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Excavations at Scalloway Castle, 1979 and 1980

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SUMMARY

This report describes exploratory excavations in five areas near Scalloway Castle in the Shetland Islands. Although a few finds of pre-medieval date were recovered, the earliest features date to the 17th century and are possibly associated with either the construction or occupation of the castle. A stratified sequence of archaeological deposits from the 17th to 20th centuries was found in one area.

INTRODUCTION

The town of Scalloway lies on the W coast of the Shetland Islands, some 11 km from Lerwick. The castle is situated on Blacks Ness on the W bank of the East Voe of Scalloway (NGR HU 405 393) (figs 1, 2).

The construction of Scalloway Castle was undertaken in 1600 by Earl Patrick Stewart, Earl of Orkney and Shetland. He succeeded his father to the title in 1592 and required a suitable residence for his representative in Shetland as well as an occasional home for himself, although his principal base was the Palace at Birsay in the Orkney Islands. The choice of this site for the castle may well indicate that there was a thriving community of traders and merchants whom Earl Patrick wished to control at first hand. Patrick taxed each parish of Shetland obliging them to send as many men as possible to carry out the building work on the castle. These men were not paid wages and had to provide their own food. Not surprisingly, many refused to obey the Earl's dictates and several were tried for the crime. Soon after its completion, the castle was the setting for several meetings of the Althing at which Patrick would decree new laws and taxes.

In 1609 Earl Patrick was imprisoned by James VI following a deputation of Shetlanders to the king's court describing their ill-treatment at the Earl's hands. Bishop Law then took over power in the islands and records survive describing his courts in Scalloway Castle, the first of which was held on 21 August 1612. Earl Patrick was beheaded along with his father in 1615 at Edinburgh. The castle continued to be used as a legal centre until 1653 when Cromwellian troops were stationed there.

When John Brand visited the castle at the beginning of the 18th century he recorded that it was in a bad state of repair. He wrote,

> The sclaits have for the most part fallen from the roof, and are daily falling with every storm, so that the timber, much of which is yet very good and fresh is beginning to rot (Brand 1883, 137–8).

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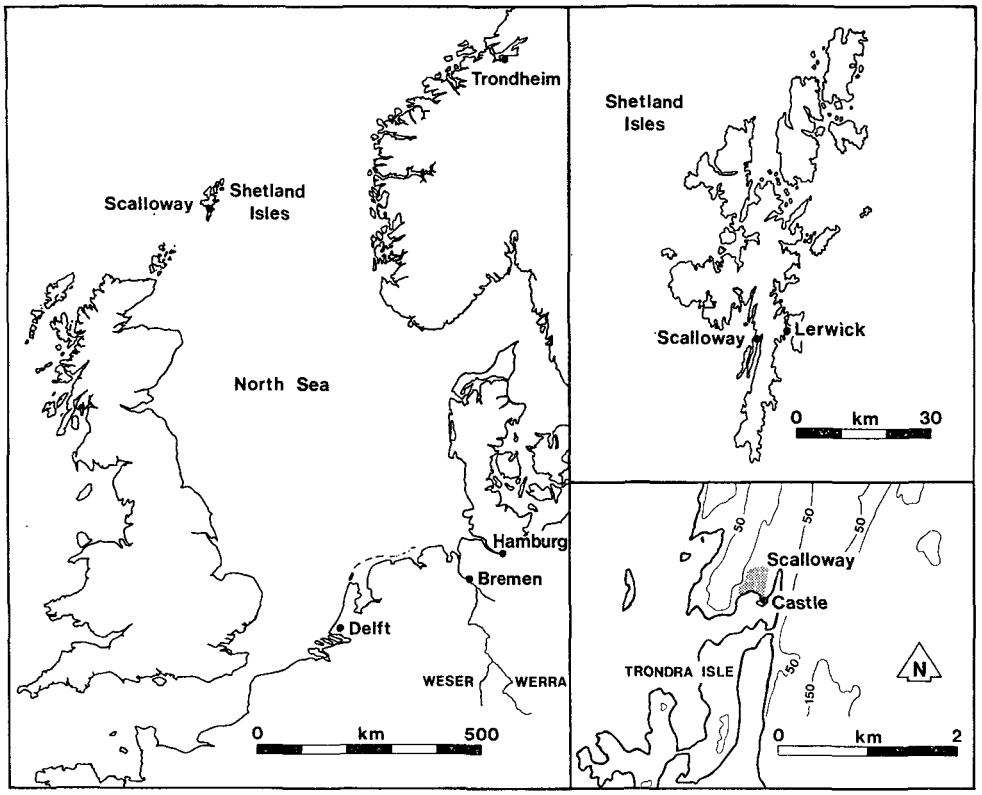

FIG 1 Location maps of Scalloway

In 1733 Thomas Gifford noted '. . . now nothing remains but the stone walls' (1879, 8). By 1803 the Earl of Morton had given Andrew Mitchell permission to remove the gateway and window ornaments for his house at Sand. No documentary record related to ancillary buildings survives although it may be assumed that there must have been several–perhaps similar to those at the Earl's Palace at Birsay. The castle was finally placed under the guardianship of the Commissioners of HM Works (now Scottish Development Department) in 1908.

Areas to the N and S of the castle, which were threatened by the construction of a knitwear factory and an access road for the Blacks Ness Harbour Development respectively, were investigated. The main objective was to discover whether there had been outbuildings associated with the castle. The excavations were carried out during July and August 1979 and January and February 1980 by the Urban Archaeology Unit (now the Scottish Urban Archaeological Trust) with a team of four excavators. Most work was carried out by hand except in Area G, where a mechanical excavator was used to remove overburden.

The original site context numbers have been used in this report except that '4' prefixes Area A numbers to avoid confusion with Area B numbers, and all numbers relating to Areas C, D and F and E have been omitted as few features of archaeological interest were encountered. No detailed plans or sections of these areas are included for the same reason. All plans and sections are in the archive which will be housed in the National Monuments Record of Scotland, 54 Melville Street, Edinburgh. Area A deposits have been divided into a sequence of three phases,

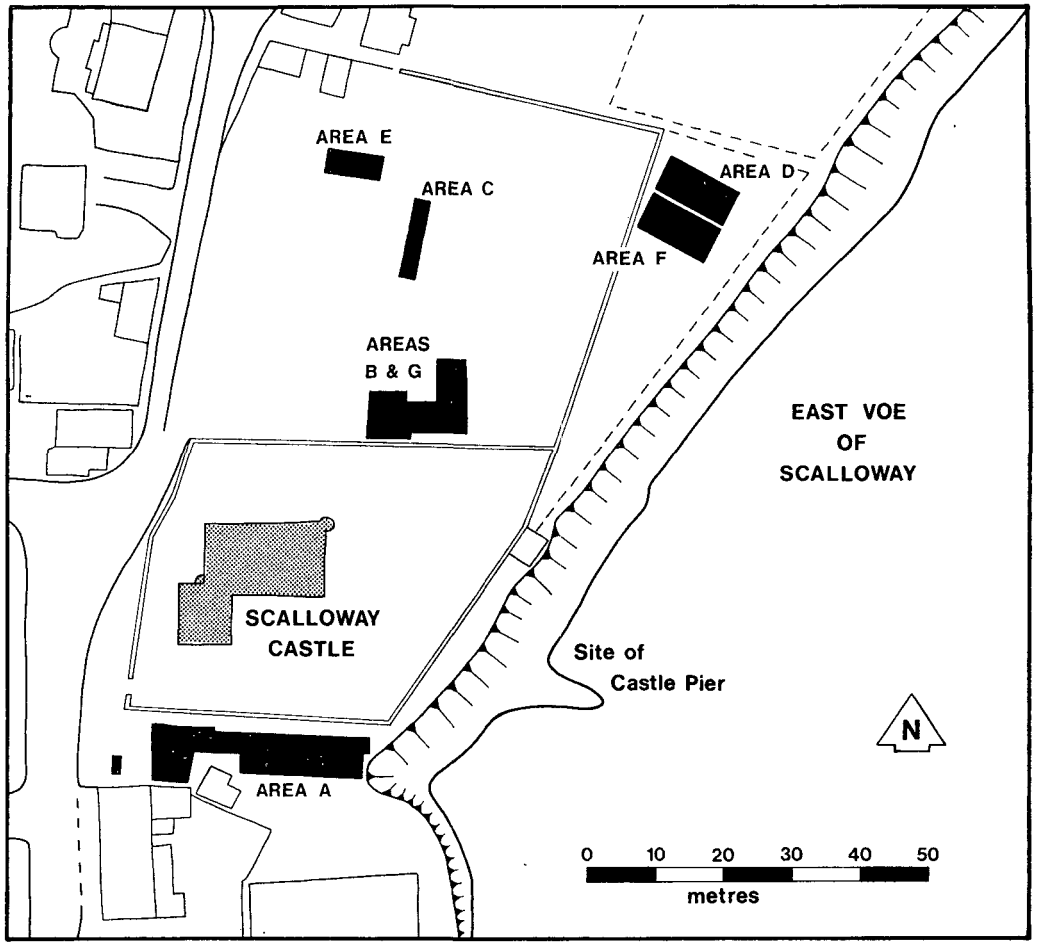

FIG 2 Site location plan based on the first published edition of the Ordnance Survey map, 1880

the first of which, from the evidence of the finds, relates to phase 1 activities in Areas B and G. Phasing is not used in the other areas because few features were encountered.

THE EXCAVATIONS, 1979 and 1980

AREA A (figs 2, 3, 4)

Although some work was carried out during the 1979 season most of Area A was excavated between 21 January and 29 February 1980. A strip c 30 by 5 m was investigated, but only a small area, 6 by 8 m, towards the W end of the site had deposits of any antiquity. The removal of turf and topsoil from the remainder of the site revealed natural Laxfirth Limestone at a depth of c 0·3 m.

Phase 1 (fig 3)

One of the earliest features located in Area A was a ditch, 4551, which was cut into natural limestone and in places through a layer of brown clayey subsoil to a depth of c 1 m. It ran S

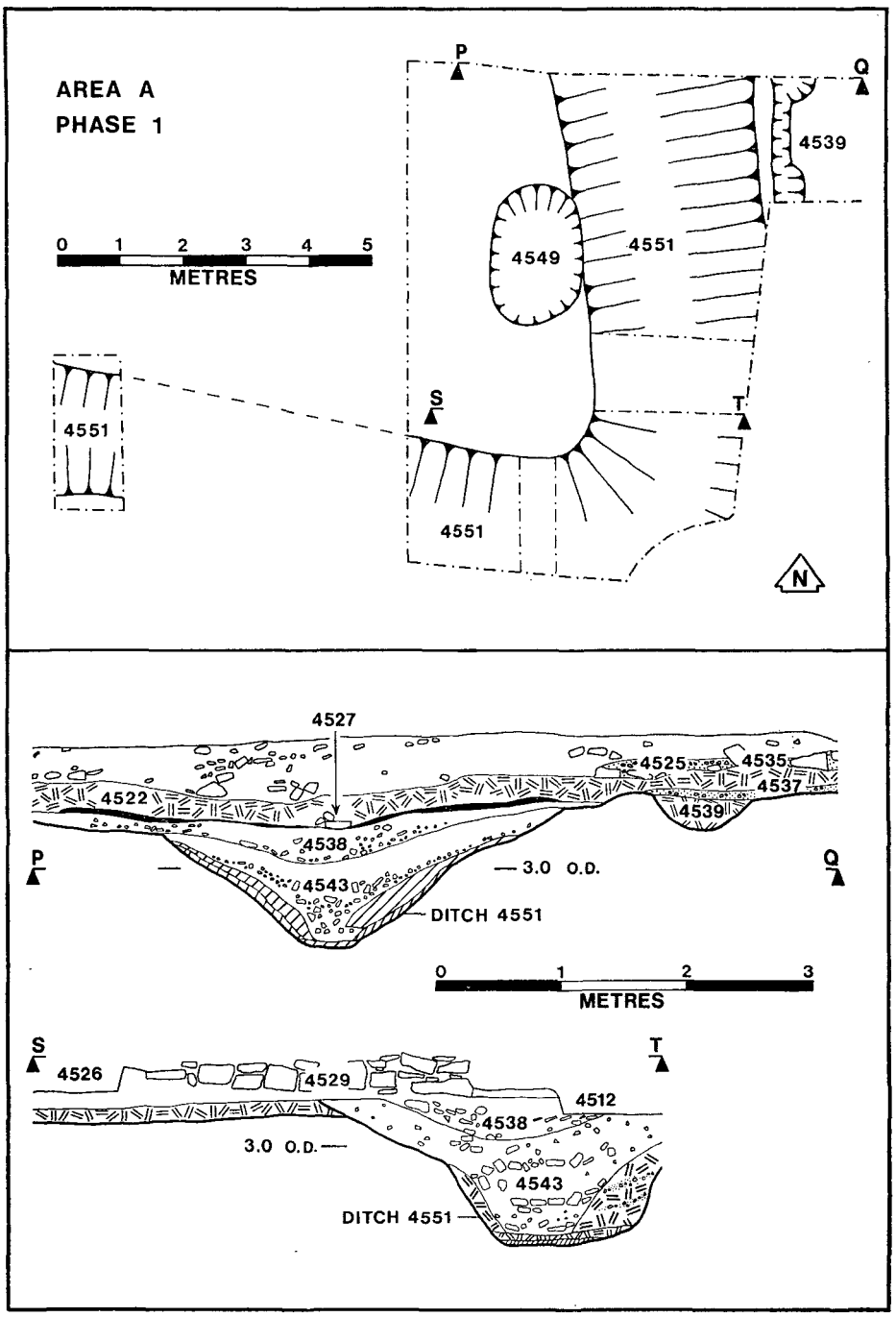

FIG 3 Area A, phase 1, plans and sections

from the main N section for some 6 m, where it turned W and continued for at least 12 m until it disappeared under Castle Street. The maximum surviving width of this L-shaped ditch was 3 m. The W end was some 0·38 m lower than the N end which merely reflected the slope of natural down to the W. Fills appeared to respect the change in direction of the ditch and there was no indication that the N–S length extended further S or the W–E length further E.

The basal fill consisted of a grey brown silt, 0·05 m thick, which was overlain by layers of decayed limestone which had been deposited from both sides although the greatest quantity had come from the E side of the N–S length. At this level the ditch had been recut at least once but the cut faces had been eroded, probably by the action of water flowing along it. The next major ditch fill, 4543, consisted of angular limestones and some dark brown clay. This appeared to have been a deliberate backfilling and, from the evidence of the clay-pipe finds, would appear to have occurred in the mid-17th century. Layer 4543 was overlain by a deposit of dark brown clay soil some 0·18 m in depth. This, in turn, was covered by layer 4538 consisting of limestone rubble and some dark brown clay. This deposit, the final backfilling of the ditch, was probably necessitated by the subsidence of lower fills. The limestone rubble in the fill may indicate that at least some of the original upcast had been included in the backfilling. The few clay-pipe fragments recovered appear to be slightly earlier in date than those found in layer 4543.

No features other than a small pit, 4549, which slightly cut the upper fills of ditch 4551, were found within the area partially enclosed within the L-shape. A gully, 4539, with a width which varied between 0·25 and 0·66 m and a maximum depth of c 0·28 m, lay parallel to the ditch, some 0·24 m from the E edge. The feature could only be followed for c 2 m because of an electricity substation to the S. Although there was no direct relationship between ditch 4551 and gully 4539, the two could well have been contemporary. Two irregularities in the base of the gully may have been caused by some type of post-in-trench palisade which, together with the ditch and associated upcast would have formed a sizeable fortification. It was in this area that the greatest quantity of decayed limestone had fallen back into the ditch, possibly from an upcast bank.

It is likely that the ditch is Cromwellian in date although it is possible that it could have been constructed as early as 1600 when the castle was being built. Indeed, the ditch may only have had one function–to drain water from the foundation cut for the construction of the castle. So little of the ditch and gully were recovered that the functions of both must remain conjectural although the evidence does possibly indicate the presence of a palisade and bank at the E side of the N–S length. There could have been some type of enclosure in the area of the castle pier as Earl Patrick is known to have had timber and iron stolen in 1604 (Donaldson 1958, 178). The final major backfilling of the ditch, layer 4538, represents the beginning of a complete reorganization of Area A in the mid-17th century.

