Excavations at Dalkey Island, Co. Dublin, 1956–1959


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EXCAVATIONS AT DALKEY ISLAND, CO. DUBLIN, 1956–1959

By

G. D. Liversage

National Museum, Copenhagen

(Communicated by G. F. Mitchell, M.R.I.A.)

With Sections by


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Chapter I
INTRODUCTION

Dalkey Island lies at the extremity of Dublin Bay, about 8 miles SE of the mouth of the Liffey. Apart from the bare rock called the Muglins, rising from the sea half a mile to the NE, it is the most north-easterly appearance of the Leinster granite, which rises on the mainland opposite as Killiney Hill and extends beyond to form the massif of the Wicklow and Dublin mountains. There is a sound some 400 metres wide, swept by a strong tidal current, between the island and the mainland. The island (text fig. 1), now uninhabited, is about 17 acres (7·8 hectares) in extent and rises steeply from a rocky shore to a more gently sloping interior, lowest in the north-western corner, with many rocky areas and small cliffs, and littered to the south and east with erratic boulders. Thanks to the island’s uninhabited condition, traces of its earlier history have been relatively little obliterated. From the nineteenth century survive a gun battery and a Martello tower. Presumably the many traces of quarrying on the rock outcrops date from the time when these buildings were constructed, and probably the harbour was put in order at the same time, for the solid harbour wall south of the beach and the steps cut on the rock face seem to be of the same high order of workmanship as the battery and the Martello tower. The church is much older, belonging to the Irish pre-Romanesque style of small church with the side walls extending past the end walls as ‘antae’ (see plan and elevations in O’Reilly 1903). The excavation at Site IV showed that it had been altered in the Anglo-Norman period. Later still, it was adapted for use as a dwelling, as shown by the windows inserted in the south wall, the traces of wall plaster, iron brackets, and the fireplace in the east wall, no doubt provided at one time with an iron chimney emerging through the end-wall. This adaptation was made during the construction of the Martello tower (Wakeman 1892). Two incised crosses-within-circle can be seen on the north-eastward facing rock scarp west of the church. One opposite the door of the church is illustrated by Wakeman (1892); the other, 7 metres further north, is fainter and was not previously noted. There are in addition several banks belonging to old field systems, as shown on the map in text fig. 1 (see Appendix 9).

The most interesting previously unobserved feature, however, is the now almost filled ditch which cuts off the north-western corner of the island as a small promontory fort. The enclosed area of about 25 hectares (625 acres) is divided into two roughly flat platforms, one about 5–6·5m above Irish Ordnance Datum (which is ca. 2·5m below mean sea level), the other some 2–3m higher, by a granite cliff with an angle of about 45°. Where the higher area approaches the ditch, the slope has been much increased by the combined effect of the ditch and a small bank at the top of the slope behind it. The lower area is level with the outer side of the ditch, and behind the ditch there is a short bank which does not fully block the entrance to the promontory here. Before we began work, rabbit scrapes and a small natural cliff behind the shingle beach of the harbour, showed that a deep deposit of black earth with bones lay on the lower of the two platforms within the promontory fort.
In the summer of 1956, when the National Monuments Branch of the Office of Public Works were having the masonry of the church pointed, the Inspector of National Monuments very kindly placed the two workmen employed in this work at our disposal for a short time, during which Site I (Text-fig. 1) was excavated, and two small cuttings were opened inside the promontory fort (Text-fig. 2). Special thanks are due to the Inspector of National Monuments for co-operating so fruitfully with such benefit to science. Excavation in the three following years was financed by the State through the Special Employment Schemes Office, and three to five workmen were employed.

Work was planned with a view to obtaining the maximum of information within the limits of a fairly small excavation. The extent of the various years' work at the promontory fort is shown in text fig. 2. In 1957 the ditch and lower bank of the fort were sectioned to prove their existence, and an area dug behind the bank to secure information about settlement within the fort and about earlier occupation (Site II). In the same year a small trench was cut in the western corner of the promontory fort in the hope of relating the occupation deposits to old sea levels ("Trench II"), and a trial cutting was made in the upper level of the fort to check whether deposits up there were less confused than at the lower level. In 1958 this upper area (Site III) was investigated, with good results, for the Early Christian period: a trench was dug north of the

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Text figure 1. General map of Dalkey Island, showing field walls.
church (Site IV) to see whether this area was archaeologically as important as the promontory fort (it was not), and trial cuttings were made over part of the undug remainder of the promontory fort to see whether a further season's work would be called for. These trial cuttings showed that the prehistoric pottery present in the area had been quite inadequately sampled at Site II, and that a separate second Larnian midden had been altogether missed, as had an area with traces of Late Bronze age metal working and associated domestic pottery. This justified a further season, and an area which would combine investigation of the second two novelties with the greatest density of potsherds in general was dug in 1959 (Site V). Site V turned out to be the most important part of the excavation, with an incredibly rich yield of finds and even a small degree of stratigraphical segregation.

During the excavation, finds were recorded by 'layer', each layer number indicating a certain stratum in a certain area. In our eagerness to find evidence for the pottery sequence, many slight changes of soil were recorded in the hope that they would prove useful, but they afterwards turned out not to be true layers and were impossible to follow. Consequently these numbers would be better described as 'layer and area code numbers', and it was difficult to use.
them with consistency. Only those which are definitely significant are retained in the report. These numbers were written on the finds enclosed in a circle, and are given in brackets in the report, so that (20) means 'layer and area code number 20.'

Finds of importance, e.g. metal artifacts, potsherds with definite features, were also given a find number. To distinguish between finds of different years, these began at 1 in 1957, at 500 in 1958, and at 2,000 in 1959. They are written on the finds enclosed in a triangle and are underlined in the report, so that 500 means 'find 500'. The position and depth of small finds were recorded. Sometimes they came up so fast that a single find number had to be given to several potsherds found together. Sometimes these have been divided up subsequently for purposes of identification by suffixing letters to the find number.

Find spots were referred to by their distance from the north and the west sides of the site (or at Site II, square), and their depth below the surface. Thus N.2.00m. W.3.50m. d. 45cm means 2-00 metres from the north side of the site, 3-50m. from the west side, depth 45cm.

Later work involved the sorting of sherds back to the pots from which they were broken, or into groups to be described under a single heading in the find list. Where possible, e.g. when a pot was represented by only one sherd or only one of the sherds had been given a find number, the latter is retained to designate the pot. In many cases, however, new pot or pottery group numbers had to be invented, e.g. where several sherds with different find numbers had to be illustrated and described as an entity. Prehistoric pot or pottery group numbers are prefixed by p in the report, Early Christian ones by cc. Thus p24 means 'prehistoric pot' or 'prehistoric pottery group 24', etc.

The report is arranged as follows. The descriptions of the various sites and trial cuttings come first, each accompanied by its find list, arranged according to type of find. Site V, being the most important and the last excavated, is placed first, as repetition in later chapters can be obviated by summarising a certain amount of general information here. The final chapter deals with significant finds and treats of various matters arising out of the excavation. A wider study of comparable material has been omitted at the request of the Academy.

This paper owes its existence to assistance, encouragement, advice, comment, from many quarters. I should like to thank first of all Prof. G. F. Mitchell, F.T.C.D., my supervisor of studies in 1955–58 for his leadership and aid, and Dr G. F. Eogan for being assistant supervisor throughout the excavation. I am grateful to all who have contributed appendices, and in addition to Mr A. C. Thomas for help with the Early Christian pottery, Dr Grace Simpson for identifying the Samian fragments, Mr D. A. Bassett for his examination of the slates, Mr A. H. Oswald for dating the clay pipe fragments, Miss M. Scannell for identifying the charcoal, Dr David Jenkinson for discussion of soil problems, Mr W. A. Seaby for identifying the post-medieval coins, Dr J. Preston for identifying the materials of which the axes and bracelets, etc., were made. I am grateful to all my colleagues in Belfast for help with all sorts of problems that arise in the preparation of a report and the study of a body of
archaeological material, and to all members of museum staffs who tolerated or assisted my examination of comparative material. I should like to thank A. E. P. Collins, A. M. ApSimon, B. K. Davison, and Miss Fionnuala Pyle for contributing drawings to the report, and Mr David Vokes for a major contribution to sorting and reconstructing the pottery; and last but not least, the officials of the Special Employment Schemes Office who treated me with the greatest sympathy and kindness in all our official dealings.

**Chapter II**

**SITE V—EXCAVATION**

In 1958 trial cuttings were dug north-west of Site II, with the intention of learning where it would be most profitable to open a larger area. The area joining up Trial Cuttings 1a, 2a, 4a, and 1b was chosen as Site V (see fig. 36). The site was pegged out in 1959 on the same alignment as the Trial Cuttings and dug in parallel trenches running NE-SW. The archaeological deposits at Site V were 50-70cm deep. Here and elsewhere on the lower platform of the promontory fort, the top ca. 20cm consisted of fine powdery dark earth, partly matted by grass roots. It was nearly sterile and stone-free, but from time to time produced sherds of post-medieval pottery, modern objects lost by trippers, and odd earlier finds such as flints, that had in some way come up from below. It had a sharp boundary with the underlying 'black layer', which appeared as a surface full of stones and gravel, hard yellowish animal bone, pieces of charcoal, burned stone, fragments of slate, etc. Undoubtedly the best explanation of the top layer is that it is a deposit brought up by earthworms after the abandonment of the site. Fine earth was ingested below and excreted at a higher level, a process which at the same time consolidated the occupation layer and created a new surface layer.*

One would have expected the same process to lead to the formation of sterile earthwormage horizons every time the site was abandoned, and notably in the interval between the Late Bronze age and the Early Christian period, when there seems to have been a gap in settlement. In fact there was only a single such horizon (except in the ditch), and it was the top one. The primary cause of this is probably that old earthwormage horizons have been re-ingested and transferred up to the surface, although such factors as the destruction of stratigraphy by the trampling of cattle or by digging sods for building purposes cannot be excluded. It is pretty clear that a surface layer similar to the present one must have formed during every extended period of abandonment.

Below the earthwormage was the main find-bearing layer, which we called the 'black layer'. It was especially rubbly at the top, with a lot of

* On a visit to the site, Dr. D. S. Jenkinson (Pedology Department, Rothamstead Experimental Station) agreed with the excavator that the layer was almost certainly the result of earthworm activity after the abandonment of the site.
fine gravel, and became gradually finer and more homogeneous with increasing depth. The gravel at the top is presumably in the nature of the 'split peas layer' described by Atkinson (1958), and indicates the horizon of greatest compression by earthworm action. When swept clear of the overlying earthwormage it looked like the compact surface of a gravel road, but was in reality quite soft. Prehistoric finds came mainly from the lower part of the black layer (as can be seen from the levels of the finds shown in text fig. 8), where the deposit tended to be cleaner and more earthy. When digging we came to think we could distinguish between Early Christian/Medieval earth on the one hand and prehistoric earth on the other. The former was a loose very black unhomogeneous mixture, full of bits of burned stone, lumps of quartz out of the granite, charcoal, fragments of slate. The unburned bone was stronger and fresher-looking than in the prehistoric layers. The soil in the latter was slightly better compacted and a little less black. It contained less of the extraneous matter typical of the Early Christian earth, but on the other hand, was much richer in flints and pottery. The bones generally had an 'older' appearance. The boundary between these two parts of the 'black layer' could not be seen in section, and could only occasionally be followed as a surface over a small area in digging. Generally the transition was gradual, and the prehistoric levels announced themselves by the appearance of much more abundant flint and pottery.

There were many stones in the black layer, mostly beach stones ranging from the size of a fist up to 35–50cm in diameter. They had certainly been brought up from the shore by human agency. There was not much real evidence of their purpose, for they lay scattered around the site in confusion (Pl. XIII, 1.), usually separated from one another by earth, but were particularly dense in certain places, notably at about the centre of Site V, where a flood of them came down the slope at a low level in the black layer (Pl. XIV, 1.), and at the north end of the site, where after much selective removal, two short rows of stones which appeared to be in situ as set were sorted out. Each row was double, presumably marking the inner and outer faces of a wall, and in the more westerly row, three of the facing stones were on edge. Bearing in mind these, and also the experience of Site III, where a formless scatter of stones coincided with a few post-holes around the edge of a midden with hearth, it appears likely that a great many of the stones were brought to the site to help construct dwellings. An overlapping series of midden areas and stone scatters like those at Site III would be quite indecipherable, without even considering the further difficulties that might be caused by subsequent stone robbing to avoid collecting fresh material from the shore. While digging, one sometimes got the impression of superimposed scatters of different natures, but they could not be followed far and their very existence was subjective. Only stones thought to have a special significance are shown on the site plan. The photographs and sections indicate the actual density of stones.

Near the west side of the cutting, at about N.3.50, two small box-like structures of schist slabs were discovered. Apparently the westerly one had been abandoned with its two small capstones still in position. They had been
forced down and the tops of the side-stones forced out by compression, and the cavity under them had filled with fine soft earth similar to the topsoil earthwormage, and no doubt formed the same way. The floor of the structure was indicated by the change from this material to gritty occupation earth, and lay about 50cm below the ground surface. The casserly of the two structures lay at a slightly higher level and overlapped the forced-out end-stone of the first. Only its two side-slabs survived. These structures must have been constructed below ground-level, for otherwise their stones would hardly have survived in situ. Their high level shows that they must have been Early Christian or later, and they were presumably small subterranean storage chambers of some kind.

Underneath the 'black layer' lay the 'brown layer' as we may call it, or the old soil of the site to a greater or lesser extent mixed with and darkened by occupation material. The brown layer was best developed in the northern part of Site V (Pl. XIII, 2.), where instead of the rock face found everywhere else, a steep grass slope led up to the higher level of the promontory. It was a reddish or yellowish brown clay soil 15–20cm deep, which by and large produced earlier finds than the black layer. Presumably its better development here was due to hill wash down the grass slope. After it had been removed, the hard unweathered surface of the boulder clay was left, with both rounded and jagged granite erratics protruding (Pl. XIV, 1.). Over the remainder of the site, the black layer passed over to the boulder clay through a rather thin transitional layer which was not so clayey as under the grass slope. It was red-brown or yellow-brown, and up near the rock face, was a dark mahogany brown. Just along the rock face it was obvious from its granular texture that its formation had been much affected by the constant weathering of fine particles off the granite, which had piled up at the bottom as drift up to 20cm deep. In the central and southern part of Site V, owing to the varying nature of the 'brown layer' and its gradual transition to the 'black layer' it was impossible to find any consistent criterion for the beginning of the 'brown layer' and the separation of its finds from those of the 'black layer', and in any case it could be seen that late finds had sometimes worked their way down almost to the boulder clay here, assisted by the looseness of the earth, which, as said, was less clayey than the brown soil further north. For practical purposes the section 3.70m from the north end of the cutting was treated as the boundary north of which the brown earth was a useful stratigraphical horizon, and south of which it was only a transition from the black layer to the boulder clay.

At about W.5.00m there was a roughly oval patch of shells (mainly comminuted) mixed with earth. Over it lay the lower part of the black layer, but when its surface had been scraped clear it was noticed that the matrix of the shell fragments was brown toward the east and black toward the west. Apparently the brown soil continued to form longer to the east than to the west. Below the shells there were 15 or more cm of brown earth with predominantly Neolithic pottery. Since the most typical pottery found in and immediately above the shells was Beaker coarse ware, and some of this was also found below them, they were called the 'Beaker shells'.
There was a larger shell midden in the southern part of Site V (see Appendix 12). It rested on the boulder clay and was up to 15cm thick, consisting in many places of shells packed together without much earth among them. At N.4.00 m. W.0.00 its height above Irish Ordnance Datum was 19’ 4”. Well preserved pieces of charcoal could be found inside the cups of the limpet shells, and these were collected and gave a C-14 estimate of age of 3340 B.C., standard deviation 170, (D-38; McAulay and Watts 1961). The flints from the midden were Larnian (see p. 143ff). Under circumstances such as were present here, with the midden immediately overlain by another rich occupation layer, it is virtually certain that the layers will be contaminated. To ensure the maximum reliability of the evidence on which we would base our knowledge of the Larnian occupation, we used a method that we had evolved to deal with the Larnian midden at Site II. The top 3 or 4cm of the midden, where the shells were much crushed and mixed usually with dark earth and occasionally produced non-Larnian finds, were skimmed off separately, as were the shallow and indefinite fringes of the midden. Only the finds found at a depth in the thick central part of the midden (marked ‘substantial’ on plan—Fig. 36), where the shells looked undisturbed and what soil there was was clean and reddish, are treated as true midden finds. At the bottom the shells became more fragmentary again and mixed with an increasing proportion of the old brown soil, until finally there were only flecks of shell at the top of the compact boulder clay. There was a good deal of charcoal in the clay at this level (see Appendix 11). The same could be found outside the area covered by the basal midden also, and may indicate some earlier conflagration, whether man-made or natural. This charcoal was not used for the C-14 analysis. In some places the earth immediately overlying the midden was not so much black as brown, and up toward the rock face even took on the mahogany colour of the old soil there.

Six stake holes 10–15cm across were found, all without wedging stones. Three immediately to the north of Burial XVII had soft dark fills where stakes had rotted in situ, and cannot be later than the Larnian occupation as they were sealed by the basal midden, a fourth at N.10.90 W.1.00 was filled with shells from the basal midden, and must therefore have been pulled out during the occupation, or at latest before the midden had had time to consolidate. The fifth at N.7.60 W.0.20 must be younger, as it penetrated 16cm into the shells and was filled with soft brown earth. The sixth, at W.0.00 N.5.45, penetrated the till, and in its fill were fresh-looking bones which suggested it was drawn out in Early Christian times or later (and must therefore also have been inserted in that period).

Four small hollows up to 30cm across dug up to 15cm deep into the basal shell midden were found. The earth in them indicated that they were prehistoric rather than Early Christian. Rather more stones were found in them than in the occupation earth on the average, and the stone axe 2966 lay flat on the bottom of one at N.7.00 W.2.00. Small hollows rather like these were noted at the habitation site Townleyhall (Liversage 1960), and something comparable was recorded under the cairn at Lyles Hill (Evans 1953). I presume that at Dalkey island they were some sort of domestic feature.
At W.4.80 N.3.00 a small stone cobbled midden surrounded by some small uprights looked like a prepared hearth of the type found in the midden at Site III. There was no trace of charcoal or ash, but it is suggested that this might have blown and washed away before being sealed in by sod growth and earthwormage, if the hearth were abandoned after a limited sojourn. It was higher than the 'Beaker shells'.

In several places there were traces of burning without any set stones, taking the form of ash or charcoal, or of burned clay only. Underneath the supposed wall-footing which ran over pits (523) and (525) there were two patches of burned clay, one of them underlying a small smear of charcoal. In the NW corner of the part of Site V south of the central balk, the thin periphery of the basal shell midden was overlain by a very thin layer of reddish clay, which was burned in three places. At W.1.50 N.6.50 there was a patch of ash and a horizon could be detected in its vicinity where ash was visibly mixed with the soil. This ash was at a higher level than the nearby burned clay, and the two have nothing to do with one another. At W.3.50 N.7.50 there was a patch of charcoal at the bottom of the Early Christian part of the black layer, as was indicated by the fresh bone and kind of earth associated with it.

Two burials were found—both in the same unusual posture. They lay back upward (as could be seen by the position of the spinous processes), with the heads tilted back so that they were the highest parts of the skeletons, presumably against the now invisible ends of the graves. The hips were twisted around laterally so that the thighs could extend out sideways with the calves drawn tightly back behind them and the feet behind the buttocks. The arms did not appear to have been arranged according to any system. The grave of XVIII had been dug half-way through the basal midden, the edge showing clearly at the south end, and had been filled back with a mixture of shells and brown soil containing habitation refuse and stones—whether those normally found in the habitation deposit or obtained especially to pile into the grave. The grave of Burial XVII was dug down to the midden but not into it. The skulls, being highest, had suffered considerable damage, and fragments of them were found scattered in the earth near the burials in a way that suggested that these skulls had at some time been at surface level and bits of them had been knocked off as people passed to and fro in the course of subsequent occupation. If the stratigraphical position of these loose pieces could be determined in relation to the pottery sequence, it would give us a terminus ante quem for the burials, but unfortunately their depth was so variable that it was impossible to prove anything, although our impressions while digging had been that they came below the main spread of Beaker sherds. A terminus post quem for the burials should be the formation of a sufficient layer of earth over the basal midden for burial to be possible in it. One would think 30cm a minimum, but since this same material has subsequently been reduced in thickness by earthworm action the buried surface corresponding to the ground-level surface from which the burials were made, should be less than 30cm above the midden in the present deposits.
Some pits were found, the Early Christian and prehistoric being readily distinguishable from one another by their fills. One at W.3.20 N.8.00 (542) was first seen in the lower part of the black layer, where its presence was shown by its very black and dirty fill. It went down only to the surface of the till. The three pits intersected by the north edge of the site, (516), (519), and one in the NW corner, first showed at the top of the brown layer. They were all filled with stones and black earth, and (519) produced the lignite ring 2440 and an imported Dark-Age rim sherd 2444. The prehistoric pits were all in the north-western part of the site, and all but one had been dug against the sides of erratics in the till. They were not visible until the site had been cleared down to the till, into which they penetrated ca. 20cm. They all contained a good many stones and brown clayey earth with bones and flints similar to the overlying brown layer N. of N.3.70. (525) produced two plain sherd s of the coarser Neolithic ware; (522) produced 4 sherds—a Sandhills rim sherd 3116, a small body sherd of p46, and 2 plain body sherds; the only useful association was given by (508), which produced two coarse lugs of p36, 3 body sherds of p40, 4 plain sherds, an axe polisher, and many flints. The repetition makes it unlikely that the association of p40 with p36 is due to fortuitous rubbish-survival. (297) and (523) produced no pottery. Their stratigraphy shows that they are early, as they do not cut the brown layer, and they were probably Neolithic like those with finds. Clark, et al., (1960) have reasoned that pits of this sort were grain bins, originally extended upwards in wickerwork.

SITE V—FINDS

Prehistoric Pottery

‘Fine’ and ‘moderately fine’ Neolithic ware

p1 fig. 1 8 rim sherds of fine moderately soft ware with granitic grits. The vessels had splaying rims which were rolled over and thickened in a variety of ways, or narrowed down so that they taper in section. 5 illustrated.

p2 fig. 1 14 shoulders of similar ware to p1. Two types are present, those with a ledge and those with only an angle. 3 illustrated.

p3 not illus. 14 small body sherds of similar ware to p1, found in brown soil N. of 3.70 N.

p4 not illus. 15 sherds of fine thin (ca. 5mm) ware from various parts of the site. Some show traces of burnish and they are clearly fine Neolithic ware.
2357 Pl. I Shoulder sherd of soft finely pitted dark grey ware with sparse sandy grit. Decorated above shoulder with very shallow vertical grooves at ca. 8mm intervals.

p5 Pl. I 18 sherds (including 3 ledge shoulders) of soft brown ware with little or no visible grit but full of fine holes. The ware is so unusual that the sherds can be taken to belong to a single pot. 2 illustrated.

p6 not illus. Large horizontal lug of moderately soft pinkish ware with granitic grits.

p7 Pl. I 3 rim and 2 body sherds of moderately hard orange-buff ware with a grey core. Sherds pitted and slightly sandy. They represent a single vessel with splayed neck and slightly outward projecting rim, decorated on top of the rim by two rows of radial stabs and inside by a series of horizontal corrugations. Pot diameter seems to have been ca. 40cm. 3 illustrated.

p8 Pl. I 2 adjoining rim sherds of moderately fine pitted orange-brown ware with sandy backing. The rim is externally thickened with an outward sloping top.

p9 fig. 1 2 damaged rim sherds of moderately hard dark brown ware with abundant granite grit. Profile as p8. 1 illustrated.

2492 Pl. I Sherd of similar ware to p8, with a small oval lug. Possibly the same vessel.

p10 Pl. I 8 plain rim sherds of moderately fine Neolithic ware ranging from moderately soft to moderately hard. The vessels had splaying rims which were rolled over and thickened in a variety of ways. 3 illustrated.

p11 Pl. I 3 fallen-off encrusted fillets. The ware seems to be Neolithic and both localized sherds came from the brown soil N. of the N.3.70 section. The illustrated fillet comes to an abrupt squared-off and slightly widened end.

p12 fig. 1 10 shoulder sherds of moderately fine Neolithic ware. 3 forms are present—angular, ledge, and those in which the shoulder is a rounded cordon-like moulding. 2 illustrated.

p13 Pl. I 7 undecorated lugs of moderately fine Neolithic ware. All are rather small. 2 illustrated.
'Utilitarian' ware

p14  Pl. I  3 rim and 5 body sherds of hard grey-brown to orange sandy ware with granitic grits. Rim has a slight outward flange with slight corrugations below it and a fat moulding applied to its inner lip. Lower down on the pot was a thinner external moulding, which looks as if it did service for a shoulder. Diameter ca. 30cm. 4 illustrated.

1046  fig. 4  Rim sherd of hard orange to grey ware with a well-smoothed interior face and granitic grits. Profile as p14 but more exaggerated. There is an internal decorative groove.

p15  fig. 1  Several shoulder sherds (3 adjoining) of hard gritty brown ware with a pronounced gutter-like shoulder, extended in one sherd as an ornamental lug. 4 illustrated.

p16  Pl. I & fig. 1  5 rim sherds (2 with extreme edge broken) from pots of fairly hard dark-brown to dark grey ware with granitic grits. The pots widened toward the mouth, and the rims were turned sharply outward again. Some have slight internal corrugation. 3 illustrated.

p17  fig. 1  3 small rim sherds of moderately coarse Neolithic ware. The same forms as pl and p10. 1 illustrated.

p18  fig. 1  Plain rim of hard light brown ware with a dark grey core and granitic grits, probably from a globular bowl.

Flat rimmed group

p19  fig. 1  6 sherds of fairly soft porous buff ware with sparse non-granitic grits, from a vessel with a slightly concave wall and a flat, slightly in-bevelled rim. Decoration is applied with a coarse toothed comb. 2 illustrated.

p20  fig. 1  3 adjoining rim sherds and 1 body sherd of moderately hard brown slightly sandy ware with holes where grits have gone. Vessel of diameter ca. 26cm with applied cordon which has largely peeled off ca. 2cm below flat rim, and slight traces of vertical fluting below the rim. 3 illustrated.
4 worn rim sherds (probably from a single pot) of hard gritty brown ware with granitic grits. Flat rim decorated with a row of shallow pits. 2 illustrated.

Rim and 4 body sherds of hard buff ware with much granitic grit. Flat rim with small depressions on it. 1 illustrated.

2 large sherds of very hard stony buff ware somewhat like p22. The rim profile is incomplete, but it had an outward flange.

Rim sherd of rather coarse hard dark brown ware with large granitic grits. Horizontal lines below rim and oblique lines across its top.

Flat-topped rim of hard gritty orange-brown ware, decorated with a row of small pits. Slight ridge 1-2 cm below rim.

Rim sherd of hard red-brown ware with non-granitic grits. Decorated with row of small zig-zags followed by a horizontal line. Simple jabs on rim.

15 sherds of moderately hard grey-brown ware with granitic grits. Apparently the pot was rather badly joined, for it has come apart much more than is normal along the junctions of the ring building. The top and outward flange of the rim was applied as a fillet which has largely fallen off. The rim top was decorated with jabs, changing on the right to concentric lines; below it was a band of badly executed oblique ladder pattern, and below this again careless shallow scoring. 5 illustrated.

15 sherds of moderately hard grey-brown ware with non-granitic grits from a shallow bowl of ca. 30 cm diameter. Rim has a concave internal level. External decoration of deep horizontal grooves. 4 illustrated.

Club-rimmed pottery

15 rim sherds of hard orange-brown or grey ware with granitic grits. The sherds come from a collar embellishing the mouth of a vessel which widened below the mouth. There is a double row of notches all the
way around the inner side of the collar—one row on the inside, the other on the top. Pattern otherwise changes, producing a panelled pattern as illustrated. Short lines incised; long lines usually plain but sometimes in fine whipped cord—probably thread whipped around a cord. Just under the rim on the outside there was a decoration of fine oblique stabs. 7 illustrated.

p27 Pl. II 5 rim sherds of moderately hard red-brown ware with granite grits. They come from a collar like that of p26, but the wall of the pot was more upright. Decorated with 4–5 rows of oval impressions. Three body sherds of similar ware with similar impressions are probably from the same pot. 4 illustrated.

p28 fig. 1 5 rim sherds of moderately hard grey or brown ware with non-granitic grits. Radial rows of five short stabs alternate with patterns of plain scored lines, and the collar has an inner and outer border of short radial lines terminating at a line parallel to the edge.

2485 fig. 1 Small club rim of moderately hard brown sandy ware. Decorated by plain lines, one parallel to its outer edge, the rest radial and joined together in one place as a ladder pattern.

2512 fig. 1 Club rim of moderately hard brown ware with granitic grits. Decorated on top with two rows of small elongated impressions and an internal border of a single line and radial strokes. Outside of body decorated with small pits. Diameter ca. 20cm.

2234 fig. 1 Small rim sherd of moderately hard gritty brown ware. Decorated with small punch marks on rim and with horizontal lines below it.

p29 fig. 1 2 adjoining rim sherds of moderately hard grey-brown ware. The top of the rim bears three circumferential lines, and oblique lines fill three of the four zones into which the rim is thus divided.

p30 Pl. III 5 sherds of moderately hard black ware (one buff) decorated with oblique lines on the rim and small pits below it. The lines appear to be impressed rather than incised, as irregularities repeat themselves. They are arranged in two overlapping rows, one belonging to the inner, the other to the outer edge of the rim. 2 illustrated.
not illus. Internal flange of rim of moderately hard gritty dark-brown ware. Top of rim decorated with a broad groove and a row of short oblique strokes.

Pl. I Sherd from top of club rim decorated with concentric impressions in twisted cord.

11 rim sherds of moderately hard orange-brown to dark grey slightly sandy ware with pitted surface. The vessel had a slight ledge shoulder, above which it narrowed toward the heavy rim, which had a massive external flange and a slight upward flange at the inner margin. The decoration is in alternating groups of oblique and circumferential fine twisted cord impressions. Diameter 30cm. 8 illustrated.

Club rim of moderately hard dark grey ware, much pitted. Ornamented with circumferential twisted cord impressions.

Undecorated club rim similar to 3107 in ware.

Rim of hard gritty brown ware with orange-brown surface and granitic grits. The top is decorated with circumferential twisted cord impressions and below the slight outward flange there are two short vertical fillets.

Rim sherd of vessel with exceptionally wide decorative collar. Very hard gritty yellow-grey ware with granitic grits, decorated with irregularly curved grooves and obliquely stabbed dots.

Rim sherd of very coarse slabby hard black ware with non-granitic grits. Decoration shows the boundary between a zone of circumferential grooves and one of obliquely placed stabs. Similar stabs in horizontal lines on the body.

3 rim sherds of moderately hard brown ware with much granite grit. Ornamented with thin scored lines forming a metopic pattern on the rim; below the rim vertical lines, some joined by horizontal lines in a ladder pattern. 1 illustrated.
2 rim sherds of moderately hard grey-brown ware with granitic grits. Decorated with circumferential grooves and short radial stabs. One sherd shows the beginning of a vertical fillet as on 2483, which is possibly the same pot.

Rim sherd of coarse moderately soft orange-brown ware with granitic grits, decorated with deep circumferential grooves.

2 sherds from the internal flange of a heavy Neolithic rim; ware pink to grey, fairly hard, with non-granitic grits. Broad oblique grooves and stabs, some of which are placed on the bottom of the grooves. 1 illustrated.

Coarse Neolithic ware

3 decorated body sherds, probably from a single pot, of very thick hard brown ware. Decoration composed of lines and D-shaped impressions in a complex pattern. Possibly same vessel as 3111.

