iron-working on the site. Artefactual evidence from Phase 5/6 is slight, two iron objects, and does not help the problem. It is only possible to suggest that iron-working at Howe probably began sometime during Phases 5 or 6, after the 4th century cal BC and before the 1st century cal BC.

Evidence for iron-working is found in Early Phase 7, not from the broch tower but from the original floor in the ***NE*** building and a secondary floor in the ***E*** building (illus 34; 36). In total this amounts to probably three furnace bottoms and to the presence of ore across the yards of these two structures. Only 14 recognizable objects were recovered (8.6 Metal Artefacts above), but these included pins, blanks, nails, one razor and one knife. From the evidence of the surviving furnaces, which were largely eradicated and the general tidy appearance of the Phase 7 village, it would seem that most of the presumed evidence for iron-working is missing. It is not inconceivable that the artefacts were manufactured on the site from iron produced in the ***NE*** and ***E*** buildings. All other evidence suggests that the ***E*** building was a domestic structure and although the ***NE*** building had been largely cleared of its original floors from this phase, its arrangement of furnishings indicated that it was also originally domestic (illus 34). In Early Phase 7, it is suggested that there was no specialized building for iron-working.

After the levelling of the Early Phase 7 village, subsequent rebuilding and occupation of older houses, the evidence of iron-working indicates a change in the character of the settlement. The ***NE*** building remained at first a domestic structure, but was later turned into a smithy (illus 54; 55). As such, its use may have been intensive but relatively short-lived, as it only experienced one series of alterations including the replacement of its hearth. Most of the iron-working evidence for this building relates to smithing. Evidence for the associated and necessary smelting processes were not found within the smithy but outside in the open yard where a dump of furnace-lining material was found. It would seem that smelting took place there, although no related structures were found.

Finished artefacts for this phase were slightly less numerous than in the preceding half of Phase 7, but more waste metal and lumps of magnetic iron were found. The latter may indicate partly processed iron which was awaiting further working (8.6 Metal Artefact report above). Unfortunately the artefactual evidence is not particularly helpful in determining what objects were manufactured, but nails and bars or blanks were amongst the most numerous finds.

Some ore was found associated with buildings in the S of the settlement. Here, ore processing and storage may have taken place, especially to the immediate E of structure ***B*** (illus 51) where a hearth, either enclosed in a lean-to structure or open, was located. Possible iron-working was noted in the broch tower on its penultimate floor, but no other locality produced the evidence for a concentration of activity or specialization that was experienced in the ***NE*** building.

It would appear that iron-working residues from the ***NE*** smithy were well distributed across the E half of the site in rubble contexts and later walls. These residues were still being disturbed and moved about during Early Phase 8 building activities.

In Early Phase 8, the only structure in which iron-working took place, that of smithing, was in building ***W*** in the SW part of the site (illus 62). Like the ***NE*** building, this structure may have been altered to accommodate a smithy with the construction of a larger hearth. From structural evidence it would seem that after its alteration the building was relatively short-lived.

The last definite activity associated with iron-working took place on the E side of the site, in the passage between structures ***C*** and ***F***, in stage 7 of Later Phase 8 (illus 68). To all intents and purposes the structural evidence suggests that this area was open. However, it is possible a lean-to shed existed given the amount of smelting slag which was found. It is unknown whether this material represents a single event or a series of furnaces, but the activity was short-lived. Smithing slag from the same area may indicate iron processing within the other known structures of stage 7 or in an adjoining area, but beyond the limits of the excavation. As with Later Phase 7, the most numerous artefacts found in Later Phase 8 were nails, bars or blanks and waste metal.

The iron-working activities were not continuous at Howe; it is not possible to determine the level of productivity from the number of surviving artefacts. The residues indicate a domestic demand and importance in the economy which was supplied from iron-working within the settlement. As mentioned in both the metal and stone artefacts reports (8.6 and 8.3 above), iron-working tools were not found. The evidence does not indicate the presence of skilled itinerant iron workers or smiths. The only indication of changed techniques lies in some of the residues from Late Phases 7 and 8, where lower manganese oxide levels have been recorded, perhaps indicating a change in the ore source.

From the report and comment it is obvious that more research must take place in the identification of major ore sources. The problem of high manganese in the residues is unresolved requiring further research. The use of bog ore cannot be assumed if residue analysis points to an alternative mineral source. Indeed, the identification of an ore source on Hoy may prove to be extremely important in considering prehistoric iron-working on Orkney. It poses questions about mining techniques and initial processing of the ore, as well as transportation of a bulky material across land and water and suggests the need for comparison with residues from other sites.

At present, comparison of the Howe residues with other published sites is not particularly fruitful. The main Orcadian and Shetland Iron Age settlement sites which have been published are mainly monuments on display to the public, for example, the brochs of Gurness and Midhowe in Orkney and Clickhimin and Jarlshof in Shetland. The small quantity of debris from these sites suggest, not that iron-working was unimportant, but that iron-working residues have either not been recognised and kept, or more significantly, iron-working contexts have not been fully excavated. Hearths indicating iron-working have been preserved at both Gurness and Midhowe but are not analysed. The evidence from these sites does, however, suggest that iron-working took place (Slater 1984, 298–300), and from as early as the roundhouse period at Jarlshof (Hamilton 1956, 61). The roundhouse at Bu however, yielded no identified iron-working slags.

Comparison with the historically slightly later sites (Pictish or pre-Norse and Norse) at Birsay and the Brough of Birsay is also difficult. At the Brough, a similar situation is suggested by the evidence as at Howe. Most of the iron artefacts were corrosion products and only one building was identified as a possible smithy, but with a forge (Hunter 1986, 198–203). The total residue amounts were less than at Howe, but they were interpreted as coming from non-intensive iron-working. At other Pictish and Viking sites within Birsay the most commonly identified iron objects were nails and knives.

Evidence of iron-working in the Northern Isles is woefully inadequate, and leaves Howe in the position of having the largest quantity of slag residues, from the best stratified occupation sequences, to date. It may be interesting to speculate from the Birsay evidence (*ibid*) that iron-working technology did not necessarily improve during the Norse period. The struggle to produce iron from low grade ores with a declining charcoal source was not new but had been an ever present problem throughout the Iron Age at Howe.

8.8 • THE GLASS

Julian Henderson

Very few glass objects, seven in total, were found at Howe and most of these were beads; they came from Early Phase 7, Early Phase 8 and Phase 9.

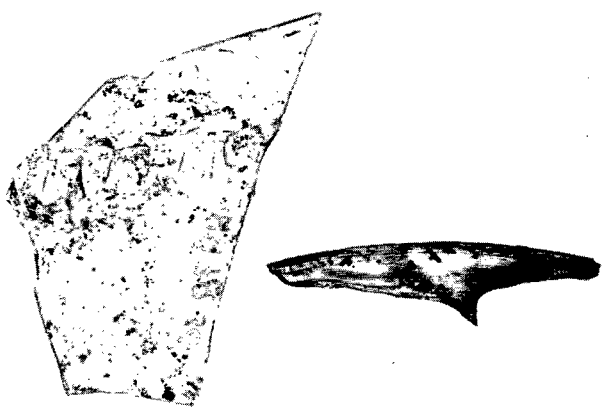
The detailed description of each bead is in the microfiche catalogue (3:F6). The beads from Howe are important because, unlike a high proportion of other Scottish finds, they were derived from mainly secure contexts. Many unprovenanced or poorly provenanced Scottish glass beads probably date within brackets covering the first millennium BC and the first half of the first millennium AD. The beads from Howe fit in well with the established typology by Guido (1978) and their chemical analyses (Table 69mf, 3:F7) have a bearing on the existing chemical analyses of Scottish bead types of probable Iron Age and later Iron Age date (Henderson 1982; Henderson & Warren 1983). Since the Howe beads can be dated, they at least provide a basis against which to compare the same or similar types with no context.

DESCRIPTION AND LOCATION

CLEAR VESSEL GLASS (illus 137)

From an abandonment horizon within the broch passage and extending outside beyond the broch, came two pieces of fine clear glass, SF 36 and 37. The two pale green glass fragments are of a bubbled rather poor metal. SF 36 has an applied trail of glass and would fit in well with other 3rd–4th century AD Roman glass vessel fragments. This fragment is possibly from a bowl. The two vessel fragments have a very similar soda-lime-silica composition with the relatively high manganese oxide content regularly found in Roman glasses. The green colour is caused by the levels of iron and manganese oxide in the glass.

A blue coloured vessel was found at Burrian, North Ronaldsay (MacGregor 1974, 100) and a fragment of a glass bowl in a cist in Westray. Both were thought to have been Roman in origin (Curle 1932, 394). Roman glass was also found in all levels at Traprain Law and at Dun Mor Vaul (MacKie 1974b, 149) indicating its common occurrence on sites which had some Roman contact, no matter how distant.



Illus 137
Roman glass vessel fragments (SF 36, SF 37), Phase 8; scale 3:2.

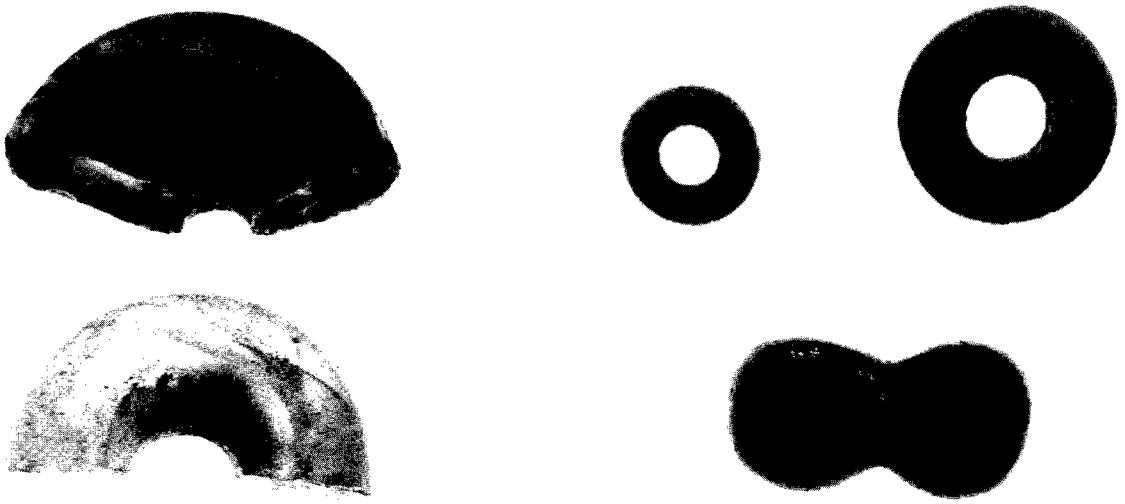
BEADS

HIGHLY DECORATED MULTICOLOURED BEADS (illus 107; 138a)

SF 5077 and 5142 both came from the earliest floor of the Phase 7 ***E*** Building, with the former from within the furnace bottom. SF 5077 is a translucent globular bead fragment with applied surface bands of purple and white, and yellow and white opaque glass. In contrast, SF 5142 is half a flattened bead of colourless and transparent glass with applied surface streaks of opaque white and yellow glass.

Both beads are of Guido's (1978) class 14 and are characteristic products of Iron Age Scotland, involving decoration executed in a style which cannot be paralleled in the rest of Iron Age Europe. These types are so diagnostic that we can argue for local production with some confidence. The distribution of such bead types (Guido 1978, fig 36) supports this interpretation. Although the types are diagnostic, and the beads probably assembled locally, this does not mean that the glass was made locally.

Chemical analysis of prehistoric transparent purple glass from Scotland, including the matrix of SF 5077, can all be separated analytically from the purple glasses apparently traded within the *oppida* system in the Late Iron Age of western Europe (Henderson 1987). This adds support to the hypothesis that, on the basis of the principal colorant elements, manganese and iron oxides, the colorant compounds were added to the glass within Scotland. Since the basic composition of the purple glass is soda-lime-silica, at this stage it is difficult to argue whether the basic glass was made locally within the confines of an established technology or was imported and the colorant added at a secondary stage. With the wide chronological range of radiocarbon dates from Howe which date the Phase 7 contexts producing the beads, it is quite



Illus 138
Glass beads: a) translucent globular bead fragment (SF 5077) with applied bands of purple and white, and yellow and white opaque glass; one half flattened bead (SF 5142) of colourless and transparent glass with applied surface streaks of opaque white and yellow glass, Early Phase 7; scale 2:1; b) opaque yellow annular beads (SF 2043; SF 2978), Phase 8; scale 3:1; c) dumb-bell bead (SF 464), Phase 9; scale 2:1.

possible that the purple glass used in SF 5077 was slightly later than that used in the *oppida* system of La Tène D of Continental Europe in the 1st century BC.

The Scottish chemically distinct purple glass is also found in Guido's spirally decorated Class 13 beads from Glenbuchat, Grampian (Guido 1978, 194) and Culbin (Black 1891, 508, fig 36). A further example of a Class 14 bead comes from Dun Mor Vaul, Tiree (MacKie 1974b 148, fig 18), as well as single globular beads from the same site, annular beads from Gilmerton, Lothian (Ross 1910, 9) and Dun Ardtreck, Skye, of *c* 2nd century AD date (MacKie pers comm).

The opaque yellow glass used in the decoration of bead SF 5077 is probably opacified with crystals of lead pyroantimonate ($Pb_2Sb_2O_7$). The presence of 0.17% SnO_2 in the glass may indicate that both antimony and tin glasses have been mixed together or more likely that a raw material containing both elements was used. Other such mixed tin and antimony opaque yellow glasses have been found in 1st century BC glasses, particularly in southern England (Henderson 1987) but at this stage in the research of ancient glasses it does not follow that the Howe glass can be dated to the 1st century BC. The lead oxide levels of SF 5077 (Table 69mf 3:F7) is comparable to many Scottish lead-rich glasses (Henderson 1982), and the manganese oxide (MnO) contents in both the yellow glasses of SF 5077 and 5142 places them in a post 2nd century BC date bracket. The lead oxide content of SF 5142 is unexpectedly low, and opacifying elements have not been detected.

The other colour of opaque glass used in the decoration of SF 5077 is opaque white. The glass is probably opacified with crystals of calcium antimonate. Tin was detected at its minimum level of detection.

OPAQUE YELLOW ANNULAR BEADS (illus 107; 138b)

Bead numbers SF 2043 and 2978 are both of Guido's Class 8 and were found in Early Phase 8, one within the floor of the S workshop and the other from a floor in the ***NE*** Building. Both beads contain manganese oxide levels indicating that they could easily have been products of the reputed bead workshop at Culbin for which archaeological evidence of industrial refuse, as well as analytical evidence, exists (Henderson 1982). The recorded evidence is in the form of a letter dated 1871 which is in the Society of Antiquaries of Scotland from C Innes to Major Chadwick, which mentions 'remains of kilns near Elgin where such (opaque yellow) glass ornaments were manufactured'. Although similar in composition to the Meare Lake beads, and indistinguishable typologically, chemical analysis is in fact able to distinguish the products of the two production areas. The glass working at Culbin is loosely dateable to *c* 1st–2nd century AD.

Many Scottish Iron Age sites have produced yellow glass beads including Dun Mor Vaul (MacKie 1974b, 147), Traprain Law (Curle 1920, fig 7 31) and the Iron Age fort at Clickhimin (Hamilton 1963, 91, fig 41).

TRANSPARENT GLASSES (illus 107; 138c)

The remaining glasses all have a soda-lime-silica composition. The near colourless matrix of bead SF 5142 is decolorised by MnO, counteracting a potential green colour which would be imparted by the iron oxide present. The unstratified (Phase 9) dumb-bell or toggle bead, SF 464 (illus 138c), was dug out of Late Phase 8 material. It is turquoise green and is probably coloured by a lead-tin bronze. The levels of copper, tin and lead in this bead certainly indicate that this is probably the case (see Henderson 1985 for a discussion of the further use of colorants in glass).

DISCUSSION

Although there is good evidence to suggest that local production of glass took place in Iron Age and Late Iron Age Scotland, very few examples of the glasses derive from dated contexts. The stratified Howe glass objects provide some evidence for the phasing of the bead types concerned within the Iron Age.

When typological and analytical approaches are combined it becomes possible to indicate with some confidence specific features of prehistoric glass production in Scotland. The electron-probe analysis (Table 69mf 3:F7) and KRF analyses (Henderson 1982) provide evidence for a local production of specifically Scottish types of beads. Not only are Class 14 beads diagnostic but so are the chemical composition of the purple and opaque yellow glasses used in their production. The purple glass, in particular, can be distinguished from that used in La Tène D contexts of Continental Europe, where it was used in the manufacture of beads and armlets. Since these glasses are distinguishable from the others on the basis of the colorants used, and adhere to the established pan-European glass tradition of glass technology in other respects, this may mean that the colorant compounds were added to imported colourless, or weakly tinted, raw glass. Conversely, it does not exclude the possibility that the basic glass was also manufactured in Scotland, to which the colorants were added. On the strength of the radiocarbon dates available for Phase 7 which produced both examples of Class 14 beads, their production might have taken place anywhere between the 1st century BC and the 2nd century AD.