Phase 2 (fig 4)

4536, the surface layer of the E–W length of the backfilling of ditch 4551, was composed of tightly packed limestone rubble which must have been used as a yard or path during phase 2. Immediately to the N of this cobbled area lay a mortar-bonded wall, 4529, which was aligned E–W. It was c 0·78 m wide and was composed of roughly faced limestones which survived to a height of two courses for a length of c 2·8 m. Both E and W ends had been destroyed by more recent building activities. A spread of stones, 4532, may well have represented flooring although this did not extend as far N as the main N section because it had been cut away by a more recent feature (fig 4). Flooring to the W, composed of a peat-ash and clay mixture, 4541 and 4547, was overlain by a charcoal spread, 4528, some 0·1 m thick. Although it appeared in the N main section, a similar charcoal spread to the NE of 4528 was not excavated as, within the area investi-

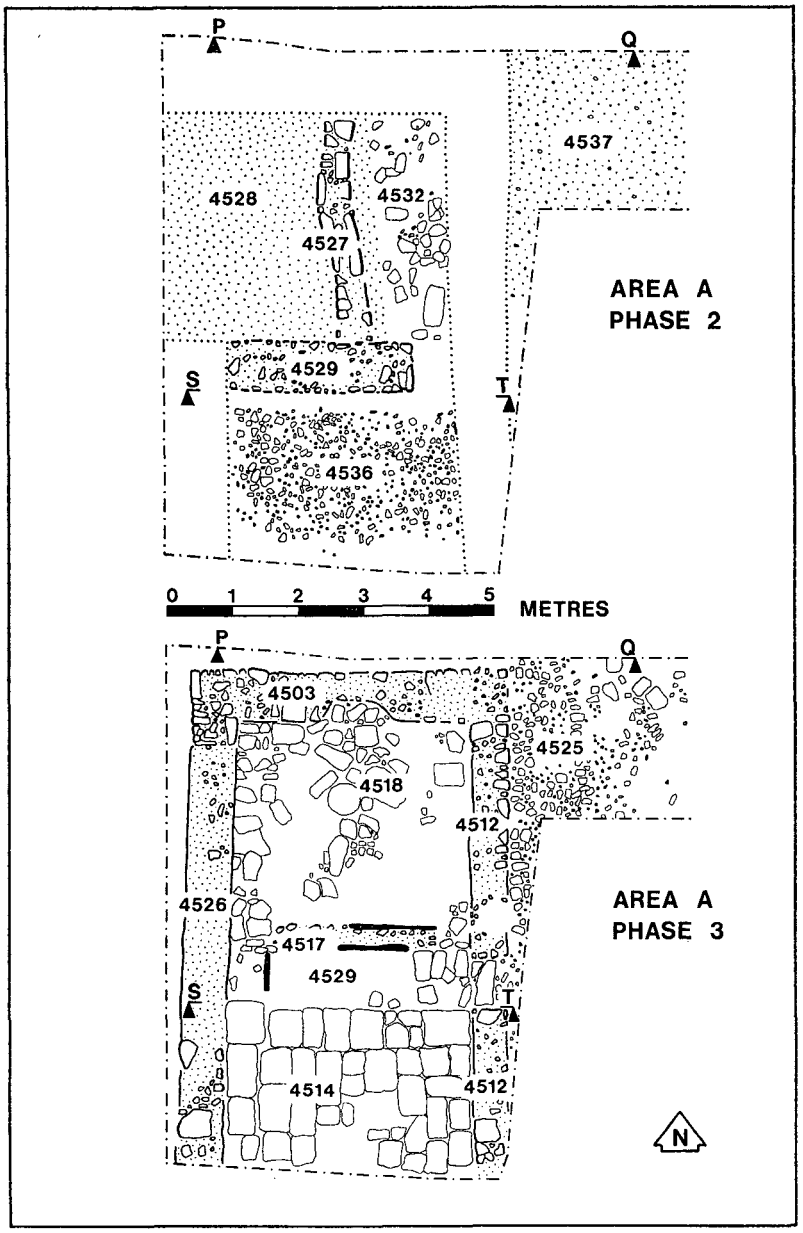

FIG 4 Area A, phases 2 and 3, plans

gated, all evidence of this layer had been totally removed during the construction of a later wall, 4503. Numerous pieces of smithy waste consisting of iron hammer flakes mixed with small pieces of coal, sand and clay were recovered from the charcoal layer, 4528. A more detailed report on the metal-working debris by R M Spearman will be stored in the archive. Pottery sherds from floor 4541 and 4547 are of considerable interest as wares from Holland, Germany, China, England and possibly Scotland were recovered. These date to the late 17th or 18th centuries. Another

mortar-bonded wall, 4527, was laid directly upon the charcoal layer 4528 abutting wall 4529. It was only c 0·52 m wide and was considerably distorted where it had slumped into pit 4549. It is probably best regarded as an internal dividing wall. No associated flooring levels were found. A laid gravelled surface, 4537/4540, to the E of the building may have been a contemporary yard.

Domestic and industrial finds would suggest that the building had been a cottage or smithy and its construction at the beginning of phase 2 appears to be an encroachment towards the castle in the late 17th century. This is not surprising as it is known that to all intents and purposes the castle had gone out of use by c 1700. Occupation appears to have continued till the last quarter of the 18th century as a sherd of white salt-glazed stoneware, possibly of Scottish manufacture, was recovered from flooring level 4547.

Phase 3 (fig 4)

A layer of dark brown clay soil, 4522/4531, some 0·15 m thick, separated phase 3 features from most of those belonging to the previous phase. Phase 3 consisted of part of a building of which three main walls, 4503, 4512 and 4526, were discovered. Although much of 4526 had been robbed out the others survived to heights of c 0·8 m with widths of between 0·6 and 0·8 m. The roughly faced limestones were mortar-bonded. The S wall was not located as it lay outwith the excavated area. A narrow entrance in the E wall, some 0·72 m wide, provided access from a cobbled yard, 4525/4535.

Within the structure the soil layer 4522 was compacted, possibly because of construction activities, although more likely because of use as an earth floor. A thin wall, 4517, some 0·4 m wide, with traces of associated timbers, divided the building into N and S rooms. Immediately to the S of the partition wall lay the top surface of the slighted wall, 4529, from phase 2 as if it had been used as a support for a staircase in this later phase. This may indicate that at least some of the phase 2 building was standing when the phase 3 house was built. The remainder of the floor in the S room was covered with neatly laid squared flagstones, 4514. A Victorian halfpenny, dated 1861, was recovered from the bedding layer 4521 for the slab floor and another, dated 1862, was found in the bedding layer 4510 under the more poorly laid slab floor, 4518, in the N room.

No dating evidence for the construction of the building was recovered from the foundation trenches but many of the pottery finds from the initial earth floor, 4522, appear to be of an early 19th-century date. Obviously the slab floors could not have been laid till the 1860s. The only find not of a domestic nature was an almost circular stone slab, some 0·45 m in diameter, incorporated in floor 4518. This may have been a cooper's barrel-former before its use as a flooring slab. The cottage is known from a print of 1867 and is shown on the Ordnance Survey map of 1891.

Area A was the only trench where features could be phased to any extent although phases 1A and 1B in Areas B and G do appear to be roughly contemporary with phase 1 in Area A. The main value of work in Area A was the late sequence of deposits excavated and finds recovered. These are comparatively rare in towns on the Scottish mainland where Victorian and more recent building has often destroyed so much.

AREAS B AND G (figs 2, 5)

Areas B and G were excavated between 2 July and 14 September 1979. Area B, 9 by 5 m, was set out in a field known as the Castle Gardens to the NE of the castle in line with a shallow depression visible within the guardianship area to the S. This trench was completely excavated by hand, but subsequently a mechanical excavator was used to remove overburden to the N and W

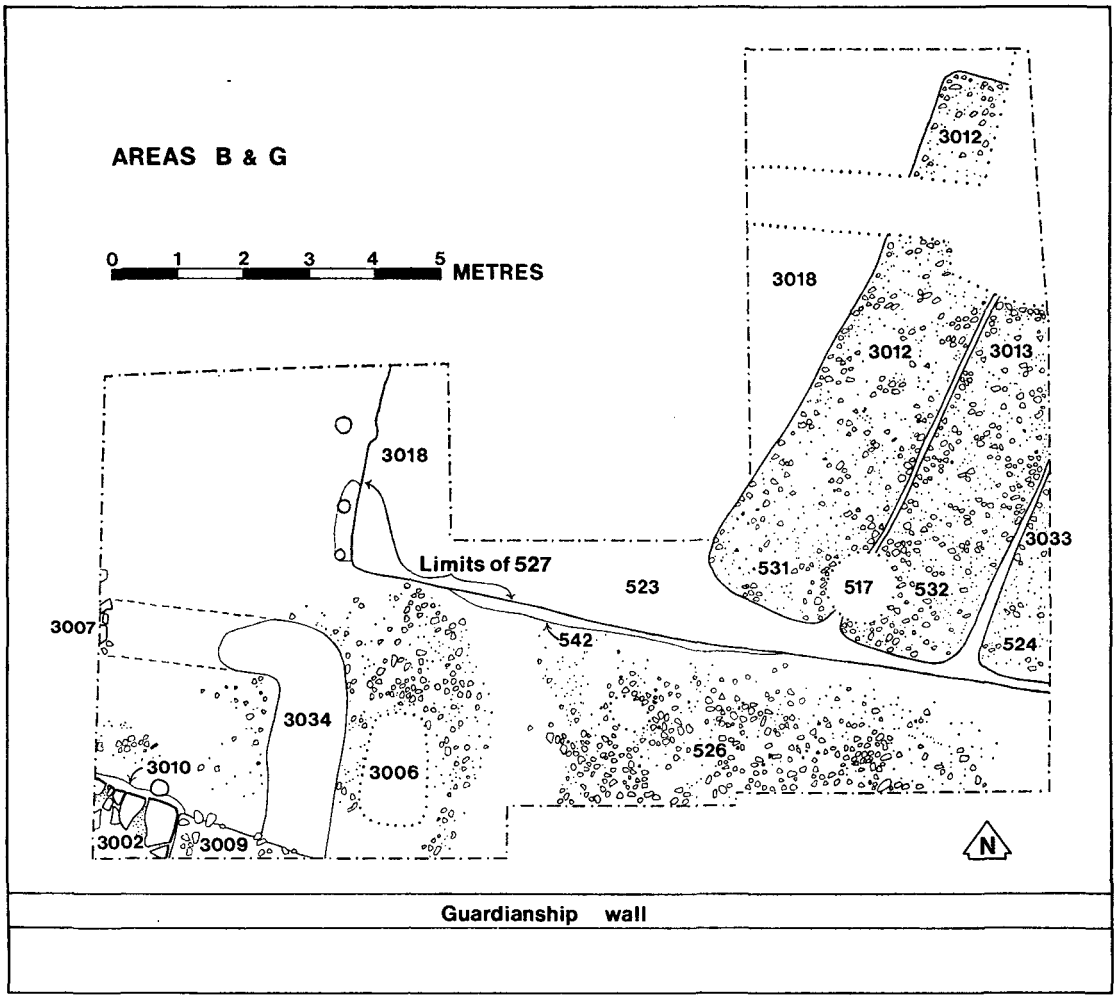

FIG 5 Areas B and G plan

to a depth of c 0·4 m. Both these extensions were labelled G. Natural, Laxfirth Limestone, was reached at depths varying between 0·6 and 1 m in areas undisturbed by archaeological features. Several natural V-shaped drainage channels cut the surface of the bedrock. These fed larger channels some 0·15 m wide by 0·1m deep. In the main these were aligned NW–SE running down towards the East Voe. Patches of iron panning up to 20 mm thick were present on top of natural in some places emphasizing the impervious nature of the bedrock. Natural was overlain by a layer of fine light clayey soil, 523/3018, which was flecked with charcoal and contained pieces of butchered bone and quartz fragments. In some undisturbed areas this deposit was up to 0·2 m in depth. A few pieces of clay-pipe stem fragments from 523 are of a 17th-century date but are too small and too few to provide a more precise dating.

Phase 1A

Apart from layer 523/3018 through which 17th-century and later features were cut, the

earliest evidence of man's activities was feature 527, part of a large L-shaped depression. The S, E and W limits of this extensive cut hollow were not located as they lay outwith the area excavated but it appeared that the portion within Areas B and G was the N limit of a levelling operation of some considerable size. The feature cut 523/3018 and the natural limestone to a depth of 0·4 m at the E end but only 0·1 m in the NW corner of the trench. As bedrock sloped NW–SE the flat base of the cut could have provided a relatively solid and level surface for construction purposes, although it was over-cut for this purpose by some 0·15 m at the SE corner. Above a primary fill of eroded material from the exposed face of 523/3018 were various layers of builder's waste, 528, 521 and 526. These consisted of limestone rubble and chippings together with loosely packed mortar.

Hollow 527 is most likely to have been the N part of a large area cut down to and into bedrock so that a building or buildings could be constructed on a sound level. Fills 521 and 526 were probably spreads of waste derived from the construction of walling some way to the S, a much larger area having been cut than was finally built upon. Any such building would lie outside the area excavated, within the area under guardianship. No finds, other than a few pieces of animal bone, were recovered from layer 528, but a few sherds of 17th-century Northern European earthenware were found in layers 521 and 526.

An L-shaped linear feature, 3034, towards the W end of the excavated area cut the W end of the limestone rubble, 526, and had a width of c 1 m and a maximum depth of 0·2 m. The fill varied along the length of the cut and the depth of the feature as if soil and stones had been used indiscriminately as backfilling. The feature was ill-defined at the W end, but a few stones, 3007, may have represented the line of the feature at the W baulk where the fill could not be otherwise separated from the surrounding soil. There were no levels associated with the L-shape which could be considered as being flooring or associated make-up. Neither was there any evidence that 3034 had been dug to remove walling. Therefore, it would appear that, although a foundation trench had been cut, walling had not been constructed within it and that the feature had been quickly backfilled as there was no evidence of erosion of its sides. No finds were recovered from the feature fill. A few possible postholes and a shallow slot, c 1·25 m in length, lay to the N of 3034, but these could have been accidentally created during the cutting of hollow 527. There was no stratification in this area of the trench to enable further interpretation to be made.

In the NE corner of Areas B and G lay a series of three parallel trenches, 531/3012, 532/3013 and 524/3033, the S ends of which appeared to roughly respect the presence of the N edge of large L-shaped cut 527, although there was no clear stratigraphical relationship between them and 527. The trenches were aligned roughly N–S and the only one completely excavated, 531/3012, was 2 m wide by 4·3 m in length. All cut soil layer 523/3018 and in some places the top surface of natural. Their bases were comparatively flat. Although the surviving depths were c 0·22 m the features had obviously been truncated by later cultivation activities because a spread of limestone fragments was first identified some 0·2 m higher although the features could not be isolated at that level. The surviving fills consisted of decayed and powdered limestone. The few pottery finds appear to indicate that the trenches were contemporary with the other phase 1A activities.

Although no organic material was preserved because of soil conditions, it is most likely that the features were a succession of latrine trenches. These could have been used by workers during construction of the castle and associated outbuildings in the early 1600s or, perhaps more likely, by Cromwellian troops in the 1650s. When backfilled, they would have been ideal agricultural hot beds. Similar layouts of parallel flat-bottomed trenches have been found during excavations in Elgin (Lindsay, forthcoming), Lanark (McGavin & Wordsworth, forthcoming) and Forfar (Spearman 1982).

Phase 1B

Evidence of phase 1B activity became visible at much the same levels as that of phase 1A and consisted of a few features in the SW corner of Areas B and G. These either cut or overlay phase 1A features. In nearly every case so little of the features lay within the excavation that interpretation is difficult. Part of a stone wall, 3002, lay within the angle of the SW corner of the site. Only a 1·2 m length of the N face and 0·8 m of the probable E face were found but it seemed from the single surviving course that the roughly faced limestones were mortar-bonded and pinned with smaller angular pieces of the same kind of stone and that the core was made up of unbonded limestone rubble. A narrow strip of the associated foundation cut, 3010, existed along the N side of the wall but no finds were recovered from the earthy fill or from the make-up of the wall itself. Although only 0·8 m of the presumed E side was visible it did appear to have been a true built face as mortar-bonded trimmed pinnings were set within it. The full N–S and E–W widths were not determined but these could have been as much as 1·6 m if similar widths of mortar-bonded facing stones, as those on the external faces, existed on the internal sides of the walls. From the small length visible it appears that the method of construction is unlike that used in the castle where the walls are mortar-bonded throughout. The technique is more reminiscent of that used in Muness Castle, Unst, where the walls have cores of clay and rubble. A posthole, 3035, immediately to the N of wall 3002, cut foundation-cut 3010 and was c 0·24 m wide by c 0·2 m deep. It could have been created during scaffolding activities related to the building of the wall but no finds were recovered from the sandy fill.

What appeared to be the N side of a shallow trench, 3009, cut trench 3034 and the E end of the foundation trench, 3010, associated with wall 3002. Trench 3009 continued the NW–SE alignment of wall 3002 and its fill consisted of a dark grey clayey loam which contained a considerable number of angular schists and limestones. The full width of the flat-bottomed feature was not determined and as only the N side was excavated little can be said other than that it appeared to be a robber trench cut to remove a wall which had once abutted against the NE corner of wall 3002. It could possibly have been the basal remnants of a foundation trench, but the first explanation is probably the more likely as the feature was 0·2 m deep and a greater frequency of larger stones would have been expected in the fill of a foundation trench.

The absence of mortar fragments in any great quantity could be taken to indicate that this length of walling had not been constructed in the same manner, at least at this depth, as wall 3002. The presence of a single clay-pipe fragment of the early 19th century is the only indication of when the postulated robbing occurred.

Other features

Features belonging to phases 1A and 1B were overlain by topsoil to a depth of 0·6 m in some areas. Loam even formed part of the upper fill of hollow 527, where it was numbered 519. Although this was not a sealed horizon it was possible to differentiate between it and higher similar deposits because it contained fragments of marine shell and charcoal. As well as a number of 17th-century pottery sherds and clay-pipe fragments, a sherd of residual coarse hand-made pottery and the ends of two stone ard points were recovered from fill 519. The presence of the ard points may indicate that this type of implement, a relatively common find in the Shetland Islands, may have continued in use till at least the 17th century. However, they could be residual as was the pottery sherd already mentioned. Outwith the E half of hollow 527 features of a 19th-century date were isolated at much the same depth as those of phases 1A and 1B. Pits 517 and 3006 are good examples of these later features. Pit 517 not only contained ceramic finds of the 19th century but also material earlier in date, including a Dutch clay-pipe bowl of the mid-17th century.

Although little dating evidence was recovered from the excavation of phase 1A and 1B features in Areas B and G, it appears that both phases date to the 17th century as do the phase 1 features in Area A. The activities in Area A and Areas B and G are likely to be of Cromwellian date although it could be argued that they were associated with the construction and early occupation of the castle. Probably there was little time between the initial activities of phase 1A and the work undertaken during phase 1B in Areas B and G. From the short length of walling excavated it seems that at least one outbuilding was aligned differently from the castle itself and that a different method of construction was employed. The functions of outbuildings compared with that of a strong retreat may well explain these dissimilarities.