8 decorated lugs of coarse ware. Seven elongated and horizontal, one round and stump-like. Decorated with horizontal lines in 6 cases, with vertical and radial lines in 2 cases. 2 illustrated.

5 undecorated lugs of similar ware.

2 body sherds of hard brown ware decorated with shallow parallel arcs as though a curved edge had been rolled back and forth. 1 illustrated.

40 coarse body sherds, mostly light brown on the outside changing to dark brown or black inside. All-over decoration of single impressions stabbed with a point or with the end of the finger. Ware similarity suggests that they are body sherds from club-rimmed pots whose rims have not been found. 2 illustrated.

13 body sherds of exceedingly coarse black ware with a light brown exterior face and non-granitic grit. Overall decoration in small hemispherical pits. Probably club-rimmed as p48a. 1 illustrated.
Other pottery, probably Neolithic

p39  fig. 4  24 body sherds of fairly fine moderately hard grey ware, pinkish on the outer face of the pot. Decoration in groups of long, apparently vertical lines which converge slightly. At the top they are bordered by a pair of horizontal lines beyond which is the edge of a criss-cross pattern. Unfortunately the rim, which would give the key to the profile, is missing. 6 illustrated.

p40  Pl. IV  13 decorated sherds from a pot of unknown profile. Moderately soft grey ware, yellow-grey on the outside of the pot. Grit is non-granitic and there are a good many cavities. One sherd appears to be swelling toward a lug. Decorated with a wide lattice pattern in plain grooves. 1 illustrated.

p41  Pl. IV  17 decorated sherds from a pot of unknown profile. Ware as p40. Decorated with parallel lines between which there are cuneiform impressions. 2 illustrated.

p42  Pl. IV  5 moderately hard brown sherds with non-granitic grits decorated with parallel lines of twisted cord. 1 illustrated.

p43  Pl. IV  2 sherds of moderately hard grey ware, buff on the outside of the pot, decorated with broad parallel grooves between which there are oval impressions. 1 illustrated.

p44  Pl. IV  2 sherds of moderately hard brown ware with non-granitic grits decorated with impressed whipped-cord maggots. 1 illustrated.

p45  not illus.  2 body sherds of moderately hard moderately fine dark grey to brown ware with cavities and non-granitic grits, decorated with parallel lines of fine whipped cord.

p46  not illus.  23 coarse sherds, Neolithic judging by the ware, with various kinds of parallel line ornament.

p47  not illus.  6 body sherds, one indicating a lug (?) of fairly soft light brown ware with conspicuous quartz and white (chalk or burned bone) grits. The ware is unusual.

934a  Pl. I  2 adjoining rim sherds of fairly soft pinkish ware. The inner face is partly raw and has peeled and cracked; (?) wasters. 2 illustrated.
B-Beaker

p48 fig. 7 ca. 125 sherds of moderately hard sandy grey ware, pink on the outside of the pot. It is possible to reconstruct the decoration and all but the base of the profile of an unusual B-Beaker of Fox's B1 beta type (with sharp body angle), with beaded rim having a large cordon a little below it. External decoration has been impressed with a toothed stamp and is rather unusual. Cord lines inside the rim.

p49 Pl. IV Ca. 60 small sherds of moderately hard sandy orange-brown to grey-brown ware from a B-Beaker decorated with paired zones of opposed oblique hatching impressed with a notched stamp, separated by closely spaced horizontal lines. Similar lines inside rim. Some sherds indicate the concave neck, others the convex body, but the profile cannot be reconstructed and it is not clear how many pairs of hatched zones there were. 16 illustrated.

p50 not illus. 9 sherds of moderately hard pinkish ware. The surviving decoration is similar to that of p49.

p51 fig. 8 28 sherds of very hard sandy yellow-grey ware. Profile can be reconstructed with reasonable accuracy. It was decorated with groups of horizontal lines, which, though worn, appear to have been impressed with a toothed stamp. 8 illustrated.

p52 fig. 8 4 body sherds of similar ware to p51. The groups of horizontal lines were bordered with short oblique strokes ('feathered edging'). 2 illustrated.

p53 fig. 9 22 sherds of good quality fairly soft porous yellow-grey ware without visible grits. A B-Beaker with cordon under the rim, decorated with widely spaced fingernail impressions. 8 illustrated.

p53a fig. 9 Cordon from a similar but slightly thicker vessel.

p54 Pl. VII 23 sherds of hard sandy dark grey ware from a large straight-walled vessel. There is a cordon below the rim, formed by pinching up the clay from trough-shaped grooves on either side. Decorated with a widely-spaced herring-bone pattern of scored lines which are widest and deepest at the top. Oblique scoring on rim. 3 illustrated.
92 rather uniform body sherds. Hard dark-grey ware like p54, but with reddish faces. Similar decoration in widely-spaced strokes appears on many sherds. 5 illustrated.

6 base-angle sherds with rounded angle, quite probably from the same pots as p55.

2 sherds of fine sandy red-brown ware from the splaying rim of a B-Beaker ornamented internally with at least 3 cord impressed lines joined by groups of plain upright lines. Squared rim.

Rim sherd of B-Beaker with flaring rim and internal decoration. Hard thin sandy yellow-brown ware.

10 sherds from various pots, of thin hard sandy ware with B-Beaker ornament. 4 illustrated.

2 base-angle sherds of hard sandy reddish ware, suggestive of B-Beaker.

30 sherds of moderately hard grey to brown ware giving a complete series of fits from rim to base. Ware differs distinctly from most of the other B-Beakers, being thicker than many and not sandy. Flattened profile, with flattened, slightly flaring rim and reduced body angle close above base. The pattern of obliquely hatched zones (sometimes paired), separated by horizontal lines, was impressed with an unusually large toothed stamp. 9 illustrated.

Rim sherd of fairly hard dark grey ware with yellow-grey surfaces, decorated with closely spaced horizontal grooves. Probably some sort of coarse B-Beaker.

5 sherds of hard brown ware with sparse non-granitic grits. They come from one (or two) pots with splaying thickened rims and occasional corrugations on the body. 2 illustrated.

4 sherds of very hard red ware with much fine granitic grit. Decorated with a rough herring-bone pattern in deeply cut lines. ? B-Beaker. 1 illustrated,
A-Beaker

p64 fig. 12 4 adjoining sherds from the rim and neck of a Beaker. Good moderately hard light-brown ware. Decoration impressed with a toothed stamp, and consists of groups of narrow zones.

p65 fig. 9 2 sherds, the remains of 2 pots of very similar paste, colour, and pattern. Hard orange ware with grey core and granitic grits. Decoration consists of broad horizontal furrows and narrow oblique lines impressed with an un-toothed stamp. Slight difference in pattern between p65a and p65b.

2244a Pl. IV Rim sherd of moderately hard orange-brown ware. Zone of oblique toothed-stamp impressions under rim, followed by a blank zone.

p66 fig. 9 3 adjoining rim sherds of moderately hard orange-brown ware with non-granitic grits. Decoration consists of 3 lines of horizontal toothed stamp impressions, followed by a row of lenticular impressions, followed by vertical toothed stamp lines.

p67 Pl. IV 4 sherds of fairly hard orange-brown ware with non-granitic grits. There is no profile and the decoration could be A- or B-Beaker, but ware and technique resemble p64–p66. 2 illustrated.

p68 not illus. 2 small rim sherds, probably from Beakers like p64–p67.

p69 Pl. VI 3 adjoining sherds from the rim and neck of a Beaker of fine, slightly burnished, grey-brown to black ware. 3 toothed stamp lines below the rim, followed by vertical rows of paired oblique lenticular impressions. Diameter ca. 20cm. Despite its unusual colour, the ware is the most 'typical' Beaker ware found on Dalkey Island to date.

p70 Pl. VI 33 sherds of moderately hard dark grey to buff ware without a carefully treated surface. The top 9cm. of the profile can be fitted together. The neck is convex and is separated from the body by a 'waist' rather than by a shoulder. The maximum diameter of neck and body were the same. The pattern was impressed with a toothed stamp and consists of a rim zone of flattened
double-outlined triangles filled with oblique hatching, and a main neck zone of pendant triangles with double outlining on one side only. On the waist there is a cross-hatched narrow zone, below it another broad zone of pendant triangles. 17 illustrated.

2565 fig. 12 Rim sherd of A-Beaker. Moderately hard grey ware with dull orange faces. Convex neck with internally bevelled rim, decorated with a main zone of bar chevron pattern in plain lines. Rim zone of cross-hatching.

p71 fig. 12 & Pl. VI 26 sherds of moderately hard somewhat gritty grey to buff ware with buff to orange-grey faces. The profile can be reconstructed with fair confidence except for the rim and the transition from neck to body. Decoration is in plain lines and consists of two main zones of reserved lozenges against a background filled with horizontal lines. The width of the body zone is given by the sherds illustrated in Pl. VI, that of the neck zone is estimated by completing the design of the existing sherds. In addition to the narrow zones of cross hatching which border the main zones, there are two similar zones at the base and one or two at the shoulder.

p72 fig. 12 5 moderately hard grey to light brown sherds from a Beaker with convex neck and constricted waist. As with p71, both main zones were of reserved lozenges and the neck zone was wider than that on the body, but the background infilling in oblique lines. All lines are plain. 3 illustrated.

p73 fig. 10 11 worn sherds of moderately hard grey ware with dull red faces. The two main zones were filled with alternating horizontally hatched figures—a pendant and an erect triangle with their apices meeting, and a blunt-ended lozenge. The main zones are bordered with three rather broad horizontal lines and there seems to have been a blank waist. Lines apparently plain but too worn for certainty. 5 illustrated.

p74 fig. 10 11 sherds of moderately hard gritty dark grey to buff ware. The neck zone seems to have been intended as a bar chevron between obliquely hatched triangles, and is done in very thin lines. The rim zone consists of lines of almost horizontal elongated impressions. The base
angle sherds indicate that the main-zone pattern was repeated on the body. 6 illustrated.

12 sherds of thin fairly hard buff ware. 6 fitting sherds give a complete profile of the body from where it starts thickening towards the base to where it curves out sharply at the waist. The angle of the rim is as illustrated, and by assuming that the neck was symmetrically convex and no greater in diameter than the body, the illustrated profile is reached. Decorated with closely spaced grooves with oblique impressions on the intervening ridges. 7 illustrated.

18 sherds of moderately hard grey-brown ware. The profile of neck and waist can be drawn, but there is uncertainty about the lower part of the pot. The main neck zone was filled with a very rough running chevron of parallel scored lines, bordered above by three relatively wide rounded grooves. The waist is filled with short vertical lines, and is bordered above by two small ridges and below by two grooves. Somewhere on the body of the pot there is a second running chevron zone, as the two sherds marked with question marks cannot belong to the neck zone on account of the groove followed by vertical lines. 7 illustrated.

Other (?) Beaker wares

Rim sherd of moderately hard buff ware. Two narrow zones of cross-hatching in plain lines, and the same on internal bevel of rim.

Rim sherd of moderately hard yellow-brown ware with grey core. Internal bevel and cross-hatched rim zone in plain lines.

Rim sherd of moderately hard grey ware, yellow-grey on outer surface of pot, with a rather abrupt inward turn ca. 1cm below rim, and a cross-hatched zone in plain lines.

Rim sherd with the same profile and decoration as p76 but different ware—less gritty and brown in colour.
Small moderately hard black rim sherd. Decoration consists of a row of oblique lines along the rim which have run together with a zone of cross-hatching in plain lines.

Body sherd of moderately hard orange-buff ware. Small horizontally filled triangles carefully executed in toothed stamp technique.

3 adjoining rim sherds of moderately hard red-brown ware. Sherds are badly worn, so technique cannot be determined, but lines are unusually broad. There is a wide zone of cross-hatching a little below the rim, the latter having an unusual tapering profile.

Small base-angle sherd of red-brown ware, decorated in plain lines with a narrow cross-hatched zone.

2 adjoining rim sherds of moderately hard orange-brown ware. Four somewhat carelessly applied grooves below rim, followed by traces of oblique lines.

3 rim sherds of moderately hard thin even sandy ware. The rim zone consists of small staggered crescent-shaped impressions bordered by plain lines. The profile and fineness of the ware argue in favour of a connection with the later A-Beakers, but none of the Beakers have the same sandy compact ware. 1 illustrated.

2 rim sherds of moderately hard grey ware with grey to orange faces. Decorated with plain lines. 1 illustrated.

Rim and body sherd with cord ornament, probably from a single pot. Moderately hard grey ware—rim has orange faces. Pattern seems to have alternated groups of oblique lines with fields of oval impressions. Perhaps cord-ornamented A-Beaker, cf. Ballyedmonduff.

Worn rim sherd, probably similar to the above.

5 rim sherds of moderately hard pink ware from a small plain vessel with internally bevelled rim. 2 illustrated.

Plain rim sherd of moderately hard yellow-brown ware with internally bevelled rim.
Proceedings of the Royal Irish Academy.

p84  not illus.  2 dark grey to reddish body sherds with cross-hatched zones.

p85  fig. 10  4 base-angle and 2 body sherds of moderately hard reddish ware with a dark grey core. Broad round-bottomed grooves above base. Untidy scored design on the body probably a disorganised Beaker pattern. Ware rather like p73. 2 illustrated.

p86  fig. 10  3 body sherds of moderately hard grey to reddish ware with disorganized Beaker ornament. For ware, cf. p73. 2 illustrated.

p87  not illus.  5 sherds of hard dark grey to brownish ware with abundant non-granitic grits which protrude and obscure the decoration, which seems nevertheless to have been a disorganised Beaker pattern.

2081  Pl. VIII  Nearly complete base of hard black to yellow-grey ware. Ware suggests Beaker or Food Vessel.

A-Beaker coarse ware

p88  Pl. VII  11 rim sherds or sherds fitting on to rim sherds, and a further 11 small body sherds belonging to either p88 or p89. Moderately hard dark grey ware with yellow-grey outer surfaces. Large vessel decorated with oblique fingernail impressions on the rim, and roughened on the exterior by vertical lines of pinching, made with the fingers bent around so that the nails were more or less in the same plane as the wall of the pot. 6 illustrated.

p89  Pl. VII  Rim and 4 body sherds of similar ware to p88, but somewhat thinner. Rim diameter about half that of p88. Decoration also in fingernail pinching, but arranged in oblique instead of vertical rows. One sherd shows a horizontal zone border formed of a row of end-to-end fingernail marks, with the nail held nearly parallel with the pot’s surface. 4 illustrated.

p90  Pl. VII  14 body sherds giving no profile, of similar ware to p89 and p90. Decorated with pairs of parallel lines made probably with a coarse toothed stamp, joined by short lines of similar impressions. 2 illustrated.
Liversage—Excavations at Dalkey Island, Co. Dublin, 1956–1959. 79

p91 fig. 14 49 sherds of hard grey to pinkish-brown ware. Rim had an internal bevel and slight flange. The neck was short in relation to its diameter, and convex. Decoration is in broad grooves with oblique lines drawn across them, and in incised cross-hatched diamonds. There are two horizontal hatched grooves at the rim and three at the waist. The neck ornament between them consists alternately of diamonds, vertical lines, and horizontal lines, but it cannot be seen whether these alternate regularly. Body decoration possibly similar. The rim bevel is obliquely hatched. 9 illustrated.

p92 Pl. VI 3 sherds, 2 adjoining, of hard pinkish-grey ware. The sherds indicate a waist decorated with an unoutlined zone of cross-hatching. The remaining decoration is in broad grooves obliquely marked with a blunt-ended implement.

p93 fig. 14 12 sherds similar to p91 in ware, colour, and type of decoration, but thinner, with less pronounced grooves and with the diamonds differently filled. 3 illustrated.

Bronze Age wares

p94 fig. 13 12 sherds of moderately soft grey ware with yellow-grey surfaces. The profile can be reconstructed with fair confidence. The ornament is divided into two parts by a blank zone at the waist, above which there is a small cordon, and below which a carination has been decorated to look like a cordon. The upper main zone is fringed above and below by a border zone of vertical lines, the upper one adjoining it directly, the lower separated from it by a step down on the surface of the pot. The main zone pattern appears to be repeated on the body. Decoration was applied with a coarse toothed stamp, and is now rather worn. 6 illustrated.

p95 fig. 13 4 sherds of moderately hard dark grey ware, yellow-grey on the outside of the pot, from a vessel apparently similar to p94. 1 illustrated.

p96 fig. 14 3 rim and 9 body sherds of moderately hard light brown to grey ware. The rim bends abruptly in. Decoration was impressed with a corrugated shell edge. 1 illustrated.
4 sherds of hard very gritty grey ware. The rim turns abruptly in and its bevel is obliquely hatched. Decoration was probably impressed with a shell edge, but the extreme grittiness of the ware makes indentification uncertain. 1 illustrated.

Rim sherd of thin hard dark-grey to yellow-grey ware with a slightly bevelled top. The rim turns abruptly in, and the inturned part is decorated with a lattice zone impressed with a toothed stamp.

2 adjoining sherds of moderately hard dark-grey to yellow-grey ware. Abruptly inturned rim decorated with an obliquely hatched zone. Bar chevron below the bend. Toothed stamp impressions.

6 sherds of smooth sandy hard yellow-grey ware. The rim sherd is much weathered, but probably belonged. The pot had a cordon and a cordon-like shoulder decorated with oblique grooves in opposed directions. Below the shoulder there was a panelled decoration formed of horizontal and vertical groups of lines drawn with an implement that had been thrust deeply into the clay and then drawn lightly over the surface. On the rim there are vertical lines and irregular triangular impressions. 3 illustrated.

8 body sherds of hard yellow-grey ware with a black core, probably from a single pot. Decoration was impressed with a toothed stamp, and on the illustrated sherd shows a broad zonal pattern. 1 illustrated.

3 small body sherds of ware comparable to p94–p100, showing oblique stabs between notched lines.

12 sherds of hard brown ware with a grey core. The pot is slightly ribbed below the rim and decorated with impressed herring-bone. Below this there is a vertical and horizontal lattice pattern, and lower again a herringbone-impressed cordon. Oblique lines impressed on rim bevel. 7 illustrated.

7 sherds with herring-bone decoration like p102, but of slightly thinner and smoother ware.
3 brown and one dark grey sherd probably belonging together, of fairly hard ware. The rim has an exaggerated internal bevel and the vessel was decorated externally with a rather disorganised herringbone pattern. Oblique lines impressed on rim bevel. 2 illustrated.

Rim sherd of hard yellow-brown ware. Herringbone decoration, and oblique lines on the internally bevelled rim.

Rim sherd of fairly hard yellow-grey ware. The surface of a triangular area under the rim has been lowered by pressing the corner of some object almost horizontally on to the pot. The row of oblique lines under the rim were made after the triangular impression. Lower down there are deep narrow horizontal lines.

Bevelled rim of moderately hard black ware, with a 'false relief' chevron between impressed triangles on the bevel, and a deep line below the rim.

Rim of moderately hard pale grey to pink (? secondarily burned) ware with a dark grey core. Decorated with deeply cut lines.

14 sherds (including one base-angle but no rims) of orange-brown ware, representing at least 3 pots. Decorative techniques include toothed stamp, triangular or semi-circular impressions, scoring, and broader grooving. 4 illustrated.

Rim sherd of moderately hard orange ware. Transverse lines on internally bevelled rim and corrugations on exterior of pot.

Small rim, not certainly at angle illustrated, decorated with very fine lines.

8 base-angle sherds of moderately hard brown ware with dark grey core. All are decorated with plain or notched horizontal lines, and appear to have belonged to Beakers or Food Vessels.

14 miscellaneous base sherds, a few with decoration, from pots with ware of, generally speaking, Food Vessel type.
p109 fig. 15  22 sherds of moderately hard dark grey ware with light brown surfaces. The 2 base sherds probably belong, on grounds of texture. Profile not quite clear, but base angle seems to have been rounded and about 90° and the wall bends in near the rim. Decorated with roughly scored vertical zig-zags. 6 illustrated.

p110 fig. 15  7 sherds of fairly hard dark grey ware, brown on the outside of the pot. The vessel had a slightly inbent rim and may have been like p109. It is decorated with lines of small deep holes, which were probably impressed with a genuine comb with separate teeth, not a mere toothed stamp. Apart from three horizontal lines under the rim, the pattern is not clear. 5 illustrated.

p111 Pl. VIII  11 sherds of moderately hard brown ware decorated with parallel horizontal grooves which dip from time to time into chevrons. Lower down there is a cordon. Possibly 2 very similar pots are represented. Profile uncertain. Rim appears to splay markedly, but this may be an illusion due to unevenness at the rim. 8 illustrated.

p112 Pl. VI  3 adjoining rim sherds of hard sandy grey-brown ware. Rim has slight internal bevel decorated with plain transverse lines. The exterior is decorated with a field of twisted cord lines in which small reserved lozenges are placed at 3–4 cm intervals a little below the rim.

p113 fig. 15  Rim sherd of hard dark-grey ware with a yellow-grey surface. Decorated with a row of wedge-shaped impressions ca. 2 cm below the rim and other vertical lines, apparently arranged haphazardly.

p114 not illus.  3 adjoining rim sherds (undecorated) from a vessel with inward-bending rim. Moderately hard red-brown ware.

p115 fig. 15  Rim sherd of fairly hard red-brown ware decorated with closely spaced horizontal grooves.

p116 text fig. 3  52 sherds of moderately hard dark grey ware, pinkish on the outside of the pot, which is well-made with a nice surface. The vessel had a sharply carinated body surmounted by a flaring neck. Decoration consisted of horizontal lines impressed with a whipped cord (one
on top of rim), an incised chevron on the outside of the neck, and an incised lattice pattern above the carination. Inside the neck there were two pairs of whipped cord lines separated by vertical lines of the same. The cord has been pressed deeper into the clay at 1–2cm intervals. 10 illustrated.

Text figure 3. Large vessel from Site V.
10 sherds of hard grey-brown ware. Profile, with flaring rim was probably like that of p116 but with all angles reduced. Decoration is roughly scored, and consists of three rows of oblique strokes inside the neck, and a similar row outside the rim, followed by a rather uneven lattice pattern. 4 illustrated.

18 sherds of hard gritty dark grey ware with orange-brown faces. The vessel had a conical body, a narrow horizontal shoulder, and a flaring internally decorated neck. Its decoration is divided into horizontal zones by at least eight lines of closely spaced lenticular impressions. These are usually placed rather roughly end to end, but in the top line have been arranged obliquely and staggered as 'imitation twisted cord' decoration, and on the shoulder they are more widely spaced than elsewhere. The zones are mainly filled with variously aligned groups of parallel lines but parts of them are left blank. There is similar decoration inside the neck. 7 illustrated.

3 sherds, including the junction of neck and shoulder, from a pot similar to p118. Ware yellow-grey and less gritty. 2 illustrated.

22 sherds of very hard, extraordinarily gritty, dark grey ware with yellow-grey exterior faces. The vessel had a flaring neck with internal decoration, and some sherds give the interior angle at the base of the neck. Decoration almost indistinguishable owing to the grittiness of the ware, but was comparable to that of p118. 1 illustrated.

Sherd from the angle at the base of the neck of a vessel like p120, with traces of external oblique line ornament. Intermediate in thickness and coarseness between p118 and p120

2 adjoined sherds of very hard dark-grey ware, orange-brown on the outside of the pot, scored with filled triangles and faint vertical lines. Probably from the base of the neck of a pot like p116–p120.

2 adjoined sherds of hard red-brown ware. Decoration consists of closely scored lines terminating at a hatched groove, below which there is a row of small pits.

Rim sherd of brown fairly hard ware with a dark grey core. Unless very uneven, the rim flared despite the bevel. Toothed stamp decoration.
2132 fig. 16 Rim sherd of moderately hard yellow-grey ware with external and internal whipped cord decoration.

p121 Pl. VIII 6 sherds of hard dark grey ware, light brown on the outside of pot. The 2 illustrated sherds are from a shoulder, decorated with plain scored lines in a zonal pattern comparable to that of p118.

p122 fig. 16 4 sherds of hard light- to dark-brown ware. Rim probably splayed. Roughly incised pattern of oblique lines appears to be badly applied herringbone. 3 illustrated.


123 text fig. 4, Pl. IX 33 sherds of moderately hard, even, finely-gritted brown ware, quite unlike anything at the site except p124 and 764. The Vessel was of a subdued biconical shape with its widest point ca. 7cm below the rim, which is flattened. At the vessel's widest girth there are at least 4 pairs of fingertip impressions.
2 rim, 2 base-angle, and 10 body sherds of moderately soft brown ware similar to p123, but a little softer and paler. From a vessel with flattened rim with a slight constriction in the wall of the pot below it. One sherd shows part of a fingertip impression.

3 adjoining sherds of hard, even, finely gritted grey-brown ware somewhat like that of p123. They represent the upper part of a large pot, whose rim turns abruptly outward and has a sharply offset internal bevel.

Ca. 90 body sherds of rather uniform coarse ware. The rims p126 to p132 are of the same ware, and it is obvious that we have a group of several pots of remarkably uniform, though not quite identical fabric. The ware contains many large non-granitic grits, which sometimes protrude, but are more usually smoothed in, leaving the type of lumpy surface which Collins compared to the exterior of a suet dumpling (Collins 1959, p116). It looks crumbly, and crumbs break rather easily off the fractures, but the ware is hard and the thick sherds are not easily broken. The sherds are usually khaki, sometimes black, and a few are sooted. 4 illustrated.

4 rim sherds. Simple rounded rim. 1 illustrated.

2 rim sherds like p126, but with a slight trace of internal flattening. 1 illustrated.

2 rim sherds with internal bevel. Diameter ca. 26cm. 1 illustrated.

2 adjoining rim sherds with internal bevel and slight internal thickening. Some uncertainty regarding angle. Diameter ca. 26cm.

Rim and adjoining body sherd; slight external groove below rim; internal black encrustation. ca 30cm diameter.

3 rim sherds with internal bevel and outward flange. Ca. 22cm diameter. 1 illustrated.

5 rim sherds like p128, but possibly from a vessel with more sloping walls. 2 illustrated.

p133 fig. 16 2 base-angle sherds in the same ware as p125; one steep, the other considerably splayed.

Miscellaneous

p134 fig. 18 2 rim sherds and adjoining body sherd of hard yellow-grey ware. Profile possibly situlate. Diameter ca. 25cm. 1 illustrated.

p135 fig. 18 2 sherds of hard yellow-grey ware resembling p125 but slightly smoother. An S-curved profile which seems to have broken off just below the rim. 1 illustrated.

p136 not illus. 2 plain rim sherds of very hard pink ware. ? Secondly baked.

p137 fig. 18 6 fitting sherds of very hard orange-brown ware with a greyish core. From a vessel with angular shoulder ca. 40cm in diameter.

p138 fig. 18 2 adjoining sherds of hard orange-brown ware decorated with deep grooves in a criss-cross pattern.

p139 fig. 18 4 sherds of moderately hard dark grey ware, reddish brown on the outer surface of the pot. Decorated with parallel (probably vertical) ladder pattern. 2 illustrated.

p140 fig. 18 12 body sherds of hard ware changing from red-brown on the outer to dark grey on the inner face of the pot. Decoration is with lightly scored lines running in different directions and intersecting one another. 1 illustrated.

p141 Pl. V 16 sherds of moderately hard dark grey ware, reddish on the outside of the pot, decorated with broad shallow furrows in parallel groups which sometimes meet at right angles. 2 illustrated.

p142 not illus. 9 cord ornamented sherds which do not seem to be Neolithic in fabric.

p143 not illus. Ca. 110 plain sherds from the brown ‘Neolithic’ soil north of N.3.70.

p144 not illus. 21 assorted decorated sherds from ‘Beaker shells’.
p145 not illus. Ca. 150 moderately fine body sherds, possibly Neolithic, though the fabric does not exactly match the undoubted Neolithic pieces.

p146 not illus. A residue of ca. 200 sherds, mostly decorated. A number are determinable, but they cannot be assigned to pots and seem not to add anything to the information already obtained.

p147 not illus. 7–800 mostly plain sherds, not further identified.

**Early Christian and Later Pottery**

2587 fig. 18 Rim of hard sandy whitish-grey wheel-turned ware. Diameter 18 cm.

2444 fig. 18 Rim of hard whitish-grey to pale orange wheel-turned ware. Internal 'step' in rim profile. Diameter ca. 15 cm. From pit (519).

3067 fig. 18 Rim of hard whitish-grey to dark grey wheel-turned ware with a pimply surface due to the protrusion of grits. Internal 'step' in rim profile.

2818 fig. 18 Rim sherd of hard light-brown wheel-turned ware.

ec1 not illus. 3 base-angle sherds of wheel-made ware similar to the above four.

ec2 Pl. X 18 body sherds of wheel-made ware of the same type as 2587 to ec1. Colour is dark grey, whitish-grey, or orange-grey. Wheel rilling generally shows on the inner surface. 1 illustrated.

2499 fig. 18 Body sherd of hard smooth whitish-grey wheel-turned ware with small inclusions of red stone. Outer surface faceted.

2767 not illus. Base angle (ca. 45°) of moderately hard grey sandy ware with a smooth surface. Mr. Thomas commented that it might be Roman or grey Visigothic. It is not precisely matched among the medieval* wares of Dalkey Island, but a medieval date cannot be excluded.

* By "medieval" in this text is meant 12th to 16th centuries.
2644 fig. 19 & 997 2 small rim sherds of hard thin fine orange ware with internal wheel rilling. No parallels known. (?) Roman or Early Christian imported ware. 1 illustrated.

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Ca. 130 medieval sherds, mostly with green glaze, including several sherds from the handle of a large jug, 5 sherds of white paste, and 5 unglazed cooking pot sherds. See Appendix 8.

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Ca. 35 assorted post-medieval sherds.

**Baked Clay Moulds and Crucibles**

*Moulds* (Figs. 20 and 21)

Ca. 140 fragments of clay moulds were found. Most were small and not identifiable further. The better pieces, as follows, are illustrated in figs. 20–21. See also pp. 147-50 and Appendix 6.

2028, 2522, and one unillustrated sherd must be from the pointed ends of spear moulds. The points were closed off, not open as was the case with certain stone moulds for looped spearheads (see Hodges 1959).

2057 is two fitting fragments from a spear blade mould showing the slightly curved edge of the blade and about half or the midrib. Note that if the articulating surface of the fragment gives the central plane of symmetry of the mould, the casting surfaces for the blades must have met at an angle indicative of the hollow-bladed type of spearhead. A few unillustrated specimens probably belonged to spear blades also.

2059 and 2077 came from the sockets of implements with tapering sockets of narrow diameter, such as gouges or spearheads. The latter is preferred in view of the other evidence for spearheads.

2068 is a fragment from a socket of the right size for an axe. The raised surface illustrated at the top probably clamped the core in position, and the step from the lower to the higher surface marks the rim of the axe, which in that case had an unmoulded socket. There are several unillustrated small fragments from tubular sockets of various diameters.

2543a and 2679 are the ends of the mould-valves for tubular sockets. In both cases the end of the valve proper is complete; in the case of 2543a the end of the outer envelope which overlaps the valve may also be complete. Both fragments have a raised surface near the end of the valve, apparently so that
the core could be clamped in position between the two matching valves. This raised surface did not run around the entire circumference of the socket, but is penetrated by what appears to be a runnel to give the molten metal access past the core into the cavity of the mould. This raises technical points which are discussed later.

2265 looks at first glance like the corner of a socketed axe, but closer examination shows that the implement would be exceptionally thin for an axe, and the cutting edge would be cast blunt, so its identification remains in doubt.

2537, 2627, and three unillustrated fragments represent blades that were too small to have belonged to swords. The rounded point in particular suggests a socketed knife, with which some of the socket sherds may well have gone, but the possibility of a knife without socket remains open.