Although visually indistinguishable from some examples of opaque yellow annular beads of Guido's (1978) Class 8 from Meare Lake Village, Somerset, the two examples from Howe can be distinguished by their chemical composition and were probably manufactured at Culbin, Grampian.

The unstratified dumb-bell bead SF 464 could date from as early as the 2nd century BC and as late as the 6th–8th centuries AD. A dumb-bell bead from Kiltierney, Co Fermanagh of probable 1st century BC–1st century AD date (Raftery 1984, fig 100, 7), seven from Dun Ailinne, Co Kildare (unpub), a site which is principally of Irish Early Iron Age date, and another from Close ny Chollagh, Isle of Man (Gelling 1958, 95, fig 4, 5, 6) of Iron Age date give us examples from the earlier end of the date range. Further unpublished examples of Iron Age transparent green dumb-bell beads have also been found on the Isle of Man at Braust. The dumb-bell bead from Leckie, Scotland, MacKie (1974a and pers comm) dates to AD 90–140; a possible 6th century example comes from Lagore, Co Meath (Henchen 1950, 141, fig 67, 1471), with other early Christian examples from Ballinderry 2, Co Offaly (Hencken 1942, NMI no 66:641) and a cobalt blue example from Deer Park Farms, Co Antrim (unpub).

8.9 • POTTERY REPORT

Andrewina Ross

A very large assemblage of stratified pottery was found at Howe, numbering over 17,000 sherds from nearly all phases, but with the majority found in the broch village contexts of Phase 7 (Table 70).

Table 70: Total* pottery sherds by type and phase

Phase	Rims	Dec Rims	Bases	Base Edges	Bodies	Dec Bodies	Totals
1/2					2		2
2	2				7		9
2/3	1	1			10	12	24
3	20	2	22	12	239	5	300
3/4	1			1	11		13
4	12		2	3	184	6	207
5	11	1	4	3	61	1	81
5/6	123	7	56	83	1252	6	1527
5/7	3			1	39		43
6	2			1	23	1	27
6/9	8	3	4		48	4	67
7	1080	45	399	442	10544	102	12612
7/8	68	4	16	48	275	8	419
8	275	8	49	102	1423	10	1867
8/9	2			2	6		10
9	29	2	17	12	203	2	265
Totals	1637	73	569	710	14327	157	17473

* (excluding *c* 692 very small sherds) • Dec = decorated

This large collection of pottery was quite unique in Orkney at the time of excavation, not only because it was well stratified but because of the long time-span covered. It also represents one of the largest collections of pottery from the prehistoric period in the north of Scotland. It will hopefully serve as a useful base sequence from which to re-examine results from earlier unstratified excavations as well as helping in the research of current and future excavations.

It was not surprising to find within such a sizeable assemblage almost every type of decoration and fabric variation represented at contemporary sites, not only in Orkney, but also further afield on Shetland, the Scottish mainland, the Western Isles, Shetland and some English sites. Where appropriate these have been mentioned in the text.

A complete catalogue of the pottery is available in archive and does not appear here. In this report an attempt has been made to itemize vessels and sherds to illustrate the variations in fabric, vessel shape and decoration. These examples have been mentioned because they are representative of other sherds or because they are unique. In either case the examples serve to produce a comprehensive and overall view of this large collection.

MANUFACTURE

including identifications by the late Geoffrey Collins, P Wardle and A MacSween

Identification of the pottery fabric was made by microscope analysis at 40x magnification. Unfortunately, conflicting results were produced which were not successfully resolved, as identification of the fillers by thin sectioning of the pottery was never completed and a report not produced. Some of the results below must therefore be treated as inconclusive.

FABRICS

Most of the pottery from Howe is believed to have been produced locally at the settlement, using available local resources. The boulder clay subsoil with stone impurities was used, although purer clay deposits may have been exploited along loch and stream sides. By modern standards, these local clays would be considered of poor quality (Hodges 1989, 23). The fillers or inclusions found in the pottery, to reduce shrinkage and cracking of the clay, with the exception of steatite and iron pyrites from Shetland, were found either in the local clay, or were derived from local rock sources. These include crushed sandstone, granite-gneiss, haematite, quartz sand, micaceous sand and possibly also monchiquite and camptonite from local dyke rocks. Fragmented shells (probably mussels) and vegetable matter were also found, and the latter (see below) was especially noticeable in Phase 8 samples. There was a noticeable absence of reused crushed pottery, grog.

The size of the stone filler is directly comparable to the thickness of the vessels. Fine, thin-walled vessels had small grits, and heavier, thick-walled vessels had larger ones (Table 71mf 3:G1). Heavily gritted wares were never dominant although some sherds contain very large angular inclusions, which have also been noted at other sites. It was unusual for little or no filler to be seen, except in the case of wheel-thrown sherds and the finer slab or coil-built examples of Phase 8.

The use of organic material as a filler was noticed from the surviving impressions of grass and cereal stems. Although grass was probably used as a filler in the fabric throughout most of the phases, many of the impressions have been found only on the surfaces of the sherds. This may indicate that the pots were packed around with turf, straw or grasses before firing.

From analysis, some grass/seed impressions were found to contain heather (*Calluna vulgaris*), barley (*Hordeum* sp), naked barley (*Hordeum vulgare* cf var *vulgaris*), and cereal grains such as oats (*Avena*), both wild and cultivated (Table 8mf 1:D1). Whilst some sherds contained only impressions, others were identified from carbonized grain *in situ*. There is no discernible pattern to the occurrence of various types of organic filler, but it is noted in the text where grass or hard stems have been used purely as a decorative feature.

On a strictly visual analysis of the pottery, variations have been noted in the fabric mainly related to the size and density of the filling material. Without a more detailed microscopic analysis of significant percentage of the collection, it is suggested that, with the exceptions of the Beaker vessel and the finer wares of Phase 8, the major part of the assemblage constitutes a single fabric. The fabric has undoubtedly varied over time with different sources of raw materials being used, and different amounts of filler, but nevertheless it remains essentially a rough, low strength earthenware or coarseware. The finer vessels produced in Phase 8 may be due to improved clay and filler processing, and firing techniques, rather than a change in resources used.

FORMING

The predominant methods of manufacture were coil and slab building. Coil building probably developed from basket making (Leach 1940, 65), and clay rolls were coiled around and laid on top of each other to form a vessel. Smoothing of the joins occurred as the vessel was built, by the use of rib bones or spatulas (Hodges 1989, 27). It is probable that some form of turntable was used, whether a mat or a flat stone. Slab building entails the cutting out of shapes, presumably rectangular or triangular, from a flattened and rolled out piece of clay. Coil building was noted in all phases and slab building in Phases 3 and 7 especially, however it may be difficult to differentiate slab building from large flattened coils. Coiling was easily discernible on some sherds along the breakage lines due to the aplasticity of the clay, and the building process can be clearly seen on some of the poorly manufactured vessels (eg SF 4832/4856, illus 142).

One example of modelling, the working of a ball of clay by hand and fingers to draw out a vessel, was noted in Phase 8, but it is in this phase that the first examples of wheel-thrown pottery were specifically identified. A mounted wheel, turned by hand or foot was used to improve the techniques of pottery making. Finer and more varied shaped vessels could be produced by this method.

SURFACE TREATMENTS

The rough fabric of the vessels required additional treatment to make them more serviceable and to disguise their coarseness. The

most common method found at Howe was the application of a slip, usually on both surfaces. A slip is a watery fine clay poured over the vessel's surface, or into which the vessel is dipped, to produce a smoother surface, normally when the vessel is partly dry or leather hard, and before firing. At Howe it was noted that some of the exterior slips were of a different clay, or different coloured clay from the main fabric. This may have been a deliberate choice as the slip may have lent itself better to burnishing and polishing.

Another method of improving the appearance of vessels was by burnishing. This could be done on either the dried clay surface or after the vessel had received a slip. Burnishing is the action of rubbing the vessel's surfaces with a smooth stone or bone to compact them, to remove irregularities, and to produce a shiny finish (Hodges 1989, 31). A large number of sherds from all phases show evidence of burnishing, but the proportion is higher in Phases 7 and 8. In Phase 8, burnishing may have served to replace the decorative features seen in vessels from earlier periods.

Other treatment of the vessels at Howe included the application of a mineral surfacing, noticeably crushed mica and ?steatite (talc) usually in the slip. This gave the vessels an easily buffed or polished surface, even when handled. Other vessels were lightly combed, sometimes on both surfaces. This has been seen as an additional aid in smoothing the surface of the clay, probably in an attempt to conceal the filler and the coils. On other vessels this can be seen as a decorative feature (see below). Other pots were brushed with rush or grass stems to produce an even surface, and many finger prints were noted as a result of handling and smoothing the vessel before firing. Fettling, the use of a knife to tidy the vessels, was not noted.

FIRING

The vessels appear to have undergone uncertain firing conditions which resulted in uneven colouration. Firing may have taken place on domestic hearths or in small kilns as was noted in Later Phase 7. Reducing conditions, or oxygen starvation, in the firing process caused some of the pottery to take on a grey colour. High oxygen content resulted in vessels with bright pink or terracotta colours, whilst a smoke-filled hearth or kiln may have caused some smoke staining and discoloration. Vessels which have a grey interior and a pink exterior may have been fired upside down, with the air supply to the inside of the vessel cut off during firing. Some vessels may have been reburnt, and there is one example from Phase 8 of a wheel-thrown vessel which could have been over-fired, SF 142 (Ewan Campbell pers comm). The use of organic material packed around the vessels before firing has already been mentioned. To produce earthenware, the vessels would have been fired at temperatures between 1000–1200oC, but some of the more fragile sherds may have been fired at slightly lower temperatures.

DECORATION

Even though Howe produced a large collection of stratified Iron Age pottery, the amount of decorated sherds constitutes less than 1% of the total. Most of the decorated sherds are found in Phase 7, but also in Phases 5/6 and a few in Phase 8 (Table 70).

Combing was one of the simplest techniques used at Howe, but, as already mentioned, it can also be seen as an attempt to conceal the manufacturing irregularities of vessels. Other decorative techniques include impressions, incised ornamentation, and the application of cordons and rondels. These decorations were carried out on leather hard vessels after they had been slipped and the techniques, where relevant, are described below. Painted decoration is also noted in the text, but only one or two examples occurred on the site.

DISTRIBUTION AND DESCRIPTION OF POTTERY

DISTRIBUTION AND LOCATION

Pottery came from all phases and especially from Phases 5/6, 7 and 8. The greatest number of sherds came from Phase 7, from the S ditch deposits when the defences were filled in, and from dumps from the clearing out of buildings. Levelling of structures at the end of Early Phase 7 accounted for this distribution as well as the occurrence of pottery in rubble layers. In the same phases, high numbers of sherds were also found in the earth and rubble fillings within the building walls. In Early Phase 7, domestic floors produced very little pottery, reinforcing the idea of the generally clean nature of the village. In Later Phase 7, thick ash deposits in both workshop and domestic locations produced pottery it was possible to reconstruct, indicating the manufacture and firing of vessels in these buildings. By Phase 8, more finds were located on domestic floors as well as in wall fills.

Analysis of the pottery revealed that many adjoining sherds came from both rubble layers and dumps, as did sherds from earlier and later phases. This indicated the reworking and disturbance of some deposits during later periods of the site. One example of this was sherds of a Beaker vessel, from the period between Phases 2 and 3, found in a 10m square area in contexts from the end of Phase 2 to Early Phase 7.

NEOLITHIC POTTERY

Only two sherds of Neolithic pottery were found in Phases 1 and 2; they are not diagnostic of either of the two usual wares, Unstan and Grooved ware, found at Orcadian Neolithic sites.

BRONZE AGE POTTERY

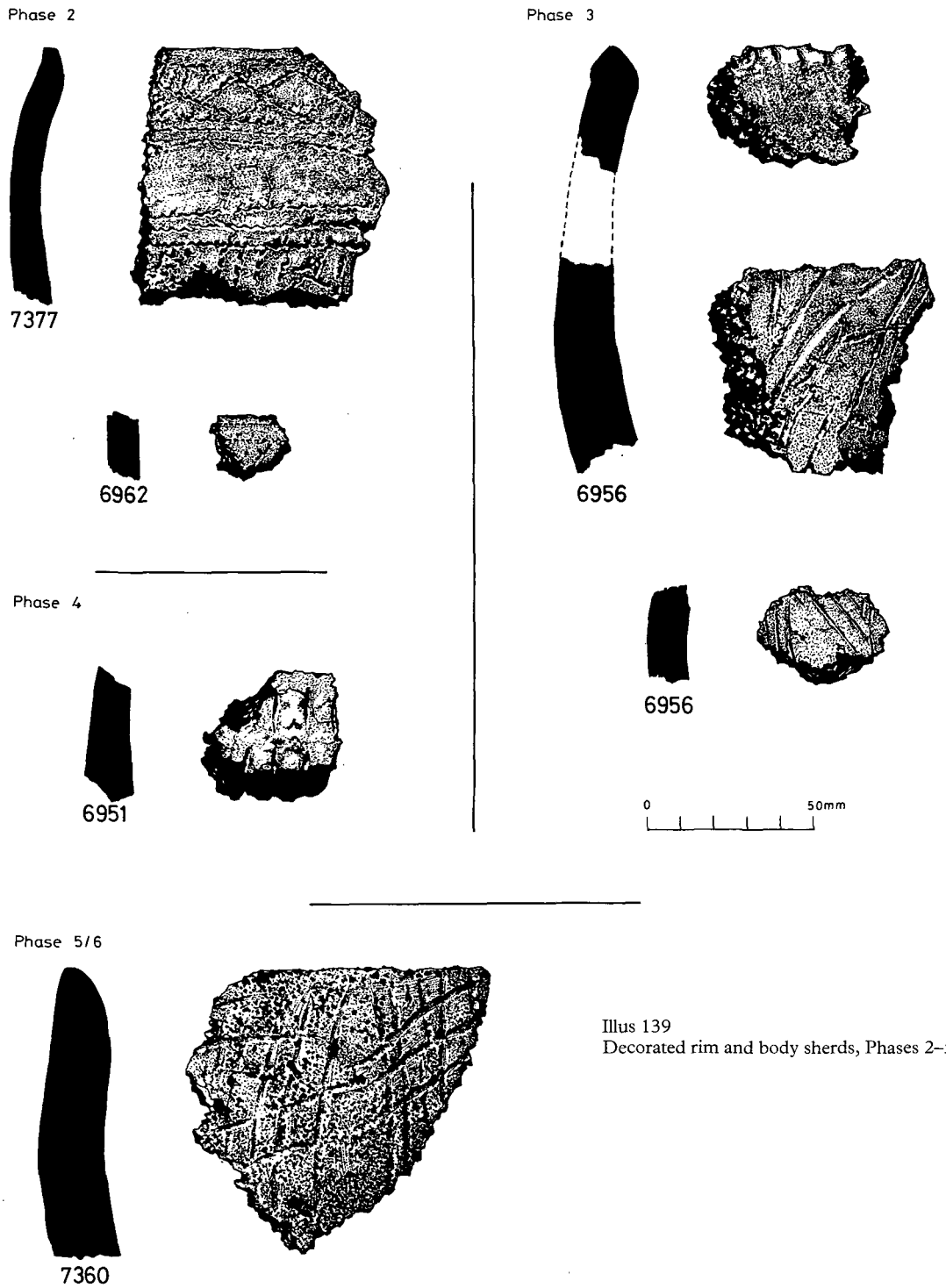
The earliest cultural connection is to be seen in the decorated rim and body sherds of SF 7377 (illus 139), identified as a Beaker vessel. These sherds were found in disturbed contexts from Phases 3 to Early Phase 7 in a 10m square area in front of the Phase 2 Neolithic tomb.

The compact and well-fired fabric contains quartz sand, organic material, possibly also iron pyrites and was coil-built. Thick internal deposits of carbonized material suggest it was used as a cooking vessel. Although incomplete, the vessel fits within the category of cupped-neck late style Northern Beakers (Case 1977, 82). An exact parallel for the rim form is displayed by two vessels from Gullane, East Lothian which are classed as a Late Northern Beaker (N3{L}), of the long-necked variety (Clarke 1970, vol 2, 366, 707).

The flat rim is narrow and has a slight internal bevel. On the outer surface the sherd is decorated with two horizontal panels of open diamonds bordered by groups of three parallel lines. Below this there is a plain band, followed presumably by a repetition of the pattern. The decoration was executed using the edge of a shell of the common cockle (*Cerastoderma edule*, formerly *Cardium*) (illus 10).

The all-over decoration is a typical feature of Beaker pottery, although the use of shells for this is quite rare, and no examples have previously been found on Orkney. The nearest parallel was found at Clettraval, North Uist in the Outer Hebrides (Scott 1935, 500–510, figs 12 & 13). Other cockleshell impressed pottery has been found in Shetland, on the Scottish mainland, and a very similar decoration to that on the Howe vessel was found on a beaker from Thickthorn in Dorset (Henshall 1956, 387, fig 17, 938; 390, pl 43, 939; Clarke 1970, vol 2, 290, figs 79, 80, 82, 83, 288, fig 66).