AREA C (fig 2)

Area C, excavated during the 1979 summer season, was set out in the middle of the Castle Gardens between two concrete floors for World War II Nissen huts. The trench was aligned roughly N–S and was 11·4 m long by 2 m wide. All work was carried out by hand. Natural limestone was reached at a depth of 0·9 m and all the overlying layer, a well-cultivated soil, was removed in spits. The only feature located within this soil layer was an E–W linear spread of angular limestones and a few poor quality red bricks at a depth of 0·46 m below the existing ground level. The feature was c 0·64 m wide and lay across the trench c 0·9 m from the S end. Only a 2 m length of the feature was seen. It appeared to be footings for a wall probably associated with gardening. Finds of an 18th-century date were recovered from spits of soil below this feature so the wall could be of any date after this. Clay-pipe finds from the various spits of soil indicate that there was stratification according to depth although this was not so obvious with regard to the pottery finds.

AREAS D AND F (fig 2)

Areas D and F were excavated during the summer of 1979. The trenches were laid out to the E of Castle Gardens on a flat low lying area where there was a break in slope towards the East Voe of Scalloway, some 7 m to the E of the garden wall. The position of the trenches was also determined by a large sub-rectangular cropmark anomaly, c 20 by c 6 m, seen on an aerial photograph. Area D measured c 12 by 5 m and Area F, 1 m to the S, measured c 11 by 5 m. Both areas were excavated by hand down to natural between 0·2 m on the level area and 0·4 m on the break of slope.

The earliest features were a series of natural drainage channels similar to those observed cutting natural in Areas B and G but these were more substantial with the largest being 1·7 m long by 1·4 m wide. It was up to 0·2 m deep and had a fill of brown silty clay and large pieces of fractured limestone up to 0·36 m in length. The bottoms of these channels were uneven, but in general they sloped down to the E towards the East Voe. No finds were recovered from these natural features. A layer of brown soil between 0·2 and 0·4 m overlay natural. Within this general deposit was a large spread of water-rounded limestones which stretched from the W side of the trench some 8–9 m and extended beyond the N and S limits of the trenches.

Some of the stones were up to 0·25 m in length. A number of possible postholes and slots were excavated and found to be negative. It appeared that stones, together with turves and earth, had been deposited at the one time with areas occupied by the softer material taking on the surface appearance of archaeological features. This dumping had resulted in a level surface being created for some 6 m from the garden wall before it fell away towards the East Voe. No finds were recovered from the soil below the layer of stones; finds from gaps between the stones include some of a 19th-century date indicating that the levelling is of this date or earlier. It is known that

a bowling green was built in the 1850s and the spread of stones is probably the foundations for the E end of this feature. Fields to the N of the site are still known locally as the Bull or Bool Green Park. The only other feature discovered was an earthen bank and spread of stone chippings running N–S at the W end of the site. This must have been connected with the construction or repair of the E garden wall.

AREA E (fig 2)

Area E, excavated during the summer of 1979, was positioned so that its E end cut across the line of a modern path and its W end lay across a N–S ridge which ran almost the whole length of the Castle Gardens. This trench measured 7 by 3 m and was hand dug. Turf and brown top-soil, 0·4 m deep, covered the area and the only two features lay beneath this layer. One was a modern pipe trench which cut diagonally across the W end of the trench and the other was a stone revetment which formed the E edge of the path.

CONCLUSIONS

At Scalloway it was not possible to date 17th-century features with any degree of precision so it is impossible to say whether features located related to the construction of the castle in the early 1600s, to Bishop Law's use of the building, or to the occupation by Cromwellian troops in the 1650s, although the general impression given by the finds is that many of the features are likely to date to the mid-17th century. More conclusive results could be obtained from the excavation of areas nearer to the castle. Within the guardianship area evidence of outbuildings could be found NE of the castle between the building itself and Areas B and G. At least one of these buildings is on a different alignment to the main structure. The origins and function of the ditch found in Area A could be resolved more satisfactorily if more of its length to the N and its relationship to the castle building were investigated.

The stratified sequence of pottery and clay-pipe finds recovered from Area A is important because it covers much of the period from 1600 to 1900 and is of particular interest as it relates to late deposits so often missing in urban sites on the mainland of Scotland.

APPENDIX 1: THE POTTERY (figs 6–8)

W J LINDSAY

Apart from two pre-medieval sherds of local hand-made coarse pottery, rich in steatite, and a small rimsherd, possibly from a medieval greyware globular pitcher from the Low Countries, the Scalloway Castle ceramic material is made up of post-medieval wares. These include Low Countries, German and British wares together with Chinese porcelain and a single sherd of Persian origin. It is noticeable that few Scottish or English products datable to before the 18th century are present. There are only a few sherds from vessels comparable with those discussed in George Haggarty's report on Scottish post-medieval pottery excavated at Stirling Castle (1980). Material belonging to recognized Scottish types consists of seven small sherds probably from small open bowls possessing either one or two small handles in a sandy micaceous fabric with green glaze internally and externally, together with two sherds from the shoulders of jugs in a hard grey reduced smooth fabric with incised wavy decoration and green glaze on external surfaces. The small bowl sherds are reminiscent of a 15th- and 16th-century vessel type recovered by the author during excavations in Elgin. The 17th- and early 18th-century sherds appear to confirm the available documentation showing that Scalloway, and Shetland as a whole, had strong trade links with Northern Europe at that time (Gifford 1879, 25; Smith 1978). As the assemblage contains the largest number of Northern European earthenware imports so far recovered in Scotland, these are described in some detail. A total of 975 sherds are of Northern European manufacture with many, both earthenwares and a few stonewares, probably products of the Weser/Werra valleys. It is unfortunate that, apart

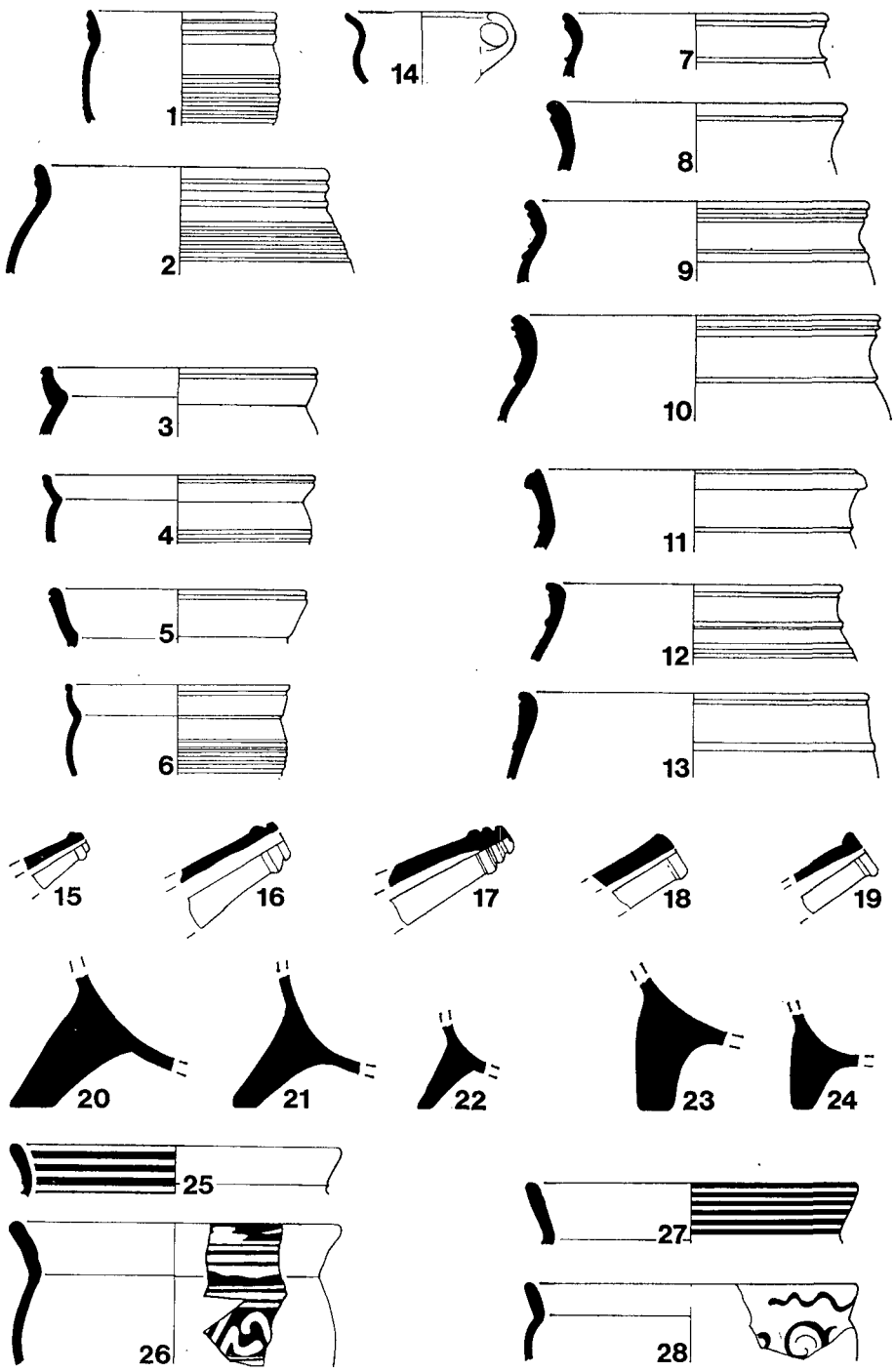

FIG 6 Northern European earthenware pipkins (scale 1 : 4)

from the material recovered from Area A, most of the remainder was obtained from unsatisfactory archaeological horizons.

NORTHERN EUROPEAN EARTHENWARES

Tripod pipkins (fig 6, nos 1–28)

The most common type of pottery vessel present in the assemblage is a form of earthenware tripod pipkin, with a globular body, a rounded base, three legs and a tubular handle. Although three fragments from pinched rod handles of a type often associated with Dutch vessels were recovered, 45 fragments are parts of tubular handles, a form as yet unknown in Holland but common in some areas of Germany (F Verhaeghe and Dr H G Stephan, pers comm). However, this general type of vessel was manufactured throughout Northern Europe and in England from the 16th century onwards. It is not a known Scottish type. Examples comparable with the Scalloway material have been found during excavations at Kirkwall (MacAskill 1982), Pittenweem (C Martin, pers comm), Skaill (P Gelling, pers comm), from the wreck *Kennemerland* at Skerries (P Martin, pers comm) and at Kelso (C Tabraham, pers comm). Stray finds have also been recovered at Muness Castle (D Arthur, pers comm), Fair Isle (C Martin, pers comm) Cairston and Unst (E Talbot, pers comm) and Aberdour Castle and Leith (G Haggarty, pers comm). It is somewhat surprising that so little of this distinctive type of ware has been found in Scotland but it may be of significance that most has been recovered from coastal areas. It is noteworthy that Scalloway, Kirkwall and Pittenweem have not been subjected to massive Victorian or more recent development. It may only be in towns relatively undisturbed since the early 17th century that archaeological deposits containing this ware survive to any extent. Therefore, a false impression of the distribution of this import may exist for Scotland at present. It is likely that tripod pipkins of this type were exported widely throughout Northern Europe as material similar to that recovered at Scalloway has also been found during excavations in Trondheim and Bergen (I Reid, pers comm).

Considerable time and effort was spent in attempting to divide the 868 pipkin sherds into fabric types, initially by eye and subsequently by using a microscope with magnifications up to × 30. This proved to be a fruitless exercise. Even fragments from the two distinctive handle types could not be divided on a fabric basis. All that can be said is that under oxidizing conditions the fabric is orange red in colour, that it contains a large proportion of sand and that it is rich in subangular white and translucent quartz grits which can be up to 0·75 mm long, although they average c 0·5 mm. A small amount of mica and occasional rounded ferruginous inclusions are also present. Under reducing conditions the fabric is grey.

Normally pipkins are completely glazed internally with some external coverage on rims and necks. The colour of glaze varies considerably from orange and ochre through various shades of muddy green to brown and to almost black. Dark brown speckling is a noticeable characteristic on some ochre and brown examples. A few sherds are white slipped internally and covered with a thin, but fine, rich mottled green glaze. This may well have been an attempt to produce a more pleasing green by using better colourant on a more sympathetic ground. A single sherd from Pittenweem and a large section of a pipkin recovered from the Dutch ship *Kennemerland*, which sank off the Skerries in 1664, also possess this internal decorative treatment. The second example is housed in Lerwick Museum.

The Scalloway pipkins are thin walled, well made and neatly finished. Different forms of rims, legs and handles are present but, unfortunately, these parts seldom joined with body sherds to provide large profiles. The variety of glazing and of rim forms together with the several variations of handles and the two distinct leg types may well indicate that more than one production centre is involved although, as already stated, many of the pottery finds were not well stratified and a lengthy time span could equally explain many of these differences. Artistic licence or boredom could account for minor differences of relief decoration, especially on handles.

The rims

The 150 rimsherds represent at least 111 vessels. In cases where joins occurred or where it was clear that sherds were from a single vessel they were counted as one vessel. Rim diameters vary considerably, between 100 and 160 mm, even where a single rim form is involved. Five main rim types were identified; an upright form with two or three grooves on the external surface; three everted varieties, one of which has lid seating; and lastly an inverted form.

Rim form 1 (fig 6, nos 1, 2). This upright form with two or three grooves on the external face of the rim is the most common type present in the Scalloway assemblage with 63 sherds representing at

least 50 vessels. Many of these sherds were recovered from unstratified deposits, but it is significant that none was recovered from the various ditch fills in Area A indicating that at Scalloway the type may not have been in common use until the 18th century. Stratigraphically, the earliest sherds were obtained from the Area A, phase 2 gravel yard surface, 4537/4540. Although rim diameters vary between 100 and 160 mm a greater proportion tend to be near the maximum size. Shoulders of pipkins possessing this rim form have finely executed external rilling which extends down vessels beyond handle junctions. Twenty-eight of the sherds have brown or almost black glaze internally while the remainder possess glaze of an ochre colour. This rim form with brown glaze is present in the material from Pittenweem. One atypical small sherd is decorated internally with a series of parallel white slipped lines while two others are treated in the same manner externally. Decorated areas on these three examples are covered with clear glaze.

Rim form 2 (fig 6, nos 3–6). The second grouping consists of 44 sherds which represent at least 30 vessels. The rim form is a simple everted type with internal 'lid seating'. Twenty-eight sherds have an additional external groove which may only be a potter's whim. Internal surfaces are covered with light brown glaze speckled with dark brown. As there is no evidence of wear on the glazed 'lid seatings' and as no sherds from lids were recovered, it would appear that the 'seating' facility is a vestigial and non-functional feature. It appears that at Scalloway this form may be somewhat earlier in date than form 1 as a sherd was recovered from the Area A, phase 1 ditch fill, 4538, which was probably deposited in the mid-17th century although the layer also contained some redeposited material from earlier in the century. There was no sound archaeological evidence as to when the form ceased to be used.

Rim form 3 (fig 6, nos 7–10). The third form is slightly everted and the 30 sherds represent at least 19 vessels. Sixteen examples have a single external groove while two others have double grooves. Eleven examples have single cordons at the bases of short necks and two have double cordons. Although other vessels could have possessed the latter feature, the sherds were often too small to include it. Glaze colour varied considerably on internal surfaces being ochre, muddy green, brown and black. Form 3 appears to have been in use at the same time as forms 2 and 5, as eight sherds from a single vessel (no 10) were recovered from ditch fill 4538. Although this layer seems to have been deposited in the mid-17th century it did contain a few clay-pipe finds datable to 1620–40.

Rim form 4 (fig 6, no 11). The four sherds in this small group, representing three vessels, have a slightly everted rim form with a pronounced upper external ridge and a cordon at the neck/body junction. Glaze is either brown or muddy green. None of the sherds was found in sealed archaeological deposits.

Rim form 5 (fig 6, nos 12, 13). The five sherds in this grouping possess an inverted rim form. All have an upper external groove and a lower single or double cordon. Internal glazing is either ochre, green or brown. The form is present among material recovered from ditch fills 4538 and 4543 as well as from higher levels indicating that it was in use at Scalloway from the early or mid-17th century until at least the beginning of the 18th century. This form is also present in the Pittenweem assemblage.

Body sherds

Body sherds were counted and studied along with basal sherds as, in the main, bases are rounded and merely thicker continuations of the sides. However, six sherds from flat-bottomed vessels in the same orange red fabric were also recovered so some rounded body sherds from these vessels may be erroneously included in the total. Upper body sherds were easily separated as they are commonly finely rilled externally and are considerably thinner than those from the lower portions of vessels. A total of 605 body sherds was studied and 150 of these show some evidence of reduction, generally on the thicker lower areas of vessels. Reduction is seldom complete and may have been caused, at least in part, when vessels were used over fires. Basal areas are often smoke-blackened externally. Internal surfaces are completely glazed with the same variations of colour present as mentioned with regard to the rimsherds. However, many have glaze of a dirty green colour possibly produced by being continually subjected to heat from cooking fires.

The handles (fig 6, nos 14–19)

Forty-eight fragments of pipkin handles are present and 45 of these are of thrown tubular construction. At least 28 slightly conical tubular handles are represented in the assemblage. The most common form has a decorative terminal composed of various grooves and ridges which are similar in character to the external decorative treatment on rim form 1. The joins between handles and bodies appear to have been relatively weak as many breakages occurred at interfaces. It is apparent that handles had been originally well-thumbed on to rilled body surfaces. The longest handle appears to have been c 110 mm, but

many others seem to have been shorter which would not have made for comfortable or easy handling. Nine fragments show traces of brown or black glaze and one of these has a single spot of white slip. It is unlikely that either feature is intentional. This form of tubular handle with the decorated terminal is present in material excavated at Trondheim (I Reid, pers comm). Two other variations of hollow handle design are present in the Scalloway assemblage as single examples. Both are more cylindrical in form and one has a flanged terminal. The simpler form is present in the Pittenweem material.