2620, 920, together with 15 to 20 other rather thick fragments, resemble sword mould sherds. The only one with positive features is 2274 which indicates a midribbed blade with a concave edge, such as would appear immediately below the shoulder of a tongue-grip sword. 2634 looks at first glance like the point of a sword blade, but on closer examination it can be seen that the ‘point’ is not defined by an articulating surface, as it should be, but by a break. Moreover the fragment has no surface of the fine clay normally used for casting surfaces. A curious feature is that this fragment has a layer of fine clay sandwiched between two layers of coarse clay. Its identification is problematical.

2196a, 2510, and one unillustrated fragment come from mould gates of fairly fine ware and 3165 and one unillustrated fragment come from slightly larger mould gates of coarser ware. 2510 appears to contain the complete depth of the gate, for the surface at the bottom is more probably an impression made by the valve than a break. The ware of 2196a and 2510 is grittier than that used for the valves proper, and is of about the same consistency as the outer envelopes of 2543a and 2679. 3165 is larger and of a coarse fabric very similar to the outer envelopes of some of the larger moulds, e.g. 2634, 2620, 2274. There is a little slag attached to its inner surface.

It has not been possible to identify the remaining illustrated pieces. 2582 would have cast the end of a blunt bar of roughly rectangular section. 2039 would have cast a cylindrical object, either a bar, or, if provided with a core, a tube. Both its small diameter and its parallel sides argue against its having been one of the usual socketed implements. The hollow does not extend quite to the end but finishes off irregularly. 2029 and one other fragment apparently indicate disks, provided in the case of 2029 with a marginal beading. Possibly they were sunflower pins.

2580 is most easily explained as a particularly elaborate lug for keying two moulds together.
Crucibles. (Fig. 21)

40 crucible fragments of baked clay were found. Six of them had the cindery cellular structure typical of crucibles found at Early Christian sites. The remaining 34 had not been so intensely heated and were comparable in ware to prehistoric pottery. 26 were rim sherds. Morganite Research and Development, Ltd. were kind enough to examine the fragments, and their report is given as Appendix 7. See also p. 150.

Although there were four fitting pairs of rim sherds, not enough could be reconstructed to indicate the shape and size of any crucible with certainty. The sherds do show, however, that the crucibles cannot have been symmetrical round bowls. The most likely shape is a lamp-like form, shallow and pointed at one end, round and deeper at the other. 2081 shows a portion of such a crucible as it approaches the shallow end; 2078 is probably the shallow pointed end of such a crucible, and 2650, tentatively illustrated as a lid, may be the shallow end of another.

Non-Ferrous Metals

3125* fig. 18 Copper awl of rhombic section 11 cm long.

2640* fig. 18 Copper awl 3.2 cm long of rhombic section. Both this and the preceding find are well preserved, having only a pale green matt crust of corrosion, and no disfiguring pits or excrescences.

904* fig. 18 Rather corroded copper awl, with tip broken but originally ca. 4 cm long. Both ends are of round section, but a central portion, nearer one end than the other, is of square section and somewhat thicker.

2071 fig. 18 Unidentified object of copper or bronze. It may have broken off a larger object at the corroded tips. The central groove is slightly polished and possibly held some moving part, such as the spike of a buckle. Alternatively it may be nearly complete and have been a toggle.

2495 fig. 18 Bronze implement with a screwdriver-like edge at one end and a point at the other. Presumably one end was inserted into a handle. There is a small nick in the screwdriver end which may have resulted from use,

* Chemical analyses of objects marked with an asterisk are given in Appendix 5,
and there would be no point in flattening the end in the handle if the other end was merely pointed, and hence not disposed to twist. So probably the screw-driver is the working end. Possibly a tracer for decorating metal.

814 fig. 18 Gravely corroded piece of sheet bronze bent around almost to a flattened tube. A curve in side view suggests that it may be a segment from a hollow bracelet.

2399 & 2400 fig. 18 Two ends of bronze wire 3 and 5mm in diameter found together. They do not fit and the difference in their diameters makes it unlikely that they should. Each has one unbroken rounded end.

2197 fig. 18 A thin piece of bronze wire bent into the form of a double hook. Illustrated at natural size.

2618 fig. 18 Straight piece of bronze wire broken at one end. Much of the surface is concealed by lumpy corrosion, but section seems to have been polygonal, or at any rate facetted.

2401 fig. 18 Irregularly curved piece of bronze or copper wire, rounded off at one end and broken at the other. Surface badly corroded.

2974 not illus. Small fragment of badly corroded bronze or copper wire.

2789 not illus. Two small fragments of sheet bronze, maximum dimension ca. 10mm.

2102 not illus. Piece of slag—see Appendix 7.

There were six other shapeless small lumps of bronze, copper or slag.

3045 fig. 26 Two broken pieces of a circular bronze or brass plate with a slot in it, bent over on itself at an angle of ca. 60°, and an iron strap bent back on itself. Probably some sort of modern or medieval belt attachment.

2675 & 2894 not illus. Two fifteenth century counting jettons. See Appendix 4.

2096 not illus. Lead disk weighing 52gms. Probably a weight.
Iron

No iron objects of particular interest were found at Site V, and none is illustrated. There were a horseshoe, eight nails or pieces of nails, and several pieces of slag.

Bone

1053 fig. 26 Part of the wall of a long bone carefully cut to a rounded end.

2352 fig. 26 Part of the wall of a long bone cut to a rounded end like 1053, and also rubbed down smooth, probably by use.

2862 fig. 26 Bone scoop or bodkin made from the metapodial of a small ruminant.

3132 fig. 26 Part of a bone cylinder similar to Site II 212, 291, 292, (fig. 27). There is a saw incision on it.

2769 fig. 26 Decorated bone object—(? gaming piece. The object is a solid cylinder, and therefore cannot have been made from a tubular bone. It is broken across at both ends, but at one end the fracture has truncated a hole bored part way along the central axis of the cylinder. The object’s surface has been divided by fine scored lines into rectangles 7mm wide and 10mm long, which have in turn been divided into triangles by joining opposite corners. Two triangles of each set of four were filled with dots. Five rectangles exactly fill the circumference of the cylinder.

There are seven fragmentary bone pins. 2998 (fig. 26) and two others not illustrated are made from splinters of long bones with the pointed end polished. 2857 (fig. 26) and one other are made from slender non-tubular bones polished to a point. The remaining two are only represented by small pointed fragments.

Beads, Bracelets, etc.

2619 fig. 26 About half of a lignite ring of hexagonal section. Its internal diameter of 37mm makes it too small to be a bracelet for a normal human adult.

2440 fig. 26 Part of a lignite ring of 60–70mm internal diameter. The fragment seems to be split and should be completed symmetrically to give a D-shaped section.
Proceedings of the Royal Irish Academy.

not illus.  A small fragment of a lignite ring.

2569 fig. 26  Part of a mudstone ring of ca. 80mm internal diameter. Section circular with slight internal flattening.

2973 fig. 26  Fragment of ring of black carbonaceous material resembling jet. Asymmetric oval section with squared sides. One side split off.

3006 fig. 26  Fragment of bracelet of similar material to 2973, but without squared sides.

2080 fig. 26  Disk-shaped steatite bead or spindle whorl with notches around the circumference and a poor attempt to surround the central hole with a circular groove.

2271 fig. 26  Fragment from blue glass ring with internal diameter ca. 12mm and circular section of diameter 3.5mm. (?) finger ring.

2199 fig. 26  Globular stone bead with parallel-sided perforation.

2671 fig. 26  Plano-convex stone bead with conical perforation.

2926 fig. 26  Disk-shaped stone bead with off-centre perforation.

2266 not illus.  Steatite disk 28mm in diameter and 4mm thick, carefully ground on both faces. (?) early stage in preparation of a bead, cf. 2080.

**EARLY GLASS**

2015 not illus.  See Appendix 10.

**PLAQUES, MINIATURE AXES, etc.**

3126 fig. 26  Slip of slate-like shale with edges squared in places by grinding and at one end faceted by grinding. The side illustrated bears two pairs of roughly incised converging lines, the apex of one pair abutting on a rough triangle. Superimposed on this is a very lightly scored zig-zag. The other side has a similar but lighter zig-zag and long parallel scoring.
Liversage—Excavations at Dalkey Island, Co. Dublin, 1956–1959. 95

2371 not illus. Slip of slate or phyllite similar to 3126, ground at edges and on one face. Unornamented.

2726 fig. 26 Ground piece of slate-like shale; probably from a third broken plaque.

2527 fig. 26 Miniature axe of shale.

2126 not illus. Sandstone disk; diameter 45mm, thickness 15mm.

**Polished Stone Axes, Roughouts, etc. (fig. 30)**

1043 From basal midden. Axe of grey shale, shaped from a flattish piece of rock by chipping along the edges and not polished sufficiently to obliterate the chipping.

1042* From basal midden. Unpolished roughout of greenish hornblende schist. The roughout seems to have been formed from a large flake by chipping around the edges.

2907* Half an axe of amphibolitized dolerite (probably amygdaloidal basalt slightly altered). The axe is well polished, and not enough of the original roughing-out is left to show how it was chipped to shape.

2966 Small well-polished asymmetrical axe of dark grey shale.

2742 Small tubby axe of brown shale.

2967 Central portion of well-polished axe of grey-green shale, with pointed-oval section.

2173* Fragment of polished axe of fresh basalt.

2584 Broken roughout of saussuritized quartz dolerite. The two flat surfaces are old weathered breaks, showing that the roughout was made from a flat piece of stone which was chipped to shape along the edges.

729 Part of axe roughout of grey-brown calcareous shale, showing flaking from both sides.

* Axes marked with an asterisk were sliced.
Cutting edge of a flaked and polished flint axe. The flaking has not been entirely obliterated by the polishing. Some flaking was done from the working edge.

A further twelve chips from polished stone axes were recovered. Four were of shale, three of hornblende schist (two of them from the basal midden), one each of very fine schist, slightly altered dolerite, amphibolite, amphibolitized porphyritic basaltic rock, and quartzite.

**Utilised Stone**

*Roof slates.* 30–40 small pieces of good quality slate were found, one piece showing the margin of a rough hole which had been bored through it. Most of them were found above the main spread of prehistoric pottery, and resemble the thin fragments found in the midden layer at Site III, rather than the thicker pieces from Site IV.

*Limpet scoops*, *hammer-stones, etc.* In the reliably stratified part of the basal shell midden there were 27 elongated and usually flattish stones, ranging from 9 to 16 cm long. Their shape was natural and they had clearly been collected by the Larnian inhabitants and brought to the site. 21 of them showed signs of use—5 had chipped ends resulting from use as hammer-stones, while 15 had a curious blunt ridge across the end of the pebble. None of the hammer-stones are illustrated, but examples of bevel-ended pebbles are shown in Pl. XI and fig. 29. Their purpose is discussed on p. 147.

Only in the basal midden was care taken to recover all possibly utilised pebbles, but 46 limpet scoops, 9 hammer-stones, and 3 roundish disks with the same double bevelling as the limpet scoops were found in other levels at Site V. They generally occurred low in the deposits.

*Axe polishers.* There were 6 of these (fig. 31), all naturally rounded beach-stones of pinkish sandstone. The utilised surfaces have been ground either to a dish-shaped concavity or else to a broad groove. The former presumably resulted from circular, the latter from back-and-forth grinding. Both types of hollow are found on the same polisher in the cases of 2875 and 2933; 2933 has the beginning of a polishing hollow on a third side. Presumably the two shapes of hollow resulted from polishing different parts of the axe. The section across the polishing groove of 2875 has a slight rise in the middle. Four others, 2397, 1093, and two unillustrated pieces, each have a single concave polishing surface. 2397 is fitted together from two pieces, of which one came from Pit (508) in association with coarse Neolithic potsherds. 1093 came from the basal midden.

*Other utilised stones.* Two large stones were probably querns. 766 is from Site V, and the other, from Site III, is mentioned in connection with that site. Both are nearly flat on one side, the flat area being relatively smooth and set off
around part of its circumference by an angle from the sides and back of the stone. These are the only stones with a smoothed area set off by an angle. The possibility that other stones which were slightly flattened on one side were querns cannot be excluded, but these may be natural.

**Miscellaneous**

*Burned daub.* About 60 pieces of crumbly burned clay were found. Since a few of them show the impressions of wooden rods, they may be identified as burned daub. They presumably came from the mud plastering of wattle huts or shelters which were burned, and are a reason for supposing that there were huts or shelters on the island despite the fact that no hut outlines were found.

*Other finds.* In the topsoil of Sites II, V, and the trial cuttings a number of fairly recent copper coins were found. Those not still in circulation were a Charles II Irish halfpenny (1683), a William III Irish halfpenny (1696), a George III Irish halfpenny (1805), a counterfeit George III English halfpenny (1806), and a badly worn coin or token the size of a present day halfpenny (possibly 18th century). None are in good condition. I am grateful to Mr W. A. Seaby of the Ulster Museum for these identifications.

The topsoil also produced a few clay pipe fragments.

**Flake Industry** (figs. 22–24)

Here full accounts will be given only of the assemblages from the basal midden, the Neolithic pit (508) and the 'Beaker shells'.

A. *Northern Basal Midden* (fig. 22A)

<table>
<thead>
<tr>
<th>Type of Flake</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>rough scrapers 3153</td>
<td>1</td>
</tr>
<tr>
<td>small fire-cracked Bann flake 3154</td>
<td>1</td>
</tr>
<tr>
<td>strong flake point 3155</td>
<td>1</td>
</tr>
<tr>
<td>flake with marginal retouch adjacent to the striking platform 3163</td>
<td>1</td>
</tr>
<tr>
<td>good parallel-sided blades (one of stone) 3156–3158</td>
<td>6</td>
</tr>
<tr>
<td>good leaf-shaped flakes 3159–3161</td>
<td>11</td>
</tr>
<tr>
<td>broken leaf-shaped flakes (one of chert) 3162</td>
<td>3</td>
</tr>
<tr>
<td>complete waste flakes</td>
<td>99</td>
</tr>
<tr>
<td>broken waste flakes</td>
<td>33</td>
</tr>
<tr>
<td>single platform cores 3164</td>
<td>8</td>
</tr>
<tr>
<td>core-rejuvenation flake re-used as core</td>
<td>1</td>
</tr>
<tr>
<td>not classified</td>
<td>16</td>
</tr>
</tbody>
</table>

181
B. *Neolithic Pit* (508)
   
   scraper fig. 22B, 3144  
   miscellaneous retouched pieces  
   cores  
   complete waste flakes  
   broken waste flakes  
   not classified  
   
   180

C. *'Beaker Shells'* (504) (517)
   
   miscellaneous retouched pieces  
   cores  
   complete waste flakes  
   broken waste flakes  
   unclassified  
   
   233

The rest of the material was sorted and the regular implements placed on one side. They are described below. What remained was weighed and a representative sample counted. Hence it was calculated that there were 11,000–12,000 flints at Site V, or a little less than 300 per square metre, with an aggregate weight a little under 100kg.

A proportion of the flints showed all the signs of Larnian technique, and 11 retouched Larnian implements were found, 8 of them Bann flakes (fig. 23, 3141). Also illustrated are half of a large flake with secondary working (fig. 23, 3140), apparently a larger version of the implement 3155 from the basal midden, and a fine unretouched blade of chert, also obviously of Larnian workmanship (fig. 25, 3108).

The following non-Larnian types were picked out, and are of flint unless otherwise stated:—

  2 barbed and tanged arrowheads (fig. 24, 2668, 3135).  
  33 laurel-leaf points (6 complete, 2 complete but found in pieces, 21 fragmentary, 4 partly made) fig. 24, 2941, 3002, 3133, 3134.  
  1 willow-leaf point of chert (fig. 22, 2910).  
  66 scrapers (see figs. 22 and 23).  
  3 hollow-scrapers (fig. 23 row 3).  
  5 plano-convex knives (fig. 23, 3077).  
  6 awls (fig. 23, 3138, 3139).

The two arrowheads are of Beaker type. The selection of scrapers illustrated has been chosen as being representative of the range of these implements. They range from symmetrical nicely flaked specimens like 3144, 3145 (fig. 22), to examples with a coarse retouch producing a jagged edge like 3150 and irregular examples like 3151 (fig. 23). Several specimens made from very small pebbles...
can be described as thumb-scrappers (3142, 3143, 3147) (fig. 23). The hollow scrapers are a well-known Irish type, made from a thin flake by the working of a concave, often denticulated edge.

The plano-convex knives from Dalkey Island are oval implements with flat flaking all over the dorsal surface and an unretouched bulbar surface 3145 (fig. 22) appears to be a scraper adapted from such an implement by the addition of a scraper edge at the end.

**Chapter III**

**SITE II—EXCAVATION**

Site V has deliberately been described first as we were able to make use there of the experience of the two previous years. Site II was dug in 1957, except for a small part dug in 1958 in order to make sure that we recovered all the Early Christian material sealed under the bank. A section was cut through ditch and bank (oblique, see text fig. 2, because it was advisable to avoid blocking the path up from the pier) and five squares were opened behind the bank. Plans and sections are given in figs. 37 and 38.

The basic stratigraphy was the same as that described for Site V. On top there was a stone-free layer of earthwormage. Below that was a deep ‘black layer’, whose upper part was Early Christian and Medieval, and whose lower part prehistoric. Normally there was no consistent boundary between the two parts and the layers seemed to have been stirred up. At the bottom there was a shell midden over part of the site, and over the rest a thin layer of brown soil with finds. The brown soil thickened slightly near the foot of the rock face. As at Site V, there were many stones, but few were organised as intelligible features. Only the ditch and bank represent a major departure from the situation at Site V. It should be noted that while Site V was almost free of rabbit holes, Site II had been extensively burrowed, which added further to our difficulties. Fresh rabbit bones frequently turned up in what appeared to be undisturbed earth.

Since the general points made about the nature of the deposits at Site V apply here too, the following may be looked upon as a commentary on the plans and sections of figs. 37 and 38.

The real width of the ditch was about five metres. It appears wider in the section on account of the oblique angle at which it was cut. In our trench it had been dug down to the top of the natural granite which here sloped down towards the harbour at about 45°, and had been found by the diggers some 2:00–2:40m. below the original sod, determining the depth of the ditch. The sides of the ditch were steep, except in the upper parts which had weathered back during the later and slower stages of silting. The primary silt (T8b) was soft orange-brown clay with a medium quantity of charcoal (see Appendix 11), stones, animal bones and some fragments of slag. There must have been a tendency at this stage for material to wash westward off the rock floor of the
ditch into the harbour, so the primary silt may have been exceptionally slow in accumulating, but nevertheless it had formed to a considerable depth before there was any appreciable flattening of the sides of the ditch by erosion. Above the primary silt the next layer was a deep black midden layer with yellow streaks, containing a great deal of shell and bone. During its accumulation the sides of the ditch flattened out. This layer, (T6), passed at the top to a more gravelly layer (T5) with 13th century pottery. The only sherds in (T8) belonged to pots of which sherds were also found under the bank, and therefore must have reached the ditch by weathering back of its sides.

An interesting feature was the numerous hearths in the ditch fill (see Appendix 11), the earliest almost at the bottom of the primary silt. Two of them had been prepared by slight excavations into the sides of the ditch from which sterile clay had been thrown into the ditch fill, but the rest appeared to be the remains of small open fires and were no doubt situated in the ditch on account of the shelter it afforded. Many stones had been thrown into (T8), where they often lay in direct contact with one another. The big contribution made to filling the ditch by the bones, shells, and stones dumped in by the inhabitants, suggests that, after its initial construction no great need was felt to keep it functional as a defensive earthwork.

A straightforward reading of the stratigraphy of the ditch suggests that occupation continued uninterrupted from the primary silt until a change in the nature of the occupation brought the more gravelly layer (T6) with 13th century pottery. There is no sign of an earlier break such as the turf line which overlies (T6). But it is possible that (T6) marks an angle of rest in the filling of the ditch, and the 13th century pottery came on to it at a late stage. Thus it is inadvisable on present evidence to say when the phase of relatively intense occupation that filled the ditch with such an enormous quantity of animal bone came to an end.

Against the north side of the ditch we found the skeleton of a child about three years old (Burial 1), see Appendix 3. It had been buried during the formation of (T8), and had no doubt been placed in a small grave which happened to strike the buried edge of the ditch.

Before excavation the bank at Site II reached only 3–4 metres out from the rock slope (text fig. 2), at which point it appeared to have been cut off with a fresh, steeply cut edge. It was natural to suppose that it had originally extended out to the harbour but had been cut away to make a roadway during the construction of the battery and Martello tower. Excavation did not support this theory, although there is no doubt that the nearly vertical seaward (southwestward) end of the bank as observed before excavation was the result of scarping and not an original feature. All around its foot there was a layer of clay and rubble derived from the bank, and this extended over the ditch fill as two distinct thin gravel layers separated by a layer of fine dark soil like the topsoil of the whole site, and to be interpreted as a turf-line formed during a period of abandonment (T4). The lower gravel layer, (T6), has been dated by 13th century pottery; the upper, (T3), can be referred to post-medieval times by the lead- and salt-glazed earthenware it produced. The layer of clay and rubble
must derive from some interference with the bank, and the stratigraphy over the ditch shows that it had two phases. Of these the 13th century one was the greater, as there is more rubbly clay under than over the turf line on the north side of the ditch, and so the scarping of the bank probably dates mainly from this period. There is no evidence that the bank ever extended westward as far as the cliff over the beach, however much this might be expected in view of the fact that the ditch itself runs out to the beach. The 13th century interference may therefore have been quite limited. A large post-hole with packing stones, thought to be Early Christian (see below) may have marked a gate slightly further west than the present scarped end of the bank.

The bank itself was a dump of material dug out of the ditch and showed no sign of revetment or palisade work of any kind. Since the occupation earth which underlay the bank originally also had extended over the ditch, some of it had been incorporated in the bank. It lay in orderly tip-lines alternating with boulder clay, which show in the section that the bank began as a low dump near the ditch, which extended further backward as it was increased in height. Loose stones tended to roll down the back slope and accumulate at the bottom. The behaviour of the tip lines also shows that the front slope of the bank is missing, having been scarped away as described above.

Probably the occupation layer once extended beyond the ditch to the south, but all that was found here was a dark grey, stony earth, with abundant flints, which altered abruptly to yellow boulder clay. This resembled the stratigraphy in the recent field at Site I and suggested that the occupation layer had been destroyed here by cultivation. This was supported by the presence of similar grey soil high up in the fill on the south side of the ditch, which might have slipped from such cultivation and is otherwise hard to explain. It was sealed by the gravel spread (T6), which cannot be younger than the 13th century, so the supposed cultivation should be pre-Norman.

The bank rested on 30–40cm of dark occupation earth (Pl. XV, 4). The first 5–10cm under the bank were of a different consistency from the rest, being crumbly and very black, with fairly fresh bone and flecks of shell, while the lower material was more consolidated, tended to be purplish when damp and freshly cut, and contained bone of older appearance. The main finds from the crumbly upper layer were nails and slag, 3 small bronze pins, an amphora rim-sherd, and fragments of E-ware, so here we had evidence of Early Christian occupation before the fortification of the site with bank and ditch. In the lower more compact material, finds were exclusively prehistoric. There was no sign of a sterile layer or turf-line separating the two, and prehistoric finds began at the top of the lower layer. This is strange, as a surface layer like the present one must have formed during the gap between the prehistoric and the Early Christian occupations. One cannot say whether it was dug away in Early Christian times or removed subsequently by earthworms. The presence of this pre-bank Early Christian layer should be stressed, because it provided finds formally stratified in an earlier context than those from the midden in Site III, which in turn underlay the layer with cc14 and the ring-headed pin 131. The intervals of time represented by this formal stratigraphy are unknown. Only under the
bank and along the foot of the rock face was there a clear layer boundary between the Early Christian and the prehistoric deposits.

A curious feature is the line of mortar crumbs to be seen in the northern part of the N–S section (fig. 37) covered by a fill of up to 40cm of unconsolidated brown earth. This part of the section is puzzling in detail, but the mortar and the brown earth are both post-medieval. There were spreads under the sod of post-medieval debris in some of the trial cuttings, and it is tentatively suggested that both these and the line of mortar crumbs have to do with the Napoleonic phase of building activity, perhaps as the remains of dumps of building material.

As at site V, there were isolated features of different ages. The Early Christian features were (apart from the bank and ditch which have been dealt with) a built hearth, an oven or kiln, some spreads of clay, ash, and/or charcoal; a posthole probably belonged to this period. The prehistoric features were a shallow trench, 3 pits, a number of postholes, and the basal shell midden.

The hearth, shown in the N–S section, was a flat slab with slabs set on edge around it. Ash was found on the slab and in a few small patches around about. The three patches visible in the section appear to rest on a surface sloping down from the hearth and passing under the tail of the bank, suggesting that the hearth belonged to the pre-bank Early Christian phase. There were also ash patches west of the hearth in squares III and V, but it was not possible to show whether they belonged to the same phase as the hearth or not. They appeared at various levels, and the lowest of them had a prepared foundation of clay which was burned hard and red, the level of which, together with the nature of the surrounding earth, suggested a prehistoric age. There was a tendency for small patches of ash or charcoal to turn up under stones, which suggested that traces of burning had originally been more extensive, but had been destroyed by an agency against which covering stones had given protection, for example by weathering.

In square III there was a structure which has been interpreted as a kiln or oven. It first showed up as two parallel lines of upright stones with a fill of small stones in the centre (Pl. XVI, 1), and was taken for a wall and left pending the investigation of its further course. However it ended at the section, and when dismantled was found to have a great deal of animal bone in the central filling, in the state of preservation that we had learned to recognise as Early Christian and later. At the bottom there were a number of slabs resting upon a layer of ash. When broken, the upright side-stones were found to be deeply burned. It was concluded that the structure had been built in a trench (which, granted that it was Early Christian, its low level indicated anyway) and had been heated by having fires lit in it. Whether the flat slabs at the bottom indicated that when the oven had been heated, slabs were laid down over the embers, or whether the floor had at some time been raised, is not clear. Some of the patches of ash around about may indicate periodic clearance. It presumably originally possessed capstones which were taken away when it fell out of use and was filled up with rubbish.

The post hole was near the north side of the bank, and was sealed by the rubbly clay resulting from disturbance to the bank. It was dug through the dark
layer and ca. 20cm into the boulder clay, its upper course being indicated by three wedges of broken granite placed point downward. It was more massive than any other post hole, and in view of this and its high position, it is probably Early Christian. There is a possibility that it indicates a gate at the west end of the bank.

A number of patches of clay like that of the bank in squares III and V (some visible in the E–W section of fig. 37) do not look as though they were remnants of the bank after levelling as there was no sign of disturbance to the black earth around them. They remained unexplained.

The most interesting of the prehistoric features was the shell midden underlying all the other deposits, as in it Larnian flints were associated with domestic animal bones (see Appendix I), stone axes, and Neolithic A pottery. Its height above Irish O.D. at the W corner of square V was about 19'5" or 5·90m., which places it just within the area submerged at the maximum of the post-glacial marine transgression (Stephens 1957), and means that it must be later than this maximum. As at Site V, the midden consisted at the bottom of comminuted shells worked into the boulder clay; in the middle of tightly packed shells without much earth; and at the top, of comminuted shells mingled with the overlying black occupation earth. Except in the upper part, the midden had a reddish colour, taken no doubt partly from the boulder clay, and perhaps enriched by a form of iron pan. Later finds were mixed with the upper part of the midden, and we found it necessary to skim off the top part of the midden and any other parts where the shells looked at all disturbed, until the shells were reddish and closely packed. This was necessary in order to avoid attributing to the first settlement material that was only chance admixture. In squares I and II the midden stopped about 50cm short of the rock slope, but finds occurred in the intervening space at a lower level than the midden. This at first suggested that the midden had been cut away here, perhaps by a trench to catch rain-water running down the rock; but it was impossible to find any real edge to the supposed trench, and the excavator's final view is that the midden stopped naturally a little in front of the rock, brought up against a small talus of material that had weathered off the face. Because of this talus, and perhaps also because of the effect of the water that runs down the rock face when it rains, the soil was thicker and the boulder clay more deeply weathered here than elsewhere, resulting in a greater lowering of small objects by earthworm action, so that some lay lower than the midden.

In square III a skeleton (Burial II) was found in the basal midden. The bones rested on sterile subsoil, and the fill between and over them was reddish shells. When we cleaned off the surface of the midden at this place, no sign of any pit or disturbance was observed, and the skeleton was found only when the midden itself was dug away. It appeared thus to have lain on the surface of the ground and been gradually covered over with shells during the occupation. The C–14 estimate of age obtained for some bone from the skeleton (B.M. 78, see British Museum Quarterly 23, no. 4, p. 119) was 2,300 B.C. with a standard deviation of 150 years. The mere fact of lying in a Larnian midden does not necessarily indicate that the skeleton belonged to a Larnian man, but it is.
interesting to note that the skull was brachycephalic while pre-Beaker skulls in the British Isles are usually dolichocephalic (see Pl. XII and Appendix 3). About 50 periwinkle shells were found inside its brain case, where it is natural to suppose they had been placed for superstitious reasons. They cannot have sifted in from the midden, as this is made up mostly of limpet shells (Pl. XVI, 3).

In the area where the trench cut through the bank, six stake holes were found below the basal midden. Of these the two most southerly were filled with shells, and the one next to them was filled with dark grey earth and sealed by the basal midden. These three, therefore, must belong to the first occupation. The most easterly of the holes can be seen in the illustrated section, and was later than the shells. The ages of the remainder are problematical.

In the same area there were three pits similar to those discussed in connection with Site V. Their fills were numbered (T26), (T30), and (T50). All three cut the basal midden, showing that they post-dated it. There were some shells in the fills of (T26) and (T50) which probably had fallen in from the earlier midden. (T50) alone produced a useful association of pottery. (T30) is shown in Pl. XVI, 2.

There was also a burial in square II (Burial III). Bone in the lower levels near the rock slope tended to be poorly preserved, and this was particularly true of Burial III. It lay in a normal crouched position with the knees drawn up under the chin, probably in a pit, although none was detected. The posture, the preservation, and the character of the surrounding earth, show that it was prehistoric, but it cannot be more closely dated and was too ill-preserved to provide useful anthropological data (see Appendix 3).

SITE II—FINDS

PREHISTORIC POTTERY

Basal Shell Midden

285 fig. 2 Shoulder sherd found in shells among bones of Burial II. Moderately soft brown ware, internal surface missing owing to bad firing. Shoulder takes the form of a cordon—either applied or pinched up. Includes both granitic and white grits.

p148 Pl. V 11 small body sherds of fine soft brown or orange-brown ware, 2 with granitic, remainder with white grits. 3 illustrated.

p149 not illus. Ca. 25 plain sherds from parts of the basal midden where contamination is feared. Some match p148 well, and some undoubtedly belong to the basal midden.
Pits at Site II

The only pit at Site II to produce any useful associations of sherds was (T50), in which were 279, p163 (fig. 5), and p164, all of them defectively fired. (T30) contained one sherd and (T26) none.

Remainder of Site II

Neolithic pottery

112    fig. 2    Simple outbent rim of moderately hard corky dark grey Neolithic ware.

p150   fig. 2    Simple outbent rim of brown 'utilitarian' Neolithic ware.

p151   fig. 2    3 sherds of rather fine ware, probably Neolithic, ornamented with parallel lines. 2 illustrated.

p152   Pl. V    11 sherds of moderately soft grey-brown to dark grey ware, giving a complete series of fits from rim to shoulder. The rim has a horizontal outer flange and sharp internal angle. The ledge shoulder varies in profile. Ware somewhat pitted or 'corky'. Trace of slightly burnished external slip or slurry. 5 illustrated.

p153   fig. 2    5 sherds (4 adjoining) from a rim of ware and form similar to p152, but with internal angle rounded. Possibly another part of the same rim. 4 illustrated.

p154   fig. 2    6 adjoining and 5 other sherds from an externally flanged rim similar to p152–p153, but larger. Moderately hard red-brown ware, dark grey on the surface, but with part of the surface scaled away. Rim top decorated with oblique lines. 7 illustrated.

p155   not illus.    2 adjoining sherds from the outer flange of a rim of the same type as p152–p154. Soft light-brown ware with a dark brown slightly burnished surface. A ledge-shoulder of similar ware probably belongs.