Although comb-impressed decorative motifs are the more common feature of Beaker design, only two very small fragments,



Illus 139
Decorated rim and body sherds, Phases 2–5.

SF 6962 (illus 139), were found at Howe, indicating the remains of a second vessel. A highly decorated combed Beaker vessel was found at Rinyo, Rousay, Orkney (Childe & Grant 1939, 26, fig 7), which in vessel shape and decoration was, however, more like Howe SF 7377. The Gullane examples, whose rim forms were cited above; also display similar chevrons and cross-hatching in bands between horizontal lines.

Classification by Lanting and van der Waals of tooth-comb and cockleshell impressed beakers for northern Scotland is unsatisfactory beyond the NE England–SE Scotland focus area. This is possibly due to a different beaker development in the North rather than a stagnation as has previously been thought (Shepherd 1986, 26–28). However on stylistic grounds the Beaker is given a date of *c* 1800–1650 BC (Lanting & van der Walls 1972, 41, 44, fig 4), but a different development in the north may alter these brackets.

EARLY IRON AGE VESSELS • PHASES 3–6

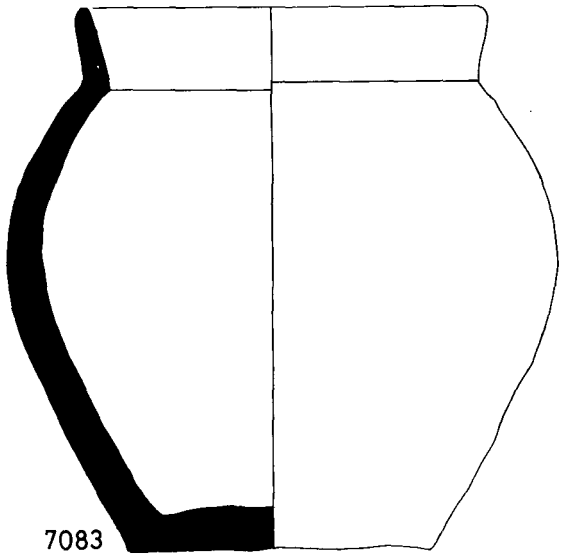
The stratigraphy of these Early Iron Age phases was largely disturbed due to successive levellings and rebuilding. This is reflected in the pottery where joins and associations have been made across phases.

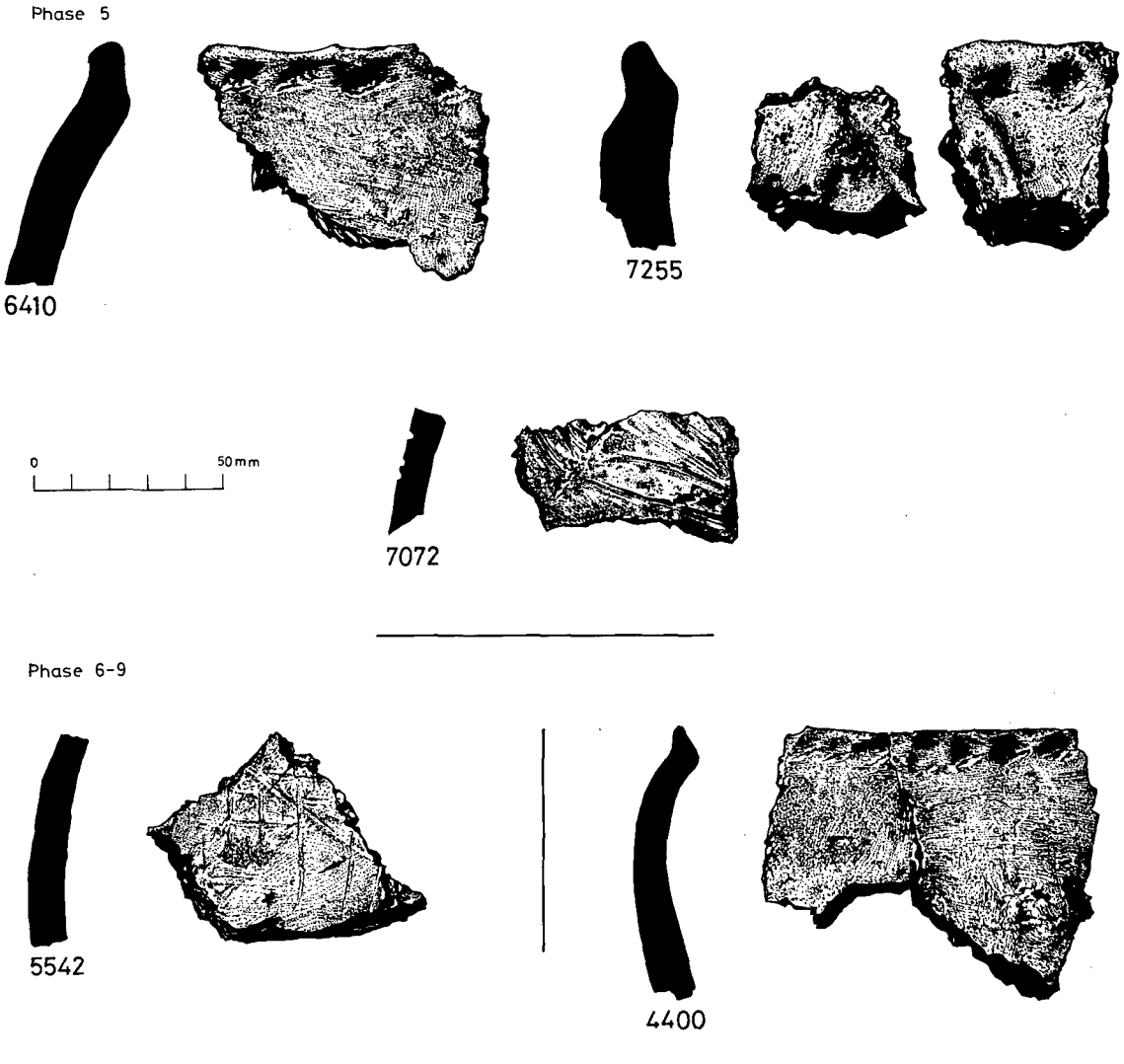
FABRIC

Most of the fabric is coarse, particularly in Phase 3 (Table 71mf 3:G1). In Phases 5 and 6, fillers of mica and iron pyrites were noticed in the fabric, and also some haematite. All the sherds are slipped, but in Phase 3 mica dust was also included. On one sherd in this phase, SF 6934, the slip ranged in thickness from <1mm to *c* 2.5mm, and was applied over a heavily filled clay in an attempt to mask the protruding grits. Thin carbon deposits on internal surfaces of sherds from Phase 3 onwards and external soot deposits were also noted.

VESSEL FORMS

The fragmentary state of sherds from these phases prevented any successful attempts at reconstructing whole vessels, and therefore the knowledge of the shape and size of pots is limited. It was possible for only one complete vessel profile to be reconstructed, SF 7083 (illus 141a). This is an irregular shaped bulbous jar with a slightly narrowed mouth, flat rim and base and a rounded shoulder. Evidence of finger moulding on the base and body of the pot survive. This technique is noticed on sherds from Phase 3 onwards, usually on heavily filled fabrics where difficulties in producing the vessel may have occurred.





Illus 141
a) Vessel form, Phase 5/6; b) decorated rim & body sherds, Phases 5/6, 6–9.

Sherds from Phase 3 indicate almost straight-sided to slightly bulbous vessels, with flat rims containing pronounced internal flanges, T-shaped (illus 140mf, a, 3:F8). Reconstruction of a partial vessel SF 6956 (illus 139) showed a carination at the shoulder and indicated that this pot was a large jar, with a rim diameter of *c* 250mm. Late Bronze Age and Early Iron Age vessels with similar profiles have been noted at Staple Howe, Yorkshire and Mavis Grind, Shetland (Brewster 1963, 88, 2; Cracknell & Smith 1983, fig 19, 7; fig 20, 23). Another sherd in this phase indicated an inward curving or barrel-shaped vessel.

For Phases 4, 5 and 5/6 similar vessel shapes are suggested by the range of everted, rounded and flat-topped rims (Table 72mf, 3:G2; illus 140mf, b–c, 3:F8–F9), although there appear to be more carinated, short-necked vessels from Phase 5. Vessel rim diameters ranged from 125mm to 300mm indicating various vessel sizes and shapes including wide-mouthed bowls. Larger vessels had wall thicknesses of *c* 15mm. Flat bases dominated and some examples have a heel, or clay bulge at the base edge. Although no round-bottomed vessels were reconstructed, it is not inconceivable that they existed, but due to the fragmentary condition of the sherds, they were impossible to recognize. Some of the projected vessel shapes from these early phases are reminiscent of Late Bronze Age pottery found at Jarlshof, Shetland (Hamilton 1956, figs 18, 19) and Neolithic/Beaker pottery from Clettraval, Uist (Scott 1935, fig 23).

DECORATION

Impressed designs

SF 6956 (illus 139) from Phase 3, carries a decoration on the inner rim of a line of small stab and drag incisions resembling claw marks, which were made by a sharp tool. The outer surface of the same vessel has seemingly random but deep incised lines which cut into the thick slip. The decoration may have been made by pressing grass or rush stems into the slip or dragging the end of a hard rush across the body. The decoration is not unlike that on a Phase 5 rim sherd, SF 7360 (illus 139). Their association is possible as their contexts were disturbed. Deep score marks, accidental or deliberate, have been found on other sherds in Phase 3, which have also been associated with sherds from later phases.

It is arguable that this pottery is in fact Bronze Age in date. It is pre-roundhouse and its affinities lie with earlier pottery styles rather than those of the Early Iron Age. Close parallels to these sherds can be seen from Neolithic sites in both Orkney and Shetland (Henshall 1955, 388, HD 1374; 1963, 251, 27; Whittle 1986, fig 55) and from A'Cheardach Mhor, South Uist (Young 1966, fig 4, 1). Similar decoration is found among the finds from Yeavering, Northumbria, described as having been 'impressed by a triple ended implement' and of a Late Bronze Age date (Hope-Taylor 1977, 340, 21a, b, c; 344, 21).

Finger nail or finger tip impressions set immediately below the rim, form a decoration on sherds SF 6410 and 4400 (illus 141b) from Phase 5/6 and 6–9. A similar but deeper decoration is found on SF 7255 (illus 141b) probably made by the rounded end of an tool. Both these, and especially the fingertip decoration, are commonly found on Iron Age sites across the north of Scotland and in the island groups, at Crosskirk, Caithness (Fairhurst 1984, ill 62, 63, 701b, 440, 660), at the Aisled Farmhouse, Barra (Young 1952, fig 5, 28, 29), at A'Cheardach Bheag, South Uist (Fairhurst 1971, fig 7, 1, 7) and at Clickhimin, Shetland (Hamilton 1968, fig 66, 1). The occurrence of this decoration on Early Iron Age pottery from England has also been noted (Brewster 1963).

A common feature found at Howe, and other Iron Age sites, is finger tip impressions on the inside of vessel bases, usually 4 in number. Often these can be lightly impressed as well as pronounced. It has been suggested that this form of decoration had its origins in continental Urnfield pottery (Hamilton 1968, 92).

Incised designs

Incised motifs were found on sherds from Phase 4. SF 6951 (illus 139) has a parallel, horizontally incised broken line motif, which also occurs later at Howe in Phase 7. This suggests a certain continuity of style and a similarly decorated sherd was found on South Uist in the Western Isles, at the Iron Age site of A'Cheardach Bheag (Fairhurst 1971, fig 7, 3).

One rim sherd, SF 3453, has slight incised diagonal dashes cut into the curve beneath the rim. It is also a common motif and appears in the pre-fort settlement midden at Dun Mor Vaul, Tiree (MacKie 1974b, fig 11, 20b; fig 13, 114; fig 17, 332) and at A'Cheardach Bheag, South Uist (Fairhurst 1971, fig 5). Described often as 'stab lines', this decoration also appears in later phases at Howe.

Decorated body sherd SF 7072 (illus 141b) probably forms part of the fan decorated vessel SF 5421, described below in Phase 7. SF 5542 from Phase 6 is also a body sherd (illus 141b), and has lightly incised cross-hatched line markings, which on the outer surface appear to be random. However, on the sherd's inner surface, these are more formal and clearly defined. It is not known whether these lines constitute a finishing of the vessel, before firing, or are decorative.

Applied motifs

Rim sherd SF 7255 (illus 141), mentioned above has, as well as finger or stab decoration, a lower applied raised v-shaped decoration. Although fragmentary, this probably surrounded the vessel as a large wavy band. This is the first instance of applied decoration seen at Howe, but similar motifs were noted in the Iron Age finds from Mealista in Lewis (Carson 1976, Fig 4, 18, 19), and seem to be a larger variation of a popular design (Sanders 1957, 22, 53, 54, fig 1).

MIDDLE IRON AGE VESSELS • PHASE 7

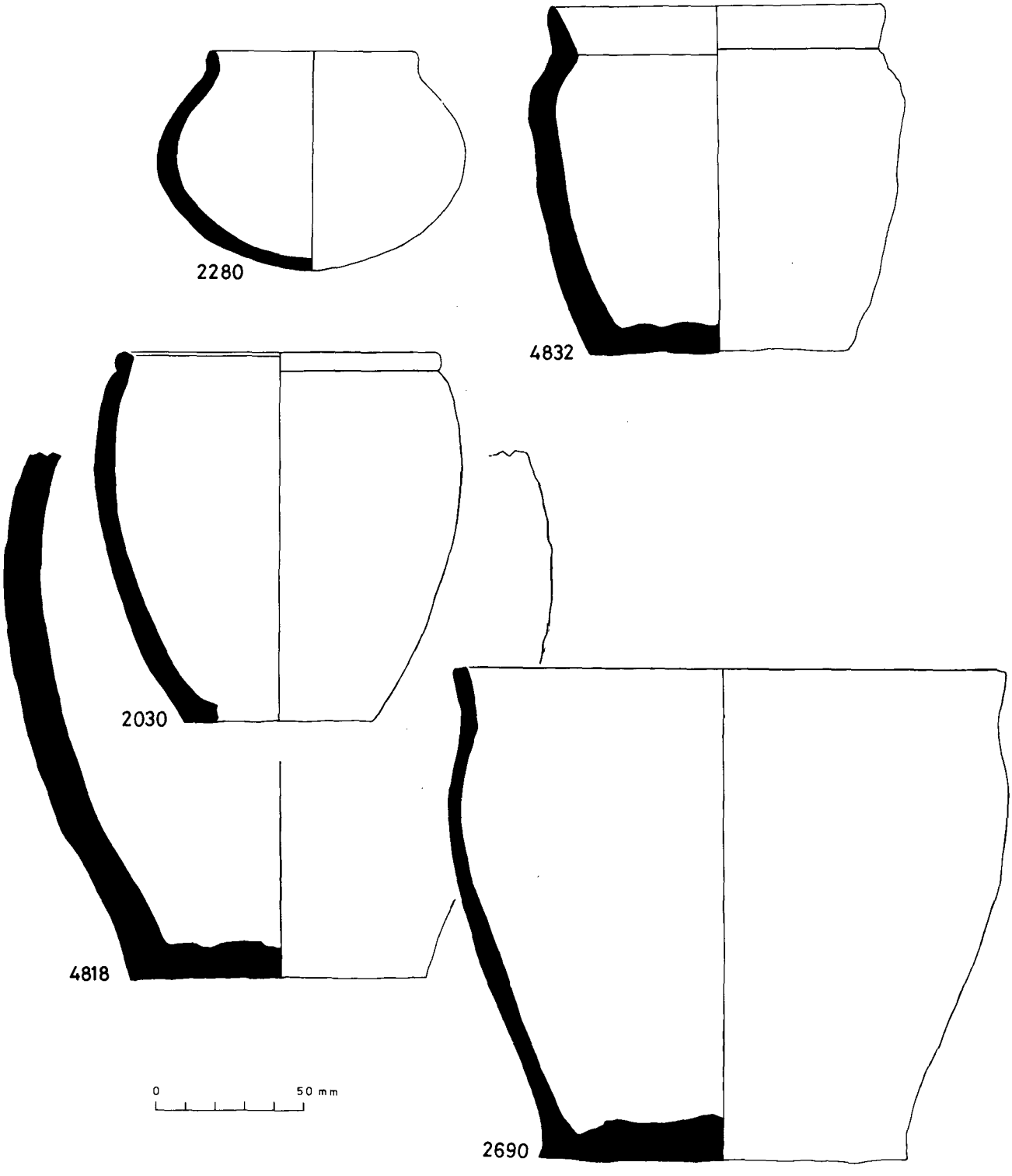
Most of the pottery, including the majority of decorated sherds, occurred in this phase (Table 70), mainly from three midden contexts 981, 63 and 1539; the latter two were S ditch fills. On analysis there were found to be many horizontal joins between sherds from the middens and from levelling layers, and vertically within the middens. From over 12,000 sherds it has been possible to reconstruct almost nine complete vessels and large portions of others in this phase.