Three handle fragments of a form often associated with Dutch pipkin material are also present. All possess the familiar pinching towards the tops of handles but, as has been stated above, it was impossible to separate these from the tubular versions on a fabric basis. The form is also known in Germany (Dr H G Stephan, pers comm). No 14 is unusual with regard to size and is unlikely to have been a cooking vessel although parts of it are smoke blackened. It is more likely to have been a mug.

The legs (fig 6, nos 20–24)

Fifty-six fragments of pipkin legs were recovered and it was possible to estimate that, assuming each vessel possessed three legs, these represent at least 27 vessels when additional factors of size, form and colour of glaze on the interiors of pipkins were also considered. Legs are well fixed to vessels, with few clean breaks at body/leg junctions unlike handles which show more evidence of breakage at points of application. Obviously the latter were subjected to more daily stress then the former. Two distinct leg types were identified but it proved impossible to differentiate between them on a fabric basis. It is believed by the writer that vessels of three specific volumes are represented as the leg fragments readily divided into three groupings according to size. It is unfortunate that more complete profiles of vessels could not be reconstructed to test the volume theory.

Leg type 1. This is a simple pulled conical form, the end of which has been trimmed and angled so that it stands on the cut surface with the leg at c 45° to the horizontal. Thirty-seven fragments representing at least 18 vessels are present and it appears that there are three large, seven medium and eight small vessels. The number of small vessels could be considerably larger as the 20 fragments are very small. Nearly all the sherds showed some evidence of having been smoke blackened. Leg type 1 is present in Area A ditch fills, 4538 and 4543, both as abraded and unabraded sherds indicating that although the form was in use in the mid-17th century it must have had earlier origins. It is likely that leg type 1 fragments belong to vessels possessing rims of form 2, 3 or 5 as examples of these were also recovered from the ditch fills.

Leg type 2. This is also basically conical in shape but has been bent inwards so that its end rests completely on a horizontal surface. As a result, the weight of a vessel and its contents is directly borne through the length of the legs. Nineteen fragments, representing at least nine vessels are present. Only two examples are relatively complete but the writer is certain that the other pieces are indeed from legs as opposed to solid handles because of the alignments of throwing impressions on the insides of vessels. As with type 1 legs, it was possible to divide the fragments according to size, in this case into two groupings which appear to be equivalents of the large and medium type 1 examples. At least two large and seven medium-sized vessels are involved. One very abraded fragment has traces of a white slipped coating. None of the leg 2 material was obtained from well-sealed archaeological levels.

Decorated pipkins (fig 6, nos 25–28)

In addition to the material already discussed there is a small group of nine slip-decorated rimsherds representing five vessels which may also be pipkins. All have slightly everted rims c 180 mm in diameter which appear to be from globular vessels. The fabric is similar to the general pipkin material. Three rimsherds are decorated with bands of white slipped horizontal lines, on one example internally and on the others externally. One has additional slip-painted geometric designs on the shoulder of the vessel. Clear glaze renders slipped areas cream and body surfaces light brown. Two examples are glazed on both internal and external surfaces while the one with only internal decoration is glazed on that face alone. The general decorative treatment is identical to that employed on the three small sherds of rim form 1 and to that used on some earthenware dishes. Another of the rims in this category has white external slip covered with clear glaze. The final vessel, represented by a single sherd, is similar in form and fabric but is covered with an external milky wash. Glaze renders the washed area yellow-green and the internal surface brown. Traces of a brown overglaze design survive on the outer surface. The above examples, the three decorated sherds of rim form 1, an abraded slip coated fragment of leg type 2 and a

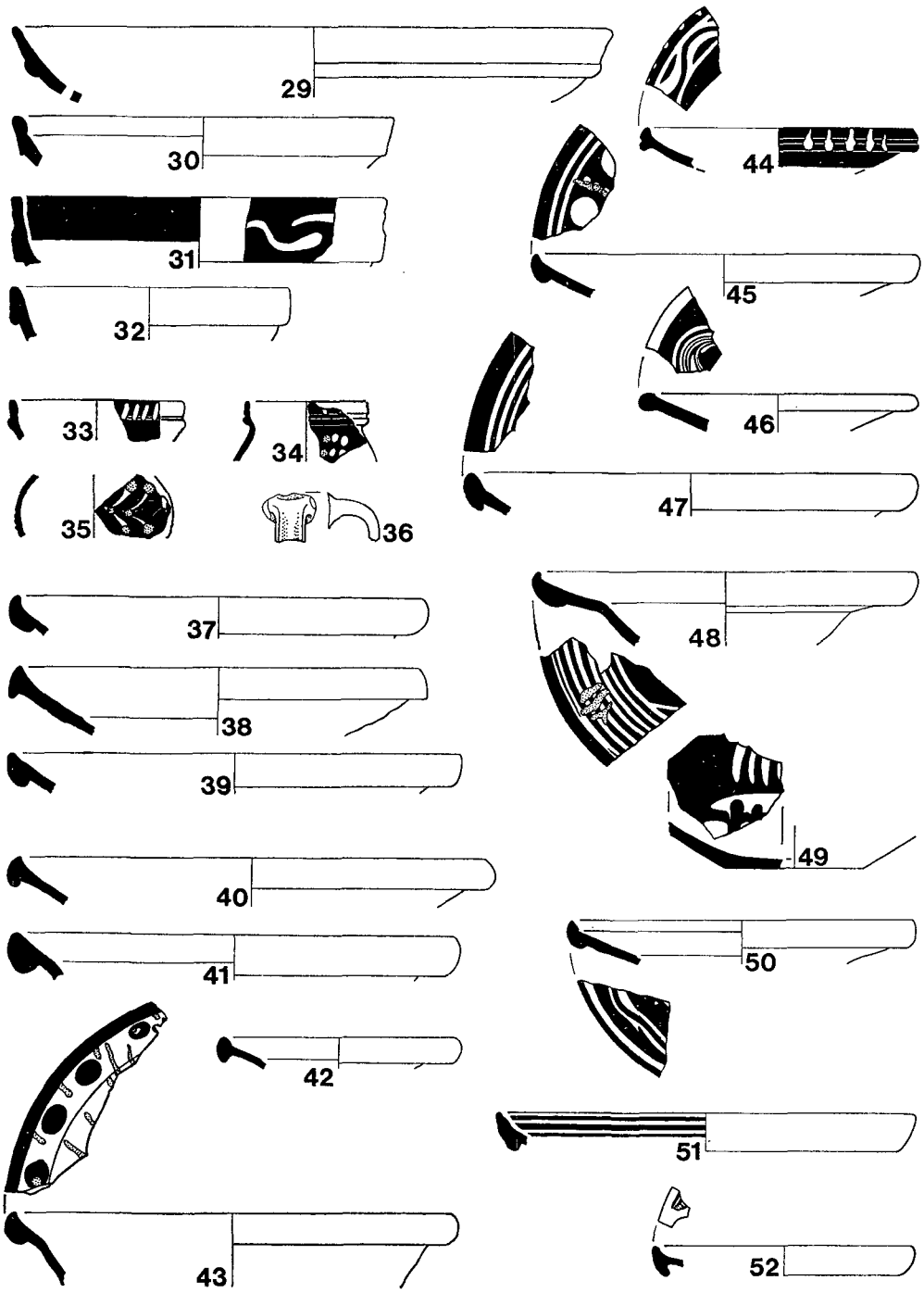

FIG 7 Northern European earthenware vessels (scale 1 : 4)

tiny flake from a slipped tubular handle may be parts of chamber pots. None of the illustrated rims was found in well-sealed archaeological deposits.

The colander and other similar vessels (fig 7, nos 29–32)

Four rimsherds from bowls or colanders, in a fabric identical to that of the pipkin material, were recovered. One is part of a colander with a diameter of c 340 mm. Both internal and external surfaces are covered with transparent creamy orange glaze which has occasional brown speckles, probably drawn from iron in the vessel fabric. The external rim surface of the colander shows evidence of having been smoothed, possibly the result of some type of horizontal handle having been applied further round the vessel. There are parts of two holes which taper from 8 to 6 mm on the internal surface. These were made prior to the application of glaze. The three other sherds in this grouping have more upright rims. One sherd has been at least partially slip-coated internally and appears cream through the glaze. No 30 shows evidence of a horizontal handle having broken way from the rimsherd. The colander and the decorated rimsherds were found in ditch fill 4538 indicating a mid-17th century date but no 30 was recovered from layer 4522 which contained late-18th century material.

Slip-decorated small vessels (fig 7, nos 33–36)

Sixty-one tiny sherds from slip-decorated small vessels are present in the pottery assemblage. Most of these sherds are so minute that positive identification of vessel types proved to be impossible although small open bowls and globular vessels have been identified. The orange red fabric is very similar to that of the pipkin material although the globular vessel sherds appear to be in a finer fabric with smaller quartz grits.

There are 13 sherds probably from small open bowls. The seven rimsherds are all of a simple upright form with two having a cordon below the rim (no 33). The external rim surfaces are decorated with series of vertical, or almost vertical, white slipped lines about 10 mm in length. Both internal and external surfaces are covered with glaze which renders body areas orange or light brown and slipped areas cream. The small handle fragments are simple looped types, probably applied horizontally as two examples have traces of similar decoration to that used on rims along what were presumably upper edges. This type of small bowl is known to have been manufactured in North Holland and Germany in the late 16th to 18th centuries (Hurst *et al* 1975).

The second grouping of 48 sherds is made up of 38 rim and body sherds together with 10 handle fragments from little globular vessels which could be small pipkins, jars or cups (nos 34–36). The vessels are delicately made with thin walling of between 2 and 3 mm. Body sherds are often finely rilled externally in the same manner as some of the pipkin material. External surfaces are much adorned with various types of white slipped decoration. Both internal and external surfaces are clear glazed producing orange-brown body areas and cream decorated areas. Two collared rimsherds possess the same type of decoration as that present on the small open bowls and one has an additional series of closely spaced white slipped dots on the body of the vessel (no 34). This example, together with eight others, has some dots highlighted in green. There is a tiny sherd in the Pittenweem material with the same type of decorative treatment. Only one sherd is completely slipped on the external surface and it is overlaid with brown slipped dots. Some sherds, possibly from more open vessels, have traces of larger white slipped spots up to 153 mm in diameter while others have parts of zigzag and other types of linear motifs. The largest body sherd (no 35) possesses a stub of a horizontally applied small loop handle and has a white chevron design augmented with small green glazed dots on the outer body face.

The handle fragments are all of rod and strap construction. From the slight evidence it appears that most were applied vertically to vessels (no 36), although some of the rod examples were applied horizontally. Two of the latter type are covered with badly decayed white slip. None of the 61 sherds in this general category was recovered from a sealed horizon. The grouping contains sherds from several types of pottery vessels, each of which could well have had a specific function but the Scalloway material is too fragmentary to merit more detailed categorization. Little can be added other than that this 'family' of material was probably made in Holland or Germany during the 17th and/or 18th centuries.

Earthenware dishes (fig 7, nos 37–52)

A total of 194 sherds from earthenware dishes are present in the pottery assemblage. There would

appear to be 23 sherds from plain vessels and 171 sherds from slip decorated dishes. It was seldom possible to differentiate between fabrics and most sherds are very similar to the pipkin material. In the main, dishes are grouped according to the presence or absence of decorative treatment.

Group A (fig 7, nos 37–39). Group A consists of 23 undecorated sherds, 12 of which are rims. At least nine dishes are represented with either simple beaded or hammer-headed rims of diameters between 220 and 260 mm. Glazing is similar to that on pipkins with only the internal surface covered. Two sherds have creamy orange glaze with a few brown speckles which is similar to that on the colander. No 39 was recovered from ditch fill 4538 which is of a probable mid-17th century date. Another small sherd was found in ditch fill 4543.

Group B (fig 7, nos 40–43). This grouping has been subdivided into two categories, 1 and 2. Both have a white internal slip and B2 has additional superimposed decoration.

Group B1 consists of 22 sherds including 11 rims, probably all from different vessels. The rim forms are similar to those of Group A and have diameters between 140 and 280 mm. Some, presumably accidentally applied, white slip is present on the exteriors of rims. Transparent glaze renders slipped areas yellow. It is possible that some of the material included in Group B1 belongs to B2 because of the small sizes of the sherds involved.

Group B2 is represented by 60 sherds, including six rims from separate dishes. The rim forms are as described for the B1 material. Most of the sherds in the B2 grouping have spots and dashes of orange to light brown slip applied to the white slipped grounds and four examples show evidence of feathering. Internal surfaces are covered with transparent glaze, making white slipped areas yellow like the Group B1 material. Eleven sherds possess additional superimposed blobs or smears of green glaze. Two rimsherds have had holes bored through them subsequent to the application and firing of glaze. This was presumably done so that the dishes could be hung up for decorative purposes. The holes taper towards the centre of the vessel wall from 5 mm at the surfaces to 3 mm. Obviously, they were bored from both directions to avoid chipping the glaze and the vessel wall. No 43, from layer 4547 in Area A, indicates that this type of dish could have been in use during the late 18th century.

Group C (fig 7, nos 44–48). Group C consists of 54 sherds from dishes which have decoration consisting of up to eight concentric white slipped lines. The fabric and glaze could not be isolated from that of Groups A and B and the rim forms and diameters are also similar to those described above. Eleven rimsherds, all from separate vessels, possess decoration reminiscent of the three decorated pipkin sherds of rim form 1. One Group C dish sherd has white slipped vertical strokes on the outside surface of the rim similar to those present on some small bowls and globular vessels (no 44). The internal decoration on this example consists of a wavy line bounded by two concentric circles. Another sherd has white slipped dots and streaks of green glaze like that on some Group B2 material. One rimsherd was recovered from ditch fill 4538 showing that it is probably contemporary with much of the 17th-century pipkin material. No 48 is in an atypical fabric which contains lenses of lighter clay in the main orange-red matrix.

Group D (fig 7, nos 49–51). The fourth grouping is made up of eight slip-decorated sherds and six of these are rims. The orange red fabric is harder than that of much of the pipkin material but has the same inclusions. Rim forms are as already discussed but decoration appears to be slightly more sophisticated. The internal surfaces are again white slipped with concentric or wavy lines and these appear off-white, cream or pale orange under transparent glaze. Unslipped areas appear brown with some darker brown speckling occurring. One basal angle sherd from ditch fill 4538 is covered with part of a zoomorphic design (no 49). The sherd may be part of a bowl rather than a dish but is included here because of its apparent affinity with the rest of the grouping. This type of decoration was commonly used in Germany and North Holland in the late 16th and in the 17th centuries (Hurst *et al* 1975). As the Scalloway example is abraded it could be residual in the mid-17th-century deposit. The only other sherd from a stratified deposit is a small fragment from a rim (no 51) which was recovered from layer 4541, the smithy floor. This deposit also produced material of a late 18th century date.

Group E (not illustrated). Group E consists of eight sherds from dishes in an orange-pink fabric which is harder and finer than that of the pipkin material and some other dishes. Concentric slipped lines in an intense white decorate the insides of vessels and one sherd is rouletted. Clear glaze makes body areas orange but it has been rejected from most of the white slip. Where glaze is present, slipped areas appear cream. Again some type of green staining gives additional interest to vessels in the form of concentric circles and dots which have bled into adjacent areas. None of the group was recovered from stratified deposits but it may be one of the many wares produced in the 16th and 17th centuries in the Weser/Werra region of Germany.

Weser-type ware (fig 7, no 52)

Nine tiny sherds including one hammer-headed rim fragment (no 52) in what is generally termed Weser slipware were found. The fabric is hard and pale pink in colour with small red and white inclusions. Upper surfaces are completely covered with a thin white slip. Finely executed slip trailed designs consisting of orange and brown concentric circles lie parallel to rims while there are zigzag and spiral patterns towards the centres of vessels. Almost clear glaze makes undecorated areas yellow or pale green, while green staining provides additional decoration in the form of dots and zigzags. One sherd was recovered from layer 4538, the backfilling of the ditch. One small sherd in a similar pale and hard fabric has orange feathered slip decoration. Weser-type ware is generally dated to the late 16th and 17th centuries. Although it has been recovered from various excavations in England, to the writer's knowledge the only other comparable material from Scotland was recovered during Urban Archaeology Unit excavations in Kirkwall (MacAskill 1982).

Discussion

In spite of considerable research, none of the Northern European earthenwares found during the excavations at Scalloway can be assigned to specific production centres with any degree of certainty. Even the apparently distinctive Weser-type ware could be of Dutch origin, as early 17th-century kiln material of this kind was recovered at Enkhuizen on the Zuider Zee (F Verhaeghe, pers comm). Even greater doubt exists about the remainder of the earthenwares although the fabric does appear to be too coarse to be considered Dutch. It may well be of German manufacture and could be a product or the products of small towns and villages in the Weser and Werra valleys. Although it is unlikely that the material was made for export it could have found its way to Scalloway as a by-product of trade in more important goods. It may be significant that during this period the greater parts of Shetland's trade lay within the Hanseatic sphere, with Hamburg and Bremen known as German ports (Gifford 1879, 25). Bremen at the mouth of the Weser would have been in an ideal geographical situation to gather this type of material for export if it was indeed manufactured up river. It may not be fortuitous that a few stoneware sherds believed to be Duingen Ware, a product of the Weser valley, were also recovered during the excavation. The presence of a considerable quantity of 17th-century Dutch clay-pipe fragments may indicate that at least some of the earthenwares were made in Holland but the clay-pipe trade may have been totally divorced from the importation of pottery vessels.

GERMAN STONEWARES (not illustrated)

Only eight sherds from German stoneware vessels were recovered from stratified deposits. These came from an Area A, phase 2 feature and the soil horizon between phases 2 and 3. Another 21 small sherds of probable German origin were recovered from unsealed levels.