253    not illus.    External flange of same type. Hard, dark grey ware with white grits.

255    fig. 2    Sherd from flange of same type as p152–253. Decoration consists of an oblique stab-and-drag line bordering a field filled with scored lines at right angles to the border. Parts of two other lines visible.
p156 not illus. 2 small sherds from the outer edge of a decorated rim of ware similar to p154, but with the lines closer together and aligned differently. Angle cannot be determined.

p157 not illus. 2 small flattish oval lugs of ware similar to p153 and possibly from it.

p158 fig. 2 11 shoulder sherds of ware similar to p153 and p154. The shoulders are unemphatic. 3 illustrated.

p159 fig. 2 3 rim, 3 shoulder, and 5 other sherds of rather fine red-brown ware. Rim and shoulder join. The pot had a pronounced carination, neck and body having been made separately and joined. The shoulder is moulded as a gutter-like ledge, and extends at at least 2 places to form small non-functional lugs. The rim bends further inward, almost to the horizontal, and is ornamented with slightly curved oblique lines. Faint vertical rippling on the neck. Below one lug is a hole bored after firing.

682 fig. 2 Shoulder sherd with ornamental lug-like extension, of similar ware to p159, but somewhat thicker.

p160 fig. 5 2 rim and 2 body sherds of moderately hard grey to brown ware, decorated with regularly arranged small lenticular impressions and at least one horizontal line. The rim form is not otherwise seen on Dalkey Island. Both ware and type of decoration seem Neolithic. 2 illustrated.

p161 fig. 2 Small rim sherd of moderately hard grey-brown ware, suggestive of a bowl with inbent rim. It is decorated with small stabbed impressions.

p162 Pl. V 13 body sherds of rather coarse Neolithic ware decorated with rows of stabs, with plain lines, and with stab-and-drag lines. Several pots are represented. 1 illustrated.

279 fig. 5 Large lugged sherd from a large thick-walled vessel. Brown poorly fired ware. Decorated with broad grooves placed horizontally above and level with the lug, and obliquely lower down on the vessel. From pit (T50).

p163 fig. 5 Heavy rim of poorly fired brown ware, formed without much internal or external projection, and so probably from a thick-walled vessel. It is decorated on top with circumferential grooves and with oblique strokes along the inner margin. From (T50).
Ca. 10 defectively fired plain brown sherds from pit (T50). p163 and p164 were hardly distinguishable from the surrounding earth before chemical treatment.

Heavy rim of moderately hard grey-brown ware with reddish-brown surfaces. The rim projects slightly inward and outward, and its upper surface is ornamented with a group of 4 slightly oblique grooves, forming a sort of unbordered panel.

3 large coarse oval lugs of ware similar to 279 and 247, decorated with bold parallel grooves. 1 illustrated.

2 round lugs or decorative knobs with a central dimple. Ware like 279–p165 with a dark grey surface. Ornamental grooves. 1 illustrated.

4 sherds, of defectively fired crumbling brown ware with khaki outer face, decorated with long parallel grooves. 3 illustrated.

8 Body sherds from various pots with rather coarse ware like 279–p166, with similar long parallel grooving. 3 illustrated.

3 body sherds of moderately hard dark grey ware with unusually large grits. Exterior of pot red-brown. Decorated with irregular grooves which are too worn for certain identification, but may have been impressed with a knotted cord. 1 illustrated.

14 plain body sherds of moderately soft brown ware with inner face peeled away in most cases. No profile, but probably from pots similar to 279 to p169.

3 rim and 3 attached body sherds of moderately hard ware, orange-brown outside the pot, greyer inside. The wall of the pot was vertical, with a cordon ca. 6cm below a slightly thickened and outbent rim. Above the cordon the pot was decorated with broad well-executed round-bottomed channels. The cordon is notched, and below it are traces of a pattern which seems to have been lozengic fields outlined by broad shallow grooves and hatched in a similar technique. 4 illustrated.
Worn rim sherd of moderately hard orange-brown ware, decorated with broad grooves.

Rim sherd of moderately hard orange-brown ware, decorated externally with broad horizontal grooves.

Inner flange from a heavy rim of coarse friable black ware with much non-granitic grit. It was decorated inside the lip with plain oblique lines, and on top with evenly arranged diagonal rows of overlapping impressions made with the corner of some object. Despite the different colour, it almost certainly belongs to the same pot as p171, as both were found in the same area and are of a distinctive ware unlike anything else at Site II.

16 body sherds of very coarse breakable black ware with large grits. Outer face of pot light brown to orange brown. All-over decoration of closely spaced impressions made with the end of a tube (possibly a small tubular bone cut midway) impressed vertically in one area and obliquely in another. 4 illustrated.

Body sherd of rather fine grey-brown ware, decorated with rows of shallow oval impressions alternating with horizontal lines.

2 adjoining sherds of rather fine red-brown Neolithic ware, from a flaring neck bearing internal twisted cord lines.

Rim sherd of moderately hard brown ware with flat outward projecting top. Short oblique impressions made with a whipped thread on the rim top, and a herringbone pattern of similar impressions on the exterior of the pot.

Sherd from a gritty simple rim—possibly a false rim.

13 body sherds of moderately soft orange-brown ware with a grey core and a porous surface. A B-Beaker with smoothly curved profile and all-over cord decoration. 5 illustrated.
Rim and adjoining body sherd of moderately hard, sparsely gritted yellow-brown ware, from a B-Beaker with flaring rim and sub-rim cordon. Below the cordon are badly worn horizontal lines, which appeared in a plasticine cast to be twisted cord.

2 body sherds of moderately soft reddish-brown to grey ware, decorated with a narrow toothed stamp. "Feathered edging". Probably poor B-Beaker. 1 illustrated.

Single body sherd of moderately hard sandy B-Beaker ware (cf. p57-p59) with fine toothed-stamp decoration.

10 body sherds of hard yellow-brown sandy ware (cf. p31-p32) ornamented with plain parallel or cross-hatched lines, possibly B-Beaker.

4 adjoining rim and 10 body sherds of moderately soft orange-grey ware. Rim slightly flattened and ornamented on top with radial lines. Below the rim there is a slight external groove, probably worked accidentally by the thumb in shaping the rim. The vessel has broken to a marked extent along the junctions of the ring building. Below the rim there is a plain zig-zag followed by a horizontal line. Lower on the pot there is a tighter zig-zag and other worn traces of decoration. 5 illustrated.

2 rim sherds similar in ware and condition to p178, with transverse lines on the rim. 1 illustrated.

8 sherds of moderately hard yellow-grey to orange-brown ware representing a squat A-Beaker without marked neck convexity. Base angle obtuse and slightly rounded. The rim is flattened with a slight external projection. Decoration impressed with a toothed stamp. The neck is divided into broad panels separated by vertical border zones consisting of a ladder pattern bordered by multiple vertical lines. Probably the panels were filled as illustrated, but there is direct evidence for the hanging triangle only. Note that the right hand side of one of the triangles intersects in the geometric reconstruction a sherd where it does not in fact appear. If the reconstruction is correct, this indicates a slight imprecision in the actual layout of the ornament. A body sherd with the same vertical border zone indicates that the body also bore panelled decoration. 6 illustrated.
4 rim sherd s of moderately hard grey to pinkish-brown ware from an A-Beaker, decorated with a plain line under the rim bordering a space-filling pattern of lenticular impressions (apparently impressed obliquely with the end of a small cylinder) arranged in paired vertical rows. The all-over decoration has been divided into pseudo-panels by occasional rows of these impressions placed end to end, but most impressions are oblique. 3 illustrated.

Body sherd of moderately hard grey to pinkish-grey ware with 2 zones of plain impressed cross-hatching separated by a narrow reserved zone in slight relief.

Base and 2 body sherds of moderately soft yellow-grey ware decorated with slightly raised horizontal zones of plain cross-hatching. 2 illustrated.

7 small sherds, probably Beaker or Food Bowl.

3 rim and 8 body sherds of moderately hard rather gritty dark grey ware. Profile widened to a flat-topped rim, but is not otherwise recoverable. Decoration is by horizontal lines impressed with a toothed stamp, and rows of short oblique lines, one under the rim and other(s) lower down, where they appear as 'feathered edging'. 6 illustrated.

Rim uncertain. Rim internally bevelled with radial lines. Most of the exterior is decorated with a deeply cut herringbone pattern interrupted in places by horizontal lines. 2 illustrated.

Base angle sherd of ware similar to p185 and probably from the same pot. Pattern of obliquely filled lozenges in plain lines.

2 rim sherds of moderately hard yellow-grey ware with internally bevelled rim. The decoration preserved consists of circumferential twisted cord lines on the rim and horizontal lines of the same kind on the exterior of the pot, but an oblique line near the edge of one sherd indicates a change. 1 illustrated.


**Other prehistoric pottery**

82 text fig. 4 Rim sherd of fairly hard uniform dark grey ware. The vessel narrowed toward the mouth but the rim is abruptly everted. On the outside there is a thick slip or slurry bearing marks of smoothing. Probably Trevisker ware.

p188 not illus. 9 body sherds of fabric similar to p125 to p133.

p189 not illus. 4 undecorated base sherds of various kinds of coarse ware.

p190 not illus. 2 base-angle sherds of moderately fine ware.

p191 not illus. 3 body sherds of curious dark grey ware in which the clay has been mixed with powdered mica.

p192 not illus. Ca. 20 not further identified decorated body sherds.

p193 not illus. Ca. 330 not further identified plain body sherds.

**Early Christian Wheel-Made Pottery**

Sealed below bank

ec3 fig. 19, Pl. X Rim, two adjoining handle, and an unillustrated body sherd, all assigned to a single pot on account of the ware. The rim was sealed under the bank; the body and one handle sherd were found near the north side of the ditch fill. Their ware was noticeably more weathered than that of the other two, and they had no doubt weathered out from under the bank. The adjoining handle sherd was found ca. 35m away in trial cutting 3. Fabric brownish buff. Much of the grit has dissolved out, leaving little cavities (especially in the two sherds from the ditch) which give the ware a sandy ‘feel’. Some, but not all, the surviving grits effervesce with HCl. Rim was upright, ca. 8cm in diameter, slightly out-turned at the top and ornamented with a rough rib. Internal wheel-rilling indicates the angle of the lower springing of the handle, which is ornamented with 2 longitudinal channels formed with some kind of spatula, both of them to the right of its central line.
ec4  fig. 19, Pl. X  Found under the bank in the north-easterly of the two 1956 trial cuttings. Handle of moderately hard smooth buff ware with fine grit and a minutely pitted surface. Some but not all grits effervesce with HCl. Angle of springing similar to that of ec3, and ware only slightly different.

Pl. X  2 rim sherds, found together, of hard dark grey ware with much half-protruding grit giving the surface a 'pimply' appearance. Edge thickened and slightly flattened. The angle indicates a pot lid. Diameter ca. 18cm.

c5  not illus.  3 body sherds of similar but not identical ware. They do not show wheel-rilling or definite signs of having been turned on a fast wheel, but irregular rippling and the evenness of the changes in the sherds' thickness may indicate the use of a slow wheel. The ware resembles amphora ware more than anything else—moderately hard with fine grit and a 'cold' feel like ec7. They come from large vessels. Colour—various shades of dark brown. One sealed under bank, another from a tip-line in the bank, (cf. similar sherd 526 from Site III outside the stratified area).

c6  Pl. X  Sherd widening towards base and a small body sherd 658 (not illustrated) of very hard whitish-grey ware with 'pimply' surface and internal wheel-rilling. The small sherd was sealed under the bank, and therefore the larger sherd (from the ditch silting) had presumably weathered into position.

Not stratigraphically related to bank

1120  fig. 19  Small Samian sherd. Dr. Grace Simpson, F.S.A. writes "A tiny sherd from the base or footring of a vessel made in Central Gaul during the second century A.D. The possible forms are numerous, but it might have come from a Dr. 30, a decorated form, because it has a slight moulding on the outer side.

Dr. 30 was made in small quantities throughout the second century, see Oswald and Pryce, An Introduction etc., 1920, 86-95, pl. VII."

156  fig. 19  Samian sherd apparently adapted as an amulet or something of the kind. Dr. Simpson writes, "Form Dr. 37,
The fragment shows the shell ornament used by the potter DOECCVS, see Stanfield and Simpson, *Central Gaulish Potters*, 1958, 252, fig. 44, no. 29. Manufactured c. A.D. 160–190.

The ground edges are very unusual, and it is quite possible that a broken sherd was made into an amulet; this was itself broken, as the one rough edge attests."

218 fig. 19 Sherd of porous buff wheel-made ware similar to ec3 but with no content which reacts with HC1. Diameter only 4–5cm—perhaps the neck of a narrower amphora than cc3, but it was found high up on the slope of the bank where the accompanying sherds were medieval, and there is doubt as to its identification. ec7 Pl. X 6 body sherds of similar but not identical ware. Moderately hard orange-buff fabric with a buff external slip in which brush marks are visible. Grit is fine, and the sherds have a smooth 'cold' feel. Internal wheel-rilling. No reaction with HC1. 2 illustrated.

ec8 Pl. X 3 body sherds of moderately hard dull orange ware with internal wheel rilling. Ware sparingly gritted, but full of minute holes which give a sandy feel, and probably indicate the dissolution of the grits. No reaction with HC1. 1 illustrated.

112 fig. 19 Base angle sherd of hard gritty grey ware with internal wheel-rilling.

ec9 not illus. 2 small sherds of gritty buff ware of E-ware type.

**Non-Ferrous Metals**

*Sealed below bank*

649 fig. 27 Badly corroded thin-butted flat bronze axe. Chemical analysis in Appendix 5. It was found among stones near the cliff at a higher level than most of the pre-historic pottery and flints.

615 fig. 27 Small pin, broken at both ends, such as might have belonged to a small penannular brooch.
A very small pin with one end hooked over but not flattened like 615.

Bronze pin with widened and slightly flattened perforated head. The lower part of the head seems to have been moulded or slightly grooved on two sides, but it is impossible to be certain as the pin is very badly corroded.

Not related to bank or ditch.

Bronze penannular brooch (one terminal missing) with traces of white metal on both faces of the terminal. It was impossible to determine whether the white metal was tin or silver, but tinning was a well-known technique of the period. The terminals were formed by beating out the ends of the hoop to sub-triangular plates which were decorated with a border of small holes bored from one side, appearing as perforations where the terminal was thinnest, and as pits elsewhere. The head of the pin has been carefully formed from the slightly flattened and widened extremity of the pin by bending it sharply backward and then around forward to enclose the hoop. The separation of head and shaft has been emphasised by filing. A brooch with similar dotted decoration of the terminals came from Lagore Period Ia (Hencken 1950, fig. 6, 1009).

A thin sub-triangular piece of bronze which may have been the terminal of a larger penannular brooch.

2 small pieces of sheet bronze, probably of no great antiquity.

A piece of sheet lead (or possibly pewter) folded back over itself twice, with a small iron bar held in one of the folds. Unlikely to be of any great antiquity.

Lead weight with iron loop for suspension. Possibly a fishing-net weight.

Two pieces of lead of length 3·5 and 5cm, and a triangular piece of sheet lead 7cm long.
Sealed below bank

610, (and others) fig. 28
Ca. 24 fragmentary nails. Rather large—diameter of heads 2.5–3.5cm. 1 illustrated.

A few lumps of slag.

Fill of ditch

26, 72, and others fig. 28
9 nails from deep shelly fill (T8)–(T8b), 3 from (T6). 2 illustrated.

3 lumps of slag near bottom of ditch.

Unrelated to bank or ditch

287 fig. 28 Small tanged knife.

288 fig. 28 Tanged object widening to a cylindrical centre and flattened at the other end as though to form a blade. Perhaps some form of medieval or later knife.

191 fig. 28 It has been impossible to identify this object. Its shape is roughly that of a hollow hemisphere with a thick floor and thin walls, the latter being broken and incomplete. There is an external bulge on the base. Traces of corroded bronze are probably accidental inclusions resulting from working bronze and iron on the same site.

1125 not illus. Small sub-triangular piece of forged iron. Indeterminable.

289 fig. 28 2 iron rods bent around in a loop at one end. Probably skewers of no great antiquity. 1 illustrated.

539 fig. 35 Anchor fluke found near the surface high up the rear slope of the bank. It is not a type in present day use, but need not be of any great antiquity.

not illus. Ca. 31 nails (mostly fragmentary). Slag.
Sealed below bank

47 fig. 28 Slip from the wall of a long bone polished to a chisel-like end.

Fill of ditch

(a) topsoil (T1)

295 fig. 28 Fragments of comb slip. Decorated with thin longitudinal lines.

(b) level with 13th century pottery (T6)

297 fig. 27 Part of bone pin with widened perforated head separated from shank by a square offset. As the horizon with 13th century pottery may indicate an angle of rest, the synchronism is uncertain.

(c) deep shelly fill (T8) (T8b)

4 fig. 27 Finely polished bone pin with bulbous head.

6 fig. 27 Finely polished bone pin widening to a flat square-topped head.

294 fig. 29 Human femur cut obliquely to a scoop-like end which seems to have been smoothed by use.

291 & 292 fig. 27 3 complete and one broken section from ox metapodial bones with the cancellous tissue hollowed out. The fragmentary one had been polished. The unpolished ones were presumably discarded during manufacture. Purpose obscure—loomweights? large beads? The only parallels I know came from early levels at Dublin Castle (unpubd.). 2 illustrated.

Unrelated to bank or ditch

212 fig. 27 Metapodial section like 291 and 292, but in this case well polished.

293 fig. 27 Perforated conical object of polished bone. Possibly a large bead.
Incomplete pin made from a splinter of long-bone wall, head widened and perforated.

Point of roughly made bone pin.

Split half of a corrugated bone tube. (?) handle.

Perforated shell of *Pecten maximus* from the southern basal midden.

Sealed below bank. Part of small steatite ring.

Small stone ring or bead.

Perforated baked clay disk, possibly spindle whorl, found among late debris on rear slope of bank. Not necessarily of any great antiquity.

**Glass Vessels**

*Sealed below bank*

See Appendix 10.

Thin piece of slate-like shale with one end rounded and the other square. The edges have been blunted by grinding and some irregularities of one of the flat surfaces have been ground down. Cf. 2726.

Shale or mudstone whetstone, perforated for suspension.

Pestle of greenish quartzite, from the body of the bank.

Broken whetstone of brownish sandstone, with squared sides. From (T8) in the ditch fill.

Another whetstone fragment and part of a stone with a very fine polish, (?) a leather working tool.
Polished Stone Axes, Roughouts, etc. (fig. 30)

From basal midden

217 Axe of medium grained hornblende schist. Section oval without side angles. Polishing does not entirely efface the primary chipping. Cutting edge badly battered after polishing.

218* Axe of hornblende schist. Appears to have been well polished to an oval section. Subsequently it was badly battered, especially along the cutting edge, and a large flake has removed the polished surface from nearly half of one side.

Not from basal midden

284a* Fine-grained hornblende schist. Most of the surface is polished, but the primary shaping shows in places. Section a pointed oval.

284b Axe of soft grey shale or mudstone. Its surface has been entirely polished and only in one small place is the primary shaping not obliterated. Pointed oval section. 284a and 284b were found together along with axe polisher 260.

283 Axe of light grey (?) pyritous shale or mudstone with butt and cutting edge battered. The primary shaping has been almost obliterated by polishing.

913 Axe of hornblende schist polished to a sharp side angle on the left-hand edge (as drawn). Section an irregular pointed oval.

85 not illus. Axe of hornblende schist with round-ended oval section. One edge has been battered entirely away, but a large flake was found which fitted into place.

324 Central section of a large axe of light grey shale or mudstone. Oval section changing from pointed to rounded in the length of the fragment.

* Axes marked with an asterisk were identified from a thin section.
Cutting edge of axe roughout of saussuritized gabbro. Pecked into shape with the cutting edge blunt.

Fragment, including cutting edge, of fine-grained hornblende schist.

Two flakes from polished stone axes were found, one mudstone, the other amphibolite. The stone axes from Dalkey Island are discussed on pages 146-47.

**Utilised Stone**

Roof slates. Fragments of slate were observed during the 1957 excavation, but their importance was not realised until the discovery in 1958 of similar fragments in the midden at Site III. The Site II finds include a few small fragments from the Early Christian layer under the bank.

'Limpet scoops', hammer-stones, etc. (fig. 29, Pl. XI)

11 bevel-ended pebbles or 'limpet scoops', and 3 hammer stones were found among the reliably segregated finds from the southern basal midden. The term 'limpet scoop' and the probable use of these objects are discussed on page 147. Elsewhere at Site II 68 pebbles were recovered, showing signs of use as 'scoops', hammer stones, or both.

Axe polisher 260 (fig. 31), unlike the axe polishers from Site V, is a thin slab of yellowish sandstone which has been hollowed on both sides by use. It and the two axes 284a and 284b were found close together.

Miscellaneous. 321 (fig. 17) Underneath the bank was found a large slab of granite with a cup-shaped hollow roughly worked into one of its flat faces. It was found with this face downward, but probably was upside down. Dr. Raftery should be thanked for the suggestion that it may have been the unused and discarded pivot for a door post. It belonged to the Early Christian layer.

Miscellaneous

4 lumps of burned clay, probably daub. Several sherds of post-medieval glass, including the necks of two blown bottles.

**Flake Industry**

Excluding finds from the southern basal midden, there were 36 flakes and cores of chert and other stone (mostly chert). Most appear to be Larnian, and 1 Bann flake (fig. 25, B, 307), 7 leaf-shaped flakes, 2 parallel-sided blades, 2 cores, 12 waste flakes and 12 flakes from the outside of pebbles were identified.
The only part of the flake industry sufficiently uncontaminated to be worthy of total-assemblage study were those from the basal midden (fig. 25, A). The precautions taken to ensure that later flints would not be included in the material thought to belong to the midden, are described on page 103. The flints from Trial Cutting I, which was carefully excavated and appears to belong to the same midden, are included here.

laurel-leaf implement 314  1
rough scraper (concave) 317  1
flake with retouch adjacent to striking platform 315  1
flake with butt removed and break retouched (not illus.)  1
good leaf-shaped flakes 308, 311  6
good parallel sided blades 309, 310, 312, 313  8
complete waste flakes (1 chert, 1 quartz, 1 stone)  98
broken waste flakes  88
single platform cores  3
not classified  14

total 221

303 Sealed under the basal midden not far from pit (T52), a hoard of 13 well-struck Larnian flakes were found (Pl. XI, B). They tended to be leaf-shaped, and two are retouched (inversely) and can be described as Bann flakes. They were found all together in a bundle, points downwards, in the old soil immediately under the midden.

The remainder of the flints were sorted and the regular implements picked out, giving the following list.

Bann flakes (1 chert, 5 flint) (fig. 25, 307)  6
leaf-shaped arrowhead (863 fig. 24)  1
fragment, probably of do.  1
barbed-and-tanged arrowhead (9 fig. 24)  1
hollow-based arrowhead (673 fig. 24)  1
scrapers (inc. 1 thumbnail scraper)  16
hollow scrapers (228, 318 fig. 23)  3
bi-facial 'laurel-leaf' pieces (fig. 24)  17
  8 complete, 2 complete reconstructed, 5 fragmentary, 3 uncompleted
fragment of polished lozengic javelin-head (fig. 24, 302).

The remainder of the flake industry was weighed, from which it was calculated that Site II produced ca. 5,000 flints.
Chapter IV

SITE III—EXCAVATION

This site was investigated by a trial cutting in 1957 and more extensive clearance in 1958. The excavation showed that there had been a bank (smaller than at Site II) at the top of the slope behind the ditch. In the most sheltered place behind the bank, we found a hearth with a surrounding black layer which produced a small associated group of finds from the Early Christian period. There are reasons for believing the hearth had been inside a hut of some kind.

The bank (see fig. 39 and Pl. XIV, 2). Before the promontory fort existed, there must have been a gentle slope up from the level of the land outside the ditch to the area later enclosed by the bank. The present abrupt change in level is due to the combined effect of the ditch and bank, which is very considerable despite the degradation that has taken place since their construction. The bank joins two rocky bluffs falling into the ditch (text fig. 2), abutting against the one at the west, and stopping short just before the top of that to the east. Its surviving height above its own turf-line is ca. 80cm. The turf-line takes the form of a sticky black layer ca. 3cm thick, resting on a thin gritty subsoil with irregular leaching and panning. The bank of Site III is not continuous with that of Site II, although they are presumed both to have been constructed as part of the same operation as digging the ditch, and therefore to be of identical age.

The hearth and black midden layer. The hearth was a cobbleding of small stones with a few larger stones placed on edge around it. It contained no special layer of ash, but was overflowed by the surrounding midden, which was especially black in its vicinity. This midden was 10–15cm thick, made up of black earth with many animal bones and some fragments of shell. It spread up over the rear slope of the bank, which it must therefore post-date, and covered an area along the inside of the bank about 5-5m long by 2–3m broad, terminating to the north in an approximately square corner. Under the hearth a single amphora sherd was found, which points to deliberate deposition, as there was no occupation material here. Sherds had also been placed underneath a hearth in trial cutting 3 (see page 134).

The brown 'bank weathering'. The slopes of the bank were covered with a rubbly layer with stones and brown earth, which spread over the top of the hearth and the black midden. During excavation it was thought that this represented a displaced residue from the bank after the clay had weathered out, but if, as will be argued, the midden accumulated inside the house, in this area it may also represent the debris of roof collapse. There were many animal bones and some other finds in the brown rubbly layer, which in this case might derive from rubbish thrown on to the roof. Assuming a low roof, such a practice is not unlikely, since the accumulation of rubbish on the floor indicates an
unclean way of living. At the north-eastern end of the bank, where the rubble is unlikely to be anything other than bank weathering, there was a small hole ca. 5cm across and 5cm deep, in which was found a small bronze ingot 535 (not illustrated). The hole was filled with black material and sealed by more bank weathering. Also at the north-eastern end of the bank, there was a small hearth with well-preserved oak charcoal (identification M. Scannell), in a slight hollow in the subsoil. It was sealed by the bank weathering, and cannot therefore be very much later than the bank. It may be earlier.

The argument for the house. This consists of three parts.

(a) The sudden termination of the midden to the north-west and north-east along a line which has a right-angled bend and coincides with the majority of the post-holes found in the excavation.

(b) The line of post-holes roughly coinciding with the edge of the midden. As post-holes they were somewhat abnormal. The two along the north-west side of the midden were ordinary stake-holes, where round stakes about 10cm in diameter had been driven into the subsoil. The next three, proceeding south-eastward around the corner, were larger holes which had been dug. Their shape or fill was not typical of post-holes, but low down in two of them was found the ‘ghost’ of round stakes about 10cm in diameter. It is possible that some of the peculiarities of these holes were due to the renewal of posts in them. There were three stake holes under the north-eastern end of the bank, which must be earlier than the midden, and one stake-hole near them outside the area covered by the bank, and a larger hole with the ‘ghost’ of an eccentrically placed post lay north of them. A small hole about 1m NW. of the hearth, floored by a stone, possibly naturally in situ in the boulder clay, may also have been a post-hole.

(c) The stone scatter. This consisted of rounded beach-stones 10–15cm across. Unfortunately it was not planned, as our experience at Site II led us to believe that such stones were found everywhere and could not lead to useful conclusions. Moreover the stones of the ‘stone scatter’ looked very like those of the ‘bank weathering’; but during removal we came to realize that these were different and separate. Its course followed the edge of the midden, overlapping about one metre inward, but not at all outward. At the outer edge the stones were sometimes two deep.

Thus we have a triple coincidence between a line of post-holes, the edge of the black midden, and the scatter of 10–15cm sized beach stones on the edge of the midden. The explanation is surely structural. Possibly it was a wind-break, but the most plausible explanation is that the posts supported a roof which on the other sides rested directly on the bank and on the bare rock west of the midden. It is hard to know how the space between ground and eves was blocked. Dry stone walling can be ruled out, as the stones spread over the edge of the midden were too small and there was no proper footing course in situ. A mixture of sods and small beach stones would be less at variance with the evidence, although it seems a curious way to build. Such material may have been either free-standing, or banked against a plank wall. The fact that all
the visible collapse was inward suggests that either through decay, or originally, the wall had an inward batter. The roofing material can only be conjectured, but it must have been pretty heavy if it was not to blow away in such an exposed place.

It should be noted that one could hardly expect to find primitive structures such as this at Sites II and V. The individual occupation layer of the house would be indistinguishable from the surrounding black earth; the scattered stones which had once served as part of the wall, would be inseparable from those of earlier and later collapsed structures; and the post-holes would be unlikely to penetrate the boulder clay, as some buried stone sufficient to provide a base for the post would soon be met in digging.

**Other features at the south end of Site III.** As stated above, a small hearth with oak charcoal, sunk slightly into the top of the boulder clay just beyond the eastern end of the bank, must be an early feature as it was sealed by the layer of ‘bank weathering’. A small pocket of black earth and charcoal in the ‘bank weathering’ overlying it produced a small bronze ingot. The skeleton of a child was found buried in an orderly manner towards the eastern end of the supposed house (Burial IV). Since it was found actually in the black layer, it cannot be older than this layer, and is probably rather younger, as one would expect it to have been interred at a slightly lower level if the house was still in use at the time.

The ‘stone scatter’ of the supposed wall, and the brown rubbly layer overlying the midden ‘(bank weathering’), were overlain by about 30cm of fine brown soil, similar, except in colour, to that which overlay the occupation earth at Sites II and V. At its base, in the trial cutting made in 1957, was found the fine ring-headed pin 131 (fig. 32). About 52 sherds of pot ec14 were spread over an area ca. 5m across, and are indicated on the site plan (fig. 39). Those in the stratified area either lay flat at the base of the fine brown soil, or were pressed on edge into the very top of the brown rubble. Hence both finds are later than all occupation at Site III and post-date the supposed collapse or demolition of the house. There is no evidence that pot and pin are of equal age.

**SITE III—FINDS**

*In black midden around hearth*

520 fig. 33 Iron ring-headed pin illustrated after electrochemical treatment. The upper part of the shaft is flattened and turned over to grip the ring; the part toward the point is also flattened. The cross-section of the ring cannot be determined.

503 fig. 33 Rim of glass vessel with expanded hollow rim. See Appendix 10,
5 rim sherds from a wheel-made pot lid (or possibly platter). Moderately hard light brown fabric, slightly black around the rim. 'Pimply' surface. 3 illustrated.

Amphora sherd. Orange minutely pitted ware with a sandy feel, with a touch of buff about the colour on the outside. Found below the cobbled of the hearth.

Fragment from a jet or lignite bracelet of round section.

Bone pin with perforated head. Cut to shape and perfunc- torily polished.

Several pieces of flakey purplish slate, of which the largest measured 10 × 9 cm were stratified in this layer. It appears to have been imported building material, and a good many similar finds were made at Sites II and V, where they could not, however, be dated, except for the pieces found below the bank.

3 nails, one of which, 543, is illustrated in fig. 33, and a lump of slag were found.

In brown debris (?bank weathering) over midden.

Small iron ring-headed pin with 8½ links of a bronze chain (links ca. 4 mm long) in and emerging from the corrosion of the head. The rust makes it impossible to see how the bronze chain is attached to the head. The object is badly corroded and has deteriorated since excavation. Little can be done to preserve it. It is illustrated by a radiograph kindly provided by the British Museum Research Laboratory. To see the correct relationship of the fragments in Pl. XI, the head of the pin should be turned about 75° clockwise.

Bone pin with unexpanded head. Finely finished.

Slip of ornamented bone.

Flat piece of slate or phyllite with a design faintly scratched on its surface. Miss Pyle's drawing is very accurate. On the actual object, the lines which suggest an equal-armed cross with expanded ends in a square field, are the ones which most catch the eye.