FABRIC

A larger percentage of both finer and finer-medium stone filler was noted in the vessels from this phase (Table 71mf), but bulky and heavily filled vessels also occurred. There was, however, little variation in fabric, other than was noticed in previous phases. Both compact, hard, and soft fabrics were found, suggesting the prevalence of inconsistent firing techniques. All the vessels continued to be coil or slab built, and slipped. The slip varied in thickness depending on the extent the filler protruded out from the surface of the clay. The thickness of the vessel walls varied from 3mm for thin vessels and up to 12mm in heavy pots.

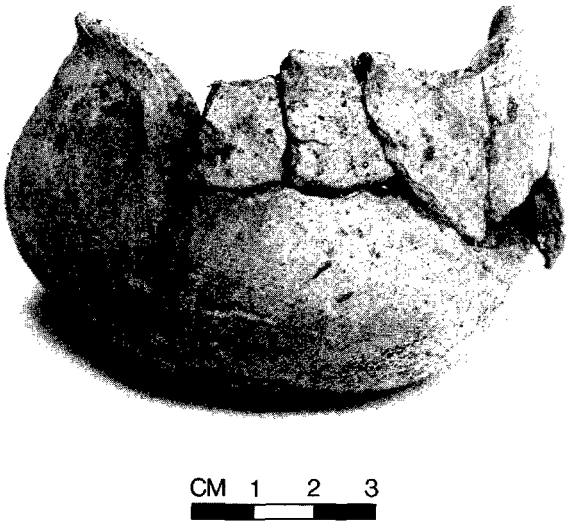
VESSEL FORMS AND SIZES

A range of vessel forms was reconstructed (illus 142), from small globular, round-bottomed hanging pots (illus 143), to large straight-sided bucket type vessels and both wide- and narrow-necked jars. Rim diameters varied from the narrowest at 67mm to the widest at 340mm, with bases measuring half to three-quarters of the rim diameters of the vessels. Pot heights ranged from 75mm to *c* 200mm. Cooking pots as well as storage vessels were identified from soot deposits on their outer surfaces and carbonized food remains within.



Illus 142
Vessel forms, Phase 7.

The dominant rim form in Phase 7 is everted (rounded or flattened), accounting for over 65% of the rims (Table 72mf, 3:G2). Their dominance does not imply that they are an exclusive characteristic of the Iron Age broch tower and village as everted rims were also present in earlier phases. The other rim types were straight, lipped, beaded, T-shaped and inverted, the latter inferring globular vessels with inward curving mouths (illus 140mf, b–d, 3:F9–F11). One aspect of the rim forms is that some became quite elaborate with the addition of applied cordons (illus 144, SF 5378, 2787, 7212), and are discussed below. Also present are very few rims with horizontal internal fluting (eg SF 7716, illus 140mf). This rim type is commonly seen among pottery of other Orcadian sites, including the Stones of Stenness (MacKie 1975, fig 9, 29 & 34), and the brochs of Midhowe, Oxtro, Ayre



Illus 143
Small pottery vessel (SF 2280), Phase 7.

and Bu, as well as the Shetland Iron Age sites of Mousa, Clickhimin and Jarlshof (Royal Museum of Scotland collections), and suggests finishing on a wheel.

A further comment on the rims is that in some instances, especially, but not exclusively, those sherds of finer fabric, the neck, between the top of the rim and the body of the vessel, is reduced. In some cases the fabric appears to have been folded over and outwards to form a flattened beaded rim (eg SF 2030, illus 142). This rim type appears in greater numbers in Phase 8 (see below). It is possible to suggest, given the limited number of reconstructed profiles, that beaded rims are mainly found on vessels with straighter sides or gently curving bodies. In contrast, the longer necked everted rims are from wider bodied vessels.

SF 5208 (illus 145) is an example of a T-shaped rim, and although this rim type is not numerous, most appear in Phase 7 (Table 72mf, 3:G2). These rims are very similar to those found at Mavis Grind, Shetland, and from Jarlshof, also in Shetland. Their occurrence in contexts dated to the Late Bronze Age and Early Iron Age may be significant (see Phase 3 above and discussion).

DECORATION

Almost all the decorative motifs, as well as the vessel shapes, bear close similarities to other Iron Age sites on Orkney, in mainland Scotland, the north of England, the Western Isles and Shetland. However, they do not reach the heights of the more elaborate designs found amongst the Iron Age pottery in southern England. The decoration on the Howe vessels, seems to have most in common with Western Isles wares, where often close parallels have been observed.

Methods of decoration used in this phase include linear incisions of various forms, finger depressions, stab designs made by a bone or other sharp implement, and the application of plain and decorated cordons. The cordons were moulded, slashed, stabbed and impressed. Rondels or raised bosses occur as well as ring impressed designs and other types of applied decoration.

Decorated pottery forms less than 1% of the total number of sherds from this phase (Table 70). Although this is a small percentage, it is a sizeable proportion when compared with other Orcadian sites, and therefore deserves to be discussed in full. It appears that the coarser, mostly undecorated wares were used alongside the finer, more often decorated wares in Phase 7.

Finger-impressed designs

Used in earlier phases, finger impressions below rims persisted into Phase 7. They were probably the simplest form of decoration, and a means of finishing an everted rim. SF 5496 (illus 145) has formal finger tip impressions neatly placed next to each other below the rim. The design is freer and slighter in SF 5063 and 5208 (illus 145), but is impressed below a substantial T-shaped rim in the latter. These sherds show some of the variation in this design which existed in Phase 7. Some of the impressions categorized as made by finger tips, could also have been produced by the rounded end of a tool, as some of them are too close to the rim to have been made by a finger without actually disturbing its form.

On some vessels, lightly impressed vertically incised finger channels have been noted. They are probably evidence of fabric smoothing on the pot's outer surface rather than actual decoration, but are worthy of mention as the body of the vessel can appear to be slightly fluted or faceted.

Circular impressions as decoration

Impressions of the heads of ring-headed pins are used as cordon decoration on Howe sherds. SF 7542 (illus 144) has a horizontal row of ring-headed pin impressions at the shoulder of the wide-bodied or globular vessel. The impressions lie 30mm below the everted rim and simple beaded cordon (see below).

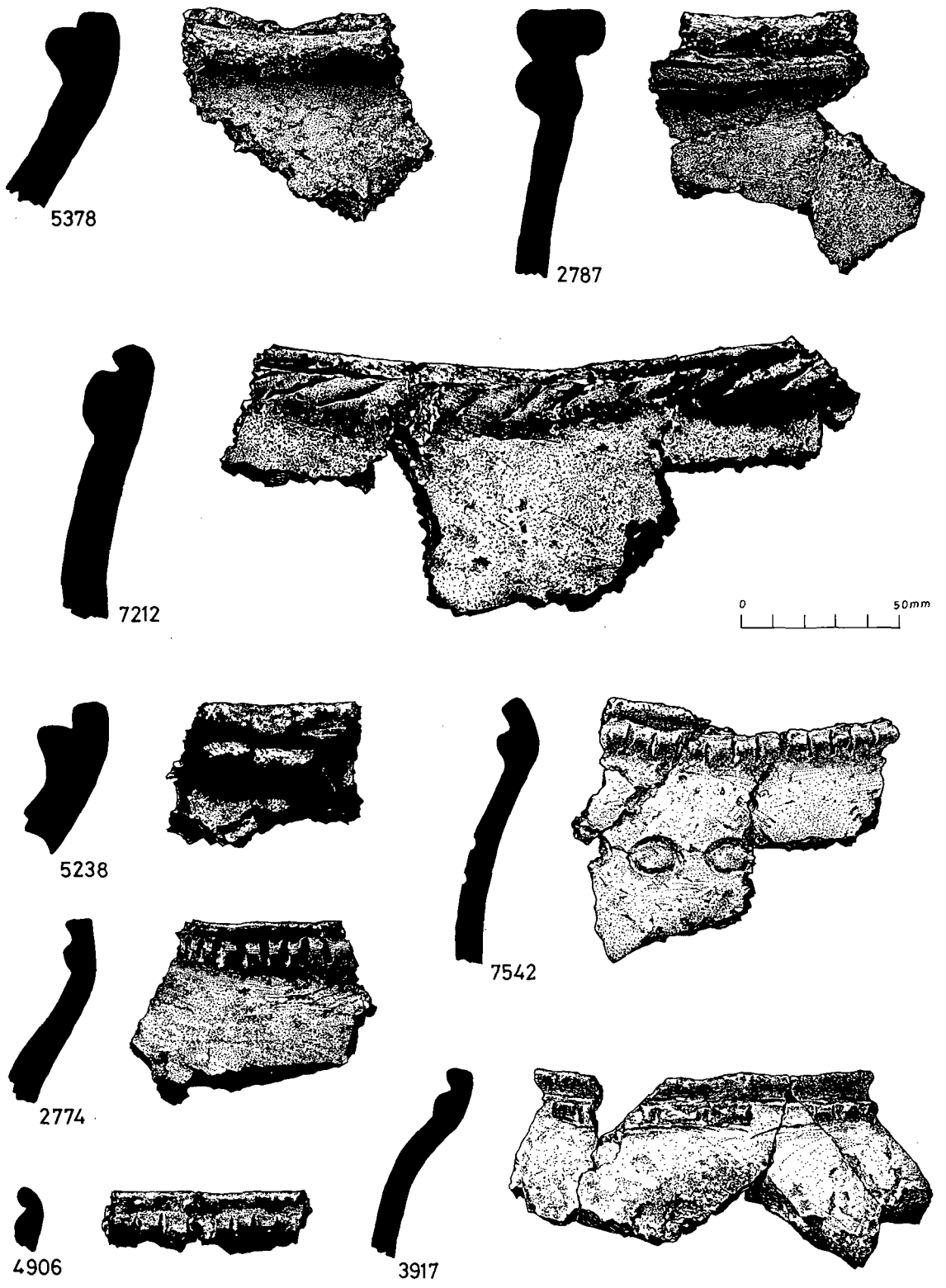
Other rim sherds have similar impressions (eg SF 5672, illus 145) and some body sherds (eg SF 4052, illus 146). In the former the impressions form part of an incised zigzag line pattern encircling the vessel, which is paralleled in pottery from the Broch of Lingro and from Allasdale, Barra (Young 1952, pl 8, 9). Ring pin impressions are seem as a purely Iron Age development due to the occurrence of the copper alloy pins from Phases 5/6 onwards (8.6 Metal Artefacts report above). Other circular impressions, with incomplete circles, have probably been made by hollow rush stems or pieces of bone (eg SF 7677, illus 145).

Incised designs

One of the most complete pots is SF 5241 (illus 90d, 149) with an all-over decoration of vertical incised lines at *c* 25mm intervals. The design is random, but the lines begin *c* 15mm below the rim for a length of 70mm. A similar decorative motif was seen at A'Cheardach Bheag, South Uist, and on a funerary urn at Unival (Fairhurst 1971, fig 7, 6; Lindsay Scott 1948, fig 7, 1, pl 4, 2).

Vertical and parallel stab and drag lines beneath rims were a common design. They could be short, as in SF 5718 and 7114 (illus 147, 148), or longer as on body sherd SF 5734 (illus 146), and close similarities can be seen at A'Cheardach Bheag, South Uist. Horizontal incised dashes below a rim were also common as can be seen on SF 5162 (illus 147), where they occurred as a single line. They also appeared on the body of vessels, such as SF 5492 (illus 146), as an encircling line.

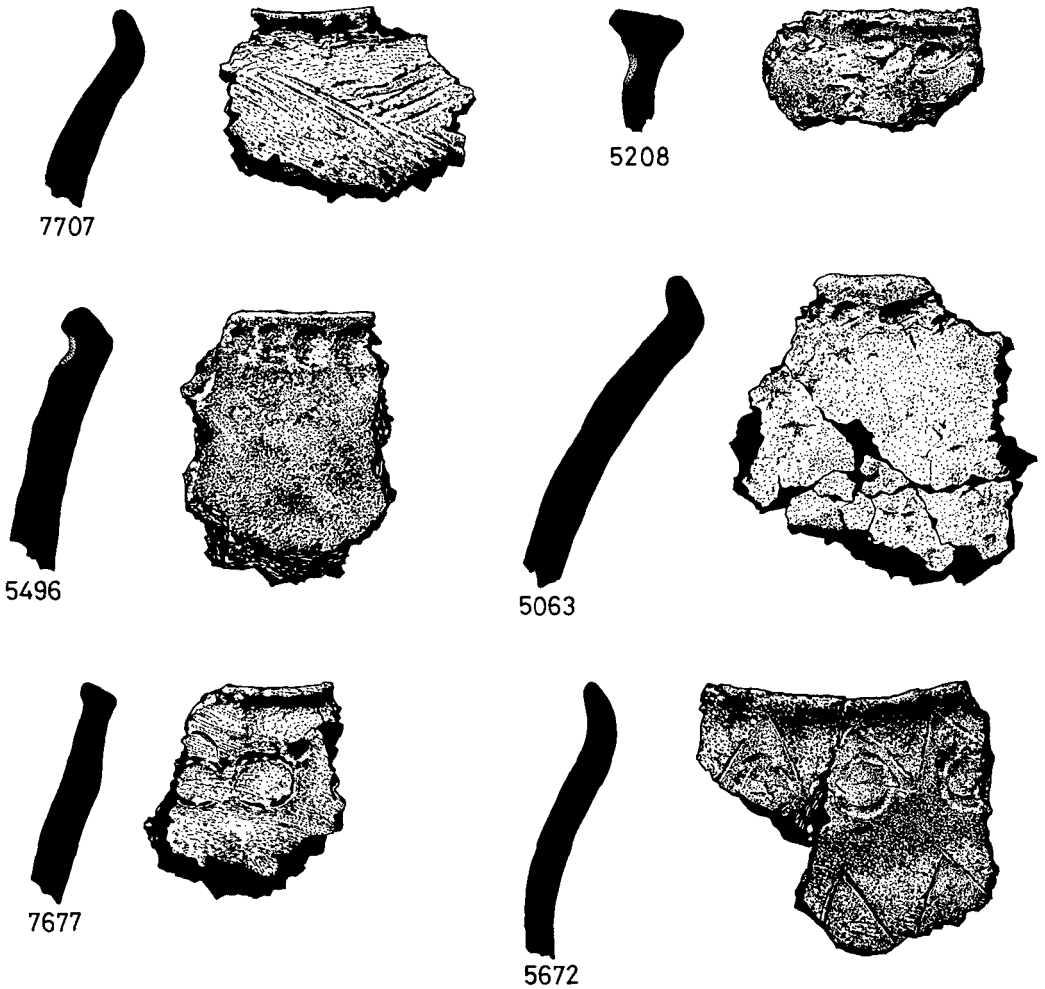
Stab and drag decoration appears on a small globular bowl represented by sherds SF 4877 (illus 147). The slightly everted rim carries an impressed dot or stabbed decoration along its tip, but immediately below set in the curve beneath the rim, is a band of stab and drag chevrons which encircle the vessel. The rim may have been re-formed, as the top row of stab lines is set into a raised portion, perhaps a cordon, as if the incised design bonds a replacement rim onto the body. A similar decoration is found at Dun Mor Vaul from later contexts, but without the rim top decoration (MacKie 1974b, fig 19, 494).

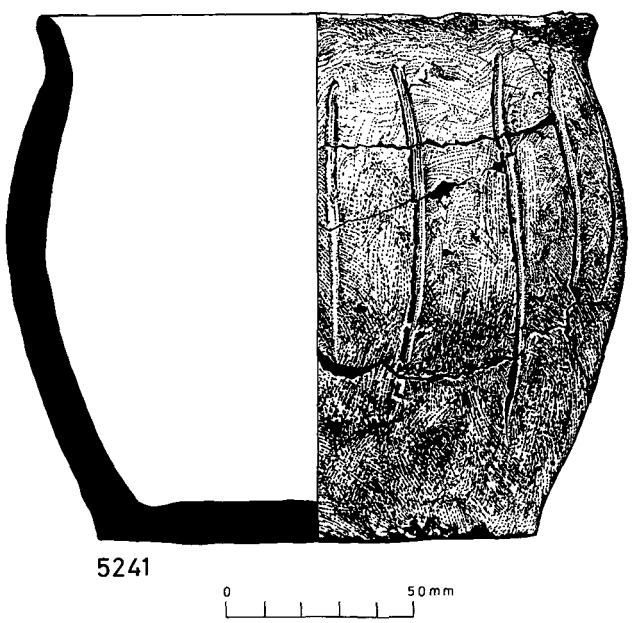


Illus 144
Decorated rim sherds, Phase 7.