The earliest stratified material, from layer 4536, the Area A, phase 2 yard surface, consists of a small sherd from a Bellarmine and a body sherd in a grey fabric with dark grey, almost black inclusions which are up to 2 mm in length. The inner surface of the sherd is orange while the external surface is metallic brown. Dr G Stephan believes this sherd, together with eight others, to be Duingen ware. At Scalloway it appears to be an 18th-century import. The Bellarmine sherd is part of a stamped neck and includes part of a face mask with an eye, eyebrow, frown furrows and a lower eyelid. The fabric is grey with an orange internal surface while the exterior is covered with grey mottled brown salt glaze. The sherd probably dates to the first half of the 17th century. None of the stonewares merits illustration.

It is surprising that so few sherds of German stonewares, compared with sherds of Northern European earthenwares, were recovered. However, their absence may be an indication that pottery imports arrived at Scalloway as a by-product of trade in more important goods and that there was not a sufficient market to merit the importation of better quality wares in quantity.

TIN-GLAZED EARTHENWARES (fig 8, nos 53–55)

Thirty-six sherds from at least 22 tin-glazed earthenware or Delftware-type vessels were recovered. Unfortunately, it has not been possible to ascertain whether the material is Dutch, English or Scottish in origin but it does appear to date, on stylistic grounds, to the late 17th and/or the first half of the 18th century. The cream open textured fabric is soft and powdery, containing white subangular quartz grits up to 0·5 mm with occasional red-brown inclusions of a similar size. Interiors and exteriors of vessels

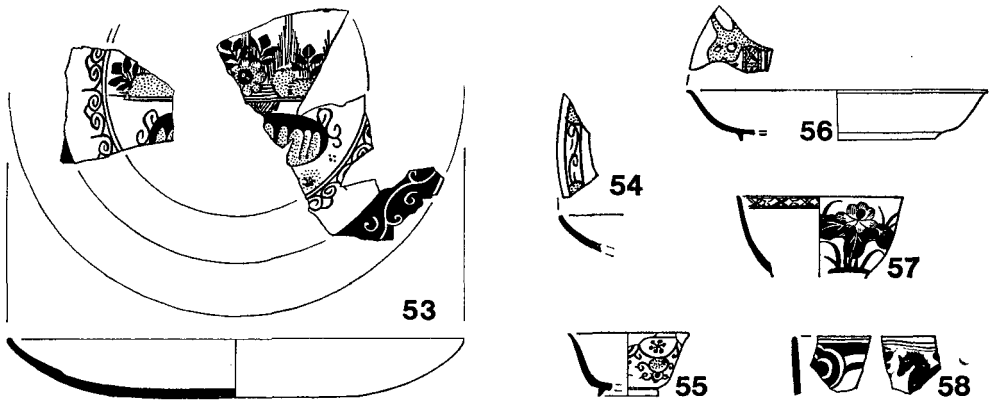

FIG 8 Tin-glazed earthenwares (nos 53–5); Chinese porcelain (nos 56, 57); Persian ware (no 58) (scale 1 : 4)

are covered with white glaze. On the undersides of plates the thickly applied and slightly blue-tinged glaze is pitted with pin-head sized holes. Glaze flaking occurs on nearly all the examples. Three sherds, probably parts of a rim of a chamber pot, show no evidence of decoration other than overall glazing while the remainder are either decorated with blue or with various combinations of blue along with yellow, green, red and purple.

Twenty-five sherds, representing nine plates, a small bowl and five large bowls are decorated in dark blue alone or with the addition of light blue (nos 53–55). On plates the simplest form of decoration consists of a blue band or bands parallel to the rims but more complex geometric and scroll and foliate designs are present on others. The small bowl (no 55), probably a tea bowl or cup, has decoration similar in style to the scroll and foliate designs on some plates. Eight sherds, from three plates and three large bowls, possibly punch bowls, possess decoration using some of the additional colours listed above.

Much of the tin-glazed earthenware material was obtained from Area A, phase 2 deposits and was found in association with white salt-glazed stonewares of a possible late 18th-century date. However, the smithy floor, incorporating the phase 2 deposits, could have had a long life span so at least some of the tin-glazed earthenwares could be considerably earlier, perhaps even late 17th century in date. Some of the more basic and less decorative Northern European earthenware dishes were probably hung on walls as cherished possessions, so the brighter and more colourful Delftware types could well have been held in even higher esteem.

ORIENTAL WARES (fig 8, nos 56–58)

Chinese porcelain (fig 8, nos 56, 57)

Twenty-one sherds, probably representing 21 Chinese porcelain vessels, were recovered most of which appear to date to the late 17th and early 18th centuries. All are either decorated internally or externally with underglaze blue, sometimes with red or gold overglazing. Small bowls and saucers are the most common types of vessels present. The two illustrated examples were recovered from Area A, phase 2, smithy flooring levels 4541 and 4547. The material probably arrived in Scalloway via either Holland or Germany as indirect trade.

Persian ware (fig 8, no 58)

A single rimsherd from a small bowl of Persian origin was recovered during the excavations. The fabric is hard and a pale brown colour. Internal and external surfaces are decorated in cobalt blue and black under a transparent alkaline glaze. The exterior of the bowl depicts an animal–possibly a horse. The sherd appears to date to the late 17th century. It was not recovered from a sealed archaeological horizon.

BRITISH WARES (not illustrated)

Staffordshire-type slipwares

Six small sherds of Staffordshire-type slipwares are present in the Scalloway pottery assemblage. The fabric is a light buff colour and often contains lenses of red-brown or brown clay together with hard red-brown inclusions up to 0·75 mm. All the sherds possess brown or red-brown slip trailed decoration and one example, part of a press-moulded dish, has been feathered. Pale transparent amber glaze covers surfaces that have been decorated. Five of the sherds are from press-moulded dishes and one of these, a rim fragment, has been impressed to produce a delicate pie crust finish. Dish sherds are glazed on internal surfaces only. One small body sherd from an upright vessel, possibly a mug, is in a fabric with less than the normal inclusions. The sherd has slip trailing externally and is glazed on both surfaces. This sherd, from Area A, layer 4541, the smithy flooring, appears to be part of an 18th-century vessel type, but the other unstratified dish sherds could be somewhat earlier – perhaps dating to the late 17th century. Whether they are late 17th or 18th century in date they are the earliest English products discovered at Scalloway. None of the sherds is sufficiently large to merit illustration.

White salt-glazed stonewares

Seventeen sherds of 18th-century white salt-glazed stonewares are present. It is impossible to state whether they are of English or Scottish manufacture but if they were made in Scotland they are likely to date to late in the century. The ware is known to have been produced in large quantities at Prestonpans and there are records of William and Jo Cadell sending this ware to John Urquhart in Kirkwall, Orkney in 1784 (Cruickshank 1976, 3). Therefore it would seem possible that it was also being sent to Shetland, perhaps via Hay & Company whose premises were at the old harbour in Scalloway.

Sherds from cups or small bowls, a possible chamber pot and press-moulded decorated plates were recovered. The decoration on the latter consists of rather austere embossed scrolls, basketwork and other geometric patterns around rims.

In addition to the British wares described above a quantity of English and Scottish wares of the 19th and 20th centuries were also recovered. These have not been discussed in this report as most were recovered from unsatisfactory archaeological horizons.

CONCLUSIONS

It must be stressed that although the Scalloway Castle pottery assemblage is relatively small it is the most comprehensive collection of this type of material so far recovered by excavation in Scotland. It would be dangerous to draw firm conclusions as only the Area A groups were recovered from stratified deposits. As little of the 17th-century pottery can be assigned to specific production centres and, as the only other dating evidence consists of clay-pipe fragments, this report is of necessity a descriptive record of the various wares with the hope that future work in Scotland may be able to provide more accurate dating.

Within Area A, Northern European earthenware pipkins with rim forms 2, 3 and 5, leg type 1 and tubular handles were in common use during the middle of the 17th century and these probably had earlier origins, as several abraded sherds were recovered from the earliest feature, ditch 4551. A pinched handle of the well-known Dutch form was also found in this feature. Colanders, plain and slip-decorated dishes of Groups A, C and D, together with Weser-type ware were also present in the mid-17th-century fills of the ditch. It is unfortunate that apart from obviously abraded sherds it was not possible to estimate how much material was residual, and the probable use of at least some of the slip-decorated dishes as decorative objects may have ensured that they had an artificially long life span. It is noteworthy that only a single sherd of Scottish pottery was recovered from this early feature, fill 4543, indicating that at this period Scalloway pottery needs were not being met to any great extent from the mainland.

It is only with phase 2, late 17th or early 18th century till the late 18th century, that pipkins with rim form 1 appear – apparently superseding rim forms 2, 3 and 5. Dutch-style pinched handles continue in use as do dishes of Groups A, C and D and colander type vessels. Group B dishes first appear at this time and a sherd from a Bellarmine and sherds probably of Duingen ware are the earliest stratified stoneware sherds recovered from Area A, although the Bellarmine sherd is probably residual. Delft-type wares are also present along with sherds of Chinese porcelain. The presence of the latter may be an indication of the strong trading links between Holland and China during the late 17th and 18th centuries and may also perhaps indirectly indicate that the Delft-type wares were manufactured in Holland. The

earliest English material, Staffordshire-type slipware, appears during this period. White salt-glazed stoneware of English or Scottish origin is also present for the first time. But for the possibility of it having been made in Scotland in the late 18th century the writer would have been inclined to date the end of phase 2 to the middle of the century. However, its presence may be the only indication that the cottage or smithy had a long life span.

Although body sherds from pipkins were recovered from phase 3, 19th-century features, these could all be residual by this time. A few sherds of Delft-type ware may also have had earlier origins. Victorian coins and related pottery provide a more accurate date for the phase 3 occupation.

The pottery sample is too small to merit discussion of the vagaries of coastal trade.

CATALOGUE OF ILLUSTRATED MATERIAL (figs 6–8)

Area code, context number and phase, where applicable, are given after a brief description of each piece.

1 Pipkin rim form 1, brown speckled internal glaze, A, 4540, 2.
2 Pipkin rim form 1, dark brown mottled internal glaze, G, 3001.
3 Pipkin rim form 2, brown internal glaze, G, 3001.
4 Pipkin rim form 2, brown speckled internal glaze, G, 3001.
5 Pipkin rim form 2, brown speckled internal glaze, A, 4538, 1.
6 Pipkin rim form 2, dark brown speckled internal glaze, C, 1007.
7 Pipkin rim form 3, dark brown internal glaze, G, 3001.
8 Pipkin rim form 3, ochre green internal glaze, C, 1003.
9 Pipkin rim form 3, ochre internal glaze, B, 503.
10 Pipkin rim form 3, ochre internal glaze, A, 4538, 1.
11 Pipkin rim form 4, orange brown internal glaze, C, 1003/1007.
12 Pipkin rim form 5, ochre internal glaze, A, 4538, 1.
13 Pipkin rim form 5, ochre orange internal glaze, B, 503.
14 Small globular vessel, orange-brown speckled internal glaze, A, 4541, 2.
15–19 Tubular handles B, 503; B, 503; C, 1003; G, 3019; G, 3001.
20–22 Pipkin leg type 1, A, 4538, 1; A, 4538, 1; G, 3006.
23 & 24 Pipkin leg type 2, G, 3006; G, 3001.
25 Decorated rim, G, 3001.
26 Decorated rim, C, 1006/1007.
27 Decorated rim, B, 503.
28 Decorated rim, G, 3001.
29 Colander, internal and external creamy orange glaze, A, 4538, 1.
30 Shallow bowl or colander, internal and external creamy orange glaze, A, 4522, 3.
31 Bowl or colander, internal and external creamy orange glaze, A, 4538, 1.
32 Bowl or colander, internal and external creamy orange glaze, C, 1006.
33 Slip-decorated small open vessel, G, 3001.
34 Slip-decorated small globular vessel, B, 503.
35 Slip-decorated small globular vessel, B, 519.
36 Small strap handle with two spots of white slip, G, 3001.
37 Dish rim, orange internal glaze, G, 3001.
38 Dish rim, brown speckled internal glaze, G, 3008.
39 Dish rim, orange internal glaze, A, 4538, 1.
40 Dish rim, overall white internal slip with clear glaze, A, 4536, 2.
41 Dish rim, overall white internal slip with clear glaze, A, 4522, 3.
42 Dish rim, overall white internal slip with clear glaze, G, 3001.
43 Dish rim, overall white internal slip with orange slipped spots underlying clear glaze with green streaks, part of a pierced hole, A, 4547, 2.
44 Dish rim, white slipped decoration under clear glaze, C, 1006.
45 Dish rim, white slipped decoration under clear glaze with a green streak, A, 4536, 2.
46 Dish rim, white slip trailed decoration under clear glaze, G, 3001.
47 Dish rim, white slipped decoration under clear glaze, A, 4538, 1.
48 Dish rim, white slipped decoration under clear glaze with green streaks, B, 503.

49 Dish sherd, white slipped zoomorphic design, possibly part of a cockerel under clear glaze, A, 4538, 1.
50 Dish rimsherd, white slipped decoration under clear glaze, B, 503.
51 Dish rimsherd, white slipped decoration under clear glaze, A, 4541, 2.
52 Weser-type ware dish rimsherd, white overall slip and orange-brown slipped decoration under clear glaze with green areas, G, 3001.
53 Delftware-type plate, dark and light blue decoration and blue-tinged white glaze, A, 4547, 2.
54 Delftware-type plate rim, dark and light blue decoration and blue-tinged white glaze, A, 4521, 3.
55 Delftware-type bowl, dark and light blue decoration and blue-tinged white glaze, G, 3001.
56 Chinese porcelain dish, blue underglaze and red overglaze decoration, A, 4547, 2.
57 Chinese porcelain bowl, blue underglaze decoration, A, 4541, 2.
58 Persian ware bowl, blue and black decoration, C, 1003.

APPENDIX 2: BRICK AND TILE (not illustrated)

W J LINDSAY

Two pieces of brick, three fragments of flooring tile and 30 pieces of pantile were recovered from stratified deposits during the excavations. None of the pieces is large enough to merit illustration.

THE BRICKS

The two pieces of brick were recovered from the final backfilling, 4538, of ditch 4551, phase 1 and from a flooring level, 4541, associated with the phase 2 smithy. Both features are in Area A. The larger piece from ditch 4551 is 102 mm wide by 44 mm thick but only 95 mm of its former length remains. The cream-yellow soft fabric contains occasional rounded sandstone inclusions up to 3 mm in length with irregular rounded voids and small lenses of red clay. The brick is light in weight and its surfaces are worn apart from the broken end. From the excavation evidence, a few fragments from clay-pipes, it seems that it was finally deposited in the mid-17th century but because of the worn faces it could have been made earlier in the century. The only other stratified fragment of brick is well-worn and no estimate of its original dimensions could be made. The orange-red soft fabric is slightly micaceous, contains iron inclusions and has rounded voids. The surfaces associated with the voids are sometimes charcoal-coated. The brick fragment was found in layer 4541 which contained other material dated to the late 18th century and earlier but again because of its abraded condition it could have been made considerably earlier.

There is no knowledge of brick being used in the construction of Scalloway Castle although Douglas Simpson, in a draft of the guidebook to Muness Castle, refers to red brick being incorporated in the cores of walls. He was of the opinion that the material could have arrived at Muness as ballast from Holland (information from Dr R Fawcett).

THE FLOOR TILES

Six fragments of floor tile, three from stratified deposits in Area A, were recovered. All belong to phase 2 features, layers 4536 and 4538 phase 1, but like the brick fragments they are well-worn and are almost certainly earlier in date. They may well have come from the castle.

All six fragments are of the same fabric which is hard, orange, sandy and slightly micaceous. Fine rounded quartz grits up to 0·5 mm and partially burned out cindery ferruginous inclusions up to 6 mm are also present. In one example rounded inclusions composed of iron, mica and quartz grits are noticeable and it may be that these are ferruginous inclusions which have not been subjected to the same degree of heat. Irregular rounded voids are also present, often in association with the cindery formations. A small quantity of shell or fossil shell is also present. The tiles are incomplete but are c 24 mm thick and one is 155 mm wide. All the floor-tile fragments are covered on one face with a white slip; some have slip adhering to their (original) sides. The quartz-rich slip is covered with green glaze on five examples and clear glaze on the other. No other form of decoration is present but one glazed surface has a stacking scar.

THE PANTILES

Of the 77 fragments, 30 were recovered from Area A, phase 2 features. Several came from the smithy

debris and the associated yard and are therefore of a probable 18th-century date. The sandy fabric of the stratified fragments is relatively consistent being hard and orange with rounded transparent quartz grits up to 0·5 mm in length. Angular orange fragments, occasional lenses of white clay and brown, cindery inclusions are also present. Only occasional flecks of mica are present.

APPENDIX 3: THE CLAY PIPES

P J DAVEY

Five hundred and twenty-three fragments of pipe-clay artefacts were recovered from the excavations, from 31 contexts in the five areas examined. Whilst many of the larger groups are from mixed 'garden' deposits (eg 503 with 122 fragments and 3001 with 181) and numbers from archaeologically critical deposits are generally too small for firm conclusions to be drawn, the pipes do provide dating indications from a more secure base than other finds of the period and taken together give some idea of the nature of pipe use and loss in Shetland. The pipes have been recorded and studied according to 'Guidelines . . .' (Davey 1981). Complete site lists and record sketches of all bowls and decorated fragments are held in the excavation archives.

This report is divided into three parts. First, a summary of the information the pipes provide towards the understanding of each area excavated; second, a description and illustration of all the major finds, and third, a discussion of pipe use in Shetland as represented by this one excavation.

THE EVIDENCE PROVIDED BY THE PIPES

Area A

This was the only area of the excavation where the contexts could be phased with any degree of confidence so the group of 28 pipe fragments from six contexts, though small, does require some special consideration.