In this layer there were 6 nails, (including fig. 33, 508 and 593) and several small lumps of iron slag, a piece of sawn antler, part of a hone with concave working surface (fig. 33, 1128), a hone of rectangular section (fig. 33, 1129), a small artificially perforated pebble, and a few small pieces of slate.
At base of earthwormage overlying brown debris over black midden.

Bronze ring-headed pin. The shaft, which is bent in the same plane as the ring (no doubt accidentally), has a round central section and slightly wider flat sections at each end. The upper end has been bent around to grip the ring, and filed to emphasise the bent part as a distinct structural entity. The ring is of square section. It is not a complete ring, but inside the head of the shaft is reduced to two tenons which were inserted into the head from the two sides. The lower part of the shaft is lightly but very neatly ornamented on both sides as illustrated; the upper part of the shaft by dot-and-ring patterns; and the head by longitudinal grooves which give the impression of ribbing and curve outward on the lower part of the head. The ring itself is embellished by five groups of notches on each face.

53 sherds from a single wheel-made vessel which can be reconstructed on paper with a small margin of uncertainty regarding its height. Hard brown ware, lighter inside the pot than outside. The sherds have a very ‘pimply’ feel and appearance caused by the protrusion of the sandy grit. There are some red inclusions in the fabric. The vessel had a string-cut base, internal wheel-rilling in its lower part, and was ornamented at its widest part with a zone of grooves made by holding a tool against the pot while it revolved on the wheel, and with other faint grooves, some of them rather broader. 8 illustrated.

Small hand-made body sherd of hard grey ware with a yellowish-brown outer surface, dusted with mica, apparently in the form of ground up particles. It does not resemble any of the prehistoric fabrics from the excavation, and may belong to some unknown Early Christian ware.

Finds from outside the area of the black midden.

Bronze coil from below or at the base of the bank weathering at the eastern end of the bank.

Plano-convex bronze ingot ca. 20mm in diameter and 8mm thick, probably from the bottom of a crucible. From the top of the bank weathering at the east end of the bank.
A trench 15m long was dug at right angles to the north wall of the church, 3–4.5m from the NW. corner. It was intended that it should section a massive wall some 10–12m north of the church, which appeared to form the northern boundary of the churchyard. This wall was indicated by a slight rise in the ground surface and an intermittent line of large boulders, becoming a double line at the east end. The trench ran unexpectedly through a gate in this wall, and in order to investigate the structure of the wall as planned, it was necessary to widen the cutting on the east side. For plans and section see fig. 40.

The centre of the boundary wall was packed with stones. There was earth in the cavities, but the stones were generally in contact with at least one of their neighbours and were distinctly tighter than the stones which had fallen during the wall’s decay. East of the excavation this stone core was revetted on both sides by large slabs placed on edge and a similar slab placed transversely to the line of the wall revetted its termination at the gateway. These large slabs are all visible on the surface. Where excavated, the south side of the wall was only revetted with small stones, two of which were found in situ, the third being represented by a socket. About 60cm west of the termination of the revetment at the gate, there was a deep posthole, in which both the soft earth core, which replaced the decayed wood of the post, and the rammed clay packing around it could be discerned. Between this post and the wall there were
two carefully laid flat slabs, one of which ran under the last of the stones in the wall's southern revetment. It is natural to interpret this as a gate post with a narrow paved gap behind it through which a person could slip without opening the gate, or where perhaps there was a stile.

Much of the core of the wall had fallen beyond the revetment into the gateway and graveyard, but it was roughly estimated that at least half the stones of the core are still in situ. If the estimate is correct, the original height of the wall was less than 90cm. The gateway may have been cobbled, but in the small area excavated there were possibilities for confusing a poorly preserved cobbled with the bottom layer of stones fallen from the wall.

Over and among the collapsed debris of the wall, there was slightly darkened earth with animal bones and medieval sherds, forming a diffuse midden layer. Where the revetment of the wall had been pulled out in antiquity, the midden extended in over the remains of the wall core (see section N1-S1), showing that the wall was already ruinous when the midden was formed, as was also indicated by the position of the sherds and bones in the gateway area, where they lay over or in the upper part of the wall collapse. Only further excavation could clarify the reason for this medieval occupation deposit in the churchyard and explain the black smear under it along the section N1-S1. The midden produced a valuable associated group of medieval pottery on which Mr. Waterman has reported in Appendix 8. They indicate a date when the boundary wall was already ruinous.

The central part of the trench was featureless apart from a concentration of large granite stones at a low level. Some of them went down into the boulder clay, and it is possible that they were all natural.

The part of the trench nearest to the church again produced features—notably burials, the debris from the collapse of a medieval church roof, and post-medieval debris. Near the church the debris formed a single layer, though the finds suggested two periods, one medieval, with roof slates, glazed ridge tiles, and medieval pottery, the other probably to be connected with the Napoleonic fortifications on the island, with clay pipe fragments, nails, cinders, coal, a few late but not easily dated sherds, and a fine stone-cutter's hammer. Between 3 and 6 metres from the church the debris thinned out and separated into two layers with a considerable accumulation of clean earthwormage between them, which supports the view that two distinct periods of activity are represented. There were crumbs of mortar both above and below this earthwormage deposit.

The medieval debris represents the collapse of a slated roof with glazed decorative tiles to close the ridge. Such a roof could be expected to disintegrate by sliding piecemeal beyond the walls of the building. Unfortunately it is not practicable to date the ridge tiles closely. Also found was a single stone from a window moulding of Dundry stone, a soft yellowish limestone from Somerset, which was widely used for decorative stonework in the Middle Ages.

It need hardly be emphasised that the medieval roof and window did not belong to the original church, which is in the simple style with antae which preceded Romanesque in Ireland, but indicate medieval alterations.
The nature of the post-medieval debris is less clear. It was probably connected with the occupation of the church indicated by the fireplace, iron brackets and plastering inside the church. It is likely that the Dundry stone moulding found its way into the churchyard at this time, perhaps through the destruction of a west window to accommodate the fireplace.

Eleven burials were encountered in the five metres of the trench nearest to the church. Their density implies a considerable number of graves in the whole of the area around the church. They were aligned either parallel with the church or slightly more NE.-SW. The burials can be divided empirically into two groups—four whose graves penetrate 20–30cm into the boulder clay, which indicates an original depth in the order of 65cm from the surface; and shallow burials in the topsoil. The deep burials are much the worse preserved, but this is the result of different chemical conditions, and not necessarily an indication that they are older. There are, however, other things which suggest that the empirical division really does represent two phases of interment. The three of the deep burials whose arm bones are preserved, have them extended at their sides, while all of the shallow burials whose arm bones are visible, except Burial X (Pl. XV, 2) have them folded in front of them (Pl. XV, 3). Three of the deep burials are actually overlapped by shallow burials, which shows that the shallow burials, at any rate in these cases, were later. Finally the four deep burials, and also Burial X, whose arms are extended at its sides in the fashion of the deep burials, are arranged in a row at right angles to the church wall, while the other shallow Burials are spaced irregularly. Thus it seems that the four deep burials and Burial X belonged to a regularly laid out graveyard with interments laid with their arms at their sides in reasonably deep graves, and the others belong to later shallow interments with folded arms, placed unsystematically in the area near the church.

All the burials were sealed by the collapse of the medieval roof. There was no indication that any had been inserted through it or lay in graves in whose fill this debris was included. An eleventh century Norman coin found a little above Burial XI gives an earliest possible date for this burial if it was in the grave fill, as seems likely. A rim sherd of the kind of glass frequently found in Early Christian contexts in Ireland (591 fig. 32), gave a much earlier terminus post quem for Burial XII. The fill of this grave also contained the up-ended piece of Killiney schist shown in the section. This stone must have been brought to the island for building purposes, and should indicate that stone buildings, or at least the graveyard wall, stood on the site before the burial was made.

Owing to factors such as their indifferent preservation and the uncertainty as to their exact age, the skeletons have not been given full anthropological study. They were examined on the site by myself and a party of medical students led by Dr. (then Mr.) J. A. Derham. Our estimates of age and sex are given in Appendix 3, and show that both sexes are reasonably evenly represented, and that children, adults, and the aged were all present.

The final phase of activity indicated by the section in fig. 40 has been the Office of Public Works clearance. The interior of the church, and a strip around the outside of its walls, have been cleared of later accumulations down to about
the level of the ground when the building was first erected, gravel being spread over the cleared area. Leask (1955) Pl. II illustrates the church before this clearance, and confirms that the surface was then about as shown by the dotted line in the section. At the point where we excavated, this clearance had removed the debris of the medieval roof, so that we only found it beyond the strip which the Office of Public Works had cleared. It is to be expected that inside the church the floor going with this roof, and perhaps other floor levels as well, have been destroyed. A slight mound outside the door bears witness to the extent of the internal clearance. For an example of the possibilities of recovering information from churches which have escaped this sort of interference, see Waterman in Lowry-Corry (1959). Any visitor to the ecclesiastical remains of the country can see how comprehensively these possibilities have by now been swept away.

The entire depth of the soil is grittier near the church than further away. The weathering of the granite of the church walls has no doubt contributed to this. An additional cause may have been the dressing of the stones when the church was erected.

A good deal of chipped flint, including a few implements, was scattered throughout the soil of the site, including that underneath the boundary wall. This should indicate an appreciable degree of prehistoric settlement, but there were no bones with the flints or darkening of the soil, and only two of the sherds are likely to be prehistoric. Underneath the boundary wall the flints were found throughout the depth of the old soil, and it is not unlikely that early cultivation in this area has disturbed the relics of still earlier occupation.

SITE IV—FINDS

BUILDING MATERIALS FROM THE CHURCH

1133  fig. 35  Damaged and weathered block of carved Dundry stone (identification, F. J. North), almost certainly a moulding from the bottom or sides of a medieval church window. The stone’s section is reconstructed as far as possible in fig. 35, where it can be seen that it ornamented an aperture which splayed on one side, presumably the inside, and was decorated on the presumed outside by convex, concave, and angular flutings. It looks as though the stone also had a deep groove of which only the bottom (showing tooling that has not been smoothed off) is preserved. This may have been a glazing groove.

Ridge tiles. About 60 fragments of glazed pottery ridge tiles were found at the end of Site IV nearest to the church. It was not possible to reconstruct any complete tile, but there was enough to indicate most of the features of their
size and shape. Fig. 34j shows a length of the angle of a tile with three square-cut billet-like mouldings along the top, one of them flush with the end. That the mouldings were not always flush with the end is indicated by fig. 34k. Fig. 34h shows that the tiles extended about 15cm down the roof on either side of the ridge. Most of the mouldings are broad, meeting at the top at an angle of about 55°. There are two fragments of narrower mouldings (fig. 34m). The tiles were decorated by, in addition to the mouldings, pairs of rough concentric arcs, scored on the wet clay before glazing. Some arcs open upwards as a festoon pattern (fig. 34h), others open downwards (fig. 34i). The glaze is a typical medieval lead glaze, ranging from yellowish-brown to greenish-brown and brown, with specks of darker or greener matter. The colour of the glaze may change on a single sherd. Most of it has come away. The tiles were no doubt mortarcd along the ridge of the roof to keep the water out and give a decorative finish to the church, but mortar actually survives on only one fragment.

The tiles were made in two pieces—a main piece about 15mm thick which sloped down the roof on both sides and performed the essential function of the tile, and a decorative spine placed as a fillet along the top and luted down. The main piece must have been shaped by placing a rectangle of wet clay on a broad wooden rail of the ridged shape required for the underside of the tile, for the impressions of wood grain can be seen on the undersides of some fragments. The fillet was then cut to leave the billet-like mouldings along the top of the tile. Fig. 34i indicates that sometimes some of it was left between mouldings. The cut-away surfaces were then smoothed over with the fingers. Sparse mica in the clay shows that they may have been made locally; there is no reason to suppose they were imported from afar.

Slated roofs and glazed ridge tiles first came into common use in England in the thirteenth century. At first the embellishments were hand moulded but by the fourteenth century they were generally cut (Jope, 1951). Glazed ridge tiles were still being made in the Tudor period. It is probable that future excavations, and attention to the development of ridge tiles, will make possible a closer dating than is at present practicable for the Dalkey Island finds.

**Roof slates.** Along with the ridge tiles lay many fragments of roofing slate, of which the better pieces, numbering about 50, were retained. They range in thickness from 6 to 11mm Mr. D. A. Basset, Keeper of Geology in the National Museum of Wales, and Mr. O. G. Williams, Manager of the Pen yr orsedd slate quarry, have very kindly examined the slates and consider that the slightly purple and blue examples might have come from anywhere in the Cambrian slate veins in north Wales, but that the others are not Welsh. Nearly half of the fragments retained are perforated near one end, the hole tending to be a little to one side of the centre, no doubt because the slates overlapped one another laterally as well as vertically. The slates would have been hooked over the slats by wooden pegs driven through these holes, as is still the practice in many places.

It is not easy to determine the original range of the slates in size and shape, as a hammer-dressed edge is sometimes difficult to distinguish from a break
caused by falling off the roof, and a straight edge following a vein in the slate may be original, as with fig. 34g and the left-hand edges of b and e, or the result of a later break like the straight edge of e which goes through the peg hole. However the position of the holes in fig. 34c and d shows that there were narrow as well as wider slates, and it is reasonably certain that lengths also varied, as b and g appear to have their original respectively hammer-dressed and naturally straight lower ends, and both are much shorter than the best surviving specimen, a.

The practice with slates of varying lengths has quite recently been to sort them into groups of equal length and use the longer ones for the lower rows and the shorter ones higher up the roof (Arkell, 1947, p. 135). In the case of the Dalkey Island slates, the bottom and one of the sides are frequently better squared than the top and the other side (which would be overlapped in the roof and therefore invisible and were more summarily shaped). This is particularly clear with fig. 34c. Two of the slates have mortar on them.

IRON OBJECTS

fig. 35 Stone-cutter’s pick. Resembles a sledge hammer pointed at both ends. Weight about 3 kg. Found near the surface towards the southern end of the site and probably dates from the Martello period.

Also from Site IV were a fragment of a horseshoe, an elbow-shaped iron bar 11 probably recent nails and some probably recent fragments; about 10 older nails and fragments. The older and newer nails can be distinguished by their state of preservation. The shapes of both are much distorted by rust, but this can be broken off the newer nails showing the original shape, while the older nails are deeply rusted and tend to fall to bits if meddled with.

OTHER SMALL FINDS

not illus. A small coin of base silver identified by Mr. R. H. M. Dolley as a mid-eleventh century denier of the Counts (later Dukes) of Normandy. See Appendix 4. Found a little above Burial XI.

fig. 32 Small rim sherd of yellowish glass from the grave fill of Burial XII. See Appendix 11.

not illus. Split fragment from the side of a lignite bracelet, apparently of D-shaped section.

not illus. Strip of lead measuring $60 \times 18 \times 3\text{mm.}$
Proceedings of the Royal Irish Academy.

Flint axe polished and then re-chipped. The polished surface only survives in a few patches near the cutting edge.

Fragment of polished axe, probably of amygdaloidal basalt, slightly altered.

Several pieces of post-medieval glass were found, including about half of a bottle base with a good deal of mortar inside it, of which Dr. Harden writes "The body is the broad cylindrical type which was current ca. 1780, before the narrow modern cylindrical type came in." The mortar must refer it to some period of building activity.

**Flake Industry**

About 1400 pieces of artificially broken flint were found at Site IV, their concentration being undiminished in the old soil layer under the boundary wall. The average density works out at about 65 per m², which is considerably less than the corresponding figures for Sites V and II. The retouched pieces (unillustrated) were:

4 broken or unfinished laurel-leaf pieces.
2 end-scrapers, 2 thumbnail scrapers, and 1 irregular scraper.
1 Bann flake.
3 miscellaneous retouched pieces.

**Chapter VI**

**SITE I**

Site I is situated along the western shore of the island about 60m south of the promontory fort ditch, close to the present-day well, and was dug in the first two days of the 1956 excavation. Attention had been drawn by the large number of small flint flakes that could be picked out of the top-soil of the cliff section, and this was investigated by digging an intermittent trench at the top of the cliff at right angles to the shore.

The top layer (1) was fine brown stone-free material, probably earthworm age. The layer below was rather more consolidated and contained much granite rubble. Flint chipping debris (but not finished implements) was found in it at all levels, and also in (1), and three small grooved potsherds, apparently comparable to 279, turned up. The surface of the boulder clay was found at a depth of 40–60cm. About 9m in from the cliff a small hollow had been sunk about 10cm into the boulder clay, and was filled with dark grey earth
and a good many pieces of iron slag. At the eastern end of the trench an obviously modern but somewhat decayed field dyke was sectioned. It rested on a substantial red turf-line, and produced fragments of a clay pipe of the early eighteenth century (dating by courtesy of Dr. Adrian Oswald) which provide a terminus post quem for the dyke’s construction.

It is to be supposed that the area inside the field dyke had been under cultivation at some time during the eighteenth or nineteenth centuries, and I spoke with a boatman who could remember when potatoes were grown in it. Any stratigraphy which may have existed was destroyed at that time down to the level of the boulder clay, and the finds were stirred about so that they occurred at all levels. The only original stratigraphy was the base of the pit, which was too deep to be affected.

Chapter VII

TRIAL CUTTINGS—EXCAVATION

There remain to be described a number of small cuttings dug in 1956–58. Their positions are shown in text fig. 2. Detailed plans and sections are not given.

1956 trial cuttings. The occupation deposits were at that time shown in a natural cliff section at the head of the shingle beach at the pier. The first work at the north end of the island was to dig two 1 × 2m cuttings in a line behind this section. In both cuttings the basal layer was the Larnian shell midden. The edge of the bank extended into the more easterly cutting and the amphora handle ec4 (fig. 19 and Pl. X) was found sealed below it.

1957 trial cuttings. These were:

(a) a small cutting at the top of the rock slope above Site II, made to test a theory that the especial density of flint flakes along the foot of the slope was an overflow from knapping at the top of the slope. Very many flakes were found in the cutting, which supported the theory.

(b) a trench 10 × 1m (termed at the time ‘trench II’) at the western extremity of the promontory fort. It showed that there was a thin spread of occupation earth in this area, with a scatter of shells at the bottom associated with probably Larnian flints. There were no finds of importance.

1958 trial cuttings. In 1958 a row of cuttings extending the long section of Site II were dug with a view to seeing whether the deposits of the rest of the platform resembled Site II, and whether there was any place which particularly called for further digging. Parallel lines of cuttings were added to the first line, and a, b, and c suffixed to the numbers of the cuttings in them. Cuttings 1a, 3a, 4a, and 1b were extended in 1959 as Site V, which has been dealt with above. The other cuttings can now be described briefly.
**Trial cuttings 1 and 5.** In trial cutting 1 the basal shell layer, which was clearly an extension of the midden in Site II, produced 2 potsherds and much bone. In view of the importance of stratified pottery it was extended eastward as trial cutting 5, but unfortunately the midden stopped almost at once and produced no further sherds. There were two post-holes in trial cutting 1.

**Trial cutting 2.** There was no basal shell layer and few finds. A pit intersected by the west side of the cutting had been dug 40cm into the boulder clay.

**Trial cuttings 3 and 4.** The northern verge of a shallow trench cut obliquely across trial cutting 3, which was accordingly extended southward in order to give a complete section of the trench. This trench was a metre wide and penetrated 30–40cm into the boulder clay. If extended eastward it would pass just outside the southern end of Site V and intersect the extreme south-western corner of trial cutting 1a. Just at this corner the boulder clay began to slope away steeply, so that it is likely that the trench does in fact follow this course. It may have been a drain carrying water across the site from the rock slope. Where sectioned, the bottom 5cm of its fill consisted of rapid silt—black material derived from the occupation earth alternating with yellow streaks derived from the boulder clay. Resting on this in one place was a cobbles measuring 20 by 30cm of fist-sized stones, forming the base of a hearth with 2–3cm of powdered charcoal in it. Around the hearth there was a deposit of periwinkle shells up to 20cm deep. Above the shells and 30cm up in the ditch fill there was a second hearth (see Appendix 11). It had a cobbled base like the first, but was in addition framed by four side-slabs. It is thought that the lower hearth was originally so framed, but when the accumulation around it of silt and shells became excessive, the side stones were prized up and the hearth reconstructed at a higher level. The heap of shells had an unnaturally steep side facing the lower hearth, which appeared to be where they had accumulated against one of the side slabs. Two sherds were found directly under the upper hearth. One was part of an amphora handle, ec3 (fig. 19) which fitted together with a sherd from the ditch of the promontory fort, thought in turn to have weathered out from under the bank (see page 111); the other was a badly burned amphora sherd 787 (not illus.), which appears to be of the same ware as ec8 and 525 (Pl. X), the latter found under the hearth at Site III.

There was no basal shell midden in trial cutting 3, but it began in trial cutting 4 as a thin scatter whose finds could not be securely isolated from subsequent ones.

**Trial cutting 3a.** This was the most marginal of the trial cuttings, and its remoteness from the more intense settlement showed in the comparative rarity of stones and finds, and in the shallowness of the occupation deposit. There was a small pit.

**Trial cutting 1c.** There was no basal midden, but a pit, a posthole, and 12 stake holes ca. 5cm in diameter were found in the boulder clay. The most
interesting discovery was an iron smelting pit, which appeared in the south-eastern corner and necessitated its extension. The pit is shown in plan and section in text fig. 5. It was sealed by about 8cm of the rubbly material which is found immediately under the topsoil. Judging by its high position, the pit may well be later than Early Christian. It was roughly circular and filled with black powder and charcoal (see Appendix 11). Its depth was about 25cm, but since all deposits are being constantly compressed (by *inter alia* earthworm action), its original depth is likely to have been greater. Near its bottom there were two pieces of baked clay, vitrified on one side, and several lumps of slag. The two pieces of clay fitted together to give half of what appeared to be a **tuyère** broken vertically down the middle and capable of reconstruction on the

Text figure 5. Trial cutting Ic. Plan and section of pit with iron slag and tuyère.
assumption of symmetry (fig. 35 and p. 142). Most of the slag was found at the lowest part of the pit in the form of separate lumps up to 5cm across, not as a large single lump taking the shape of the bottom of the furnace, a form of slag described as 'furnace bottom'. Most of the pieces have a somewhat cellular structure, with slightly lustrous congealed droplets where the impurities have fused. Their magnetism can be detected with an ordinary magnet if the magnet is suspended on a thread. Apart from the tuyère, there was no sign of burned clay, and it is unlikely that the pit ever had a clay lining.

TRIAL CUTTINGS—FINDS

Pottery

1956 Cuttings near Site II.

p191 fig. 17 Rim of moderately hard lumpy black pottery, resembling the Late Bronze Age ware from Site V, but black and more fragile.

ec4 fig. 19 & Pl. X Amphora handle. Listed under Site II as it belongs to the associated group of Early Christian finds sealed by the bank.

1957 'Trench II'.

136 fig. 17 Rim sherd of moderately hard yellowish-brown ware, decorated with a narrow zone of cross-hatching impressed with a toothed stamp. ? Food-Vessel.

p192 not illus. Small decorated sherd, probably Food-Vessel.

1958 Trial cuttings 1 and 5

In basal shell midden.

635 fig. 3 Thick splaying rim of moderately soft rather gritty imperfectly fired orange-brown ware. Many soft white grits which effervesce with HCl.

p193 not illus. 2 sherds of moderately hard well-fired ware 5–8mm thick, with granitic grits, almost certainly from a single pot. One reliably stratified in basal midden (267), the other in the disturbed top part of the midden (266).
Not in basal shell midden

p194 fig. 3 Rim sherd and lug of moderately soft red-brown corky ware. Rim splayed. Applied lug with vertical axis.

p195 fig. 3 3 rim, 2 shoulder, and 9 other sherds, with a series of joins from rim to shoulder, from a large shouldered bowl, ca. 35cm in diameter. Moderately hard brown granite gritted ware in the 'utilitarian' category (see chapter VIII). Decorated with 5 very lightly impressed circumferential stab-and-drag lines on top of and inside of rim, and 2 or more horizontal grooves below the shoulder. 8 illustrated.

1095 fig. 3 Heavy rim with external flange and horizontal top of moderately fine orange-brown ware. Profile recalls 3107 (Pl. III). The illustrated sherd from p197 is in similar ware and may come from the same pot.

p196 fig. 3 Outward rim flange of form and ware like p152-p154.

p197 fig. 3 4 shoulder sherds of moderately fine Neolithic ware. Ledge, change-of-direction, and pinched-up-cordon forms all present. 1 illustrated.

1105 fig. 3 Ledge shoulder of moderately hard red-brown ware decorated with roughly scored horizontal lines.

p198 not illus. Small lug of moderately fine Neolithic ware.

p199 fig. 3 2 sherds of coarse brown pottery, one better fired than the other, but possibly from the same pot. The illustrated piece must be either a large ledge shoulder of unparallelled coarseness, or more probably the overhang of a heavy rim. Part of the sherd is moulded into a horizontal ridge and depression with horizontal rows of small jabbed holes. The surface has peeled off part of the rest. The unillustrated sherd is part of a lug with similar stabbed ornament.

p200 fig. 3 Rim and 2 body sherds of moderately hard brown ware. Flat-topped rim ornamented with small stabbed pits, and exterior decorated with broadly spaced fingernail impressions. 2 illustrated.
Small Beaker sherd. Gritty yellow-grey ware with a grey core. Ornament in plain, probably impressed, lines, consists of a narrow relief zone bearing criss-cross ornament.

8 body sherds from 1 or 2 pots of similar ware and undeterminable profile. Moderately hard yellow-grey ware with dark-grey core. Decoration is impressed with a toothed stamp and consists of horizontal lines and narrow zones of vertical or oblique hatching. The profile of one sherd (illustrated above) shows an internal angle. Not B-Beaker.

Unidentified rim sherd of hard dark yellow-grey ware with cord ornament.

Small rim sherd of curious form—apparently with concave top and external flange or cordon. Moderately soft grey ware.

Edge of lid (or platter) of hard light brown ware with unusually abundant red specks in the fabric. Internal wheel-rilling.

Small sherd of thick dull orange wheel-made ware with a sandy feel. Identical with Pl. X., ec8.

Small sherd of identical ware to Pl. X, ec7.

Small sherd of thin light-brown pimply ware—typical E-ware.

2 rim and 2 body sherds of hard lumpy yellow-grey ware of the same type as the Late Bronze Age ware of Site V. The vessel must have been very large. The rim form is not paralleled at Site V. I illustrated.

Splaying but unthickened rim of moderately hard grey-brown ware.
2 adjoining shoulder sherds from a pot of ca. 30cm diameter. Gritty brown to orange ware. Possibly a softened Neolithic shoulder. 1 illustrated.

3 sherds of very coarse light brown Neolithic ware with various forms of stabbed decoration.

Rim and one small body sherd of moderately hard, even, light brown ware. Toothed stamp pattern of a bar-chevron in a field of horizontal lines. A-Beaker. 1 illustrated.

2 small gritty Beaker sherds.

Rim sherd of moderately hard yellow-grey ware. The angle is uncertain, but it is illustrated at the most likely angle. As illustrated its profile recalls the Trevisker pots of text fig. 4, especially 764, and the ware is not inconsistent with such an identification, although it is less emphatically different from normal Irish wares than the pieces shown in text fig. 4.

8 body sherds of very hard ware, red outside and black inside the pot. They represent a large pot decorated with shallow cordons and encrustations. One sherd seems to indicate that a zig-zag cordon abutted against a horizontal cordon. Another shows a small dimpled knob. The ware is not typical of urn, but rather finer. 2 illustrated.

Sherd of coarse very gritty yellow-grey ware from the lower end of a splaying neck with scored internal and external decoration, cf. p120. A heavy base angle sherd of similar ware may come from the same pot.

Rim sherd of moderately hard gritty grey-brown ware with a single horizontal line of decoration.

Small simple rim sherd of coarse ware.

6 decorated body sherds not further identified.

17 plain sherds, not further identified.

Burnt amphora sherd, probably same ware as ec8, from hearth.
Amphora handle sherd fitting on to one from Site II—see page 111.

Rim sherd of thin moderately hard grey to black ware with a pimply surface. Diameter ca. 12cm E-ware, but not a cooking pot. Perhaps a bowl.

3 adjoining base sherds of hard pinkish brown ware, grey on the exterior of the pot. Ware coarsely finished but not especially pimply. Base diameter ca. 10cm. E-ware. 1 illustrated.

Sherd of hard whitish-grey ware with pronounced internal wheel-rilling. E-ware.

12 small sherds, none of which require further comment.

Rolled rim of moderately hard brown 'utilitarian' Neolithic ware.

Rim and body sherd of thin moderately hard gritty yellow-grey ware with flattened rim and slight cordon below it. Ornamented with plain horizontal lines. Rim of B-Beaker with rim cordon and flattened profile. 1 illustrated.

Sherd of gritty orange-brown ware with flattened squashed-down rim.

3 plain and 2 decorated small sherds not further identified.

2 body sherds of moderately hard pinkish-brown ware with internal wheel-rilling and a cream external slip showing brush marks. One sherd contains a stone grit ca. 4mm in diameter. Mr. Thomas informs me that these sherds have an exact parallel at Gwithian (G.M. 534). 1 illustrated.

Small sherd of grey ware with a white external slip. Closely resembles 930 and may be from the same pot, having undergone a secondary colour change.
ec12 not illus. 6 small sherds of hard light-brown ware, grey to pink on the outer face of the pot. Internal rilling and red specks in the fabric. Pot not large enough for an amphora; presumably a form of E-ware, though not the ‘pimply’ form typical of the site.

1112 fig. 18 Body sherds of moderately hard whitish-grey wheel-made ware with a minutely pitted surface and red specks. On the outside of the sherd there is an abrupt thickening, resembling in profile a Neolithic ledge shoulder. This was no doubt some kind of decorative tooling applied to the pot as it revolved on the wheel. Degree of curvature suggests amphora.

**SMALL FINDS FROM THE VARIOUS TRIAL CUTTINGS**

1092 fig. 27 Butt of flat copper axe (see Appendix 5 for analysis). The butt is blunt with a squared edge, hence it belongs to the ‘thick-butted’ category, although an unusually narrow specimen of this class. From Cutting 5.

1068 fig. 27 Small bronze object in the form of a figure eight. A slight groove worn into the centre of the bar separating the two loops suggests that there was a small spike attached here and the object was a little buckle. From Cutting 5.

722 & 637 not illus. Small fragments of bronze.

719, 632 fig. 19 & 1134 not illus. Early glass. See Appendix 10.

792 Pl. XI Polished length of long bone with cancellous tissue partly removed (? handle). It is ornamented with a row of 13 incised compass-drawn circles, each of whose centre is placed on the circumference of the one before, and a second row of 3 such circles. From Trial Cutting 3.

844 fig. 28 Polished antler tine with point cut to a slight knob.

1135 fig. 28 Piece of antler with a stump of bone held securely in the cancellous tissue at one end and broken off flush. This is apparently an antler handle and the end of the bone tool (perhaps an awl) which was held in it.

1082 not illus. Piece from the wall of a long bone, ground by use. Cf. 47 (fig. 28).

842 not illus. Tubular piece of long bone cut straight across at one end and smoothed by polishing.
Also from the trial cuttings were a sliver from a polished bone object, a short length of saw-cut antler, and the base of a red deer antler with the brow tine sawn most of the way across and then broken off, and the bez tine also removed.

There were five fragments of crucible, none of which justifies illustration. They are from small crucibles of light-weight grey ware full of internal cavities and with a rather 'cindery' feel. The outside of the crucibles was glassy, and sometimes also the inside. The glassy surfaces are sometimes reddish or purplish. These are typical Early Christian crucibles, and quite different from the Late Bronze Age crucibles from Site V.

One nail and some lumps of iron and slag were found in the trial cuttings. At the north end of Trial Cutting 2 about 1·8kg of iron slag, an iron bar ca. 30cm. long, and a few small pieces of iron were found all together. In Trial Cutting 1c there was an iron smelting pit from which ca. 49kg of slag were recovered in small lumps. Otherwise there were 3 nails and a skewer similar to 289 (fig. 28).