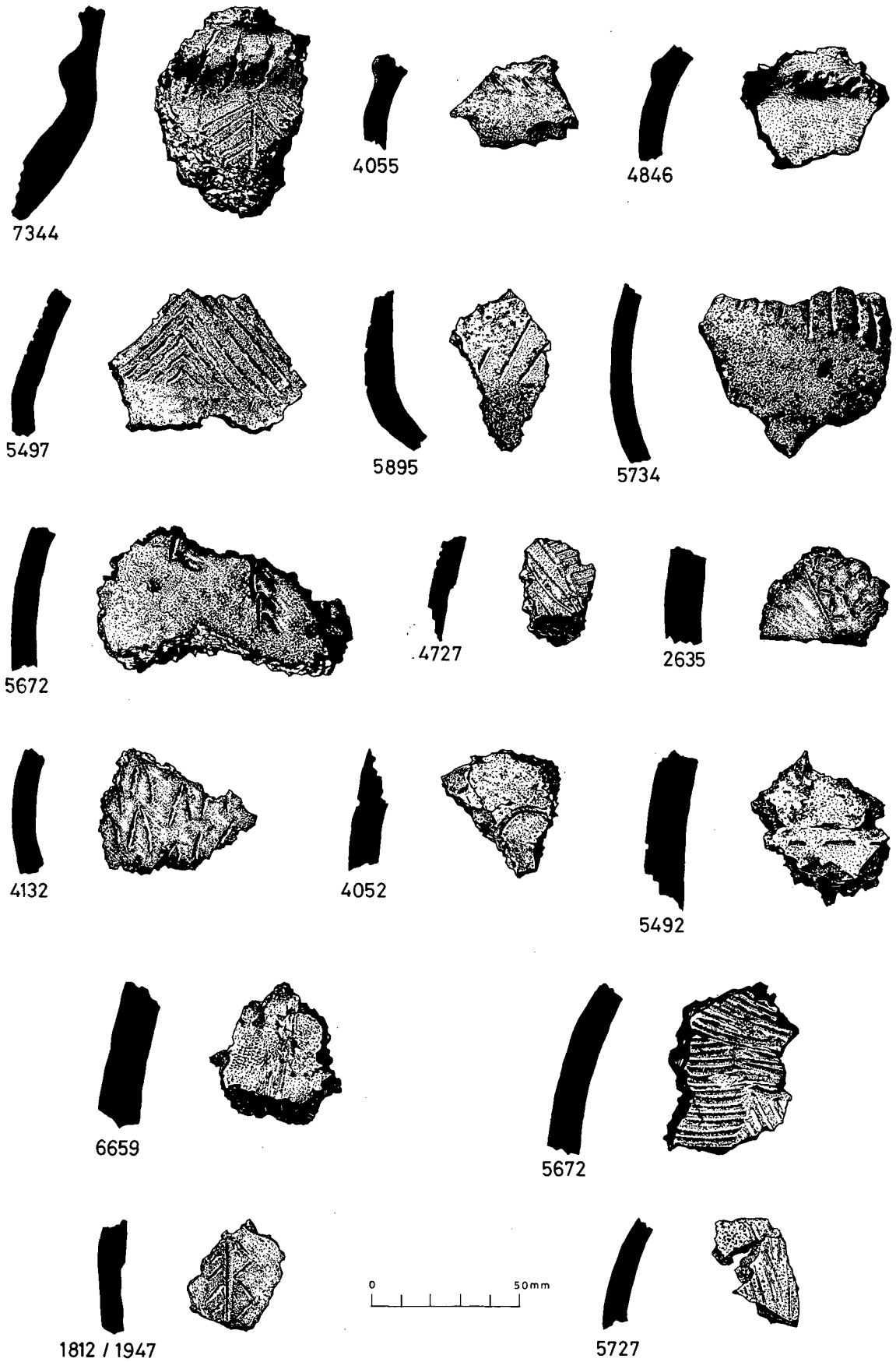
Further examples of the chevron motif are to be seen on SF 7058 (illus 147), where it lies in a horizontal band below the curve of the rim. The pattern is bordered by a row of deeply incised dashed lines, probably made by a thin bone implement. Along the outer tip of the rim, are tiny oblique incisions. A number of vessels, again from Dun Mor Vaul, carry a similar motif.

Another variation of the chevron can be seen on body sherds SF 5497 and 5895 (illus 146), where it appears at or above the shoulder of the vessel. The design, executed as close set or wider spaced lines, would have appeared as a band of zigzag. Decoration on pottery found at the Broch of Ayre, Orkney is very similar (Sutherland-Graeme 1913, 46, fig 12).

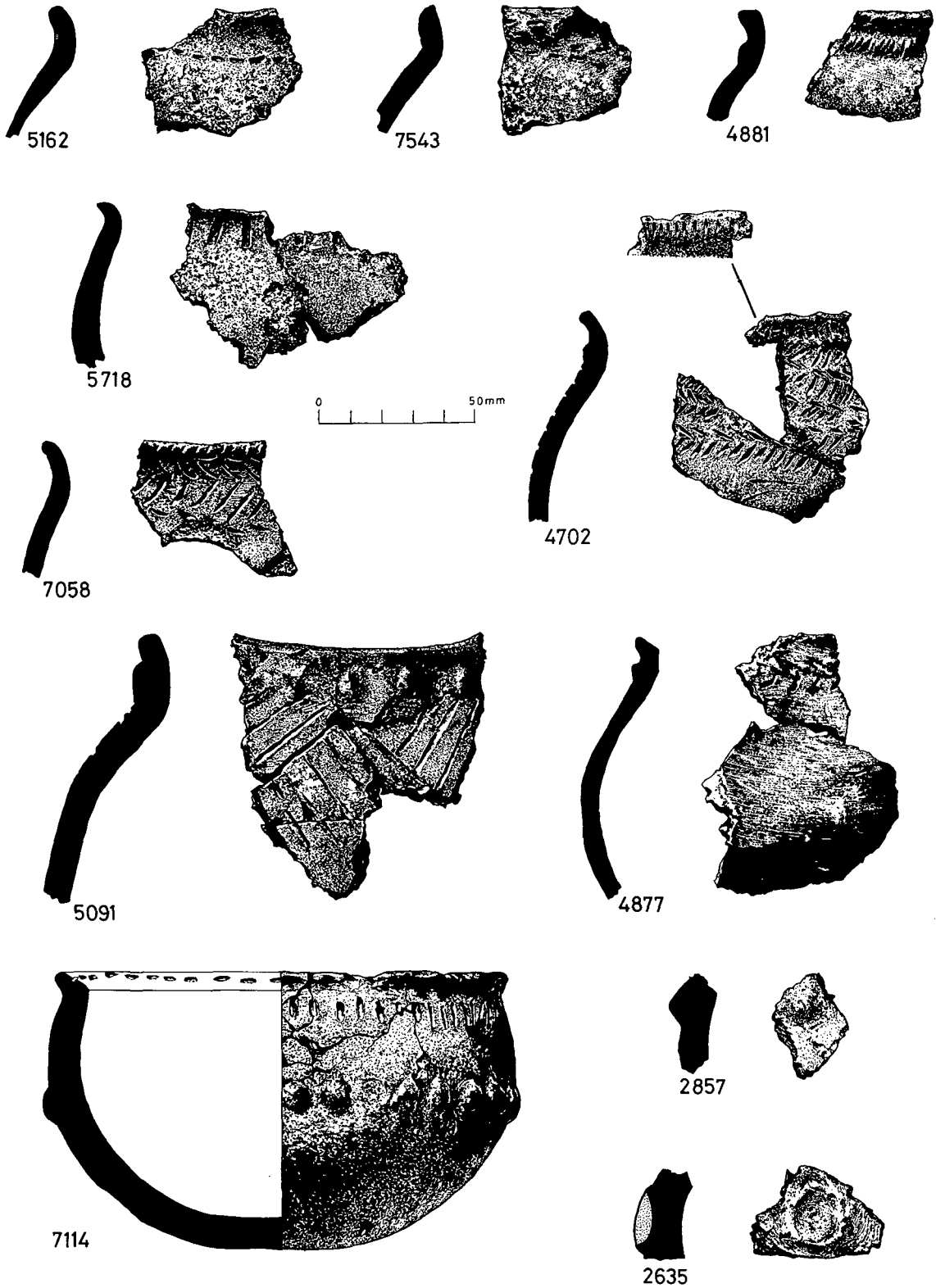




Illus 145
Decorated rim sherds, Phase 7.



Illus 146
Decorated body sherds, Phase 7.



Illus 147
Decorated rim sherds, Phase 7.

Among other partly restored vessels is a group of sherds, SF 7538 (illus 149), which form a large bulbous and burnished jar. The everted rim has an internal decoration of a single incised zigzag line. The external decoration begins at the rim with two rows of horizontal chevrons. More of this motif is then captured in pendant triangles which encircle the vessel at the neck and shoulder, the lowest part of the pendant ends *c* 85mm down the body of the vessel at its widest point.

Inner rim decoration was a characteristic of some pottery from the Neolithic and Bronze Ages as well as the Iron Age evident from

such sites as Ness of Gruting, Shetland and Jesmond, Northumberland (Henshall 1956, fig 15, HD 1337). Inner rim decoration is noted on broch period vessels at Clickhimin and Jarlshof, Shetland (Hamilton 1963, fig 54, 9; 1956, fig 35, 2) and in Orkney at the brochs of Ayre and Lingro sherds occur with vertical and horizontal dog-tooth or herringbone decoration (Sutherland-Graeme 1913, figs 12, 13; Royal Museum of Scotland accession No's GE 42–274). Generally it seems that this form of decoration was not uncommon and the chevrons were found in a variety of forms.

Another example of an infilled triangle is a small body sherd SF 2635 (illus 146). The pendant triangle is infilled with random dashes and dots, stabbed into the surface. The closest parallel to this is found on a vessel from All Cannings Cross, the Early Iron Age site in Wiltshire (Cunliffe 1978, 351, appendix 2, 6).

Body sherd SF 4132 (illus 146) has another variation of the many chevron designs. Small inverted V shapes, with slightly curved sides, are incised randomly on the sherd's surface, probably by the use of a cut piece of rib bone. An example similar to this is found on Neolithic pottery from the Knap of Howar, Papa Westray, Orkney (Henshall 1983, fig 8, 44), suggesting the perpetuance or recurrence of certain motifs in the Iron Age.

A number of decorated rim sherds were found, in some examples where no other vessel body decoration was apparent. SF 7543 (illus 147) carries short horizontal slashes on the roll of its everted rim (as has been noted above in more complex designs). Other rims are impressed with rows of dots, and vertical dashes (eg SF 4702, illus 147). This example is from a small vessel which has an all-over herringbone incised decoration. It is comparable to intense, Beaker type decoration seen at Norham, Northumberland, and in Scotland at Hedderwick, East Lothian, at Glenluce, Wigtown, and at Cawdor, Nairn (Clarke 1970, figs 49, 50c, 253, 491). It could be an example of continuity of style from the Bronze Age with favoured designs remaining in use. With its decoration of tiny incised chevrons, this vessel is not unlike one found in a secondary broch phase at Dun Mor Vaul, Tiree, which has a similar motif inside pendant triangles on a tall, barrel-shaped urn (MacKie 1974b, fig 15, 1).

A number of rim and body sherds from Phases 5/6 and 7 joined to form SF 5241 (illus 149 and see also SF 7072 illus 141), part of a bulbous bodied vessel with an everted rim. The decoration consists of curved fan-like incised lines infilling the triangular spaces formed by a large zigzag design. The decoration lies between the rim and shoulder and above it lies a single row of oblique incisions *c* 25mm long. It is a motif quite reminiscent of that found on a Neolithic funerary vessel at Unival, North Uist, although the vessel shape is dissimilar (Scott 1948, fig 6, 12, pl 5, 2). Other Neolithic sherds from the Calf of Eday, Orkney and an Unstan bowl from Taversoe Tuick, Rousay, have similar designs (Calder 1937, fig 15, 1, fig 16; Fairhurst 1971, fig 5, 3, 4, 6). A further, more striking resemblance, is a motif found on a bowl on Site B at Plumpton Plain, with hatched triangles, which was considered to point to Urnfield or Halstatt influences (Hawkes 1935, fig 11, B4a). Pottery from Warebeth Broch, Orkney has a smaller and more formalized version of the same motif (Bell & Dickson 1989, 114).

Sherd SF 6921 (illus 149) has a fragmentary decoration which might suggest a similar design to the above and body sherd SF 4727 (illus 146) has a more formal close set design produced by combing (see Young & Richardson 1960, 114, fig 5, 4). The design also appears on SF 5091 (illus 147) in conjunction with applied decoration (see below).

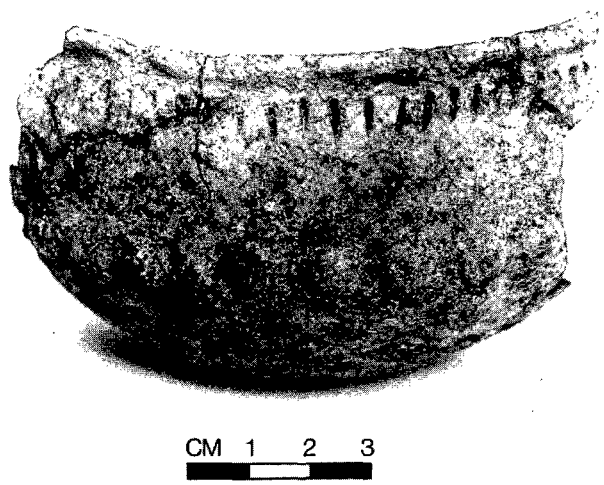
Another incised decorative motif is seen on sherds SF 5672 (illus 146). Incised vertical lines encircle the vessel in a large zigzag, and each line has short oblique stab lines on one side. A similar design to this is seen on sherds SF 1812/1947 (illus 146) composed of incised lines with short, oblique stab lines on one side of the line and an incised zigzag on the other. The straight central line may have formed part of a large zigzag motif running round the upper part of the vessel. Many examples of similarly incised vessels exist at Dun Mor Vaul (MacKie 1974, fig 11, 36, fig 15, 220, fig 18, 398), and at All Cannings Cross in varying forms (Cunnington 1923, pl 34, 7, 8; pl 35, 11).

Bosses and rondels

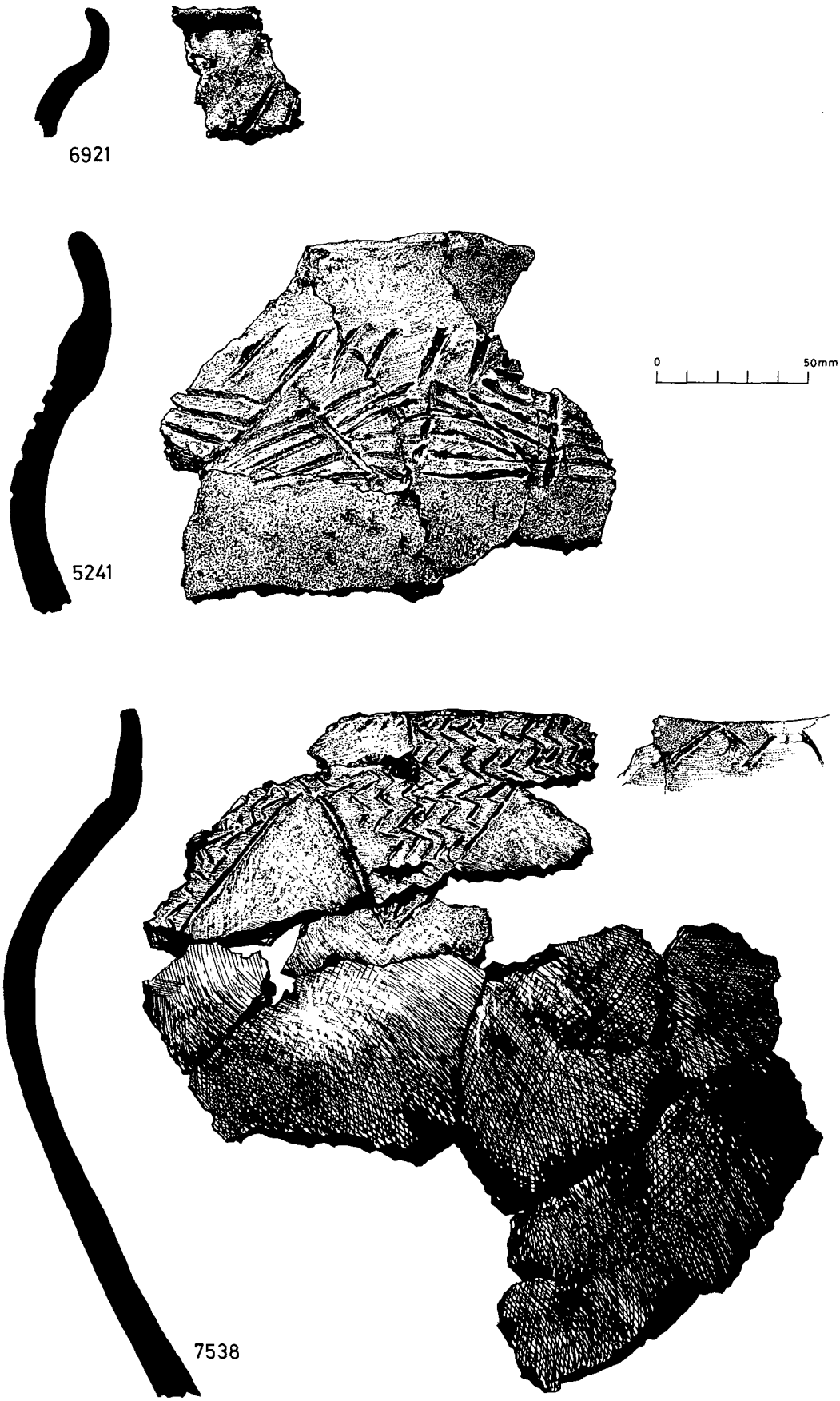
A number of sherds with applied bosses and rondels (depressed bosses) have occurred in various contexts, but mostly from the Later Phase 7 dump 981. Bosses as applied or moulded decorative features are represented by body sherd SF 2857 and rim SF 5091 (both illus 147). On the latter sherd both an incised design of filled triangles and oval bosses appear together. The single row of bosses were pinched out of the body of the vessel in the curve below the everted rim, and immediately below them appears the incised design on the shoulder of the vessel. This sherd is similar to one found at the Broch of Burrian, North Ronaldsay (MacGregor 1972, 98, 99, fig 22), where the bosses were applied rather than moulded. It is suggested that boss moulding was developed from heavily impressed neck cordons used in the broch periods at Clickhimin and Jarlshof and on sites in the Western Isles. However, that particular form of decoration was not found at Howe.