The evidence can be summarised as follows:

	Bore (in 64ths in)									
Context	8	7	6	5	4	Stems	Bowls	Total	Bowl/decorated stem date range	Comments
4000			1			1		1		
4521/2		2		1	2	4	1	5	1800–50	Mixed
4525				1		1		1		
4536		1	1			2		2		17th-century stems
4538	4	5	2			11		11	1630–50	Consistent; fig 9 no 5
4543		6	2			7	1	8	1640–60	Consistent; fig 12, no 43
Total	4	14	6	2	2	26	2	28		

Two of the upper ditch fills, which were the lowest layers in the sequence to contain pipes, included 19 fragments, eight from 4543 and 11 from 4538, which was the upper of the two. The decorated Dutch moulded stem (fig 9, no 5) is typical of the period 1620–40, while the bowl in 4543 (fig 12, no 43) should fall within the range 1640–60. There is no sign of a late 17th century element. If the stem bore dating method is applied and with so few to measure it should clearly be used with great caution (cf Oswald 1975, 92–5), 4538 gives a date of 1657 and 4543 a date of 1673. Even with a large enough group, ideally more than 1000 stems, these dates could not be statistically separated. The evidence there is suggests a slightly later date for 4543 than for 4538. The five pieces from 4521/2/4531 provide an interesting contrast. While two of the stems, including a burnished example, are, on the evidence of bore diameter, 17th century in date, the other three certainly belong to the 19th. The single stem from the yard surface, 4525, is likely to post-date 1700.

Areas B and G

The major group in B is from a cultivated soil, 503, with 122 fragments. Although around 100 of the pipes are probably of early 19th century date, the rest appear to date from the middle to end of the 17th. The single bowl in pit 517 (fig 11, no 29) is a Dutch example of the period 1610–40. The four stems from 519/523 indicate a 17th-century date for these fills. Unfortunately there is no bowl or decorated stem present which might allow these small pre-19th century contexts to be chronologically distinguished.

In area G the topsoil (3001) provided 181 fragments and, as with area B, the vast majority are of 19th-century date. In this case, however, there is a significant element belonging to the 18th century (eg fig 10, nos 17, 19, 20, 22) as well as to the 17th. The absolute chronology of the pipe-containing layers is made more difficult because, whilst soil layers 3004 and 3008 include early to mid-17th-century material, 3003 and 3009, which are stratigraphically intercalated, produced early to mid-19th-century finds as well. Again the numbers involved are too small for firm conclusions to be drawn, but this evidence does at least suggest that the 3009 robbing took place in the early 19th century.

Areas D, E and F

Five of the six contexts from this area included material of both 17th and 19th century manufacture. The sixth, soil layer 2507, has one 17th-century fragment.

Area C

The pipe finds from spits of soil excavated in this area suggest that, although there were no sealed deposits, a steady build-up of material occurred. The evidence from the four largest pipe deposits can be summarized as follows:

Context	Mean bore (64ths in)	Bore 'date'	Bowl range	Latest date
1002	6·07	1699·61	1620–1800	1800
1003	6·23	1693·49	1640–1740	1740
1006	6·25	1692·73	1640–1710	1710
1007	7·10	1660·20	1620–80	1680

While the bore dates (cf Oswald 1975, 92–5) represent a mean of all the pipes in the context, the bowl range shows how the latest material becomes steadily earlier as the spits are deeper. This apparent stratification may have implications for the interpretation of other artefacts from this area.

General

Apart from the specific dating indications suggested by the pipes, a number of more general points about the nature of the site can be made. First, the fact that there were no cross-context joins and that only small proportions of any one pipe were present suggests both that rubbish was well scattered over the site and that only minor proportions were archaeologically investigated. This impression is heightened by the lack of bowls to go with very distinctive stems, eg the moulded stems (fig 9, nos 1–5) and the Jonah stems (fig 9, nos 6–8) are not matched by bowls of these types. Secondly, taking all the pipes which can be dated together, some idea of the intensity of occupation at different times can be suggested. Pipe deposition on the site can be divided into four main periods:

Period One 1635–60. Thirty datable fragments, out of a total for the site of 63, relate to this period. Thus 48% of such finds from the site date to the short span of 25 years, an average of 1·2 datable pipe fragments recovered for each year of occupation. It is likely that this relatively intense activity represents the Cromwellian occupation. There are no pipes which clearly date from the beginnings of the site in the first years of the 17th century.

Period Two 1660–1700. Thirteen datable fragments (21% of the total) come from this period, an average of 0·325 for each year covered. Most are within the range 1670–90 and presumably represent a declining intensity of occupation during the second half of the century – a period when pipe smoking was probably at its height.

Period Three 1700–70. Only 11 fragments (17%) were recovered for this 70-year period; an average of 0·157 per year. This suggests occasional use or visits, rather than continued occupation.

Period Four 1770–1920. The nine pieces from this 150-year period (14%) mostly date from the 19th century. With an average of 0·06 fragments per year, this suggests occasional use or tourist visits at a much lower level of intensity than during the 18th century. In general pipe smoking recovered during the 19th century from a decline during the 18th.

Thirdly, some estimate of the quality of the pipes during these periods can be made. During Period One a range of qualities is in evidence, with the highest finish and best moulds, in general, on the earliest pipes (eg fig 9, no 13, and fig 12, no 39). In Period Two the pipes are almost uniformly of poor quality typified by the Dutch moulded rose examples (eg fig 11, nos 24–28). This may be the contrast between a socially stratified domestic occupation and a military one. In Period Three, the pipes are of very good

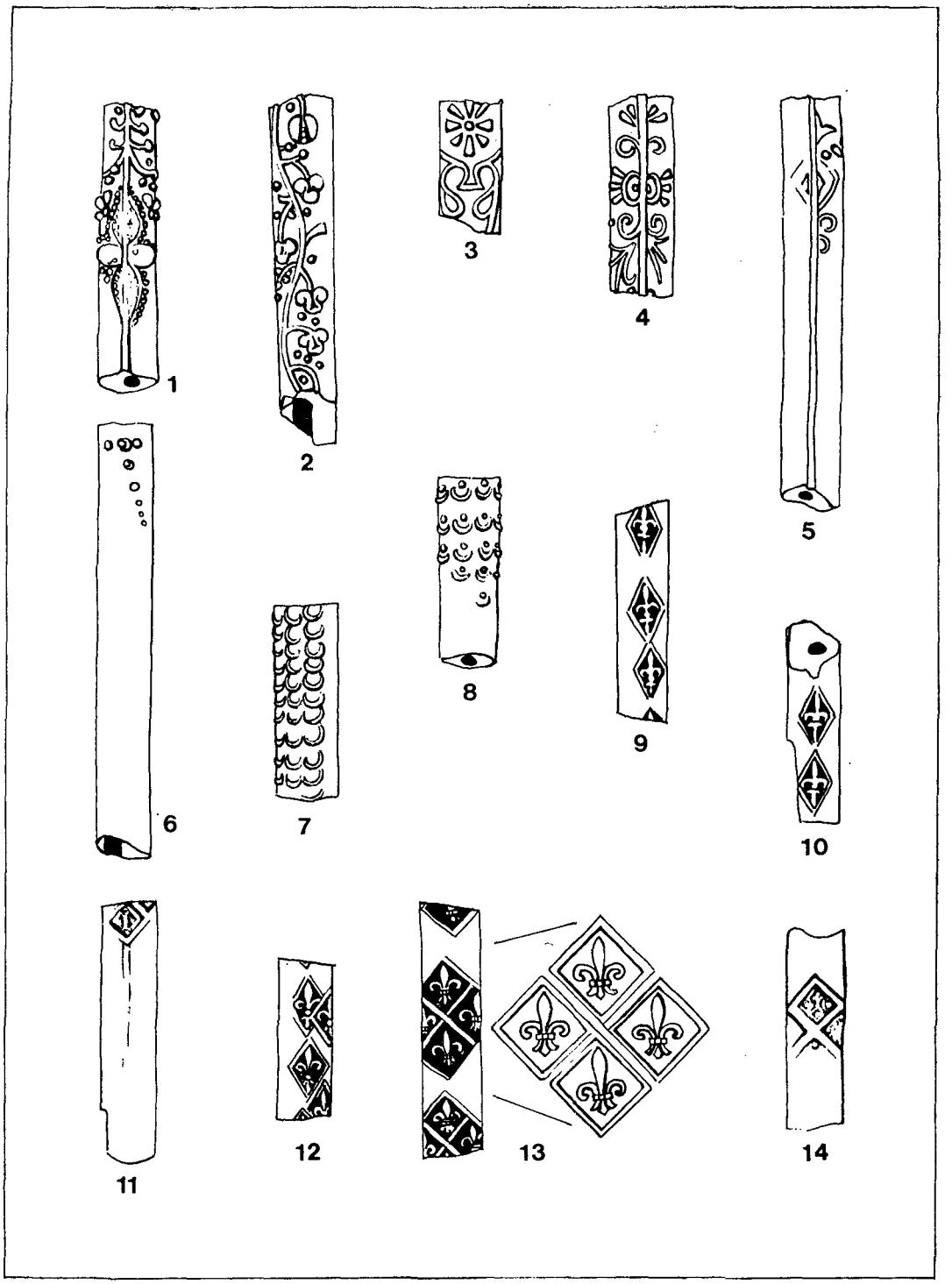

FIG 9 Dutch clay pipes: moulded stems (nos 1–8); fleur-de-lis and related stamps (nos 9–14) (scale 1 : 1 with detail at 2 : 1)

quality but Period Four pipes never rise above the average mass-produced example made in Glasgow and Edinburgh in such profusion (fig 12, nos 48–54).

CATALOGUE AND ILLUSTRATIONS (figs 9–13)

As far as possible entries are in the following order: description; possible source where known; stem bore in 64ths in; comparisons where appropriate; suggested date range; area code; context number and phase where applicable.

Dutch moulded stems (fig 9, nos 1–8) *and fleur-de-lis and related stamps* (fig 9, nos 9–14)

Floral and leaf decoration (fig 9, nos 1–5) [cf Duco 1981, 251–3, 379, nos 132–59]

1 Probably Amsterdam; $\frac{7}{64}$ in; 1630–40; B, 503.
2 Dutch; $\frac{6}{64}$ in; 1670–80; G, 3004.
3 Probably Amsterdam; $\frac{8}{64}$ in; 1630–40; D, 1500.
4 Probably Amsterdam; $\frac{6}{64}$ in; 1630–50; G, 3001.
5 Probably Amsterdam; $\frac{6}{64}$ in; 1630–50; A, 4538.

Jonah pipes (fig 9, nos 6–8) [cf Duco 1981, 254, 380–2, nos 160–75 (1630–50)]

6 Vestigal scales survive only; probably Gouda or Leiden; $\frac{7}{64}$ in; B, 503.
7 Very worn mould; probably Gouda or Leiden; $\frac{7}{64}$ in; C, 1002.
8 Unusual form of scales; probably Gouda or Leiden; $\frac{6}{64}$ in; G, 3001.

Fleur-de-lis and related stamps (fig 9, nos 9–14) [cf Friederich 1975, 69–71; Duco 1981, 248–9, nos 107–22]

9 Single stamp applied at least four times; possibly Gouda; $\frac{6}{64}$ in; cf Duco 1981, no 110; 1625–40; B, 503.
10 Identical or very similar stamp applied at least twice; $\frac{6}{64}$ in; 1625–40; B, 503.
11 Stamp with four-part die applied once, very faint, probably not a fleur-de-lis; $\frac{7}{64}$ in; cf Friederich 1975, 69 bottom; 1630–50; G, 3001.
12 Single stamp applied at least six times, different die from 9 and 10; $\frac{8}{64}$ in; 1625–40; C, 1003.
13 Very high quality four-part stamp applied at least three times; $\frac{7}{64}$ in; cf Friederich 1975, 69 bottom; 1630–50; B, 503.
14 Very faintly applied different four-part stamp, probably not a fleur-de-lis; $\frac{7}{64}$ in; 1630–50; B, 503.

Dutch roller-stamped stems and twists (fig 10, nos 15–23)

15 Part of a roller-stamped stem with a 'ring of Pearls' border; $\frac{6}{64}$ in; cf Duco 1981, 246, no 46; 1670–1700; G, 3001.
16 Part of a stamp as 15; $\frac{7}{64}$ in; 1670–1700; G, 3001.
17 Part of a roller stamp with zigzag border; $\frac{6}{64}$ in, cf Friederich 1975, 66, bottom half page; 1700–30; G, 3001.
18 Part of a stamp as 17; $\frac{6}{64}$ in; 1700–30; C, 1006.
19 Complete stamp as 17; $\frac{6}{64}$ in; 1700–30; G, 3001.
20 Complex twist; probably Gouda; $\frac{3}{64}$ in; cf Friederich 1975, 63, third from bottom; 18th century; G, 3001.
21 'Ring of Pearls' roller stamp and twist; probably Gouda; $\frac{5}{64}$ in; cf Friederich 1975, left column, 6 from bottom; 1720–50; C, 1006.
22 Rouletted stem roller-stamped in GOUDA twice; $\frac{5}{64}$ in; 18th century; G, 3001.
23 Stem as 22 stamped F VERZYL; $\frac{5}{64}$ in; probably Frans Verzijl of Gouda who was working 1753–74; cf Duco 1978, 48; B, 503.

Dutch bowls and bowl fragments (fig 11, nos 24–38)

Moulded rose (fig 11, nos 24–8) [cf Duco 1981, 244, 377, nos 31–8]

24 Six dot rose, only left part of bowl survives, bottered not milled; 1640–60; G, 3001.
25 Seven dot rose, just visible on the right side; $\frac{7}{64}$ in; 1670–90; E, 2001.
26 Six dot rose with five sepals, bottered and milled on the front at least; $\frac{6}{64}$ in; 1640–60; G, 3004.
27 Six dot rose with five sepals; $\frac{6}{64}$ in; 1640–60; C, 1003.

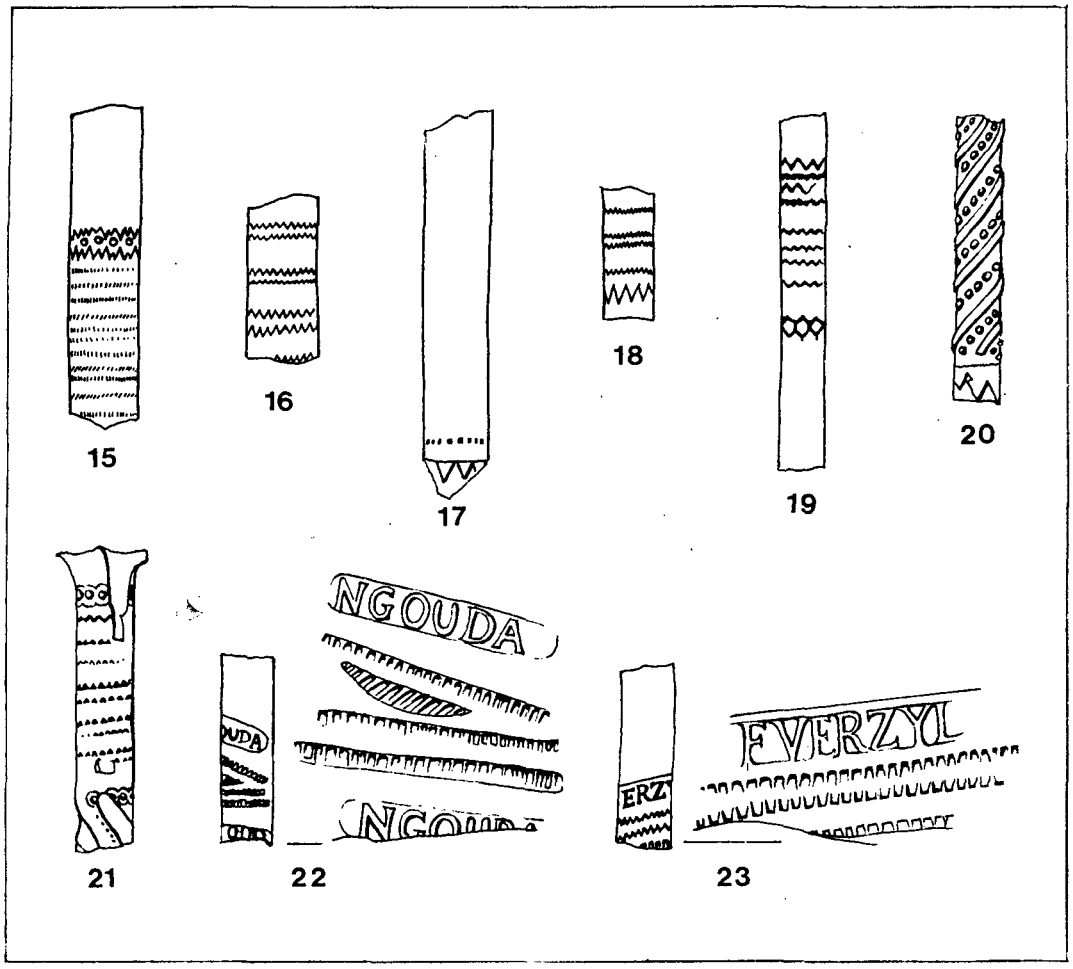

FIG 10 Dutch clay pipes: roller-stamped stems and twists (scale 1 : 1 with detail at 2 : 1)

28 Six dot rose with five sepals, mould very worn and damaged, poorly bottered, apologetic milling on front only; $\frac{6}{64}$ in; 1680–1700; B, 503.

Heel stamps, all in relief (fig 11, nos 29–33)

29 Rose consisting of seven closely spaced dots, bowl partially milled but damaged; $\frac{6}{64}$ in; cf Friederich 1975, 97, Abb 15, no 201; 1615–40; B, 517.

30 Bowl fragment with indistinct stamp, possibly the axe of Gouda; $\frac{5}{64}$ in; cf Duco 1978, 145, no 373; 18th century; G, 3003.