A large piece of burned clay, vitrified to a grey-green glassy substance on one side (fig. 35, upper right), found in the iron smelting pit in Trial Cutting 1c, is thought to be about half of a tuyère, or the clay packing around the end of the tube used for blowing a forced draught into the smelting pit. The vitrified surface is the side of the object which faced the pit and came into contact with the burning charcoal. The vitrification also extends into the blowing hole. Immediately behind the vitrification the clay has acquired the same hard cellular structure as the Early Christian crucibles. At a greater depth the clay is merely baked and rather crumbly. The tuyère has no definite rear end, the probable explanation being that the original tuyère was a piece of unbaked clay. What is preserved is about half (broken through the central blowing hole) of the part of it that became either vitrified or baked during use. The part which was too far away from the heat to be baked, has weathered away. The tuyère seems to have been shaped like a pad with both sides bent forward, and has a central hole.

1109  fig. 29  Polished axe of schist. Made from a flattish piece of stone and partially ground, especially around edges and the cutting end. From Trial Cutting 5.

1116  not illus.  Small stone polished over most of its surface. Possibly a leather-working tool.

979  fig. 28  Perforated roughly circular piece of schist. Perhaps a spindle whorl.

The 1956 trial cuttings produced 4 limpet scoops and the 1958 trial cutting 1 produced 3. Other limpet scoops from the trial cuttings were discarded. Several small fragments of roofing slate came from the trial cuttings.

Only the retouched pieces of flint were retained (apart from the material from the basal middens). They are 3 Bann flakes (2 of chert), 12 scrapers of various forms, and 1 borer.
Chapter VIII

GENERAL CONSIDERATIONS

In this chapter a number of points arising from certain classes of finds and from the excavation itself will be taken up. Broader issues extending beyond the reach of the Dalkey Island investigation have so far as reasonable been avoided*.

FLAKE INDUSTRY

Flint, chert, quartz, and other stones were flaked at Dalkey Island, but flint was the principal material used. The outside of the pebbles or nodules shows that almost all the flint was derived from the drift (but at least one piece, (320, fig. 23)) had fresh cortex and must have come direct from the source in the chalk. The drift flint had been in the form of pebbles, usually 6-10cm across, such as occur in the boulder clay of the Dublin region and can be found on the beaches. With the chert, the high ratio of well-formed flakes to waste products indicates that many chert implements were brought already made to the site, but a core and some outside flakes from pebbles show also that chert knapping occurred on the island. Carboniferous chert outcrops close to Dublin, and there must be pebbles in the drift. Quartz and other stones were also no doubt procured locally.

The only proper basis for the study of ancient flint working is the total material, including chipping waste. An effort was therefore made to collect all artificially-broken flint. Unfortunately over most of the site material of different ages was inextricably mingled. The only material really suitable for total-assemblage study came from the northern and southern basal middens. To make comparison possible, two other groups were chosen as reasonably free from contamination—the flints from the pit (508), which were associated with Neolithic pottery, and from the ‘Beaker shells’, where most of the pottery was Beaker coarse ware but some Neolithic sherds were also found. For these four detailed lists see pages 97-98 and 120. Over the rest of the excavation only the regular implements are accounted for in detail.

It is intended here to show that the flint industry from the basal middens is quite different from that from all later deposits. In the first place the actual retouched types are different. These in the middens were “rough scrapers” (small very roughly retouched random pieces), leaf-shaped flakes with retouch marginal to the striking platform (long known as “Bann flakes” or “Bann points”), other flakes with retouch marginal to the striking platform, and a strong flake point (3155, fig. 22, which has its counterparts in the material

* A study of the classification and chronology of Irish Neolithic pottery, originally intended as part of the present paper, has been taken out at the request of the Academy and will appear in a compressed form in the proceedings of the 1966 Prague prehistoric congress. It is hoped that a corresponding section on Beaker in Ireland will appear as a separate paper.
excavated by Movius at Newferry (Movius 1936, fig. 3, 14–17). These types occur regularly at Larnian sites, and are quite different from the types characteristic of later settlement at Dalkey Island. These are flat-retouched forms (arrowheads, javelin heads, laurel leaf forms), convex scrapers of various sizes and shapes, frequently skilfully and evenly retouched, and hollow scrapers of a special form with their main distribution in northern Ireland. These types recur regularly at the settlements of Neolithic and other prehistoric cultures other than the Larnian. The laurel leaf in the southern basal midden (314, fig. 25) alone is out of place, but it can have been due to cultural contact, if not to simple mechanical contamination of the strata.

The relatively frequent occurrence of good blades and leaf-shaped flakes (unretouched) in the Larnian deposits can be seen by comparing the lists for the two middens with those for pit (508) and the ‘Beaker shells’. These forms must be very much rarer in the later material, as they are not represented at all in the two latter selected groups.

Two further diagnostic points do not emerge from the lists at all. These are (1) that the larger flakes from the middens have a sturdy character with wide striking platforms and large bulbs of percussion, and (2) that they tend to be longer in relation to their width than the corresponding material from the other two groups. This strikes the eye when one examines the material, and the graph in text fig. 6 has been devised to illustrate the second point also to the reader. The first part of the graph is for flakes less than 30mm long, the second part for those more than 30mm long. This is because the shape difference the graph is intended to show is not encountered among the small flakes, which are indistinguishable in all four groups. In the size range over 30mm, the graph shows the greater frequency of long flakes in the basal middens. For instance 13% of the flakes from the northern basal midden were over twice as long as they were wide, while the corresponding figures for the Neolithic pit and ‘Beaker shells’ were only 3% and 4%. Similarly flakes with these proportions were over three times as frequent in the southern basal midden as in the two late groups. None of the flakes over 30mm long from the northern basal midden, and only 8% of those from the southern basal midden, fall into the length/breadth range 0-8–1-2, as against 13% with those from the Neolithic pit and 17% with those from the ‘Beaker shells’. Length is defined as the distance from the striking platform to the further end of the flake, so that some flakes are ‘wider’ than they are ‘long’. It can thus be shown that there are significant differences in the shapes of the unretouched flakes of the two contexts. The typological and technical differences between the two groups—taking the basal middens together as one, and the Neolithic pit and ‘Beaker shells’ as the other—are so marked that one, without hesitation, can refer to two flint industries. Comparison with other assemblages shows the industry of the basal middens to be of Larnian (Irish Mesolithic) type.

A discrepancy between the courses of the graphs for the two middens is due to a difference in the representation of the small flakes. Had only the significant part, that for flakes over 30mm, been shown, the agreement would have appeared greater.
The only difference observed between the groups from the Neolithic pit (508) and the 'Beaker shells' was the greater coarseness of the flaking technique in the latter, finding expression in the greater number of cores and unclassified pieces (cf. lists on page 98). This appears to be the result of flaking faultier flint. Perhaps the Neolithic people had developed a skill in selecting the best of the beach material lacked by the Beaker people.

The remainder of the implements listed are selected from a mass of waste from the different periods of settlement, and, while they are interesting as individual finds, their value is reduced by the fact that they have no definite associations.

The bi-facial 'laurel-leaf' forms are noteworthy as 51 of them were found at Sites II and V (including fragments and uncompleted examples), which is a total not greatly under that for scrapers. As surface finds over the country they are not nearly so common as scrapers.

A number of pieces which appear to be uncompleted examples, abandoned because some flaw had appeared in the flint, give an indication of the process of fabrication (fig. 24). The starting point, apparently, was a flake of suitable dimensions and form, which was shaped and thinned by flat retouch from both sides. 304 illustrates the beginning of the retouch, while 203 had been more fully retouched on one side than on the other, and 3134 had been retouched all
around one face but down only one side of the reverse face. There are many which broke across at a late stage of preparation (in several cases both halves were found), showing nearly finished examples, which had refused to accept some final improvement, e.g. 3002, 3133.

The finished or near-finished specimens vary considerably in quality, from thin beautifully even examples like 2941 and 104 through intermediate pieces like 305, 306, and 238 to relatively thick and irregular pieces like 200. The main factor governing the quality of the finished product seems to have been the quality of the flint employed.

The most elegantly made 'laurel leaves' are blunt-ended with a little cortex at each end (2941, 104), while the rougher ones are generally pointed. Clearly the good specimens go diametrically across the pebble from which they were made, being the largest implement that could be got out of the raw material. In the rougher examples, where, owing to irregularities in the raw material, it was impossible to exploit the whole diameter of the pebble, the converging sides meet at a point. Size may therefore be looked upon as the primary aim in the preparation of the implement, pointed ends only resulting incidentally with second-class products. Therefore these artifacts cannot be regarded as weapons or 'javelin heads'.

**Stone Axes and 'Limpet Scoops'**

Out of a total of twenty-three stone axes (many of them fragmentary and/or unfinished) found in the excavations, nine were of various kinds of shale or mudstone, varying in hardness and colour. Dr. Preston remarked that most of the remainder appeared to be a series of basic igneous rocks of various grain size, in various states of alteration to amphibolites and hornblende schists. There is not a single axe of stone from the popular Tievebulliagh/Rathlin, Graig Lwyd, or Langdale 'factories'.

Since the variety of stone used suggests that no favourite source was employed, it seems likely that the beach provided stone for axes, just as flint for small tools. A tendency to select stones which experience had shown to be suitable, may explain the frequency of altered igneous rocks. Direct support for drift origin comes from (a) a natural elongated beach pebble of amphibolitized quartz dolerite, found in the northern basal midden, showing that some at any rate of the altered rocks could be found on the beach, and (b) an irregular piece of hornblende schist with smoothed angles, presumably a find from the drift, measuring about $15 \times 6 \times 4\text{cm}$, which had been brought to the site and partially chipped, though not sufficiently to be described as a roughout. This may be compared with Houlder's observation that the earliest exploitation of the indurated shale at Mynydd Rhiw was of suitable pieces dug out of the drift (Houlder 1961).

That axes were polished on the site is shown by the axe polishers (fig. 31), of which one was found in the northern basal midden, another in a pit with Neolithic pottery. The roughouts, i.e. axes which have been chipped to shape but not polished, were presumably made on the site. None of them shows such
detailed preliminary work as the best porcellanite or Mynydd Rhiw roughouts (Jope 1952; Houlder 1961), perhaps because the stones used were less susceptible to controlled flaking. Willingness to exploit the natural shape of the stone is indicated by the roughouts 729 and 2584 (fig. 30) where the original stones converged naturally toward the cutting edge and were shaped by chipping along the sides only. 1042 seems to have been a large flake of suitable form, modified by secondary chipping. Among the axes whose original chipping is still visible, 1043, at least, showed lateral chipping alone, and so must have been made from a piece of axe-like size and shape.

Flaking was the usual rough-out technique, but 325 was pecked into shape.

The long beach pebbles with artificially bevelled ends, such as are illustrated in Pl. XI and fig. 29, have acquired the somewhat unsatisfactory name 'limpet scoops'. The term has had a chequered history. Bishop (1914) invented it for the smaller of two classes of utilised stones at the Oronsay middens, using the term 'limpet hammer' for the larger class. Cantrill (1915) and Gordon-Williams (1926) used 'limpet scoop' for the south Welsh finds most nearly equivalent to Bishop's 'limpet hammers', while denying that they had anything to do with scooping limpets out of their shells, which had been Bishop's meaning. Other writers also (Breuil and Movius) query Bishop's interpretation, and proposed respectively that they were retouching tools for flint work (Breuil) and woodworking tools (Movius).

An examination of the Dalkey Island specimens shows that the bevels are always rougher than the rolled exterior of the pebble, and range from a smooth pocked surface to an irregular and striated one, the striations being in the same direction as the long axis of the implement. This bevelling was sometimes succeeded or preceded by chipping of the end of the stone. The chipping is natural enough if the pebbles were used as hammer stones of any kind, but the bevelling is more of a problem. The only way I have been able to reproduce it is by holding a pebble obliquely and sliding its end along a rock face at an angle of about 45°. A number of short sliding blows made with the stone held like this will produce much the same mixture of pocking and striation that can be seen on the 'limpet scoops'. If such stones had been used for detaching limpets, it would seem that an effective method would have been to direct a sharp sliding blow along the rock at the limpet, taking it by surprise. This accords with the large number of limpet shells found in the archaeological horizon to which the 'scoops' appear to belong.

**Bronze Age Moulds**

The following technical observations may be made on the Bronze Age moulds and crucibles listed on pages 89-91 (see also Appendix 6).

1. Various grades of clay were used. The inner faces of the fragments, against which the metal was cast, and the articulating surfaces where the opposing valves met, were of fine sandy clay with a smooth surface, whose
colour was usually grey and sometimes orange-brown. The outer parts of the fragments were made of relatively gritty orange-brown clay containing angular granitic debris. The outer part of some moulds is coarser than that of others, and appears to be coarser with moulds for larger implements and finer with those for smaller implements. In many cases the outer and inner parts have separated, so that some fragments are exclusively of the fine, others exclusively of the coarse ware. Enough of fragment 2543a is preserved to show that the coarse outer part is not interrupted where the matching valves joined, but curved around to enwrap the second valve. Thus it can be seen that the fine clay was the valve proper, the coarse clay an envelope wrapped around the pairs of valves to hold them together. The best evidence that this was the purpose of the coarse outer layer comes from Jarlshof, where a complete section of two valves held together by the clay envelope was found (Curle 1934, fig. 48).

2. As with the other collections of clay moulds in the British Isles, many of the Dalkey Island fragments show lug and socket keying to fit the two valves together when mounting for casting.

3. 2543a and 2679 come from the ends of sockets of small diameter, and appear to indicate a previously unrecorded way of holding the core in place and running the metal into the cavity of the mould. The last 1 to 1½ cm of the casting surface of these valves is raised up 1 to 2 mm around most of the circumference of the socket. Probably the core was clamped in between the matching raised surfaces, and in this way held securely in place. The core could then continue without any change of its own diameter into the cavity of the mould, where it would leave a 1–2 mm thick space for the metal to fill. The unraised passages through the raised area would be set back from the core and serve as the ducts through which the molten metal would pass to fill the mould. The diagram, text fig. 7, indicates the system. It is only a slight modification of the way of holding the core indicated by many surviving socketed axe moulds, in which the core is clamped between surfaces which are a direct extension of the casting surfaces. In these cases the core must have been reduced in diameter lower down to leave room for the metal. At Dalkey Island the core did not change; the space between the valves increased in diameter.

4. There are five fragments of gates, the funnels for pouring the metal into the moulds. Two are made of coarse clay comparable to the outer envelopes of some of the larger moulds, while the other three are less coarse, but similar in ware to the outer envelopes of 2543a and 2679. Since one would suppose that the cores, which would have to be pared to shape with precision, would be made from fine clay rather like the valves, this suggests that the smiths did not form their gates as an extension of the core, forming what we may call a gate-core unit, but as an extension of the outer clay envelope. The existence of gate-core units has been proved by the discovery of the essential parts of some at Haag, Jutland (Neergaard 1910, fig. 29), and the method has been tested experimentally by Neergaard and by Drescher. It produces a kind of jet with diverging tings, representing the oblique course of the runnels through the gate-core unit, as illustrated by Neergaard (1910 fig. 37 and 38) and Drescher (1957, fig. 3 and 4). Some British jets, however, (e.g. from Traprain Law and
Text figure 7. Proposed reconstruction of arrangement of core and gates of a socketed spearhead, based on 2543a.

Heathery Burn Cave) have parallel tangs such as are more likely to have been formed by ducts between the valves and the core, as suggested in text fig. 7, than by ducts through a gate-core unit. If the ducts were situated between the core and the valves, the gate, in the case of a clay mould, would naturally be formed by an extension of the outer envelope, as in the reconstructed drawing, and such a mould, when mounted and ready for use, would look more like one of the bronze palstave moulds whose valves extend as a sort of funnel at the top than like the published reconstructions of socketed axe moulds with gate-core units.

When in the case of Dalkey Island 2543a and 2679 the clay envelope extends beyond the valve proper, there are two possible reasons. Either it enwrapped and supported a gate-core unit, or else it formed the gate directly. The latter theory is supported by the runnels, which run right up to the end of the valve. If they were joined part-way along by oblique ducts, as would be the case if there were a gate-core unit, their upper part would be non-functional.
Further evidence that the extension of the outer envelope was to form the
gate, as proposed in text fig. 7, comes from the grey colour, almost certainly
resulting from contact with molten metal, which can be seen on the inner surface
of the outer envelope of both these fragments just above the runnels. This shows
pretty clearly that molten metal was poured against the outer envelope at these
points and eliminates the possibility that the upper end of the envelopes were
merely wrapped around a gate-core unit.

In fact it looks as though 2543a is complete up to the rim of the gate, but
as the fragment is rather worn, this is not sure. If so, it is a remarkable sherd,
showing all at one time how the valves and envelope combined to form the gate
and the ducts down to the casting hollow, and how the core was held in place.

It should be noted that the runnels would be in line with the casting seams
of 2543a and 90° from them in 2679.

5. From examination of a thin section, Mr. H. W. M. Hodges was able to
conclude that the valves proper have been raised to a temperature in excess of
900°C, but the outer envelopes had not (see Appendix 6).

6. Spectrographic analysis showed the presence of copper, tin, and lead.
This indicates the casting of bronze, including the lead-rich alloy commonly
used in the Late Bronze Age (Smith and Blin-Stoyle 1959). See Appendix 6.

Regarding the crucible sherds (fig. 21) the following can be remarked. The
thickness of the walls varied from 12 to 17mm without measuring subsequent
coats of slip. The pottery is coarse and moderately hard, but differs from
course domestic pottery of the same period in having no large grits. Two
fragments have small crumbs of copper or bronze included in the fabric, and
several are marked externally with fine lines, no doubt of vegetable origin, and
possibly barley awns.

Morganite Research and Development point out (Appendix 7) that several
(actually 24) of the crucible fragments show definite layers of internal slip,
usually multiple; in one case there are three distinct layers separated from the
original crucible and from one another by layers of slag, which altogether
added ca. 5mm to the thickness of this sherd. A majority of the 10 sherds which
do not have definite internal slip are darkened for 3-4mm in from the inner
surface. This colour change may have originated in the original firing, in which
case they could be fragments of unused crucibles. It cannot be excluded that
it resulted from contact with hot metal. It does not seem possible to doubt that
most of the crucibles had been used.

It is interesting to note that Morganite Research and Development consider
that the crucibles were placed under rather than over the fire. This is probably
the explanation of the difference between the pottery-like ware of these crucibles
and the cellular 'cindery' character of the Early Christian ones, if the latter
were heated over the fire.

Neolithic Pottery

The material, which was both large and varied, has been divided into
categories in the find list. These are not, however, the usual categories, to
which many of the vessels from Dalkey Island cannot be assigned without extending or modifying the existing meaning of the terms. In any case, there is no fully agreed set of categories and it is uncertain whether either of the main proposed groupings (Piggott 1954; Case 1961) can be treated as standard. The pottery has therefore been set out in descriptive groups which are only suitable for the presentation of the pottery from the present excavation. In the groupings attention is paid to both profile, ornament, and the character of the ware.

The first group is sub-divided into ‘fine’ and ‘moderately fine’ by the quality of the ware. The distinction is only a matter of degree. The ware is usually light in colour, soft, and rarely burnished, resembling more the range of the Class I and less massive Class Ia of Lough Gur (Ó Ríordáin 1954) than the brown ‘leathery’ ware of northern Ireland. The shaping of the rims also tends to be less careful than in the northerly region. The predominant form was the open shouldered bowl, but 2492 and p8 (Pl. I) appear to have been unshouldered, without being of globular form. No globular forms were found in this ware. The principal value of the distinction between ‘fine’ and ‘moderately fine’ is that decoration (p7, Pl. I), incipient club rims (p8, Pl. I and p9, fig. 1), and lugs (2492 and p13, Pl. I) belong to the ‘moderately fine’ category, i.e. to the coarser end of the range. Plain line decoration is present on 2357, (Pl. I) and p151 (fig. 2), which are fine.

The sherds stratified in the southern basal midden are all ‘fine’ or ‘moderately fine’, although distinctive in being especially soft and in many cases gritted with small white lumps instead of with granite. A rim and a shoulder sherd indicate the presence of open shouldered bowls (285, fig. 2 and 633, fig. 3), otherwise the sherds from the midden only indicate fabric. It is perhaps noteworthy that 285 and 635 are thicker than is usual with fine Neolithic shouldered wares.

P159 and 682 (fig. 2) are fine Neolithic ware of an unusual red colour. The sharply carinated form made in two pieces joined at the shoulder and the method of forming the lugs by extending the shoulder (see also p15, fig. 1) seem to be evolved characteristics, the latter presumably a development of true functional lugs. The best parallels are certain decorated carinated vessels from Ulster, as from ‘Larne’ (Piggott and Child 1932), Ballyutoag (Herring 1938), Clontygora (Davies and Paterson 1938), etc., some of which are close to p159 and 682 in ware. These pots form the basis of the category “Beacharra ware” in Ireland, but the classification has been broadened to embrace certain other types. No pure habitation site assemblage with vessels of this type has been found, so their proper context is still uncertain.

P152–p158 (fig. 2 and Pl. V) are from shouldered profiles with rims in the form of an inverted L, formed by applying a fillet of clay around the mouth of the vessel. Rims of this form are better described by this term than by the expression “club rim”, which is used for other types of thickened rim. Rims with inverted-L profile are widespread in Ireland and S.W. Scotland, but with transverse line decoration are only known at Lough Gur and Dalkey Island. The shoulders of this group at Dalkey Island are unemphatic—not worked to
a distinct ledge or gutter. The ware is inferior to most of the ‘moderately fine’ category, being usually a dull grey colour, perfunctorily smoothed and somewhat ‘corky’, although 255 (fig. 2) comes close to ‘moderately fine’. This special combination of ware and profile was confined to Site II and Trial Cutting 1/5, so that its restricted distribution and internal homogeneity suggest that it may have belonged to a unitary settlement, and therefore be a true associated group.

The next group also represents a decline from the standard of ‘moderately fine’ ware, though in a different direction. The ware is harder and thicker and contains larger grits. From the practical point of view the ware seems to have been very efficient—strong and evenly made—but there is little sign of the interest in an attractive appearance revealed by the finer Neolithic wares in general. The group is therefore called ‘utilitarian’. Typical fine ware forms persist (p17, p18, fig. 1; p195, fig. 3), but two new profiles are added. One comes to a sharp external point and has an exaggerated internal thickening (1046, fig. 4; p14, Pl. I) and seems to be an exaggeration of a fine ware form found at Clegyr Boia (Williams 1953, nos. 11, 17, 29) which has both point and thickening, and may in turn be an elaboration of the splayed pointed type (ibid. 18) which is widespread and was found by Case to be especially characteristic of his “Dunmurry style” (Case, 1961, fig. 1). The other new profile is that of P16 (several pots, fig. 1 and Pl. I), which has a sharp out-turn, and appears also at Lough Gur (Ó Ríordáin 1954, fig. 32, 15, 16, 17, 19; fig. 11, 36–38), and in a weaker form at Clegyr Boia (Williams 1953, nos. 18, 30, 31). It is not possible to ascertain whether the two new profiles at Dalkey Island were shouldered or not. The shoulders included by ware in the present group either have the types of rim prevalent in fine ware (p195, fig. 3) or cannot be related to any rim sherds (p15, fig. 1).

P19–p25 (fig. 1 and fig. 4) are far from a homogeneous group, but they are put together on account of the rather flat rim form. Ware, although comparable in most cases to that of the ‘utilitarian’ group rather than any other, is more variable. 2222 and p24 (fig. 4) are no doubt lesser versions of the club rim. P25 has a partial parallel in a ridged Peterborough bowl from Stanton Harcourt. I am unaware of parallels for the others, but they can hardly be anything but Neolithic in view of the character of the ware and the number of sherds which turned up in the brown soil at the north end of Site V.

The study of the sherds with true ‘club-rimmed’ profile benefits, as did that of the finer sherds, by dividing the class into sub-groups based on fabric. P26–p28 (PI. II and fig. 1) are comparable to the ‘moderately fine’ Neolithic group. P31 (Pl. II), 3107 (Pl. III), and 789 (fig. 1) are linked by their drab pitted surface and the unemphatic shoulder of p31 with the inverted-L group from Site II (p152–p158, Pl. V and fig. 2). These two groups distinguish themselves in relation to the rest of the pottery with club rims by having somewhat better ware and more clearly articulated rims. P31–789 share with p152–p158 the character of being externally flanged only, with a straight internal wall, while all the rest of the club-rimmed pottery has concave inner walls at the rim, and thus a tendency to globular profile.

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A further special group among the club rims is represented by 279–p167 in the list on p. 106f (fig. 5–6, Pl. V). These are thick-walled club-rimmed pots with plenty of grit and a rather soft earthy brown texture reminiscent of the finer Neolithic wares, but even the coarsest of these are thinner and have smaller grits. An unshouldered form with large horizontal lugs and thickened rather than markedly flanged rim is indicated by 247, p163, and 279. Two round knobs with central dimple, 77 (fig. 5) belong to this group. The decoration, always in bold parallel lines, is just as characteristic as the ware, and is found only in this group, with the exception of the decorated lugs p35 (fig. 7). The uniformity of the ware and decoration of the group, and its virtual restriction to Site II (mainly the area under the bank) make it probable that this was a unitary group within the club-rimmed class.

The remainder of the club-rimmed sherds fall roughly into two groups. 2485–2869 (list on p. 68f; fig. 1; Pl. I and III) appear coarser than the club-rimmed sherds so far discussed because they are grittier and the surface is more carelessly finished, but they are actually thinner-walled than 279–p167. Vertical walls (2512, 2234, fig. 1) predominate over the globular form (p29, fig. 1). 2483–p38 (list and reference to illustrations page 69f) are still more heavy and slabby. The rims are massive, but not especially wide in relation to the walls of the pot—in other words not markedly articulated. The vessels tend to narrow toward the mouth. Original appearance may be compared with the partly preserved vessel from Old Kilpatrick (Callander 1929, fig. 41). The vertical fillets below the rim of 2483 (Pl. III) can be paralleled at Lambay (Macalister 1929, Pl. XXIII, 9) and in a finer form at Knockadoon (Ó Riordáin 1954, fig. 9, 9). There were several coarse lugs at Site V (p35–36, fig. 7), so that one may suppose that the club-rimmed vessels were quite often lugged.

An important question is how far were these club-rimmed pots decorated on the body. Most of the rim sherds show a fringe of some sort of decoration just under the mouth of the vessel, but as profiles are not preserved, it is usually difficult to ascertain whether the body was decorated also lower down. Only p34 (Pl. III), 279 (fig. 5), and p171 (Pl. IX) with considerable probability represent particular vessels with club rims and widespread body decoration. On the other hand there are a good many body sherds from vessels whose rims have not been found, which seem, because of their ware and parallels at other sites, probably to have belonged to club-rimmed vessels. These are p38 (Pl. III), which is very similar to p171 in ware and decoration; p37 (Pl. IV) whose pattern is paralleled at Dundrum (Collins 1952, fig. 10, 8), and Townleyhall II (Eogan 1963, fig. 7, 5 and 8), both being sites where club-rimmed profiles were common. P41 (Pl. IV) is exactly matched at Townleyhall II (Eogan 1963 fig. 9, 24) while p40, p42, and p44 (Pl. IV) are of ware similar to p41. The conclusions permitted are (1) that at least a part of the club-rimmed pottery at Dalkey Island had rich body decoration, and (2) that much-decorated body sherds tend to be confined to the coarser end of the textural range of this pottery. The situation recalls that observed in the study of the fine Neolithic wares, where decoration and incipient club rims tended to be found mainly at the coarser end of the texture range.
Although it might be possible to find isolated parallels for a few of the remaining sherds listed as Neolithic, this would not be likely to lead us any further. P170 (fig. 6), however, is of exceptional interest, as it can be identified as belonging to the group now called ‘Rinyo-Clacton ware’ (formerly ‘grooved ware’). The diagnostic traits are the decorative scheme of a horizontally grooved collar at the top of a straight pot wall, the ‘splinter grooved’ ornament, the notched cordons, and the characteristic perishable ware, quite distinct from the ware of any of the groups discussed above. The bend out at the top of the profile and the use of a cordon to separate collar and body are unusual. 149 and 683a (fig. 5) may have come from Rinyo-Clacton vessels, but the ware of these is hard. Some of the finds from Grange stone circle were identified by Ó Ríordáin as ‘grooved ware’ (Ó Ríordáin 1951). This is passed over in silence by Piggott (1954) and Case (1961), but is probably nevertheless correct (cf. Ó Ríordáin 1951 fig. 8, 1–7, fig. 4, 2–4, fig. 9, 14, all of which are not unlike some of the English Rinyo-Clacton material in texture). Lop-sided arrowheads were found at Grange.

It will be noticed that the Neolithic pottery has been placed in an order which is arguable as a typological sequence, the key to which is (1) the development followed by degeneration of an articulated heavy ‘club’ rim clearly demarcated from the rest of the pot, (2) the progressive coarsening and thickening of the ware, and (3) the increase in the richness and extent of the decoration. In order to consider whether this typological arrangement had any real existence as a chronological development, it is necessary to study what range of pottery was in use at a single time and by a single community, or at least a single culture-group. The conditions of Dalkey Island were by and large unsuitable for elucidating this point, so that any attempt to test such a hypothesis would require a general study of Neolithic finds in Ireland and beyond, and exceed the limits set for the present paper.

**Beaker Pottery**

Thirteen beakers have been substantially reconstructed on paper, and two of these could be fitted together continuously from rim to base. Fragments of many other beakers are preserved. The profiles have been reconstructed by measuring pot diameter at rim and base (by comparison with a set of concentric circles) and by estimating the angle of the different parts of the profile by sighting (i.e. ascertaining at what angle of the sherd the rim and horizontal parts of the decoration are horizontal). The patterns can then be completed geometrically when possible, and the gaps filled consistently with the data obtained. Normally only sherds which are essential to the reconstruction are illustrated. Anyone with experience of this sort of work can judge the margin of error in the reconstructions, which, of course, can only be correct within limits.

The main divisions of Beaker pottery (of which only A and B are present at Dalkey Island) were propounded by Abercromby (1912) and have remained
in use ever since. We are no longer as with the Neolithic pottery described above searching for a valid classification. The small vessels which have given the name to Beaker pottery and the Beaker culture are usually accompanied in habitation site refuse by larger vessels. These "coarse wares" are also present at Dalkey Island, and are an integral part of what we call A-Beaker and B-Beaker pottery.

There are a good many unitary Beaker occupation sites at various places in the British Isles. The range of style within both the A and B classes at Dalkey Island is much greater than at these unitary sites, and the finds must therefore be mixed, i.e. the debris of repeated settlement at different times. Sub-groups emerge tentatively in the examination of the material.

P49 (Pl. IV), p51 (fig. 8), p53 (fig. 9), and p175 (fig. 6) are within the normal stylistic range of B-Beaker. Horizontal lines grouped into narrow zones, paired zones of oblique lines bordered by multiple horizontal lines, space filling with cord-impressed lines, widely spaced fingernail impressions, small pinched up cordons below the rim, and both angular and rounded body profiles (Fox's forms Bl alpha and beta) are all quite familiar in both the grave and occupation site material of the British Isles.

P61 (fig. 9) is another story. Although the type of zoned ornament is common (cf. p49), the thick dark-coloured ware, flattened profile, and the coarseness of the notched stamp impressions are special traits which set this vessel apart. The same is true of p48 (fig. 7), which is a remarkable vessel of Fox's Bl beta form, the most prominent features of whose composition are a large cordon under the rim and a belly angle decorated in imitation of a cordon. Otherwise the vessel is decorated with unemphatic but unusually wide zones of 'narrow zone'* type, which have been gathered into two groups, one accompanying the cordon, the other accompanying the cordon-like belly-angle. The two groups of zones are separated by a blank space, so that the whole scheme is reminiscent of the A-Beaker organisation of decoration into a neck and a body zone. In view of the lack of parallels it must be a local divergence, and it is one of considerable artistic merit.