Reconstructed vessel SF 7114 (illus 147; 148) is a shallow wide-mouthed bowl with a broad round base. The decorative features include 5mm long stab lines running horizontally along the interior of the rim. Below the lip of the rim on the exterior are 5mm long vertical stab lines encircling the bowl and 20mm below these is a row of applied raised bosses *c* 8mm in diameter, which run around the widest part of the vessel. Both at Spettisbury, Dorset and more strikingly among the 2nd century AD hoard found at Lamberton in Berwickshire are examples of bronze cauldrons and bowls of similar shape and carrying beaded rivets (BM Guide 1925, 135 fig 147; Stevenson 1966, pl 2b). Bosses are also to be found amongst the pottery from Clickhimin, Shetland and from All Cannings Cross (Hamilton 1968, fig 44, 7: Cunnington 1923, pl 34, 14).

SF 4388 (illus 153) from Phase 8, may have originated in Phase 7, and is best discussed here as there are few examples of this type of decoration generally and it is rare at other sites. It is a very curved body sherd with an applied and depressed rondel *c* 20mm in diameter, and another applied and indented rondel (where the tip of the thumb has depressed the clay), is found on SF 2635 (illus 147). Similar examples were found in the pre-broch phases at Crosskirk (Fairhurst 1984, ill 62, 749) and at the Aisled Farmhouse at Allasdale, Barra, and Foshigarry, Uist (Young 1952, 95, fig 8, 75, 76; Beverage & Callander 1930, 342 fig 24, 21).



Illus 148
Decorated vessel (SF 7114), Phase 7.



Illus 149
Decorated rim sherds, Phase 7.

This type of motif may have had early origins as it has also been noted on Neolithic pottery from Skara Brae (Childe 1929, 190, fig 28, 1, 2).

Applied cordons

Several sherds from different Phase 7 contexts carry an applied cordon decoration, either plain, cut or slashed in various ways or as part of a fuller decoration as in SF 7542 (see ring pin impressions). This type of decoration found at Howe, is indicative of the many variations seen at other Iron Age sites.

Examples of vessels with applied undecorated clay bands are SF 5378, 2787 and 5238 (illus 144). SF 5238 and 5378 have a cordon which is applied and finished off as a square ledge immediately below the rim and SF 2787 is an ornate T-shaped rim with a large moulded cord beneath. The closest parallels to this were found at Mavis Grind, Shetland, which have been dated to the Late Bronze Age or Early Iron Age (Cracknell & Smith 1983, 37, fig 23).

SF 7212 (illus 144) has a thick cordon applied below the rim which is slashed resembling a cable. The Iron Age fort and broch at Clickhimin produced a number of examples of slashed cordons on pottery vessels (Hamilton 1968, fig 44, 1–5, figs 53, 54). Young has suggested that this design may 'represent in clay the thonging, twisted and attached to the neck of a leather bucket' (Young 1966, 50) and noted that this type of decoration occurs not only in Shetland but in Ireland and other parts of Europe.

Examples also occur at Howe where the slashed cordon motif forms part of a larger decoration. SF 7344 (illus 146) is a broken rim sherd with an obliquely slashed cordon applied below the rim. Below this is a finely incised fern or herringbone design with vertical incisions. A close parallel to this was found at Plumpton Plain and at Foshigarry, North Uist (Hawkes 1935, fig 3; Beverage & Callander 1930, fig 24, 5–12). SF 4881 (illus 147) has a narrow cordon applied below the rim into which short close-set lines have been cut by a knife or sharpened bone.

Eight rim sherds carry a narrow cordon, applied immediately below their rims, which have been cut vertically to form a cushion or bead as in SF's 4906, 2774, 7542, and 3917 (illus 144). On Hebridean wares, applied bands, whether slashed cordons or finger impressed wavy ones, have mostly occurred around the widest part of the vessel, thus disguising necessary thickening. Close parallels to the Howe motifs can, however, be seen from the Aisled Farmhouse at Allasdale (Young 1952, 93, fig 6, 57, pl 7;). At Dun Cuier, Barra, an applied and pinched bead is found at the neck of a vessel, making it the closest parallel to the motifs from Howe (Young 1955, fig 11, 99).

Body sherds with applied cordons at Howe were few and only two examples, SF 4055 and 4846 (illus 146), are worthy of mention. The former has a raised band, with incised scoops above and below its ridge, and the latter has parallel diagonal slashes in the cordon, which was applied on the shoulder of the vessel. This type of decoration, as mentioned above was common in the Western Isles, on an applied band at Dun Mor Vaul, as part of a decoration at Allasdale, Barra, and cut into the body of a vessel at Mangersta, Lewis (MacKie 1974b, fig 16, 248; Young 1952, 93, pl 7; Carson 1976, 373, fig 3, 103).

Vessel grooving

A number of sherds were found with pronounced internal and external grooving. The grooves are randomly distributed and appear to be made by combing, possibly to obscure the coil building. SF 5672 (illus 146) is an example of this type of decoration which has been applied externally over random drag lines. SF 7707 (illus 145) also exhibits a fine example of external grooving. It occurs only on thickly slipped and burnished surfaces, and may have been made by a bone tool.

Other decoration

SF 5727 (illus 146) appears to have parallel light whip or thong marks on its surface and is the only example from this phase. Painted designs are also very rare at Howe. Only three examples have been tentatively identified from Phases 7 and 8, and can be hard to distinguish from smoke staining (see Phase 8). On the surface of sherd SF 6659 (illus 146), a possible cloth impression has been observed which appears to be of a simple woven fabric. Claw marks from a cat were visible on a sherd of a base to a small bowl, SF 2378.

BASES

The majority of bases are flat (illus 140mf, e, 3:F12) but the occasional round bottomed vessels have been discussed above in both plain and decorated sections. Most of the bases are undecorated with the exception of the following. SF 2635 (illus 150) has an incised cross on its interior surface and is the only example of its kind at Howe. Many of the bases carry one or more dimple or fingertip impressions (eg SF 5672 a & b, illus 150). Dimples were placed randomly but often centrally, and examples can be seen from the earliest broch contexts at Dun Mor Vaul (MacKie 1974b, fig 11, 31). At A'Cheardach Mhor dimples are accompanied by an incised line decoration (Young & Richardson 1960, pl 11, 4, 7, fig 6, 35, 36). Base sherds with intricate incised patterns were found at Clickhimin from the Wheelhouse period (Hamilton 1968, fig 44, 10, 11).

An unusual fragmented base, SF 4487 (illus 150), with circular internal impressions was found at Howe where the circles were deeply moulded into the fabric of the vessel. Similar decorated bases, where the decoration is on the inner surface, were found in the Iron Age fort at Clickhimin, whilst those found in the Wheelhouse period had close-set grooves applied externally (Hamilton 1968, fig 68, 1–4).

The intact lower part of a thin-walled beaker or small jar, SF 4936 (illus 150), was found. The flat base has a diameter of *c* 50mm and is paralleled by examples from Meare Lake Village (West Village) (Bulleid & St Gray 1948, pl 4 P48, P10).

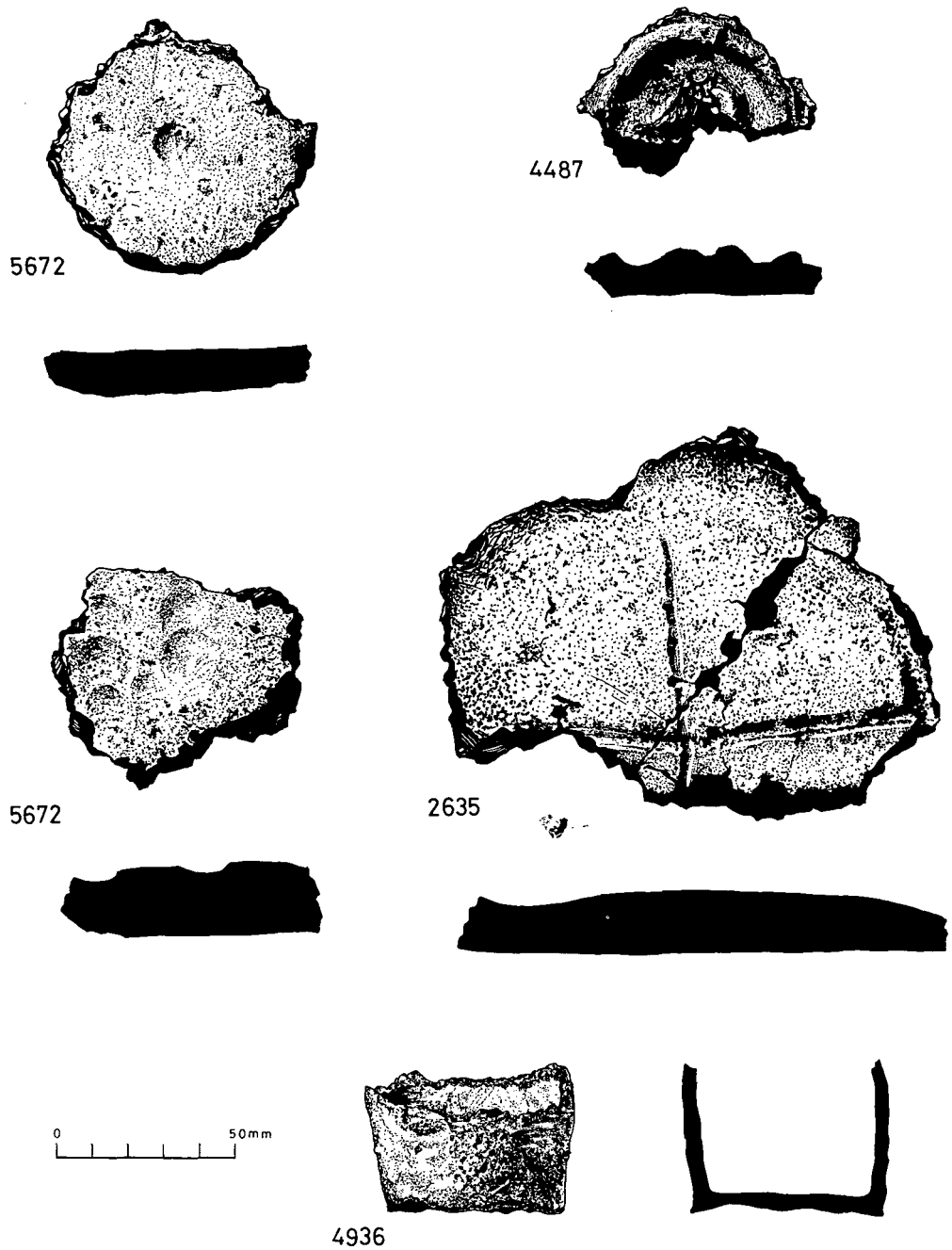
PRODUCTION

Two pottery working areas were identified, one in the ***E*** building during Early Phase 7 and one in the broch tower during Later Phase 7. In the former, during a second phase of occupation, was a dump of ash from the hearth. Within the ash was a substantial amount of pottery, 200+ sherds, from which it was possible to reconstruct one vessel, SF 5241. Although the hearth was cleaned of all organic deposits it is presumed the vessels were fired there. Turf may have been used on the hearth as the ash was without any significant amount of charcoal. The vessels reflected both oxidized and reduced conditions.

In the second workshop floor of the broch tower was a feature identified as a kiln in which it is presumed that the 700+ sherds of pottery were fired. The sherds were found in the floor and within a contemporary burnt layer of the workshop. As with the ***E*** building, the kiln was devoid of organic material, but straw, chaff and turf found in the floor may be indicative of what was used to fire the kiln.

ROMAN SAMIAN

One very small piece of Roman samian pottery was found in Late Phase 7 in accumulated rubble in the broch entrance. The piece measuring 20 × 9 × 3.5mm is possibly part of a rim. This accords with the other Roman finds from Howe (8.6 Metal artefacts; 8.8 Glass above) as well as other Iron Age sites in Scotland and Orkney (Robertson 1970).



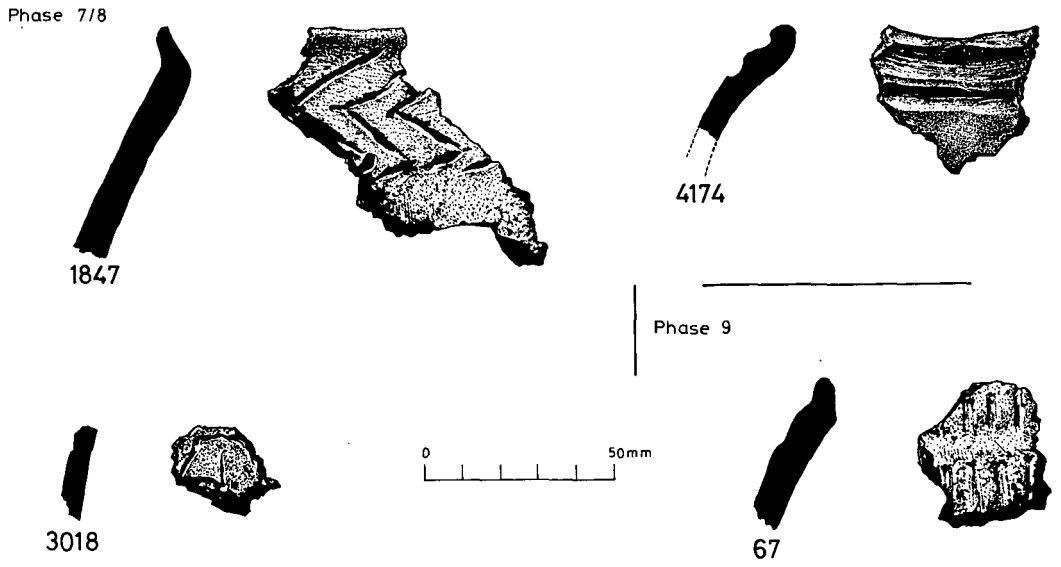
Illus 150
Decorated base sherds, Phase 7.

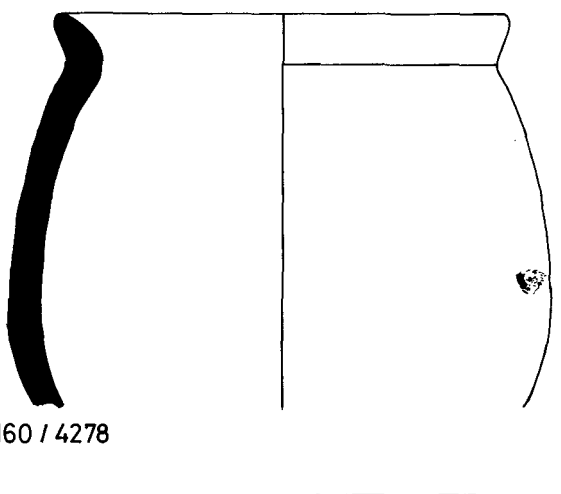
VESSELS OF PHASE 7/8

The range of vessels in this transition phase is representative of those found in both Phases 7 and 8, in fabric, form and firing conditions (see Phase 8 below) (illus 140mf, f, 3:F13). A partly reconstructed cooking pot, SF 4160/4278 (illus 151), is typical of Phase 7 wares while fine, well-fired sherds are characteristic of Phase 8 material as are beaded rims on wide or globular bowls or gently curving vessels with narrow bases. The occurrence of beaded rims does not denote an abrupt change of style, but is illustrative of a gradual development of everted rims throughout Phase 7.

At other sites in the north of Scotland, beaded rims occur in the mid to late stages of the sites chronologies, for example in the Class 2 pottery group in the first wheelhouse at Jarlshof (Hamilton 1956, fig 35, 13–16) and as later broch pottery, Class 3A, from Crosskirk (Fairhurst 1984, ill 66, 58, 234, 469). These rims also appeared at Plumpton Plain, sites A & B, illustrating the gradual adaptation of existing lipped and everted rim forms (Hawkes 1935, fig 10 K).