31 Bowl fragment with good quality, very high milling, bottered, indistinct heel stamp, possibly a milkmaid; $\frac{6}{64}$ in; cf Duco 1978, 105, 141, no 294; this example probably 1670–90, though the stamp is known from 1660 to 1898; D, 1500.

32 Damaged bowl with milling on rim, rose and crown heel mark, there is a letter F to the right and a missing letter to the left; $\frac{7}{64}$ in; Friederich (1975) has a number of similar stamps marked IF (Abb 15, nos 114, 122, 124, 135), dating to 1610–40; cf also Duco 1981, 247, nos 53–58; B, 503.

33 Bowl fragment with finely executed crowned L heel stamp; $\frac{5}{64}$ in; This Gouda stamp is first recorded belonging to Cornelis Luijnenburg in 1726 and was in use until the demise of P van der Want Gzn in c 1930. It was held by the Verzijl family from 1753 to 1821 (NB no 23 above); cf Duco 1978, 48, no 9; 1750–70; D, 1506.

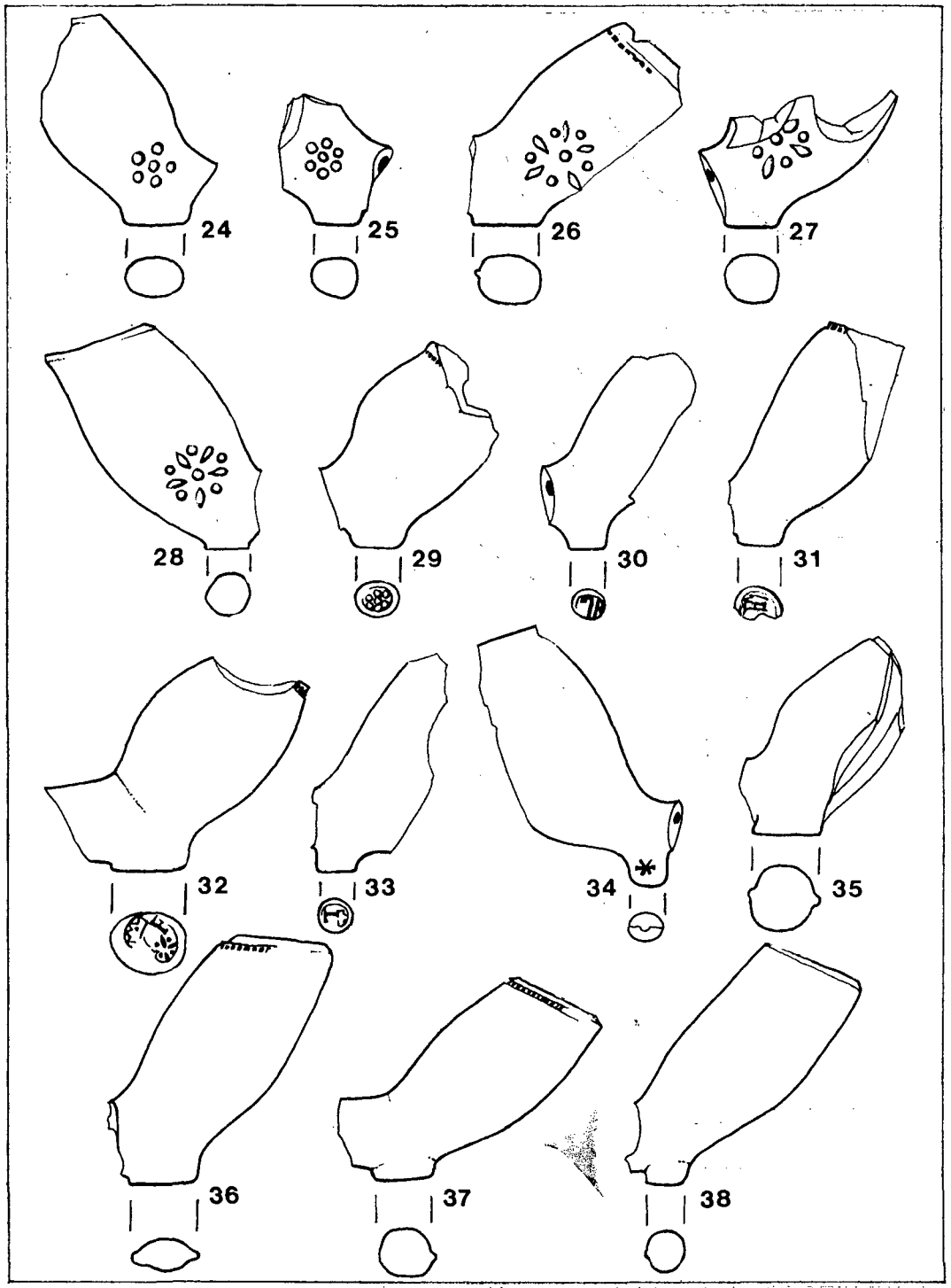

FIG 11 Dutch clay pipe bowls: moulded roses (nos 24–28); heel stamps (nos 29–33); spur moulded stamp (no 34): plain (nos 35–8) (detail 1 : 1)

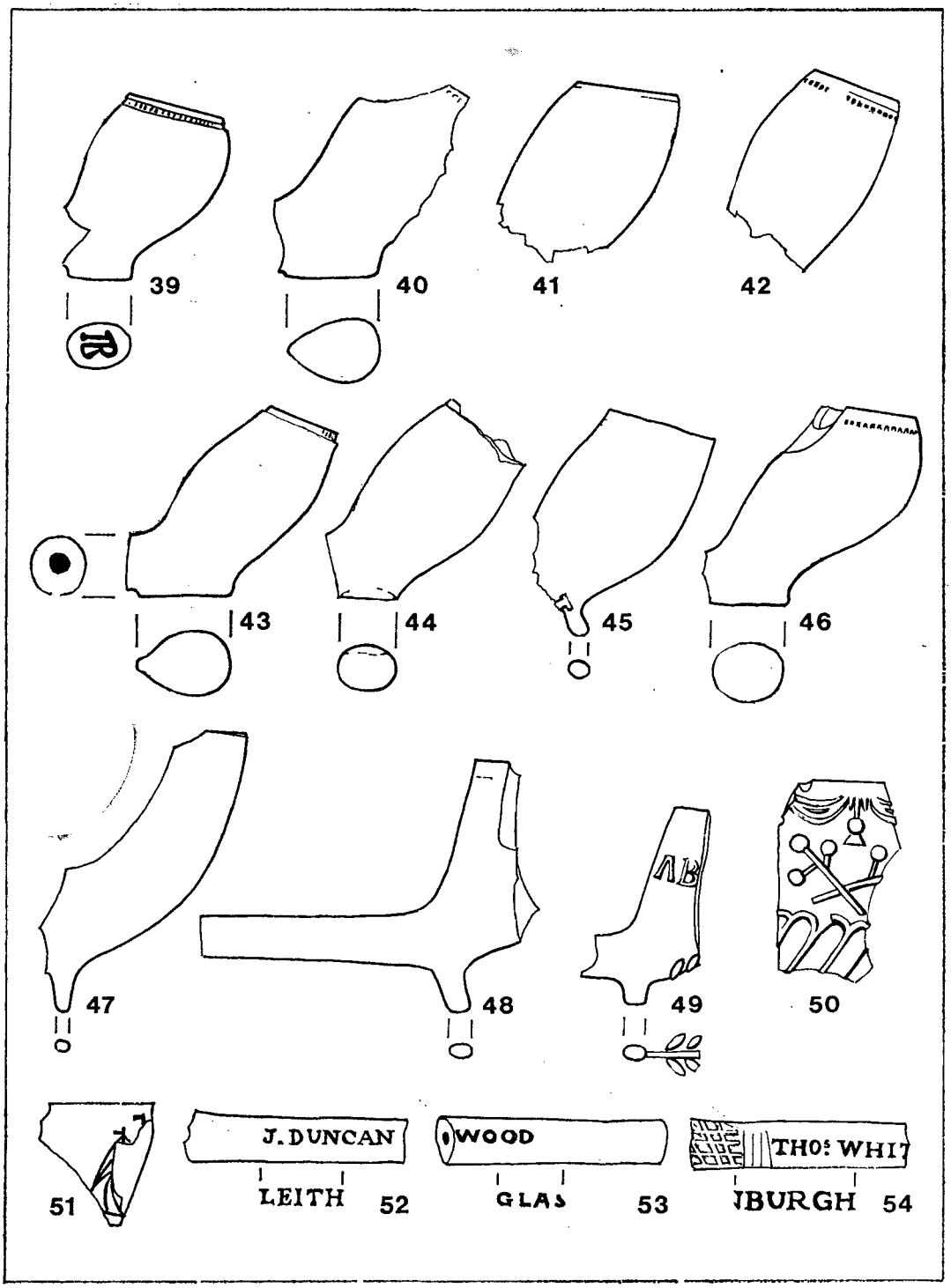

FIG 12 British-type clay pipes: bowls and stems (scale 1 : 1)

Spur moulded stamp (fig 11, no 34)

34 Bowl with a star or windmill on both sides of the spur, cut off rim, crudely trimmed casting seams; $\frac{5}{64}$ in; no good comparisons but cf Friederich 1975, 129, Abb 44; 18th century; C, 1002.

Plain bowls (fig 11, nos 35–8)

35 Damaged bowl, bottered not burnished; $\frac{6}{64}$ in; 1620–50; G, 3001

36 Well trimmed, lightly polished bowl, bottered, milled on the front only; $\frac{8}{64}$ in; 1670–90; B, 503.

37 Poorly trimmed bowl, bottered, milled on front; $\frac{6}{64}$ in; 1660–80; B, 503.

38 Elegant bowl, very smoothly finished, bottered, $\frac{5}{64}$ in; 1670–1700; C, 1006.

British-type bowls and stems (fig 12, nos 39–54)

39 Well-made elegant bowl with very fine light milling, pink body, damaged and in three pieces; bore not measurable; incuse IB stamp on heel; source not known, but not unlike early Plymouth forms and stamps; cf Oswald 1969, 129, fig 53, no 4; 1620–40; C, 1003.

40–44 A range of mid-17th-century bowls, probably Scottish in origin

40 Damaged bowl, yellowish fabric with many inclusions, milled; $\frac{7}{64}$ in; 1640–60; G, 3001.

41 Upper part of bowl, very poorly made, pink/orange outer surface; 1640–60; G, 3001.

42 Upper part of bowl, very micaceous pink fabric, uneven wall thickness, heavily bottered rim, milled all round; 1640–60; B, 503.

43 Complete bowl, bottered, not milled; $\frac{7}{64}$ in; 1640–60; A, 4543, 1.

44 Damaged bowl, bottered, milled on ?front; 1640–60; C, 1002.

45 Spurred bowl with the remains of a moulded letter? I above spur, a very unusual form; $\frac{5}{64}$ in; ?1640–60; C, 1006.

46 Large bowl with pronounced 'chin', pink/orange outer surface, bottered and milled; $\frac{6}{64}$ in; the form is similar to Scottish pipes from Linlithgow, especially those bearing the star heel stamp or the initials of James Colquhoun of Glasgow; cf Laing 1968, 127, fig 7, nos. 1–4 and Martin 1977, 221; 1680–1700; C, 1006.

47 Elegant bowl with cut off, 'horizontal' rim; $\frac{4}{64}$ in; cf Oswald 1975, fig 4, G: 21; 1730–50; C, 1002.

48 Plain spurred bowl, damaged, casting seams poorly trimmed; $\frac{4}{64}$ in; 1800–50; G, 3001.

49 RAOB moulded bowl fragment; common throughout the British Isles; $\frac{4}{64}$ in; 1850 onwards; D, 1501.

50 Fragment of moulded, fluted bowl, very pure white clay; 19th century; B, 511.

51 Moulded rim fragment, including sailing ship; 19th century; D, 1501.

52 Stem stamped J. DUNCAN/LEITH; probably John Duncan of Leith who was working in Edinburgh in 1837; $\frac{5}{64}$ in; cf Oswald 1975, 205; G, 3001.

53 Stem stamped . . . WOOD/GLAS . . .; possibly William C Wood who was working in Glasgow 1857–75; $\frac{5}{64}$ in; cf Oswald 1975, 206; F, 2500.

54 Mould-decorated stem marked THOs. WHIT . . ./. . . NBURGH; probably T Whyte & Co recorded in Edinburgh directories 1832–64; $\frac{4}{64}$ in; cf Oswald 1975, 206; B, 503.

Fragment of a pipe-clay figurine (fig 13, no 55)

Lower part of a pipe-clay figurine probably representing a Madonna and Child. The bottom of the otherwise solid statuette has been hollowed out and trimmed with a knife so that it would stand up. The effect of clothing is gained by vertical burnishing in the manner of clay pipes. The most likely source for this object is Utrecht in Holland, where a major industry was active from the 15th to the early 19th centuries. The Scalloway find is very close in size and decoration to a complete Madonna and Child excavated in Amsterdam (Baart *et al* 1977, 472, no 902). There is no reason to suppose that this object could not have been made during the occupation of the Castle, sometime in the 17th century. G, 3001.

DISCUSSION

The Scalloway pipes are important because they provide the first stratified sequence from a land-based excavation in Shetland and allow a preliminary picture of pipe sources and their chronology to be sketched. The two major sources are Holland and mainland Britain, almost certainly Scotland. The problems of identifying Dutch pipes have been discussed elsewhere (Atkinson & Oswald 1972;

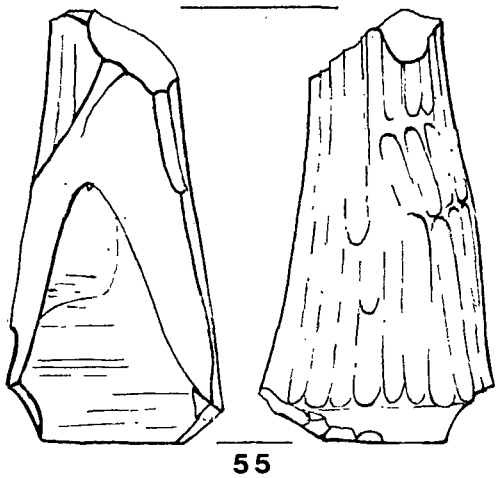

FIG 13 Pipe-clay figurine (scale 1 : 1)

Davey 1982a). The use of burnishing is fraught with difficulty as few of the pipes in the whole collection are burnished: 69 out of 523 (13%). The realization that some 17th-century Scottish pipes were burnished (cf Perth; Davey, forthcoming) means that great care must be taken to distinguish the very narrow and parallel marks made by agate tools in Holland from the broader and more unevenly executed Scottish examples. In the case of the Scalloway material all the burnished pipes appear to be Dutch. Of the 53 identified Dutch bowls and stems (nos 1–38, plus 15 not illustrated) only 10 (19%) are burnished. On this basis roughly 80% of the whole collection is Dutch. A preliminary study of the fabrics under a hand lens suggests that almost 90% of all 17th- and 18th-century pipes are of Dutch type. A further caveat, given the geographical position of Scalloway, is that some of the pipes identified here as Dutch may have been produced further north in Europe. In Denmark, for example, at least one early maker was Dutch (Ahlefeldt-Laurvig 1980, 249) and in Sweden the first makers were also Dutch (Bonds 1980, 276). At the moment we are ignorant as to what these first pipes looked like. While some of the more clearly identified Dutch pipes, such as the early Amsterdam products (eg fig 9, nos 1, 3–5) and the Jonah pipes (fig 9, nos 6–8) are certainly Dutch products, it remains to be seen whether the production of some of the poorer quality pipes, such as the moulded roses (fig 11, nos 24–8), was confined to Holland alone.

The chronology of the use of the two sources is of interest and can be tabulated using the pipe deposition periods described above:

	No of Pipes	No Dutch	No British
Period One 1635–60	30 (48%)	23 (77%)	7 (23%)
Period Two 1660–1700	13 (21%)	12 (92%)	1 (8%)
Period Three 1700–70	11 (17%)	10 (91%)	1 (9%)
Period Four 1770+	9 (14%)	0 (0%)	9 (100%)
Totals	63 (100%)	45 (71%)	18 (29%)

These Scalloway results complement what is already known from sites in Scotland. Those from Aberdeen, where at least 80% of all pipes recovered from the period 1620–1720 were of Dutch origin, provide the closest comparison (Davey 1982a), although Scalloway has no NE English pipes. In contrast, at Stirling Castle (Davey 1980) and Perth (Davey, forthcoming) only a third of the 17th-century pipes were Dutch and in Edinburgh itself no Dutch products were recognized from the excavations in St Mary's Street (Lawson 1980). The arrival of British-type pipes in Scalloway soon after 1650 may represent an interruption in Dutch trade patterns caused by the wars with the English. If this was the case, they recovered quickly and dominated Scalloway pipe imports until the end of the 18th century. Further light

is thrown by a comparison with the material from 17th- and early 18th-century Oslo (Skrel 1980). Ratios of Dutch to British pipes:

	Scalloway	Oslo
1620–50	19:1	50:1
1650–80	6:6	6:7
1680+	11:1	6:1

In both cases the decline in Dutch pipes after the middle of the century may be due to wartime conditions (cf Davey 1982b).

APPENDIX 4: THE SMALL FINDS

BONE AND METAL OBJECTS (fig 14)

D H CALDWELL

Area code, context number and phase, where applicable, are given after a description of each object.

1 A slightly curved and polished bone comb, with broad central reservation and fine teeth, scratches on both faces below the spaces between the teeth indicate that the teeth have been cut by a knife. Length 43 mm; width 44 mm; length of teeth 13 mm, 18th or 19th century, A, 4522, 3.