Many sherds of p54 and p55 (Pl. VII, fig. 8) were found under the 'Beaker shells' so there can be no doubt about an early dating. They are undoubtedly a form of coarse ware accompanying B-Beaker, and have good parallels at other sites—Rockbarton hearth II (Mitchell and Ó Riordáin 1942, fig. 6), where they formed a closed associated group with B-Beaker, at Knockadoon site D (Ó Riordáin 1954, fig. 38, 1 and other sherds), where association with B-Beaker is probable, and in loose finds from Risby Warren (Riley 1957, fig. 8, 4 and 15). They form the core of Case's rather unsatisfactory group 'Rockbarton pots' (Case 1961), in which irrelevant material is also included. This form probably developed by straightening the profile of vessels of Beaker

* By broad-zone patterns are meant the bold geometric patterns used to fill up the main elements of a Beaker's profile, neck or body. By narrow-zone patterns are meant the unemphatic horizontal bands of pattern (for example oblique or cross-hatching) which in series fill up the profile of a B-Beaker without especial emphasis on any part of it, or are used to flank a band of broad-zone pattern.
profile with cordons under the rim: there may have been some technical difficulty in making large pots with curved profiles. Straightened profiles are not restricted to large pots—cf. 919 (fig. 17) and some of the material from Glenluce (unpublished). Beaker coarse ware includes vessels with curved profiles, e.g. Ó Riordáin (1954) fig. 38, 2 and fig. 30,4 (to which an unpublished rim sherd pretty certainly belongs). Some sherds from Risby Warren take an intermediate position between large pots with straightened profile and ordinary Beakers. Thus it does not seem that Beaker coarse ware was sharply demarcated from 'fine ware' either in size, profile, or quality.

Just as with B-Beaker, the stylistic range of the A-Beaker material was too great to stem from a single unitary occupation, and the A-Beaker material must be regarded as mixed.

The principal sub-group in the A-Beaker ware is represented by p70–p75 (Pl. VI and fig. 10, 12, 13) together with p176 (fig. 11). The vessels were squat, height and diameter being about the same, and many have convex neck and body profiles separated by a constricted 'waist'. The ware of p176 is smooth and rather good, but the others, although thin and competently made, diverge to various degrees from the usual character of A-Beaker ware. The surfaces are rough; some are rather gritty; p72, p74, and p75 are of an unattractive grey ware. The decoration of the last three is scored in thin lines, which is not a usual Beaker technique. The principal decoration is alike on neck and body and consists of an ornamental band of broad zone type,* flanked by zones of narrow-zone type.

Unfortunately the rest of the A-Beakers are rather fragmentarily preserved, only the rims and part of the neck being available. Some interest attaches to p64, fig. 12; p66, fig. 9; p69, Pl. VI; p180, fig. 11, which form a rather less well defined group than p70–p75. As compared with the first group the ware is usually finer, but there is an overlap. The necks splay instead of being convex, and are covered either with narrow zone patterns of B-Beaker type (p64, perhaps p66) or with broad zones of space-filling pattern, in which vertical changes produce a panelled effect (p69, p180). They seem thus to derive from vessels rather different in style from p70–p75. P82 (fig. 10) is apparently cord-impressed A-Beaker (cf. Ó Riordáin and de Valéra 1955, fig. 1, B). P206 (fig 17) has a splaying neck ornamented with a bar chevron, which in an unusual way is embedded in a field of horizontal lines without the separate narrow zone under the rim which balances the composition of the patterns of p70–p75. All these appear to present a less evolved version with superior ware but more rudimentary patterns than the decoratively sophisticated and technically degenerate p70–p75.

Attention may also be called to the presence of slight relief decoration, where some of the zones are emphasised by being slightly raised or by being bordered by slight raised ridges (p181–p182, fig. 6; p75, fig. 13). It is useless to comment on other very fragmentary Beaker remains.

* See note on preceding page.
At A-Beaker occupation sites in Britain the coarse wares are often completely roughened or "rusticated" by the fingers and fingernails of the potter. This treatment is represented at Dalkey Island by p88 and p89 (Pl. VII). P90 with its identical ware and coarse toothed-stamp ornament, must also be Beaker coarse ware. Use of changes in the rustication to mimic A-Beaker zonation is common with this kind of pottery (cf. the similar mimicry of metopic ornament on p180, (fig. 11). P184–p186 (fig. 11), p91 and p93 (fig. 14) and p92 (Pl. VI) are so far as can be judged from profile and ware also A Beaker coarse ware. P185 apparently indicates a tightening up of the loose herringbone pattern of p55 (fig. 8) analogous to the tightening up of fingernail ornament seen in the comparison of A- with B-Beaker fingernail-ornamented coarse ware. P91 has clearly an enlarged Beaker profile. Ornament with hatched grooves can be paralleled in a pit at Stanton Harcourt (Leeds 1938, Pl. V, B, 13) and on Peterborough ware in the West Kennet Long Barrow.

**BRONZE AGE POTTERY**

A little domestic Bronze Age pottery subsequent to the Beaker period is to be found in Irish museums. Since there are numerous grave finds, it might be expected that the material could readily be ordered, but this is not the case. Except for Food Bowls and certain devolutionary forms of Food Bowl, which must be early because they are directly derived from Beaker (ApSimon 1958), we are left largely groping in the dark as regards the classification and relative dating of Bronze Age domestic pottery.

Only one Food Bowl profile could be recovered, and determination in the other cases is only by isolated features of shape and decoration. The profile, p94, is illustrated in fig. 13 together with p75 to emphasise the near relationship of the two vessels. As well as the obvious resemblances in shape and scheme of decoration, both have slight relief decoration with the zonal ornament delimited in some places by slight grooves and ridges. P75, however, is thin and 'stony' while p94 is thicker and more 'earthy' with a porous or absorbent surface. P94 attaches to the typological series p179 and p70–p75, but the more systematic use of relief ornament, the repose and horizontality given to the design by the decreased emphasis on the main zones, and the softer thicker ware, all give the feeling that p94 stands at the inception of a new style rather than at the extinction of an old, and it is accordingly classified as a Food Vessel.

2227, p105, 1031 (fig. 15) are from vessels with inward inclined, slightly concave necks. This is a common Food Vessel form in Ireland (e.g. Abercromby, 1912, ii, 238, 308, 313, 314, 327, 367). On account of their narrow rims the Dalkey Island examples are probably Bowl rather than Vase Food Vessel, which sometimes have the same inclination and concavity. P96–p98 and 2547 (fig. 14) have an abrupt inward turn at the top of the profile. Convexity at this place is found on many Food Bowls (e.g. Abercromby 1912 ii, 232, 233, 235, 236, 294, 295, 296, etc.), but the present angular profile is odd. Despite the fine ware of 2547
and p98 it is hard to place them in the Beaker category, as the profile is unmatched locally and there is a general coarsening of detail. Following the ware of p96 and p97 they are classified as Food Bowls, but it is regrettable that no more of the profiles could be constructed.

A very characteristic Food Bowl trait is ornamentation with impressed triangles. This is found at Dalkey Island with p81 (fig. 10) and 2227, 1031, p106 (fig. 15). In p106 and p81 the triangles are staggered so as to give a zig-zag band in 'false relief'. Another sherd (p106 in fig. 15, line 2, left) shows part of a Food Bowl broad-zone pattern (cf. Clark 1935, Pl. VI) derived from the Beaker pattern of p71 and p72 (fig. 12).

Paired cordons, the lower of which is an embellishment of an angle in the profile, have been met on Beaker p48 (fig. 7) and in a rudimentary form on the Food Bowl p94 (fig. 13). They are characteristic of Food Bowls of type B in Childe's adaptation of Abercromby's terminology ('tripartite bowls'). With the cordons it is possible to identify p99 (fig. 14) and p102 (Pl. VIII) as forms of Food Bowl. The ware and type of decoration of p104 and 2261 (fig. 14) shows them to be related to p102. P109 and p110 (fig. 15) seem to be a very coarse form of the pottery with sharply inturned rims, p96–p98 (fig. 14).

An interesting group of vessels with splaying internally ornamented necks and more or less carinated bodies is listed as p116–p122. These vessels vary considerably in size. P118–p120 (fig. 16) are of a single kind of ware, which is grittier however in the larger than the two smaller pots. The group has a very sharp angle at the base of the neck and is decorated externally with horizontal zones filled with groups of oblique lines with various alignments. The pattern was executed in thin scored lines, or in separate marks forming imitation cord ornament. P117 (fig. 15) is rather close to p118–p120 but has a softer profile, and 713 (fig. 17) and 2719 (Pl. VIII) must also be related.

P116 (text fig. 3) represents the same idea in a much more elegant version. Its size is comparable with an urn's, and the alteration of chevrons, horizontal lines, and cross-hatching in its decoration recalls the pattern of the urn from Wilford, illustrated as fig. 10, 81 by Longworth (1961), but the profile and internal decoration of the neck attach it firmly to the type represented by p117–p120. The form, with biconical body surmounted by a funnel-shaped neck with internal decoration, connects them with Abercromby's 'Hibernian form E', but the details of decoration and the range of size of the Dalkey Island specimens seem hard to match among the grave finds.

The group p123–764 (text fig. 4) distinguished itself from the rest of the Bronze Age wares by its plainness and superior quality, so that it gave the impression of being out of place among the other prehistoric wares. My colleague at Queen's University, A. M. ApSimon, who is familiar with southern British material, believes that they belong to the south-western group which he proposes to call "Trevisker ware".

P125–p133 are a uniform and numerous group of sherd. As will be shown in the next section, they can be regarded as forming an associated group together with the late Bronze age moulds and crucibles described on pages 89ff. The vessels were flat-bottomed with slightly bowed sides, and as the rims were
rather irregular, the angles at which the sherds are illustrated here do not necessarily show the real angle of the rims. The well-preserved finds of comparable ware have all been more or less bucket shaped (e.g. Lawlor 1935, Hencken 1942, fig. 9, F and G). The ware is coarse, lumpy, and hard, being of the type compared by Collins to the appearance of a suet dumpling (Collins 1959, p. 16). There are numerous parallels (see Proudfoot in Mogey, Thompson and Proudfoot 1956). A group comparable in fabric (and apparently in profile) can be abstracted from the Class II wares of Knockadoon*, where a good deal of later Bronze Age pottery must be concealed. Most of the Dalkey Island sherds were from the northern part of Site V, but p191 (fig. 17) from a cutting near Site II made in 1956 was similar.

P204 (fig. 17) was of the same ware, but represented a pot of over 40cm diameter with outward turn just below the rim. Certain other sherds have not been confidently identified, so there is no reason to discuss them here.

**The Sequence of the Prehistoric Pottery—Excavational Evidence**

Although the finds were numerous and very varied, they were found under conditions which made it difficult or impossible to discover in which order they had been deposited and which objects had been deposited at the same time. Nevertheless a number of deductions are possible. Three kinds of evidence can be used:—

1. True stratigraphy, where finds come from distinct successive strata.
2. The tendency of finds to occur at different levels in one and the same stratum, if this accumulated gradually over a long period.
3. The tendency of finds from a single settlement to have a centre of density, so that finds from different settlements can be distinguished spatially.

1. As true stratigraphy, the finds from the basal middens were stratified under the rest of the finds. At the northern end of Site V the basal brown soil, which elsewhere was too thin and indistinct to serve as a stratigraphical horizon, was deep enough to treat as a distinct layer (Pl. XIII, 2), giving here two find-bearing layers, the brown soil and the overlying black material. At the ca. 4 square metre area covered by the ‘Beaker shells’ there were three distinct strata—the brown soil, the shells, and the overlying black material. Finds of identical age, e.g. sherds of a single pot, were found in more then one of these layers, so

* Notably Ó Riordáin (1954) Pl. XXXIIa; fig. 19, 20 and 22; fig. 16, with the same bowed sides and internal bevel, is in a completely different ware. The former are quite different in fabric from the proved early flat-based wares of Grange circle, Rockbarton, and Garret Island. All the sherds at Site F were distributionally dissociated from the rapier and other clay moulds.
the finds from the separate strata cannot represent closed associations, but the proportions in which different groups of sherds were divided is interesting, *viz.*

<table>
<thead>
<tr>
<th>sherds of</th>
<th>below shells</th>
<th>in shells</th>
<th>above shells</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandhills Club-rims (p26, p27, 2485, p30)</td>
<td>10</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>B-Beaker coarse ware (p55 and p56)</td>
<td>2</td>
<td>46</td>
<td>0</td>
</tr>
<tr>
<td>A-Beaker coarse ware (p88, p89, p90)</td>
<td>0</td>
<td>25</td>
<td>11</td>
</tr>
<tr>
<td>p91</td>
<td>0</td>
<td>1</td>
<td>19</td>
</tr>
</tbody>
</table>

This shows that B-Beaker was earlier than A-Beaker, and that club-rimmed Sandhills ware was already developed in pre-Beaker times.

Nothing new was learned by comparing the division of sherds between the brown and the black layer outside the area of the Beaker shells. *Viz.*

<table>
<thead>
<tr>
<th>sherds of</th>
<th>in brown layer</th>
<th>in black layer</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-Beaker (p48, p49, p53)</td>
<td>15</td>
<td>68</td>
</tr>
<tr>
<td>Fine Neolithic ware</td>
<td>7</td>
<td>2</td>
</tr>
</tbody>
</table>

Apart from that the positions of too few plain sherds were precisely recorded, the priority of fine Neolithic ware over Beaker is too well known to labour.

2. During the excavations a precise record was kept of the position of apparently significant finds and sections were drawn at fairly close intervals in the hope that results would emerge from comparing the positions of finds projected on to a nearby section. It was found, however, that no conclusions could be drawn except at the north end of Site V, where the depth range of the finds was greatest. Text fig. 8 shows the E–W section 2 m from the north end of the site, with certain sherds found within a metre of the section projected on to it. The section is shown twice to avoid overcrowding with symbols. It shows how great was the depth range of sherds from a single pot, and therefore serves as a warning against attaching any importance to the depth at which a single find occurs. Only the average depth of a number of objects of one age relative to the average depth of a number of objects of a different age is of importance. The method can only be used for finds studied collectively.

Text fig. 8 shows the tendencies (i) of Early Christian and medieval sherds to appear above the main concentration of prehistoric pottery, (ii) of mould fragments and sherds of p125 to p133 to lie highest in the latter, (iii) of the Bronze Age pottery we have compared with Abercromby's Food Vessel
"Hibernian form E" (p116–p120) to overlie A-Beaker coarse ware, (iv) of A-Beaker coarse ware to overlie B-Beaker and B-Beaker coarse ware, and (v) of certain Sandhills ware vessels to lie lower than B-Beaker.

The projection of sherds on to other sections added nothing significant. It was impossible to see any definite relationship between fine and coarse Neolithic pottery or between Trevisker and other post-Beaker wares.

3. Evidence derived from spatial separation is used to distinguish two Larnian shell middens of different ages, but this question will be dealt with in the next sub-section. Text fig. 9 is intended to show the spatial association of sherds of p125—p133 with the fragments of clay moulds and crucibles listed on page 89fF. Unfortunately owing to their abundance and commonplace character only a minority of these sherds had their positions precisely recorded in the northern part of Site V, while a majority were recorded further south. This must be corrected by taking account of sherds recorded only by their spit, as indicated on the right hand side of the figure, or by the trial cutting in which they were found in the previous year. The plan shows that moulds, crucibles, and these sherds had approximately the same centre of density, although the sherds spread further southwards. It should be added that during excavation one had a very distinct impression that all three occurred at the same level, and often very close together. I believe therefore that the sherds, moulds, and crucibles form a closed associated group.
**Prehistoric Dalkey Island—Summary**

In summarising the archaeology of Dalkey Island we may start with some aspects of the Larnian occupation, which was the earliest and in some ways the most interesting.

It proved possible to have only the bones from the basal middens studied in time for the publication. I am greatly indebted to Tove Hatting for the identifications given in Appendix I. Her identifications show that in the northern basal midden about one sixth of the mammal bones (excluding dog) came from the undoubtedly domestic species ox and sheep/goat. In the southern midden this figure had risen to about one half. Domestic pig may also have been present in either or both middens, but most of the remains could be either wild or tame.
As the proportion of bones provided by pig was about the same in both middens, this means that if tame pig became more common, wild pig became less so. Seal and bear bones indicate undoubtedly hunting by the inhabitants of both middens, while fowling and fishing are also indicated. The basic diet of the northern basal midden could be described as based on hunting and limpet gathering, supplemented by a small addition of domestic animal flesh; that of the southern basal midden as a balance between wild and domestic flesh in addition to limpets. Even in the southern basal midden hunting and gathering played a larger part than in the usual Neolithic cultures, as shown by other sites, in whose debris bones of wild animals, birds, and fish make up a very small proportion of the total.

As the find lists have shown us (pages 97 and 120), the southern basal midden contained potsherds while the northern did not. This, combined with the changes in animal food just outlined, seems to make it clear that we face two, no doubt successive, settlements by Larnian folk at two stages of assimilation to a Neolithic existence. Polished stone axes (made on the site, note polisher 1093 in the northern midden) were found in both middens. The aspect of their culture which shows least change is their flint-work.

The sequence is extended backward by the Larnian middens at Sutton (Mitchell 1956) and Rockmarshall (Mitchell 1947, 1949). At Sutton a stone axe indicated some sort of contact with Neolithic communities, while the finds from Rockmarshall revealed no trace of such contact. The results of a re-examination of the animal bones from Sutton and the fish bones from Sutton and Rockmarshall is given in Appendix 2. At these sites there was no trace of domestic animals (except possibly dog).

The middens at all three sites can be related to the maximum of the post-glacial marine transgression (Littorina transgression). That at Sutton was contemporaneous with the maximum and the three Rockmarshall middens followed immediately after it. The Dalkey Island middens must also have post-dated the maximum for they were situated at a level which was inundated at high tide at the time of the maximum. Their height was 19 to 20 feet over Irish Ordnance Datum (which is about 2.5m below mean sea level), as compared with the 20-5 feet of the top of the storm beach at the Sutton midden, 22 to 24 feet at Bottle Quay, Howth (Stephens 1957) and the 22-5 feet of the top of the raised delta of the Shanganagh river (information from G. F. Mitchell), all sites within 14km. of Dalkey Island. The stone axe from Sutton shows that the Neolithic period had already begun at the time of this maximum at Dublin Bay. This means that all the middens are likely to belong to the Neolithic period, as none of them preceded the maximum.

Although other examples of the survival of a Mesolithic folk into Neolithic times are known, notably the survival of the Ertebølle culture, the survival, and the early stages of absorption, are nowhere so well documented as on the east coast of Ireland.

The next stage in the history of Dalkey Island is represented by a scatter of potsherds from the entire Neolithic and Bronze Ages, with considerably more finds, however, from the first than the second half of the period. We have dealt
with the identification of the pottery. Is it possible to draw any conclusions regarding the character of the settlement?

In the first place, no houses were found, and only occasional scattered stake holes. It cannot be concluded hence that no houses or shelters were built, for the many stones brought up from the shore (Pl. XIII, 1-2; XIV, 1) are most readily understood as building material, for example displaced remains of walls. Moreover, with an unlimited supply of stones immediately at hand, the inhabitants may have preferred to stand posts on buried stones rather than dig holes for them, and timber was perhaps less readily available than stones. At any rate, no houses were found, and therefore it is impossible on this basis to say anything about the size or permanence of the settlement.

A more promising line of enquiry is the distribution and preservation of the finds. Some pots (for example p26, p48, p49, p61, p70, p116, p123) were represented by an unusually large proportion of their sherds in relation to what is normally found at occupation sites, where very incomplete preservation of vessels not found in pits or otherwise especially protected is the rule. A permanent settlement must have meant an area tramped bare of vegetation, where very little could survive of broken vessels. The well preserved vessels suggest rather pots broken at encampments of short duration afterwards abandoned until the sherds had been buried in the growing sod.

Several typological sub-groups of sherds were restricted to one or another part of the excavated area. These restricted concentrations are worth reviewing, also because they contrast with a "background spread" of other types. A homogeneous-looking group of Neolithic pottery with inverted L-rims was confined to a limited area of Site II near the cliff (p152-p158). Further south along the cliff the concentration of Sandhills pottery fig. 9, 279-p167 also seemed homogeneous. The bulk of the B-Beaker came from the northern part of Site V, but p61 came from the southern part of the same Site and a few scattered finds from Site II and the trial cuttings. Possibly the concentration of p48, p49, p52, p53, p54, and p55 at the northern part of Site V indicates a unitary B-Beaker settlement against a diffuse background of sparsely represented pots. A-Beaker with main zone repetition on neck and body comes from at least three places—p179 from Site II, p73, p79, p85, p86 from the northwestern corner of Site V, and p70, p71, p74, p74a, p75 from the southern end of Site V. Other A-Beaker was widely scattered, but the individual pots scantily represented. A-Beaker coarse ware was confined to the northern part of Site V, especially around the 'Beaker shells', where it does not have the same centre of density as A-Beaker, but some sherds at Site II were probably also this ware. Food bowl was less common, and was diffusely spread over Site V, perhaps also the trial cuttings (p201, 136) but not Site II. As an exception p102 to p104, with herringbone ornament, were concentrated at the centre of Site V. The well-preserved vessels in the group p116-p120 came from the north end of Site V. Of the Trevisker ware, p123 and p124, of which sherds were numerous, were found together at the south end of Site V, while 764, a single sherd, lay fairly far to the north. The identification of 82 and 911 from Site II and the
trial cuttings as Trevisker ware is tentative. Most of the coarse Late Bronze Age ware has a centre of concentration in Site V (text fig. 9).

These particular concentrations contrast with other find groups which seemed to be found everywhere without marked differences of density. Such find groups were Larnian flints and ‘limpet scoops’, which were not confined to the basal middens, but were found everywhere near the base of the deposits. Other common flint types (including the laurel-leaf forms) were widespread, as were stone axes and Early Christian and medieval finds. Apart from certain groups, as outlined above, there was a general spread of Neolithic and Bronze Age pottery, but with few sherds of each vessel preserved.

The natural and probably correct interpretation of these facts is that Dalkey Island was intermittently occupied throughout the Neolithic and Bronze Ages. The concentrations of finds of a particular kind may represent the area of small temporary encampments. The “background spread” represents either types of objects which remained the same over a longer period, and so could be found in the debris of many different encampments (flint tools, including laurel leaf forms, stone axes) or represent the more widely scattered debris of relatively extended settlements. It is not necessary to suppose that the more extended settlements were “permanent,” and indeed it is questionable whether really fixed settlement existed in the period in question. Many of the settlements can have been in the nature of travellers’ encampments. There is a fresh water spring on the island, and the opening in the rocks where the pier is now situated would enable boats to lie in safety, while the platform is protected to some extent from the weather and would be safer against hostile natives than the mainland.

THE EARLY CHRISTIAN PERIOD

When occupation was resumed in the Early Christian period it was apparently after a pause, for there is no material which can with certainty be assigned to the Roman or pre-Roman Iron Age. The shorter renewed occupation left a considerably more substantial occupation layer than the entire three prehistoric millennia. It is not clear whether there was a break or not between the Early Christian and medieval occupations. That the few medieval finds in the ditch apparently indicated a pause in the silting up of the ditch (layer 6) rather than a phase of rubbish accumulation argues for the former alternative, but is not conclusive. In all events a phase of permanent settlement contrasting with the more intermittent prehistoric occupation seems to be indicated by the nature of the deposit, and also supported by the fact that the settlement was fortified and apparently accompanied by a field system (see Appendix 9).

Dalkey Island’s principal interest in the Early Christian period arises from the fact that some of the finds, which included imported pottery, were in stratigraphical sequence, as follows:—

1. Finds older than the promontory fort. There was a substantial Early Christian midden below the bank at Site II, and in this were found amphora
sherds, glass, and three bronze pins, all of which must be older than the following—

2. Finds from a midden associated with a house and hearth (Site III) whose use followed the construction of the promontory fort. Finds from the brown rubble overlying the black layer may be of the same age.

3. Pot ec14 and the ring-pin 131 (fig. 32) came from the base of the earthwormage accumulation overlying the above midden, and therefore their loss was subsequent to the disappearance of the house.

The time span represented by this sequence may have been anything from 2–3 decades to 2–3 centuries.

The finds may be considered under the two headings of native and imported objects. Of the former, the more ordinary finds—bone pins, shale, lignite etc. objects will not be discussed here, as this would only be worth undertaking as part of a general study of these types.

We may begin with the imported wheel-made pottery. The authority on this subject is Mr A. C. Thomas, who has included the Dalkey Island finds in his survey of the subject (Thomas 1959), which, together with the comments on the individual sherds sent me by Mr Thomas some years ago, underlies most of what is said here.

It was necessary in most cases to distinguish imported pottery of this period by texture and the other features of small sherds. Thus confusion with medieval or even later wares which have lost their glaze is a danger. All the unquestionable assignments are to two of Thomas’ classes—class B (amphorae) and class E (coarser vessels apparently for domestic use)* Thomas has assigned the class B sherds to his sub-groups Bii and Biii. Large globular bodies are indicated by the curvature of the sherds and the angle of the handles of ec3 and ec4 (fig. 19); the angle is shown by the horizontality of the internal wheel-rilling. All the amphora sherds fall by their ware into five groups—ec3, ec4, ec7, ec8, 930 (fig. 19 and Pl. X), each of which must be either the remains of a single amphora or of a class of identical mass-produced amphorae. The difference between the more and less weathered sherds of ec3, which would have been assigned to different pots or classes had they not fitted together, emphasises the difficulty of sub-dividing the class by ware alone without the help of typology. Sherds of ec3, ec4, and ec5 were stratified below the bank. A sherd from below the hearth cobbles of Site III came from either the same amphora or class as ec8, and a sherd like ec8 is associated with a sherd of ec3 under the hearth in trial cutting 3/4.

At Dalkey Island E ware could easily be distinguished from B ware by texture alone. While B ware was smooth and relatively thick, with widely

*The sherds from layer (252) at Site IV, assigned to class F (Thomas, 1959, p. 110) are certainly medieval, and identical sherds from the same layer have traces of glaze. A small sherd from Site II, identified as ‘late colour coated ware’ by Mr Thomas has since disappeared.
spaced wheel-rilling, E ware sherds usually had a pimply surface owing to their high content of grit, were thin, and had tightly spaced wheel-rilling. The B ware sherds were attractive shades of buff, orange, or pink, while the E ware sherds were dirty yellow-greys, whitish-greys, and browns. While the amphora sherds fall into distinct small groups, E ware varied freely within limits. E ware cooking pots like Thomas (1959) fig. 43, f, i, are indicated by ec14 (fig. 32) and certain rim and base sherds (e.g. fig. 18, 2587, 2444, 3067, 2818). The bulk of the remaining sherd material is likely to have belonged to vessels of this type. 1073, 35, and ec13 (respectively fig. 19, Pl. X and fig. 33) are the edges of lids of the same type of ware. Ec10 (fig. 19) must be either a bowl or a larger beaker of the same type as Thomas (1959) fig. 43, d.

Even excluding the 53 sherds, of ec14 about twice as many E ware as amphora sherds were recovered. Under the bank were pot-lid sherds together with parts of two amphorae and ec5. In the post-bank midden at Site III was a pot lid and an amphora, but the amphora must have been broken before the layer began to form, as the sherd was deposited below the hearth. The cooking pot ec14 was broken after the abandonment and collapse of the house with which this hearth was associated. This suggests that E ware may have remained longer in use than plain (Bii) amphorae, but the evidence is not decisive.

The two Samian sherds fall into line with several other Irish finds of this pottery in apparently post-Roman contexts*. Fig. 19, 156 has been deliberately cut and ground. This shows an interest in pottery beyond its original use as a vessel. The same was indicated by a Samian sherd from Lagore (Hencken 1950), fig. 57, 1169) which was perforated for suspension, by a squared Samian sherd from Dundrum site 5 (Collins 1959), and by the amphora sherds buried under hearths at Dalkey Island. One may suppose that potsherds were thought of as in some way "bringing luck", and this should perhaps be understood in relation to the absence of a native pottery craft in Ireland at that time. Unfortunately it reduces the dating value of potsherds.

Glass vessels were another common import in western Britain and Ireland in Early Christian times, as discussed by Dr Harden in Appendix 10.

Of the native or presumably native objects, the most interesting were the pins and brooches, no doubt intended for securing and embellishing the clothing. Three of these are not common Irish types; 615 (fig. 27) can hardly be anything but the pin of one of the small penannular brooches which were common in Roman Britain, appear at Traprain, and are found in Anglo-Saxon graves. 834 may have been the same. The pin with perforated head, fig. 27, 15 is hard to parallel. Noting its size and ignoring the swelling under the head, which may only be corrosion, the best parallel I know is from the Romano-British stratum at Covesa (Benton 1931, fig. 13, 5), whose perforated head was presumably intended to hold an ornamental wire loop like no. 1 of the same figure. Penannular brooches and pins with wire loops are common Irish finds, but are usually, if not always, larger and more strongly made than these. It is

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*For list of finds, see Ó Ríordáin 1947, to which Lough Faughan crannog, Dundrum Site 5, and Dalkey Island may be added.
interesting that the three pins with better foreign than Irish parallels were sealed under the bank, and therefore belong to the earliest part of the Early Christian settlement.*

The only pin from the succeeding associated group, the black midden at Site III, was an iron pin of substantial size with a long shank and a loose annular head, fig. 33, 528. The overlying brown rubble produced a similar pin of smaller size with a bronze chain held in the rust of the head. This kind of pin, either in bronze or iron, is not a Romano-British type and does not appear at Traprain. It is a standard form of the Irish school of metalwork and appears at most Early Christian habitation sites. The type was still current in the Viking period, and appears in several Viking graves in Scotland, but 528 is shown by the associated amphora and succeeding E ware to be older than the Viking period. 131 (fig. 32) was stratified above 528, and shows the same type more artistically executed.

The use of thin, fairly good quality slates in Early Christian times is shown by fragments in the black midden at Site III and below the bank at Site II. Most of the pieces were very small fragments, but identical material was so widespread over the lower platform that it hardly seems possible that the slates were brought for any other purpose than roofing. Presumably what remains is the fragments left after the slates themselves had been salvaged for use elsewhere. Roman slate roofs are known in Wales, and slab roofing of no doubt related kind in an Early Christian ring-fort in Co. Cork.

BIBLIOGRAPHY

ABBREVIATIONS

A.C. Archaeologia Cambrensis
J.C.L.A.S. Journal of the County Louth Archaeological Society
J.R.S.A.I. Journal of the Royal Society of Antiquaries of Ireland
Med. Arch. Mediaeval Archaeology
Oxon. Oxoniensia
P.B.N.P.S. Proceedings of the Belfast Natural History and Philosophical Society
P.P.S. Proceedings of the Prehistoric Society
P.R.I.A. Proceedings of the Royal Irish Academy
P.S.A.S. Proceedings of the Society of Antiquaries of Scotland
U.J.A. Ulster Journal of Archaeology 3rd series

*It is worth noting that Lebor Gabala (the Book of Conquests) refers to "Setga's dun" on Dalkey Island. This means that when the document was compiled (which can hardly have been earlier than the 10th century) there was a tradition that a fort had existed there. Since Setga was one of the traditional invaders of Ireland, this might reflect a tradition that Dalkey Island was first settled by an invading party, but the attribution to Setga may be a pure fabrication. I am grateful to Professor David Green for help in preparing this footnote.
REFERENCES


GORDON-WILLIAMS, J. P. 1926 The Nab Head Chipping Floor. A.C., 81: 86–110.


APPENDIX 1

ANIMAL BONES FROM THE BASAL MIDDENS

by Tove Hatting, Zoological Museum, Copenhagen

NORTHERN BASAL MIDDEN

*Bos taurus* (domestic ox). Incisor, fragment of costa, fragment of vertebra.