One unique rim is SF 4174 (illus 151) which has an applied and moulded cordon below its irregular beaded rim. This rim decoration was not found in other examples in either Phase 7 or 8. Other decorated rim sherds are similar to those found in Phase 7, such as SF 1847 (illus 151) with an incised double chevron design. This design is paralleled at Dun Mor Vaul on a





Illus 151
a) Decorated sherds Phases 7/8, 9;

b) vessel form, Phase 7/8.

number of sherds of various forms (MacKie 1974b, fig 12, 69; fig 19, 456). Other examples exist at A'Cheardach Bheag, on South Uist where a parallel zigzag appears as part of a decoration, and from the Broch of Ayre, Orkney (Fairhurst 1971, fig 7, 4; Sutherland-Graeme 1913, figs 12, 13). These examples are typical of many others, as incised decoration was an important feature of British and European Iron Age pottery design.

Decorated body sherds have been associated with Phase 7 material from midden contexts, especially rim pin impressions. SF 3018 (illus 151) is however decorated with two incised lines which are probably grass impressions.

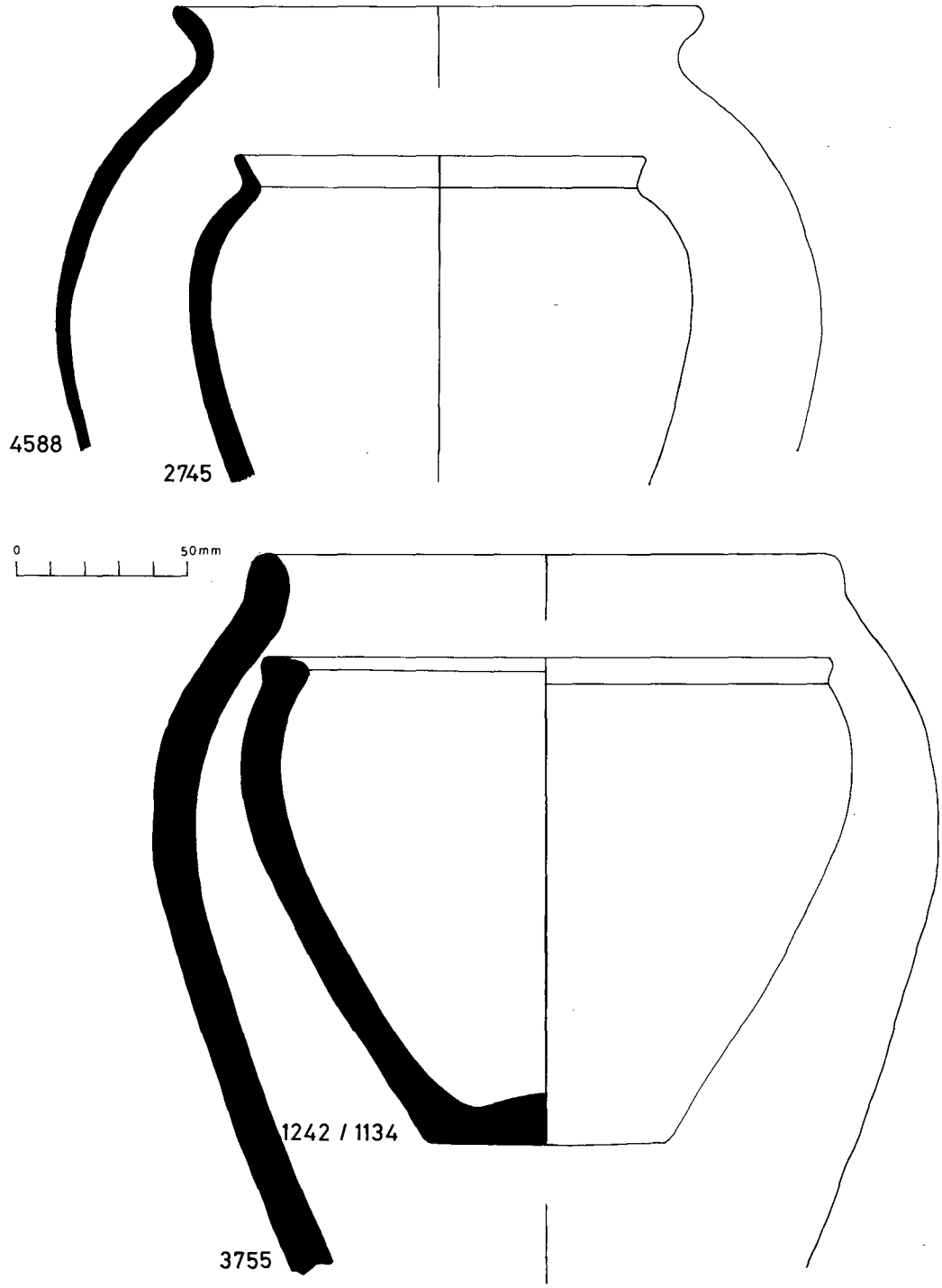
LATER IRON AGE VESSELS • PHASE 8

To a degree there is a continuity of style in vessel shape from Phase 7, for example inward curving vessels do not completely disappear, as bowls are represented. Straight-sided and globular vessels with lipped and everted rims appear in this phase with beaded or rolled rims. The occurrence of these rims had previously been a little irregular, but they appear to be a feature of later Iron Age sites in the north of Scotland (illus 140mf, g, 3:F14). 10.7% of the pottery collection comes from this phase (Table 70).

FABRIC

In general the fabric is finer, up to 5mm thickness, and thinner and harder than in the other phases facilitating the folding over of the clay to form beaded rims. Although Table 71mf (3:G1) shows a dominance of fine filler, many sherds contain very few or very fine inclusions, and some wheel-thrown sherds have none detectable. Coarser fabric was still used for thicker walled and heavier vessels as in SF 1242/1134 (illus 152). Quartzite and iron pyrities were noted among the filler as was mica in some of the slips. Coil building remained the dominant pottery making technique, although several fine sherds have been identified as wheel-thrown (Ewan Campbell pers comm). Vessels were slipped and burnished whether they were coil built or wheel-thrown, and many showed evidence of being moulded and smoothed. Evidence for grass tempering becomes slightly more prominent on both inner and outer surfaces than in Phase 7.

Reconstructed sherds SF 2103 (not illustrated) form part of a slightly curved vessel with a beaded rim. The fabric is gritty, despite a slip. Similar shaped vessels with gritty fabrics have been noticed at the Broch of Burrian (MacGregor 1972, fig 22, 280), and from the Late Iron Age settlement at Pool, Sanday (J Hunter pers comm). Comparisons can also be made with pottery from the Late Iron Age settlement and Late Wheelhouse periods at Jarlshof, from the Iron Age fort at Clickhimin and from Crosskirk (Hamilton 1956, fig 35, 13–16; fig 41, 12–17; 1968, figs 42, 43; Fairhurst 1984, 114, ill 66, 234).



Illus 152
Vessel forms, Phase 8.

In contrast to the above, from a workshop floor in the ***NE*** building in Early Phase 8, is a poorly manufactured vessel, represented by an irregular inverted rim sherd. It is unlike the pottery from this phase, and is so poorly manufactured it is unlike anything else found at Howe in any phase. The fabric is soft, almost loose, with blobs of clay roughly applied and moulded into shape on the surface. The colour is buff, but with a grey reduced core and may be an example of Hamilton's Class 3 buff ware, which he considered a degeneration of the style and technique used in the wheelhouse period (Hamilton 1956, 81–2, fig 41, 1). There, as at Howe, such pottery existed with more typical wares.

Other atypical sherds (including one unstratified example from Phase 9) are thin, very hard, and over fired. The fabric is almost filler-free and wheel-thrown, and may represent an unrecognized import (Ewan Campbell pers comm). Similar examples to these were found at Crosskirk where they were classified as Roman coarse ware (Hunterian Museum, accession no's CK 99 1979–107, CK 113(2) 1979–102),

VESSEL FORMS AND SIZES

Straight-sided and globular vessels of various sizes seen in earlier phases are still present as are bowls, but with the addition of lipped and beaded or rolled rims. Vessels tend to have wider rim diameters in relation to their narrower bases.

It was possible to reconstruct a number of vessels (illus 152), which reflect the variations in fabric, rim and vessel form. Many of the sherds in this phase are very small, but an attempt has been made to assess them against similar types from other sites.

SF 2745 (illus 152) forms part of a bulbous cooking vessel without a base. The fabric is thin and the vessel was coil built, producing an acutely everted rim with a narrow tip. It possessed carbonized deposits on its inner surfaces and was burnt and smoke-stained externally.

Partly reconstructed vessel SF 4588 (illus 152) is one of two wide-bodied and globular pots with flared everted rims. Its fabric is hard, well fired and could have been wheel-thrown. Moulding marks on its internal surfaces also suggest this. It is also slipped and highly burnished. This vessel has close parallels with a number of highly burnished sherds from Jarlshof in the Late Wheelhouse period (Hamilton 1956, fig 41, 30). The latter were of a hard buff and black ware, and indicative of round-bottomed vessels. The complete form of SF 4588 is uncertain, but other vessels of similar rim and body shape have been found at Midhowe, Rousay and the Broch of Ayre which had flat bases (Callander & Grant 1933, fig 48; Sutherland-Graeme 1913, fig 14).

Another partly reconstructed vessel is SF 1242/1134 (illus 152). It is of coarse fabric, but is a wide-mouthed vessel which tapers to a narrow base. A similar shaped vessel appeared at Crosskirk (Fairhurst 1984, ill 66, 58) from the later broch period. SF 3755 (illus 152) forms part of another substantial vessel with coarse and heavy fabric, which lacks its base.

Most of the wide bodied vessels, with everted rims (either flanged or strongly everted) are made of a fine almost filler free fabric. The body of the vessels is *c* 3mm thick, slipped and usually burnished. Vessels with beaded or rolled rims could be of either thinner and finer fabric, or coarse.

Rim sherd SF 4350 (illus 153), is more typical of sherds from Phase 7 as it is coarse and heavily gritted. It has a slight shoulder 15–20mm below the rim, which is slightly unusual and would have formed part of a wide-bodied vessel with a flat base with a heel.

DECORATION (illus 153)

In the Phase 8 material, decoration is sparse, with only 15 sherds with any markings or motifs.

SF 3061 is a rim sherd which has decoration in the form of a series of dragged horizontal incised lines below the rim. A similar form of grooving occurs on both surfaces of SF 2695, which is probably part of a straight-sided vessel. Rim sherd SF 1817 has dragged cord or rush marks and a line of rounded impressions below its irregular everted rim.

SF 325 is the only example of an applied wavy neck band found at Howe. At the Broch of Ayre a wavy cordon was applied around the girth of a vessel, in the manner of Hebridean wares, discussed above (Sutherland-Graeme 1913, fig 12).

A number of sherds, including SF 2338, have fine combed decoration on both surfaces running round the vessel. This form of decoration and the grittier fabrics suggest clear associations with Phase 7 wares. In contrast, SF 2236, from stage 12 of Late Phase 8, has a heavily applied combed decoration, made by a bone comb or other blunt toothed implement, which runs regularly and horizontally around the vessel. Although the vessel represented by this sherd was hand made, it was finished on a wheel (Ewan Campbell pers comm). Iron Age sherds from the Stones of Stenness, Orkney, also exhibit this form of decoration (MacKie 1975, fig 9, 36).

Also from this phase is SF 4236, which carries a light decoration formed by a hard rush stem. The decoration was informally applied and is in keeping with sherds from Jarlshof (Hamilton 1956, fig 40, 2).

SF 4388 with its applied rondel is discussed under Phase 7, above.

A decoration missing from Phase 8 at Howe, but which appears at other contemporary sites, is the applied and incised curvilinear and semi-circular designs on the body of a vessel. The closest example found at Howe is a sooty decoration which forms a curve, and is possibly painted, on adjoining body sherds SF 1829/1880 (illus 153). This example may be purely accidental but it is unique in the pottery collection. Another sherd, SF 1746 (illus 153), may be an example of a painted design. It is a small body sherd with a burnished and thick mica slip on its outer surface. On the slip is a fine black zigzag line and two little black dots.

BASES

The majority of bases are flat (illus 140mf, f, 3:F13), but several examples have a basal heal which produces a splayed or flared finish to the external appearance of the base.

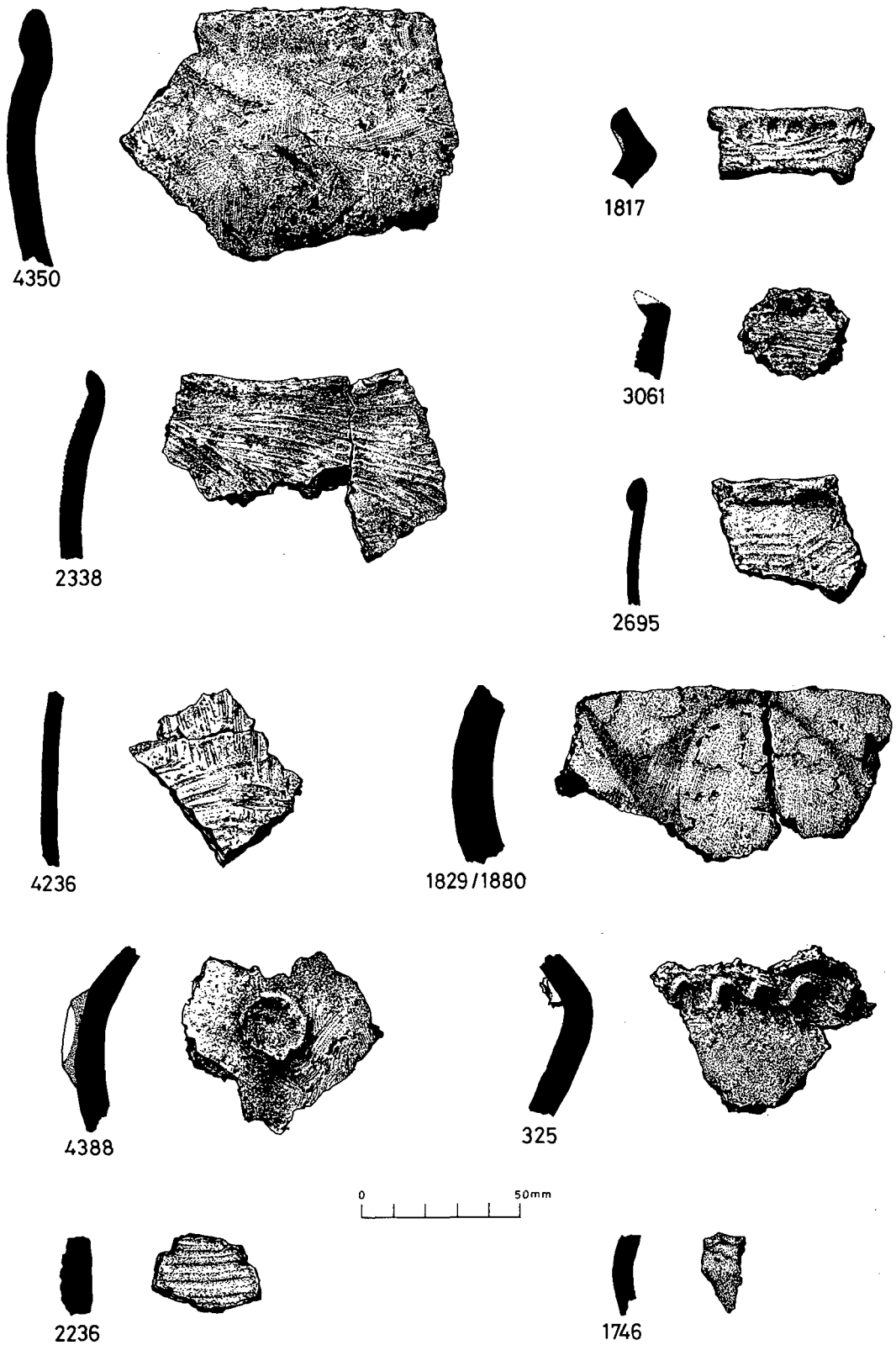
UNSTRATIFIED MATERIAL – PHASE 9

This phase contains a mixture of modern pottery as well as unstratified broch and post-broch wares. Decorated sherds have largely been associated with Phase 7 wares (eg SF 67, illus 152). This sherd has short incised dash-lines *c* 10–15mm long, reminiscent of both horizontal and vertical decorative motives from Phase 5 to 7. The decoration on SF 67 is vertical and was probably made by the end of a rush or other hard stem on gently curved ridges. The closest parallel to this is from A'Cheardach Bheag, in the Western Isles, found in wheelhouse 1 (Fairhurst 1971, fig 7, 3).

CONCLUSIONS

The assemblage from Howe constitutes a substantial research collection from which at present only limited results have been determined. Further, more detailed, analyses of some aspects of the assemblage is proposed for the future.