2 Openwork bronze corner-mounting and nail – possibly from a book cover, 17th or 18th century, D, 1501.

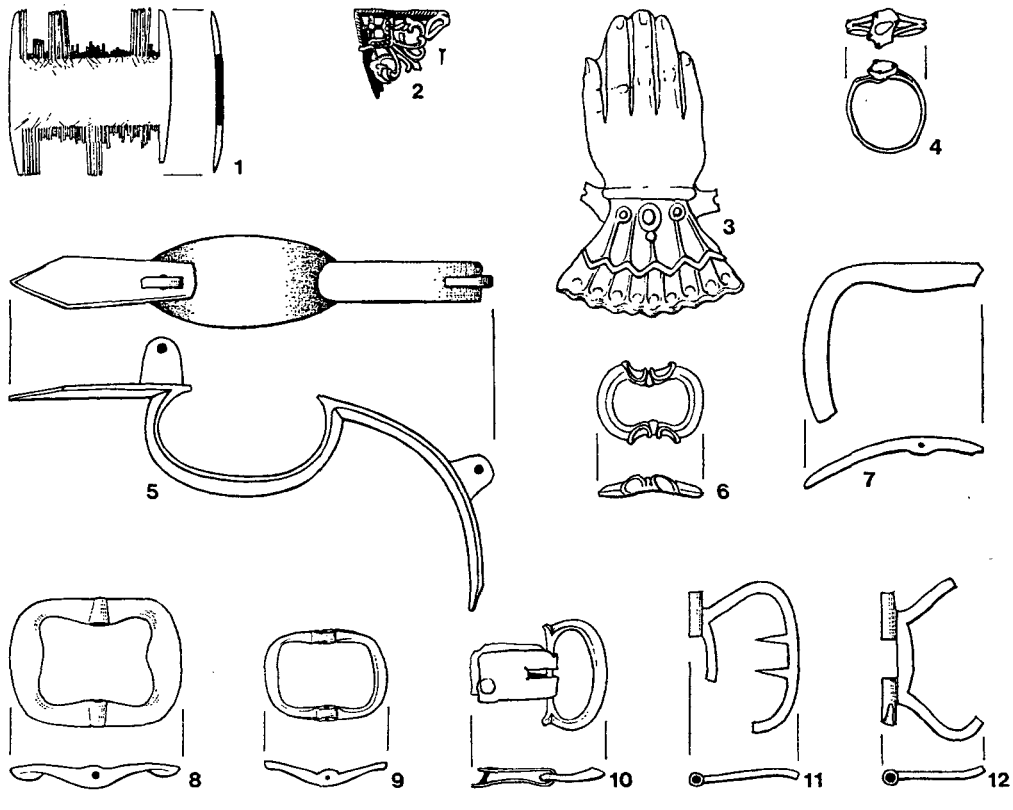

FIG 14 Bone and metal objects (scale 1 : 2)

3 Sheet bronze embossed gauntlet, probably part of a doll or letter holder, 19th or early 20th century, F, 2501.
4 Bronze finger-ring with hexagonal collet lacking its stone, 17th or 18th century, F, 2501.
5 Trigger guard for a pistol, length 131 mm, 18th or early 19th century, F, 2501.
6 Decorated bronze buckle, late 17th or 18th century, A, 4531, 3.
7 Part of a bronze buckle, late 17th or 18th century, A, 4545, 2.
8 Bronze buckle, late 17th or 18th century, A, 4531, 3.
9 Bronze buckle, late 17th or 18th century, G, 3001.
10 Bronze buckle, late 17th or 18th century, G, 3001.
11 Part of a hinged loop of bronze from a shoe buckle, A, 4528, 2.
12 Part of a hinged loop of bronze from a shoe buckle, A, 4528, 2.

THE COINS (not illustrated)

D H CALDWELL

Thirteen coins were recovered during the excavations at Scalloway Castle. Two are unidentifiable and the only ones recovered from stratified horizons were three Victorian halfpennies (nos 7–9).

1 Mary, Lion or hardhead (Scottish 1½d), billon, 1558, countermarked on obverse with heart containing a star (in 1572 it was ordered to be used to determine true coins from false) (Burns 1887, 317, no 7), B, 503.
2 Charles I Turner (Scottish 2d), copper, group III, worn, B, 511.
3 Charles I Turner (Scottish 2d), copper, 3rd issue, C, 1006.
4 Charles I 'Stirling' Turner (Scottish 2d), copper, group IV, G, 3008.
5 Russian coin, Elizabeth, Denga, copper, 1749, G, 3001.
6 Dutch coin, Duit of West Frisia, copper, 18th century, worn, pierced through centre, possibly as a result of being reused as a button, D, 1506.
7 British coin, Victoria, halfpenny, copper, 1861, A, 4521, 3.
8 British coin, Victoria, halfpenny, copper, 1862, A, 4510, 3.
9 British coin, Victoria, halfpenny, copper, 1862, A, 4522, 3.
10 British coin, Victoria, halfpenny, copper, 1886, E, 2000.
11 British coin, Victoria, halfpenny, copper, C, 1000.
12 Not identified, copper, 19 mm diameter, G, 3001.
13 Not identified, copper, 20 mm diameter, G, 3001.

THE GLASS (not illustrated)

W J LINDSAY

Fifteen pieces of glass were recovered from the Area A, phase 2, smithy floor and the soil horizon separating phase 2 activity from that of phase 3. Thirteen small fragments of green blown-bottles are typical products of the 18th century. The pieces come from vessels having thick, domed bases, almost vertical sides, sharp shoulders and long necks. A small piece of green window-glass from the smithy floor has two original edges cleanly cut as if by a tool. A fragment from the rim of a fine clear wine glass was found in the soil horizon 4522. It is part of an upright bowl with a slightly concave profile which terminates in a slightly thickened rim. The average thickness of the glass is c 1 mm.

STONE OBJECTS (fig 15)

W J LINDSAY

Three points from stone ard shares, probably made from the Old Red Sandstone rocks to be found in the E and S of the Shetland Islands were recovered during the excavation of Areas B and G. Two were found in layer 519 along with two tiny sherds of coarse pre-medieval pottery. It is therefore probable that the ard points are, like the pottery, residual although the possibility remains that cultivation could have continued using ards at least into the 17th century. They are a common find on the Islands. The Scalloway examples are slighter than many, possibly indicating that the motive power was human rather than equine (fig 15, nos 1–3).

Twelve dark brown or grey flakes of flint, a stone which does not occur naturally in the Shetland Islands, were found during the excavations. Many of these were recovered from the upper levels of Areas

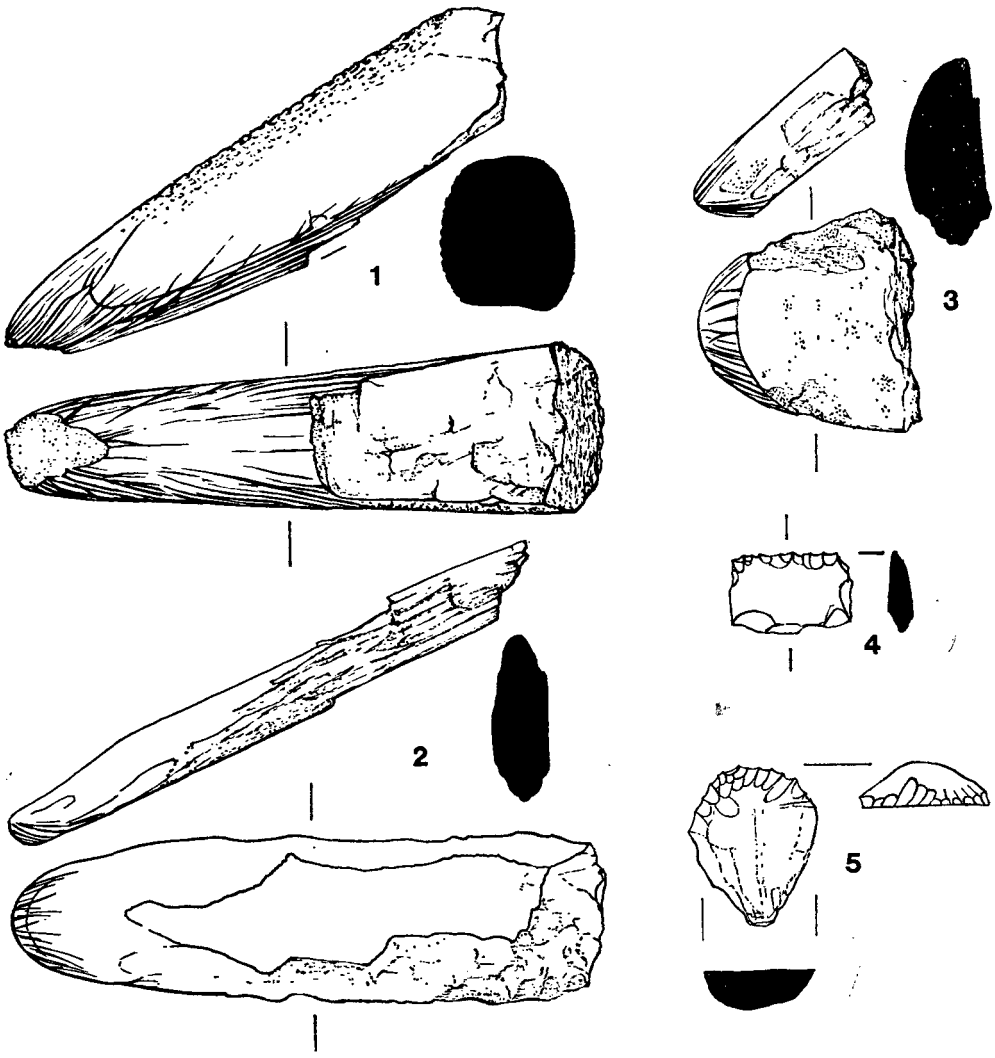

FIG 15 Stone objects (scale 1 : 2 except no 5, 1 : 1)

B and G. A rectangular chert or fine-grained quartzite, probably from a flintlock musket showed evidence of having been worked. There is some evidence of it having been reused after it had broken (fig 15, no 4).

A large quantity of white quartz pebble fragments and small chippings were present in the upper soil horizons of Areas D and F and a few were recovered from the lower levels, including the natural water channels, in Areas B and G but it is unlikely that they should be considered as evidence of waste products from a quartz tool-making industry. The only worked tool is a small scraper from a soil horizon in Area D. It is one of the few pre-medieval finds from the excavation (fig 15, no 5).

I am grateful to Dr G H Collins of the Institute of Geological Sciences (NERC) who identified stone specimens nos 1–4.

Catalogue

Area code and context number are given following a description of each object.

1 A wedge-shaped ard point, 155 mm long, in a fine-grained micaceous sandstone of a brown colour.

The upper unworn surface is covered with pecked impressions but the underside, parts of the sides and the tip of the upper surface are smooth but considerably scored. In general these striae radiate from the centre of the tip and no doubt have been caused by the implement's passage through stony ground, B, 519.

2 An ard point, 155 mm long, fractured along its length, in a bluish fine-grained siltstone. There is no surviving evidence that the stone had originally been pecked and only the rounded end is smooth with a few scores from use, B, 519.

3 An ard point, only 50 mm of its length surviving, in a bluish fine-grained siltstone. It shows faint evidence of having been pecked originally but only on the upper surface near the cross break. Upper and lower surfaces are smooth and scored from use. The striae are deeper and more numerous on the lower side, G, 3001.

4 Part of a chert or fine-grained quartzite for a flintlock musket. It is 32 by 20 mm and is off-white in colour, C, 1003.

5 Part of a white quartz scraper showing some evidence of retouching, D, 1501.

APPENDIX 5: REPORT ON THE ANIMAL REMAINS

CATHERINE SMITH AND G W I HODGSON

METHODOLOGY AND MEASUREMENT

The bone material was identified by direct comparison with modern material. Ribs and vertebrae, other than the first two neck vertebrae, were not identified or recorded. Bird remains were identified only as to bone and not to species. Fish bones were not identified as to species. Measurements were taken following the scheme proposed by Driesch (1976, 19–100). Dr M C Sheldrick of the British Museum has confirmed that two bone fragments, which fit together, are from a large sea-mammal. They compare favourably with a whale vertebra reported from a Roman site at Corbridge (Hodgson 1980, 15).

THE SAMPLES

Bones from two areas (A and B/G) are reported on. The number of identified bones is small: Area A, 90; Area B/G, 81. The samples may indicate how man interacted with domestic and wild animals, with regard to meat supply and animal husbandry. There is some evidence that the samples represent both domestic and commercial refuse, therefore they cannot be used as a guide to dietary preferences.

RELATIVE FREQUENCIES OF SPECIES PRESENT

The relative frequencies of species were estimated on the bases of: (a) total number of identified bones of each species present, and (b) minimum numbers of animals present. Table 1 gives the numbers and percentages of bones identified from each area.

TABLE 1
Numbers and percentages of identified bones recovered from each area, classified as to species (excluding fish and sea mammal)

Area	Date		Cattle	Sheep/goat	Pig	Horse	Bird	Total
A, phase 1	mid 17th century	No	42	11	4	–	–	57
		%	73·7	19·3	7·0	–	–	
A, phase 2	17th/18th century	No	16	7	–	1	1	25
		%	64·0	28·0	–	4·0	4·0	
A, phase 3	19th century	No	4	–	1	–	–	5
		%	80·0	–	20·0	–	–	
B and G	17th century soil	No	1	2	–	1	1	5
		%	20·0	40·0	–	20·0	20·0	
B and G	17th century	No	10	34	2	–	2	48
		%	20·8	70·8	4·2	–	4·2	
B and G	19th century	No	1	3	1	–	–	5
		%	20·0	60·0	20·0	–	–	

The incidence of fish and sea-mammal bones from each area is given in Table 2. The highest incidence of fish bones is from the 17th century, ie the time at which the castle was being built or of its early occupation.

TABLE 2
Incidence of fish and sea-mammal bones

Area	No of fish bones	No of sea-mammal bones
A, phase 1	–	–
A, phase 2	–	1
A, phase 3	2	–
B and G, 17th century soil	1	–
B and G, 17th century	19	–
B and G, 19th century	3	–

The minimum numbers of animals present, estimated on the basis of the most frequent bone of a species in a given area, are listed in Table 3.

TABLE 3
Minimum numbers of animals present

Area	Cattle	Sheep/goat	Pig	Horse	Bird
A, phase 1	4	2	2	–	–
A, phase 2	1	3	–	1	1
A, phase 3	1	–	1	–	–
B and G, 17th century soil	1	1	–	1	1
B and G, 17th century	1	4	1	–	1
B and G, 19th century	1	1	1	–	–

The data presented reflect an economy concerned with cattle, sheep/goat, pigs, small horses or ponies, fish, birds and large sea mammals (whales?). Surprisingly, perhaps, the sample lacks remains of cats, dogs and smaller sea mammals (such as seals, walruses and otters). As at the nearby Bronze Age site of Jarlshof, Sumburgh, deer are absent (Platt 1933).

AGE OF ANIMALS ON DEATH

Cattle

One cattle half mandible was assessed for tooth eruption. In this case, the state of wear of the third pillar of the third permanent molar indicated that the animal was over five years old at death (Grigson 1974). On the evidence of fusion of distal articulatory surfaces in the cattle long bones examined, only one distal metacarpal out of a total of five lacked its epiphyses, implying that 80% of the animals from which these bones came survived until the age of 2–2½ years. Of two distal femurs and one distal radius examined, none lacked epiphyses, thereby suggesting that all of these animals reached an age of 3½–4 years. It would, therefore, seem that there was little preference for veal or calf skin at this site, and that cattle were successfully overwintered.

Sheep/goat

Four sheep/goat half mandibles were complete enough to be assessed for tooth eruption and wear pattern, according to Payne's scheme (1973). The number of mandibles examined is too small to allow a killing curve to be drawn but evidence is provided of single sheep of the following age groups being killed or dying: 2–6 months, 2–12 months, 2–3 years, 4–6 years.

Pigs

Because osteological evidence as to the age of pigs at death is unreliable, the dental evidence was examined. One half mandible bore a worn third molar and is, therefore, assumed to come from an animal aged over three years (Silver 1963).

Horses

A single horse radius from Area A, phase 2, had a fused distal epiphysis and is assumed to come from a small animal older than three and a half years.

CARCASS ANALYSIS

A comparison was made of the numbers of cattle and sheep/goat foot bones (low meat yield) with leg bones (high meat yield) because this may be a guide as to whether the bones represent industrial or commercial refuse. A high proportion of foot bones may indicate that meat-rich bones were being sent from the site, or that animal-based industrial/commercial activity was taking place near to it. With only one exception (Area A, phase 3), cattle foot bones outnumbered leg bones, and in half of the contexts studied sheep/goat foot bones outnumbered leg bones. The preponderance of foot bones in the samples of 17th-century material may merely be due to carcass dressing or due to the production of neat's-foot oil. If these bones are the remains of meals eaten at the site they represent low-prestige cuts of meat and hint at a low standard of living. This may reflect the diet eaten by the builders of Scalloway Castle who were pressed men and were forced to work without any payment.

PATHOLOGY AND BUTCHERY

With the single exception of an arthritic cattle metatarsal, there are no signs of disease among the bones examined. Most of the bones show butchery marks but none appears to have been sawn.

SIZE AND TYPE OF ANIMAL

The size ranges of bones measured indicate that in only a few cases were the animals larger than those reported on from the medieval levels of Perth High Street (Hodgson, forthcoming). Only one cattle metacarpal and one sheep metacarpal are larger than those found at Perth, but a horse radius is significantly smaller and must represent an animal as small as a pony. In a 19th-century context, the Rev William Stevenson, minister of Northmavine parish, Shetland (*NSA* 1845, 15, 78), reported on the types of cattle and sheep present in the Shetlands:

> 'The sheep and cattle reared or bred are for the most part of the pure Zetland breed; but little or no attention whatever is paid to their improvement. Some of the Scotch kinds have occasionally been introduced, but were found not to answer well, as they are too tender or soft for the climate.'

There is little reason to suppose that standards of animal breeding and stock improvement were better in the 17th century.

ACKNOWLEDGEMENTS

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