Techniques of pottery manufacture remained largely unchanged throughout the history of the site. Only in Late Phase 7 and in Phase 8 is there limited evidence of wheel finished coil-built pottery, seen in fluted rims and in the combing of the surfaces of some vessels. The one securely stratified example of wheel-thrown pottery occurs in Early Phase 8, other examples occur in Late Phase 8, but from rubble contexts. These sherds were of finer fabric, but without detailed analysis it is uncertain whether this fabric was substantially



Illus 153
Decorated rim & body sherds, Phase 8.

different from the earlier wares. Except for one piece of Roman samian pottery, no other sherd has been positively identified as being an import. It is assumed that all the pottery was made at the site, although the supporting evidence for the Phase 8 wheel-thrown vessels is lacking. It is not inconceivable, considering the numbers of sherds without visible inclusions (a minimum of 68 presumed wheel-thrown), that they represent vessels which could have been manufactured elsewhere in Orkney and brought to the site.

The finishing of some coil or slab-built vessels on the wheel suggests the development of new manufacturing techniques from either local enterprise or from outside influences. This, however, seems to have been slight as traditional methods of pottery making remained dominant and persisted to the end of the settlement.

Vessel form does not substantially change over time. In Early Phase 7, small round-bottomed hanging pots existed with both decorated shouldered or globular jars of various sizes and with straight-walled bucket-shaped vessels. Shouldered jars, both wide and narrow mouthed, generally became less globular in Phase 8, and virtually straight-sided, fine-walled vessels became more prominent in Later Phase 8. This was due to a gradual development, rather than a change in style. The same parallel tendency can be seem in the rim forms. The dominant round or square everted rims of Early Phase 7 gradually became more rounded in Later Phase 7 and Early Phase 8, and eventually rolled or flattened in Later Phase 8. Nowhere in this sequence is there a rapid change of style, or an introduced new form. Vessel style was varied in Early Phase 7, remained so in Later Phase 7, and variations in fabric, form and rim shape can still be seen in the Phase 8 examples, although amongst a reduced number of vessels.

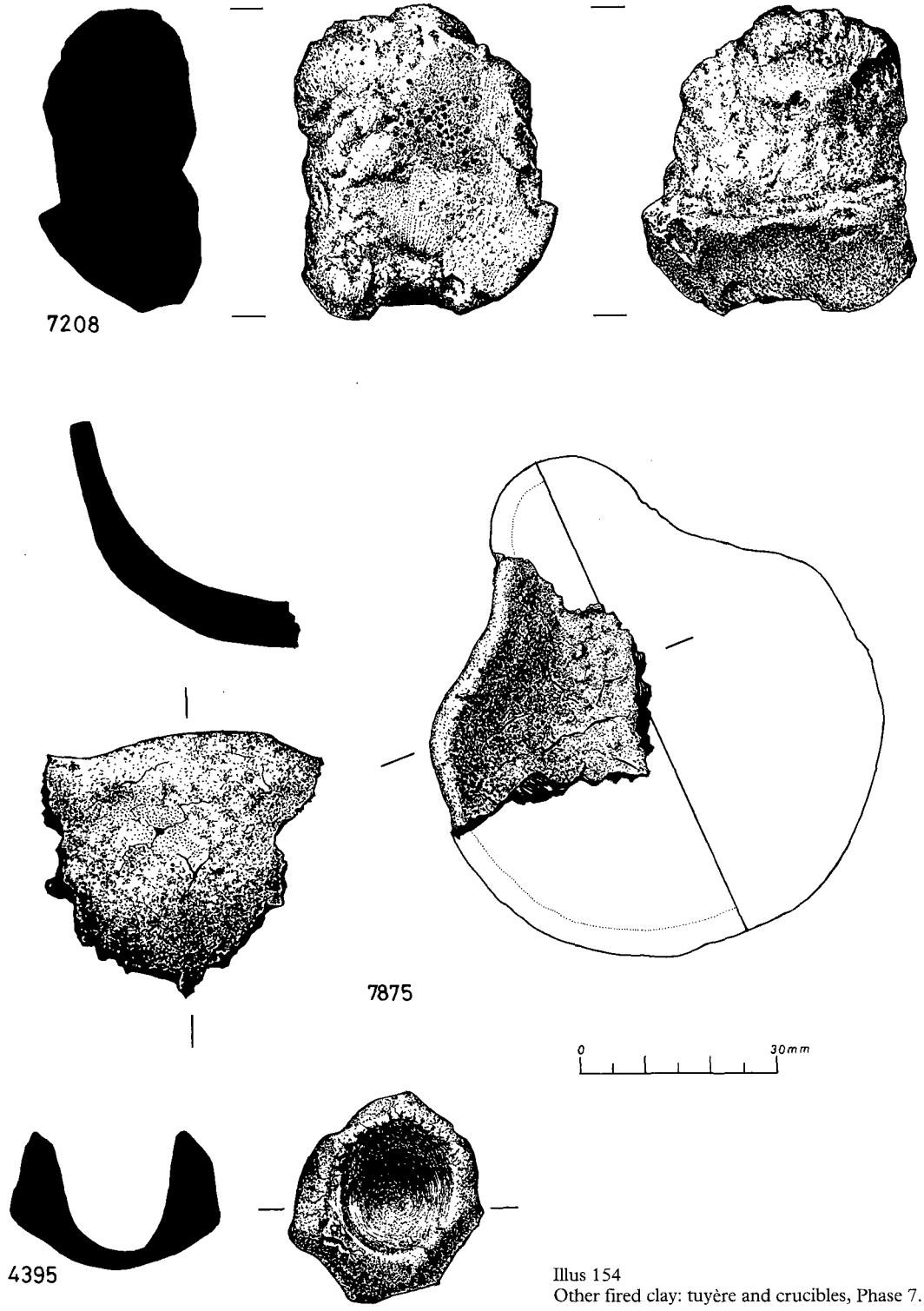
An initial analysis of the securely stratified decorative vessels has produced a number of interesting results. It appears that most of the decoration occurred only on vessels of Early Phase 7 date, during the life of the broch and village. Adaptations of some simple incised motifs occurred in Later Phase 7, as seen from ditch fills, as no decorated sherds were found in a domestic or industrial context. There were far fewer decorated vessels from Later Phase 7 than from the early part of the phase, and the decline in numbers continued into Phase 8. A sherd with a wavy cordon, from a vessel with a shoulder decoration, is the only stratified decorated sherd from the whole of Phase 8, and this occurred in one of the later stages.

Of designs that continued throughout Phases 7 and 8, although in small numbers, are fingertip impressions on bases and, more especially, beneath everted rims. The origins for this are early and go back at least to Phases 3 and 5. Combing of vessels' surfaces began in Early Phase 7 and continued to the end of the settlement. The only new form of decoration to occur on the site after Phase 7, was that of painting during Phase 8. Very few sherds have what is thought to be a painted design, and none has been definitely confirmed by analysis.

The filling in of the settlement's defences during the early part of Later Phase 7 is confirmed by this brief analysis of the decorated pottery. The material dumped in the lower parts of the ditches contained many decorated wares, presumably from the village houses prior to their levelling. Their decorative motifs are similar, if not the same as, examples found within the buildings. The same is true of a large dump of material, found outside the broch entrance, which reflects the vessel styles, rim and body designs as in Early Phase 7. As originally thought, this dump could have been from a major cleaning out of the broch tower.

The paucity of sherds from Phases 3 to 6 makes the derivation of decorative elements and forms difficult to ascertain, but the beginnings of simple incised and impressed designs were noted on sherds from Phases 3 and 5. It is hard to determine whether Phase 6 was a developmental period in pottery design, or whether that came in with Phase 7. How much the decorative pottery is a reflection of local or wider influences, is as yet not fully understood, nor is the continuation or reappearance of motifs from the Neolithic and Bronze Ages.

Comparisons with the Howe assemblage have been made with material from sites as far afield as Shetland, the Western Isles and the south of England, from the Bronze Age to the pre-Viking Iron Age. In the latter two areas, the comparison has mainly been concerned with the decorative motifs. None of the Iron Age sites mentioned help in any way to provide comparative absolute dating evidence for the Howe material. Indeed, it is suggested that the Hebridean sites require reassessing, with their relative chronologies matched by a sequence of C14 dates (Lane 1990). For the present study, Howe remains the only settlement site of its type to produce a large quantity of pottery which is linked to C14 dates. The forthcoming publications of other sites, such as Deerness and Pool, may, together with Howe, suggest a more definitive chronology for Orcadian Iron Age pottery.



Illus 154
Other fired clay: tuyère and crucibles, Phase 7.

8.10 • OTHER FIRED CLAY, UNFIRED CLAY AND MORTAR

Objects formed of clay, other than pottery vessels, were rare as only 14 examples were found including pieces of modern clay pipe and samples; a full catalogue is available in microfiche (3:G3–G4).

DETAILS AND DISTRIBUTION

MORTAR

Only one sample, tentatively identified as mortar, was retrieved from the dump of rubbish [981] outside the broch tower in Later Phase 7.

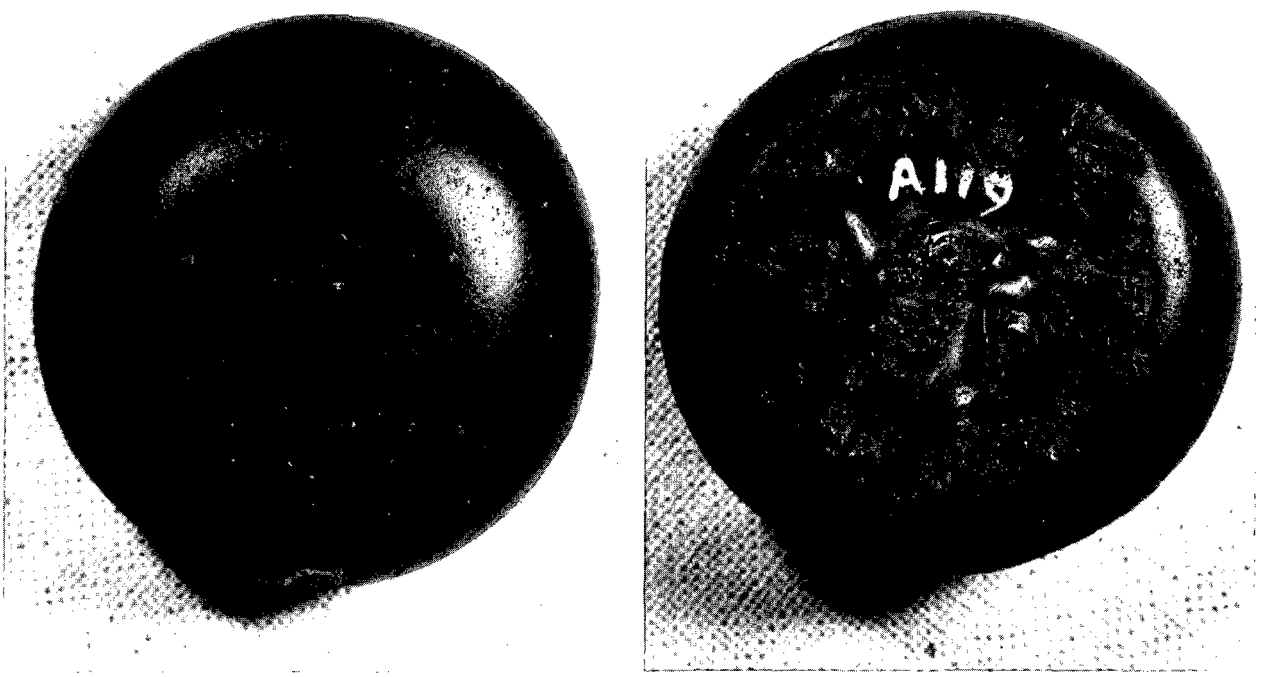
CRUCIBLES

The majority of fired clay objects have been identified as being associated with metal working processes. The earliest stratified clay objects were from a hearth within a Phase 5/6 building. It is suggested that these two pieces of eroded clay are in fact crucible fragments even though they have no metal or slag deposits adhering to them.

From an ash deposit in the ***S*** Building, early in Phase 7, came two pieces of another crucible, SF 7875 (illus 154), which had been fired to a high temperature. The fragments are grey in colour and have vitrified material, probably from copper-alloy working, on their internal surfaces. Enough of the sherds survive in spite of distortion to suggest they were fragments of a pear-shaped crucible, used in the smelting of copper-alloys and other precious metals. Several similar crucibles have been found in Orkney Iron Age contexts, notably at the brochs of Bu, Gurness, Midhowe and Lingro (Hedges 1987a, 24; 1987b, 56–57; 1987c 82, 116).

A small irregular shaped pot, SF 4395 (illus 154), was found early in Phase 8. Its interior surface has been burnt but it contains no deposits. It can be identified as a crucible as several different types, including tiny pots such as this, were found at the Glastonbury Lake Village (Bulleid & Grey 1911, pl 40, 306 C14, 308 D63). The rim of the vessel has been pinched to form a slight lip for pouring, as were the pots at Iron Age Glastonbury.

The light grey colour of crucibles such as SF 7875 was remarked on in the Glastonbury Lake Village publication by Mr Clement Reid (*ibid*, 301), who suggested that they were made of fire-clays and gannister beds not available locally and were therefore transported to the site. A similar situation may have existed in Orkney, but further analysis of the fabric of crucibles is needed. Fragmentary crucibles, also of grey clay, were found at Dun Mor Vaul (MacKie 1974b, 150 pl 12F) with crucible tongs. Unidentified crucible fragments were also recovered from the Iron Age fort and wheelhouse at Clickhimin and from the Late Bronze Age levels at Jarlshof. This suggests that small scale, domestic working of non-ferrous metals and perhaps glass took place at these Iron Age sites. Accompanying equipment such as tongs are rare from the northern sites and from the available evidence and lack of locally available raw materials it is unlikely that there were any organized industrial centres in the Northern Isles.



Illus 155
Glass linen smoother (SF A119) a) upper surface; b) lower surface; scale 1:1.

BUNG OR TUYERE

Other fired clay pieces which relate to industrial processes include SF 7208 (illus 154), found in levelling rubbles prior to the construction of the Phase 7 village. This piece, which forms *c* 40% of an object, is part of a clay bung with a central linear perforation. Its small size and uncertain shape do not specifically aid its positive identification as a tuyère for a furnace, but it has been subject to high temperatures. Mrs Curle identified tuyères from Birsay (1982, 42, ill 25, 405, 406, 408a), but none had an external flange as does SF 7208. The only other from an Iron Age context in Orkney is the *tip of a tuyère from Bu* (Hedges 1987a, 108). Both the Howe and the Bu examples may indicate the presence of iron-working activities in the Early Iron Age, prior to the 1st century AD.

POTTERY BEAD

Apart from two unstratified fragments of clay pipe only one ceramic artefact was found and this too was from Phase 9. SF 294 (illus 107) is a biconical bead which is pierced centrally. Unlike artefacts made from broken pottery, this bead was manufactured from clay which was burnished and slipped before firing. The narrow shaft, made after firing, suggests that the artefact is a bead rather than a spindlewhorl; it is of unknown date. It is not common to find artefacts other than pottery, of fired clay in the north of Scotland, but a single *glazed(?) baked clay bead was found at Crosskirk Broch*, Caithness from below the topsoil (Fairhurst 1984, 119, ill 70, 514).

8.11 • FINDS FROM THE 19TH CENTURY

In the National Museums of Scotland is a list of finds recovered from Howe in the 19th century, when it was known as the *Broch of Cairston, Bridge of Waithe, Stromness, Orkney*. The finds were donated to the museum by the Rev JH Pollexfen MA of Middleton Tyas, Richmond, Yorkshire. The finds consisted of:

> 'Bone handle of an implement, two whorls and disc of sandstone, portion of vessel of steatite and part of a tubular handle of an earthenware porringer' (PSAS 1888–89).

These finds are now accessioned under the numbers GA 294–303 (see Catalogue 8.11.1, 3:G5–G6).

DISTRIBUTION

Where on the mound these objects were found is unknown, but the Phase 9 plan (illus 77) shows the extent of disturbance during the 19th century and later. Apart from a piece of coral which is unusual, the only other object of interest is the fragment of earthenware porringer handle (GA 297). This piece might suggest late dumping of refuse on the mound, but all the other pieces are characteristic of other Iron Age artefacts found on the site such as the rim fragment GA 298 and the antler tine GA 302. The antler handle GA 299 is a T-bar handle from a digging tool, and the sandstone pebbles represent an unworked stone, a counter and spindle whorls.

Another object found on the mound, but presumably not at the same time as the above, was a glass linen smoother No A119 now in the Stromness, Natural History Museum (illus 155a, b). A discussion of it was published in 1927 by JG Marwick as being found in the 1860's at Howe Farm, Cairston, Stromness (PSAS 1927–8, 121–122). Grieg described (1940, 80–81) the linen smoother as a 'grave find of the Viking period' and of the type Rygh 446, a common Viking form. The description of the location of the linen smoother was given precisely in Grieg's account, but no undisturbed grave of Norse date was found on the mound. Only one fragmentary skeleton, SF 68/126/644, was identified from the top of the mound; it did not have a formal grave and there is no evidence to suggest that it was Norse (9 Human Bone report below). The linen smoother of green glass, however, remains the only object of probable Norse date from Howe.