*Ovis aries* (sheep) 2nd molar, fragment of costa.

*Canis familiaris* (dog). Fragment of maxilla with molar (1st), left upper incisor (i¹), 2 fragments of mandible, one with molar (1st), canine tooth, fragment of scapula, fragment of pelvis, atlas, 2 vertebrae, fragment of neck vertebra, ulna, right femur, part of left femur, distal end of left tibia, part of right tibia, metacarpus, distal end of left tibia, left calcaneus.

*Sus scrofa* (? *ferus*) (pig, ? wild). 2 fragmentary incisors, 2 carpalia, fragment of vertebra, pelvis fragment, scapula fragment, proximal end of radius, 3 metatarsus fragments.

*Ursus arctos* (brown bear). 2 phalanges.

*Halichoerus gryphus* (grey seal). 4 skull fragments, 1 incisor, 1 vertebra fragment, radius, distal epiphysis of radius, 4 fragments of ulna (2 of which fit together), 1 metacarpus, 1½ phalanges.


*Haliaeetus albicilla* (white-tailed sea eagle). Femur, tarsometatarsus, carpometacarpus.

*Accipiter gentilis* (goshawk). Phalanx.

*Alca torda* or *Uria aalge* (razorbill or guillemot). Distal end of humerus, carpometacarpus.

*Fratercula arctica* (puffin). Proximal end of ulna.

*Passerines*. Humerus, 2 femurs, distal end of tibiotarsus, distal end of ulna (about the size of *Turdus merula*, blackbird).

*Mugil sp.* (mullet). Vertebra.

*Pleurotremata* (? *Galeus*, tope). ca. 35 vertebrae.

SOUTHERN BASAL MIDDEN

*Bos taurus* (domestic ox). 1st molar, fragment of vertebra, part of juvenile radius, fragment of femur, central part of ulna, fragment of distal end of humerus, distal end of juvenile metatarsus, 3 carpals, fragment of costa, 2 phalanges.

*Ovis aries* (sheep). Fragment of atlas, fragment of costa, ulna and proximal end of ulna, humerus and humerus lacking distal end, 1 proximal and 1 distal end of radius, pelvis, tibia.
Canis familiaris (dog). Mid-section of ulna.
Sus scrofa (pig). Fragment of incisor, lower incisor, symphysis of mandible, atlas, thoracic vertebra, pelvis fragment, scapula fragment, 2 calcanea, 2 fragments of metapodial.
Ursus arctos (brown bear). Phalanx.
Halichoerus grypus (grey seal). Fragment of maxilla, fragment of costa, bulla, central section of ulna, 4 skull fragments, upper epiphysis of tibia.
Anatinae (ducks) Fragment of coracoid.
Passeres. Ulna (the size of Turdus merula, blackbird).
Conger conger (conger eel). Fragment of urohyale, 4 fragments of epi-cerato-basihyale, 2 fragments of vomer, fragment of premaxilla, fragment of articular, epihyale.
Labrus (Wrasse). Quadratum.
Pleurotremata (? Galeus, tope). 2 vertebrae.
Further fish fragments, including two vertebrae possibly of cod.

Mrs Hatting has the following remarks to add to her identifications:

Goat/sheep. The latter is perhaps more likely, but the former cannot be excluded.

Pig. Tame pigs (Sus scrofa domesticus) are normally distinguished from wild pigs (Sus scrofa ferus) by their third molars, both upper and lower, but the two types overlap. The size of the bones and teeth too will often give an indication whether the animals were wild or tame. The proximal end of a radius from the Northern Basal Midden is undoubtedly from a wild pig, but otherwise it is not possible to say definitely whether the bones from Dalkey Island belonged to wild or domesticated specimens.

Ox. All the pieces are small enough for Ursus to be ruled out.

Bear. I was sent, in addition to the small bones from the middens, a large upper canine of bear from an undatable but probably prehistoric context. Its measurements were length (point missing) 94-3mm, breadth 31·1mm, thickness 19-0mm. This is slightly larger than the corresponding tooth of any subfossil Danish bear, but not sufficiently so for the difference to be of importance. The variety Ursus arctos nemoralis Degerbøl is based on the Danish finds, which are larger than present-day beasts. Too few representatives of this variety are known to fix its range of variation. Subfossil English and Irish bears were also larger than present-day animals (see inter alia S. H. Reynolds, A Monograph of the British Pleistocene Mammalia Vol 2, London (for the Palaeontographical Society) 1912).

Dog. The size of the teeth is the most reliable means of distinguishing between dogs and wolves, since dogs never acquire such large carnassials as wolves. Also the limb bones of wolves tend to be longer, but since the largest breeds of dog equal or exceed wolves in this respect, it can be difficult to distinguish bones of these breeds from those of wolves. Since, however, in the present case we are concerned with small (but fully grown) animals, whose
size falls far below the range of variation of subfossil Danish wolves (including immature animals) we can be certain that they derive from dogs. The bones seem, on the whole, to come from a dog slightly larger than *Canis familiaris palustris*. A slightly larger dog has been described from Lake Ladoga, but since there was a considerable range in the size of dogs as early as Neolithic times (e.g. at Aamosen there is a continuous series from very large to small dogs), not too much attention should be paid at this stage to division into breeds.

APPENDIX 2

REVISED BONE LISTS FROM LARNIAN SITES AT SUTTON AND ROCKMARSHALL

Sutton (finds from midden and underlying clay with shells taken together)

The mammal bone identifications are by D. H. Bunting, D. K. Verity, and I. W. Cornwall. The bird identifications are taken from the original report (Mitchell 1956).

<table>
<thead>
<tr>
<th>Animal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pig</td>
<td>2 tushes, 1 proximal end of ulna, upper incisor (all large, probably wild) and 1 fragment of mandible and fitting milk molar (m3) from a very young specimen, from the unworn condition of the tooth not more than a couple of months old. This tooth is fully erupted at birth and would wear from the time of weaning, if not before.*</td>
</tr>
<tr>
<td>Red deer</td>
<td>1 fragment of calcaneum (too slender for even a small ox).</td>
</tr>
<tr>
<td>cf. red deer (not bovine)</td>
<td>1 frag. distal end of humerus (reconstructed from 4 fitting pieces).</td>
</tr>
<tr>
<td>large Canid cf. wolf</td>
<td>1 phalanx, 1 proximal fragment of radius (reconstructed).</td>
</tr>
<tr>
<td>Bird</td>
<td>2 bones, one perhaps from a large gull.</td>
</tr>
<tr>
<td>Fish</td>
<td>unidentifiable (examined by Tove Hatting).</td>
</tr>
</tbody>
</table>

Messrs Bunting, Verity, and Cornwall comment *“There is no positive indication of any domestic animal—in particular, no ox or sheep. The pig and

* also a piece of pig ulna found by Mrs Hatting among the fish bones.*
canid might be of primitive domesticated races, but in the absence of other definite evidence of domestication and the large size of both, it is safer to conclude that both were wild.''

**ROCKMARSHALL (AGGREGATE FINDS FROM ALL THREE MIDDENS)**

Fish identifications by Tove Hatting; others from original reports (Mitchell 1947; 1949a).

- human femur
- dog fibula (?)
- small young carnivore (probably fox or cat)
- small cetacean (? *Phocaena phocaena*)
- crab claws
- 1 bird bone
- *Mugil sp.* (mullet) several vertebrae
- vertebrae of a small flatfish, not *Pleurovectas plabessa*, possibly *Solea* (sole)
- *Pleurotremata* (? *Galeus*, tope) a number of vertebrae.

**APPENDIX 3**

**HUMAN BURIALS**

The notes on Burials I–III are based on a preliminary report received from Dr. D. R. Brothwell in 1959, those on V–XVI on a field examination conducted by a party of medical students.

**Burial I.** Dr. Brothwell reported "The size and degree of development of the bones of this skeleton show clearly that the individual was only a small child. The bone is reasonably well preserved, though somewhat brittle, and is not badly crushed. As the cranial bones were not articulated, it was not possible to ascertain the general form of the vault. Nor was it possible, either from skull or post-cranial bones, to ascertain the sex of this person. The permanent dentition had not yet erupted and only the crowns of the medial incisors and
first molars had yet formed. This degree of dental development enables an age estimate of 3 years ± 6 months to be suggested."

**Burial II.** Dr. Brothwell reported "The following fairly complete or fragmentary bones represent this skeleton, both femora, a patella, both tibiae, most of the two humeri, a radius and ulna, the clavicles, parts of both fibulae, the pelvis (in a number of pieces), most of both scapulae, two pieces of sternum, eight phalanges representing the hand and foot, ten tarsals and six metatarsals, numerous rib fragments, and parts of twenty-two vertebrae. Much of the skull was also present and will be discussed below. Since all parts of the skeleton were represented to some extent, it is interesting to learn that on excavation the bones were found to be in a somewhat disorganised heap. Some bones do, however, show the correct relationship to one another; for example, a number of thoracic and lumbar vertebrae are still lying in correct positions.

"The skeletal remains belong to a fairly short but robust individual who, judging by various features, was of the male sex. As it was possible to measure a number of long bones, a stature estimate of 5 feet 4½ inches could be recorded, employing a regression equation devised by Trotter and Gleser (1952) for white males.

"The skull was far from complete, and what remained was broken. However, the bones were sufficiently well preserved to enable an accurate reconstruction to be undertaken by Mr B. Denston of the Duckworth Laboratory, Cambridge (Pl. XII). The measurements which I was then able to take are given in Table I. The skull was noticeably globular and brachycephalic, and the mastoid processes and nuchal areas are probably masculine. No tori or metopic suture were present, and there were probably no wormian bones or the lambdoid suture."

"The dentition was as follows:

<table>
<thead>
<tr>
<th>right</th>
<th>7 6 5 4 3 2 -</th>
<th>1 2 4 5 6 7 -</th>
<th>left</th>
</tr>
</thead>
<tbody>
<tr>
<td>missing</td>
<td>1 2 3 4 5 6 7 8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ \bigodot \] probably never erupted.

\[ \bigtriangleup \] only the socket is present, the tooth having been lost post-mortem.

No caries cavities or abscesses were observed. The teeth were well calcified, with no evidence of hypoplasia. From the condition of the alveolus, it is unlikely that the individual suffered from any marked periodontal disease. The only other evidence of disease on the skeleton was found on two lumbar vertebrae which showed osteoarthritic lipping. The degree of attrition on the molars suggests that the man was a young adult (possibly 20–30 years). The fact that so much of the skull vault is missing might explain how such a large number of *Littorina* shells had gained entry.
"It would be of no value here to undertake an elaborate statistical analysis of the craniometric data recorded for this skull, for there is no Mesolithic Irish and very little Irish Neolithic material with which to compare it. It does seem probable, however, that the Neolithic inhabitants were similar in skull form to their British cousins. It is therefore interesting to find that instead of the Dalkey skull's being dolichocephalic as expected, it was in fact brachycephalic. It is very similar in form to a number of Bronze age skulls from Ireland and Great Britain. Neolithic skull vaults generally show much smaller indices. This is not to say that brachycephaly is not to be found before the Bronze age in Ireland, for short-skulled forms were well established in some parts of Europe as early as Mesolithic times. Could this skeleton, then, represent a brachycephalic individual of Mesolithic stock? Until more material is available, nothing more substantial can be suggested".
Since Dr. Brothwell made the above report, the situation has been complicated by the British Museum Laboratory's C-14 age estimate for bone from the skeleton of 2,300 B.C. (standard deviation 150, B.M. 78). This argues more for a Beaker than a Larnian attribution of the skeleton. On the other hand the skeleton lay at the bottom of the thin shell layer of the southern basal midden, and no trace of a grave was seen when the top of the shell layer was scraped clean. The bones first appeared with the excavation of the midden layer itself. However, as it can never be entirely excluded that the excavator's observations were at fault, the dating problem must remain unsettled. The southern midden, at all events, cannot be much younger than the northern basal midden, for which there is a C-14 age estimate of 3,340 B.C. (standard deviation 170).

The littorina shells found in the vault of the skull must have been put there (Pl. XVI, 3). But through what aperture? The only substantial entry into the complete skull is the foramen magnum, and that is only available when the head is removed from the spinal column. Our skull was incomplete, but none of the fractures seemed to be cut or pounded through the fresh bone (conversation with Dr. Brothwell). It seemed probable that the skull had broken up in the earth, and its incompleteness, like that of the rest of the skeleton, was due to the activity of the rabbits, which had penetrated so much of Site II. But as the skull is incomplete, the possibility that the shells were inserted through an artificial hole cannot be excluded.

Of course if the periwinkles entered the skull naturally, which is hardly in keeping with the habits of these creatures, the problem of aperture is unaltered. They cannot have sifted in from the surrounding midden, as this was composed principally of limpet shells.

Burial III. Dr. Brothwell reported "This is represented by a very broken, and in some regions, a fairly eroded skeleton. The bones found include those of the skull (incomplete), part of a scapula, vertebrae, ribs, pelvis, tibia tarsals, femur, humerus, phalanges, fibula, metatarsals, metacarpals, and a patella. From the range of bones which remain, it seems probable that the whole of the individual was buried, even though the bones are now so fragmentary.

"Sexing was not an easy matter owing to its condition, but the size of a mastoid process and the linea aspera of the femur strongly point to the individual's having been male. What few teeth remain were also badly preserved, but it was possible to tell from the degree of attrition on a number of them, that the individual was a young adult. (perhaps between 20 and 30 years). It was not possible to undertake any measurements. One vertebral fragment showed a medium degree of osteo-arthritic lipping.

Reference

The following information was obtained on the burials near the church with the assistance of a party of medical students led by Dr. (then Mr.) I. A. Derham and Bones for Archaeologists by I. A. Cornwall.

V. Adult, probably under 40 as the sagittal suture fell apart when the skull was removed from the ground. Female on the evidence of the mandible.

VI. Incomplete skull found alone in fill of burial V without mandible or maxilla. From an aged person as the temporal suture was fused internally by syntosis and the coronal and sagittal sutures were fused near the bregma.

VII. Male on the evidence of the robust muscular markings on the bones. Height ca. 5'5" (165cm). Adult as all bones examined were fully fused. The skull lay outside the excavated area.

VIII. Child, aged 12 as a canine and a second molar were in the process of erupting; probably female as the angle of the greater sciatic notch was ca. 90°. Height ca. 4' (125cm).

X. Aged female about 5' high (155cm). Excellent dentition—all intact.

XI. Female over 40 as the sagittal suture was closed on the inside and under 50 as the lambdoid suture was not closed on the inside. Height ca. 5' (155cm). Many teeth lacking and the sockets reabsorbed in all but one case.

XII. Adult over 25 as the styloid process was ossified. Teeth considerably worn and left PM2 and M1 missing.

XIV. Probably male. Height ca. 6' (190cm).

XV. Male subject on the evidence of the prominent brow ridges and muscular attachments at back of jaw. Age ca. 50-60, as the syntosis between the parietal and occipital bones was almost complete but the temporal bone is still separate from both of them.

XVI. An incomplete child’s skull found in the section.

APPENDIX 4

MEDIEVAL COINS AND JETTONS

by R. H. M. Dolley

COIN

The coin found in the course of the excavations at Dalkey Island is of base silver and of the very crudest workmanship. The weight is 10-45 grains, and
even if allowance is made for the slight chip and for a certain amount of wear it is doubtful if the theoretical weight was in excess of twelve grains. Despite the illegibility of the legends the coin is clearly one of those struck by the Counts, later Dukes, of Normandy, and there can be little doubt but that it was struck in the course of the eleventh century.

The feudal deniers of Normandy are for the most part common, but the great majority are for practical purposes anonymous, and their unattractive appearance has conspired to preclude any very detailed study of the sequence of the different issues which in the main appear to have emanated from a mint at Rouen. The present writer, however, has in the press a preliminary discussion of the light thrown on their chronology by three closely dated finds from the British Isles\(^1\). Broadly speaking the new evidence would seem to argue well-nigh conclusively that the majority of the deniers were struck rather earlier than most continental authorities have tended to assume, and it is clear that the degeneration of the series had begun already by the last quarter of the tenth century.

The hoards in question comprise one from Iona which it is indeed difficult not to connect with the plundering of that island in 986, one from Inchkenneth in which the latest British coins are a penny of Sihtric III Silkbeard of a type apparently demonetised before 1000 and a penny of Æthelred II the Unready of a type current in England only between 997 and 1003, and a great hoard from Halton Moor just outside Lancaster which is composed, the Normandy coins apart, of pennies of Cnut the Great belonging to the issue which appears to have been current only between Michaelmas 1023 and Michaelmas 1029. Clearly the new coin from Dalkey Island is later than any of the deniers present in these three finds, and typological considerations suggest a date about the middle of the eleventh century. It is unfortunate that the problem is bedevilled by the failure of the collectors of the early nineteenth century adequately to record hoard-provenances, for Lindsay makes tantalising allusion to a hoard alleged to contain coins of Edward the Confessor beside Normandy deniers not obviously later than those present in the hoard from Halton Moor\(^2\). This hoard is supposed to have occurred in England, but this seems unlikely unless the find-spot was north of a line from the Mersey to the Humber—more than one recent note has commented on the paucity of finds of eleventh-century continental coins from the territory under the effective jurisdiction of the English kings\(^3\). Even if, however, we accept the evidence implicit in Lindsay's narrative, it would be difficult to date the Dalkey Island coin later than the third quarter of the eleventh century.

How long continental coins continued in circulation among the Hiberno-Norse population of Ireland is very difficult to estimate. The odd coin could sometimes linger surprisingly long—the Sainthill Sale of 1870 even records a dirham of Haroun-al-Raschid (d. 809) claimed to have been discovered with pennies of Eadgar (d. 975) in Meath. On balance, however, the present writer is reluctant to place the loss of the Dalkey denier later than the last quarter of the eleventh century. It is understood that this would imply that the coin is substantially earlier than other dated objects from the immediate site, but the
numismatist can point to an even earlier hoard from the vicinity of Dalkey which until quite recently has not received the attention it deserves.

This hoard, discovered it would seem in 1838, included some sixty coins of Eadgar. Earlier English coins may well have been present, but the absence of later ones may be inferred from Lindsay’s silence. At this juncture the exact composition of the Eadgar element cannot be claimed with absolute certainty, but arguments can be adduced which would suggest that a type of coin was present which current research would associate with the last years of the reign. There is reason, then, to suppose that the 1838 hoard from Dalkey was concealed towards the end of the decade which culminated in the Battle of Tara, and the very fact of the discovery of such a hoard may suggest that Dalkey already in the tenth century was an important centre of Hiberno-Norse trade.

Although the first to be recognised as such, the Normandy denier from Dalkey is not the first of its kind to have been discovered in Ireland. A very similar coin is illustrated as no. 4 on the “Editor’s Additional Plate” appended to the 1810 edition of Simon’s Essay towards a Historical Account of Irish Coins, but unfortunately the find-spot is not recorded. In this connection it may be remarked that both the Normandy deniers from Ireland seem later in date than the two dozen found further to the north and east, while the apparent absence of the earlier issues from Irish finds may be a pointer to the effectiveness of the control over coinage exercised by Sihtric III Silkbeard and his immediate successors. One of the most urgent tasks confronting the Irish numismatist is the evaluation of the evidence provided by the Hiberno-Norse coins from the period 995–1150, and it is hoped that the imminent publication of those in the British Museum will mark a decisive step forward towards the establishment of an absolute chronology for the different issues.

Jettons

The larger of the two jettons has a diameter of 24.5 mm. The obverse type is a dolphin, and the legend, in a very ornate Lombardic script, runs:

\[+\ K E \ \ N O B L E \ E T \ \ H E R I P\]

a blundering for LE NOBLE ET FIER P(OISSON). Thus the obverse is a trifling variant of No. 61 on Plate VII of F. P. Barnard’s The Casting-Counter and the Casting-Board (Oxford, 1916). This token, but with a different reverse, is there attributed to Dauphiné and ascribed to the fifteenth century, and at the same time the suggestion is made that the place of manufacture may have been Tournai. The reverse of the Dalkey jetton, a highly elaborate cross fleurée fleurdelisée, corresponds exactly to that found on two different jettons recorded by Barnard, namely No. 15 on Plate IV “Jetton of a Count of Flanders, perhaps Philip the Bold, Duke of Burgundy (1363–1404)” and No. 70 on Plate VII for

PROC. R.I.A., VOL. 66, SECT. C. [M]
which a fourteenth-century French prototype is implied. In the British Museum, too, it is found muled with another "Flemish" obverse approximating to No. 23 on Plate V. The four letters in the outer field should almost certainly be taken in the order A-V-E-G for AVE G(ratia plena), the beginning of the angelic salutation which was one of the most popular jetton-legends at this period. A full-dress study of French jettons is urgently needed—if only to iron out discrepancies of chronology and attribution such as appear from the references to Barnard's standard work—but until then we will not be far wrong if we accept a dating to the fifteenth century and an attribution to Northern France.

The smaller and more corroded of the two jettons had an original diameter of at least 22-0mm. The obverse type is a crowned heater-shield of France—modern within a double quatrefoil but the type cannot exactly be paralleled from Barnard's Plates. Hence it is not at present possible to establish with certainty the nature of the symbols (? two crowns) flanking the shield. The legend, if ever there was one, is now completely wanting. The reverse type also is one that cannot be matched exactly in Barnard. A large cross pâtié is enclosed within a double quatrefoil, and in the angles of the cross are arranged alternately a fleur-de-lis and an uncertain symbol (? the tower of Tournai but more probably a crown). The whole feel of the jetton suggests a comparatively late date, and certainly the obvious prototypes would seem to be French coins from the early fifteenth century.

The two counters, then, may both be dated to the fifteenth century and appear to emanate from Northern France. The numismatist, however, would be very reluctant to read much significance into their presence on a site intensive habitation of which already is attested by other evidence. Such counters were exported in vast quantities and were in such general use that it would rather be worthy of remark if a late medieval site failed to produce examples.

References


2 John Lindsay, Notices of remarkable Medieval Coins etc., Cork, 1849, p. 4 and Pl. 1, nos. 2–10. Incidentally, ibid. no. 11 is probably earlier rather than later than those preceding it on the plate in question, a commentary on the dangers of a purely stylistic dating.


4 The crucial passages are John Lindsay, A View of the Coinage in Ireland, Cork, 1839, p. 135 and the same author's A View of the Coinage of the Heptarchy, Cork, 1842, p. 125. It is my opinion that both passages refer to the same hoard, and the hypothesis which I am at present seeking to establish is that the coins found on this occasion—or at least a proportion of them—were acquired by a Mr. Richard Peter of Dublin. A number of coins of the right period in the possession of this gentleman in 1841 passed via George Petrie to the British Museum in 1843, and if they did not originate from the Dalkey hoard we are left with the much less plausible alternatives of the Kilkenny find (? discovered c. 1823) or an otherwise unrecorded hoard.
## APPENDIX 5

### METAL ANALYSES

*(By courtesy of the Oxford Research Laboratory for Archaeology—And H. Case, Esq.)*

<table>
<thead>
<tr>
<th>Object</th>
<th>Find No.</th>
<th>Fig.</th>
<th>Our Ref.</th>
<th>Cu</th>
<th>Sn</th>
<th>Pb</th>
<th>As</th>
<th>Sb</th>
<th>Ni</th>
<th>Bi</th>
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<td>—</td>
<td>98.8</td>
<td>0.28</td>
<td>—</td>
<td>0.48</td>
<td>0.32</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>0.27</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Awl</td>
<td>2640</td>
<td>18</td>
<td>—</td>
<td>99.0</td>
<td>—</td>
<td>—</td>
<td>0.74</td>
<td>0.10</td>
<td>0.009</td>
<td>—</td>
<td>—</td>
<td>—</td>
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</tr>
<tr>
<td>Awl</td>
<td>3125</td>
<td>18</td>
<td>—</td>
<td>98.8</td>
<td>—</td>
<td>—</td>
<td>0.58</td>
<td>0.27</td>
<td>0.27</td>
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<td>—</td>
<td>0.18</td>
<td>0.24</td>
<td>—</td>
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<tr>
<td>Axe complete</td>
<td>649</td>
<td>27</td>
<td>222</td>
<td>89.8</td>
<td>10.2</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>&lt; 0.004</td>
<td>—</td>
<td>0.045</td>
<td>0.014</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Axe, butt fragment</td>
<td>1092</td>
<td>27</td>
<td>223</td>
<td>99.9</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>&lt; 0.004</td>
<td>—</td>
<td>—</td>
<td>0.027</td>
<td>—</td>
<td></td>
</tr>
</tbody>
</table>

— = not detected  
< = less than
CLAY MOULD FRAGMENTS FROM DALKEY ISLAND

by H. M. W. Hodges

These fragments appear to be quite typical of other known moulds of the Late Bronze Age from the British Isles, being built of an inner case of clay with fine filler and an outer envelope of clay with coarse filler. Although it would not be possible to reconstruct any one mould, it was quite evident from the fragments that at least a mould for a sword-blade, a socketed implement, perhaps a spear head, and a second socketed implement, perhaps a gouge, were present. The following examinations were carried out to determine if the moulds had indeed been used for casting bronze.

Thin-sections

Two thin-sections were prepared for microscopic examination. It is quite clear that both inner and outer cases were prepared from the same clay, the former with the addition of a fine, well-graded sand as filler, the latter with a filler of much coarser and less regular material. The clay minerals of the inner case were completely isotropic, the clay minerals of the outer envelope only partly so, despite the more porous nature of the material. One must conclude that the inner case has at some period been submitted to a temperature in excess of 900°C, and that the outer envelope has not been raised beyond this temperature. The actual minerals present in the filler were such as would be expected in the locality of Dalkey.

Spectroscopic Analysis

Two mould fragments were examined, samples being taken from the matrix and from the body of the mould, i.e., below the matrix. The relative proportions of copper, tin, and lead only were sought. The results were obtained by optical spectroscopy, the work being done by the Oxford Archaeological Research Laboratory. I am indebted to the Director of this Laboratory for these results, but would add that further comments are my own:

<table>
<thead>
<tr>
<th>Fragment</th>
<th>Copper</th>
<th>Tin</th>
<th>Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>2068</td>
<td>matrix</td>
<td>present</td>
<td>high</td>
</tr>
<tr>
<td></td>
<td>mould</td>
<td>present</td>
<td>medium</td>
</tr>
<tr>
<td>2582</td>
<td>matrix</td>
<td>present</td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td>mould</td>
<td>present</td>
<td>trace</td>
</tr>
</tbody>
</table>

It is to be noticed that the proportions of both tin and lead are greater at the surface than from the body of the mould.
Conclusions

The evidence of both the thin sections and the spectroscopic analyses suggests most strongly that the moulds were used for the direct casting of bronze, and not as so often has been suggested, for the preparation of wax forms to be used in the lost-wax process of casting, in which instance one would expect to find the clay of the outer envelope to have been submitted to the same temperature as the inner case, and the distribution of any metallic ions, if present, to be roughly uniform.

APPENDIX 7

CRUCIBLE FRAGMENTS FROM DALKEY ISLAND

by

Morganite Research and Development, Ltd.

Visual examination.

(1) Most of the pieces of crucible sent to us showed no signs of having been used and it is possible that some of them were crucibles which cracked in the original manufacture or were otherwise not found satisfactory for use. Those which do show signs of use do not, in general show signs of marked disintegration. In some cases there is an indication that metallic slag has bonded on to the inside surface of the crucible and penetrated to a small extent but we do not think that there has been any undue erosion of the inner surface and it is unlikely that there would have been any unusual appearance of crucible debris or slag in the cast metal. When melting metal in a crucible there is always some production of slag but normally this is skimmed off when the metal is cast.

(2) In general the crucibles seem to have been made in one layer as a simple operation. In some cases a layered formation is shown but there are traces of slag between the different layers. It seems most likely that the crucibles were originally made as a simple one piece construction but that after each using they had been cleaned out as well as possible and have been coated with a clay wash before re-use. In some cases the clay wash shows on the outside of the crucible as well as on the inside where it covers a certain amount of slag. One piece of crucible in particular—2061 shows signs of having had 4 melts with 4 separate layers of slag on the inside separated by what appears to be a clay wash coat. In most cases the slag has not been fully fused and is rather more a layer of dirt and dross from the metal.

The general indication is that these crucibles were more in the form of a portable hearth than crucibles as now used. They seem all to have been shallow bowls with thick wall and it seems likely that most of the heat came from above—the metal was placed in the crucible and the fire built over it rather than under it. Several different clays seem to have been used for the different pieces of crucibles which we received.
Test Results.

(A) Spectrographic analysis of green deposit in sample 2707.

Main constituents—

<table>
<thead>
<tr>
<th>Element</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Si</td>
<td>10–15%</td>
</tr>
<tr>
<td>Cu</td>
<td>5–10%</td>
</tr>
<tr>
<td>Sn</td>
<td>3–5%</td>
</tr>
<tr>
<td>P</td>
<td>2–3%</td>
</tr>
<tr>
<td>Al</td>
<td>1–2%</td>
</tr>
<tr>
<td>Ca</td>
<td>2–3%</td>
</tr>
<tr>
<td>Na</td>
<td>1%</td>
</tr>
<tr>
<td>Mg</td>
<td>1%</td>
</tr>
<tr>
<td>Pb</td>
<td>1%</td>
</tr>
<tr>
<td>Fe</td>
<td>1%</td>
</tr>
</tbody>
</table>

The high tin figure suggests that bronze was melted, at least in this sample. The high phosphorus content is also notable. X-ray analysis of this sample showed the presence of Cu$_2$O and SnO$_2$.

(b) Microscopic examination of sample 2707 clay fragment.

This showed that the inner surface of the crucible had received two wash-coatings of clay as (2) above.

The constitution of the wash is similar to that of the main body but is much finer and contains a little more quartz.

A yellow-metal inclusion found under the wash coat was identified as containing Cu$_2$O and Cu but some tiny silvery inclusions, which appeared metallic, were too small to identify.

X-ray analysis of the inner washcoat showed oligoclase (clay mineral) and quartz. Similar analysis of the crucible wall outside showed the same constituents (but with possibly less quartz) plus mica or illite. The absence of mica or illite from the inner surface probably indicates that the inside surface has been hotter than the outside. No mullite was found and there was nowhere any indication of very high temperature.

(c) Sample of slag from sample 2102.

This slag was magnetic and spectrographic analysis showed (apart from Fe) main constituents

<table>
<thead>
<tr>
<th>Element</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cu</td>
<td>5–10%</td>
</tr>
<tr>
<td>Si</td>
<td>2–4%</td>
</tr>
<tr>
<td>P</td>
<td>1%</td>
</tr>
<tr>
<td>Ca</td>
<td>0–5%</td>
</tr>
<tr>
<td>Sn</td>
<td>0–01%</td>
</tr>
<tr>
<td>Pb</td>
<td>0–04%</td>
</tr>
</tbody>
</table>

X-ray analysis of the same slag showed that it was mainly maghemite (γ Fe$_3$O$_4$). Although the matrices of ancient iron and copper smelting slags were essentially similar, the present sample is clearly associated with copper rather than ferrous metallurgy, despite its high iron content. It also suggests smelting rather than melting, at least in this instance.

APPENDIX 8

MEDIEVAL POTTERY FROM DALKEY ISLAND

by D. M. Waterman

The medieval pottery from Dalkey Island was collected from the general surface layer and no stratified deposits were recognised. It is very fragmentary
and for the most part the sherds are too featureless to be worth illustrating. In the absence of stratification, the material can only be studied in toto and on this basis three main groups may be distinguished.

(a) *Imported French pottery.* This is of fine, plastic white or cream-coloured clay, sometimes pinkish in fracture or with a very thin, pale buff surface layer. The fabric is hard and thin (c. 2mm on the body sherds), occasionally apparently gritless but usually with rounded quartz particles or small red-coloured inclusions. Internally, the sherds are normally strongly rilled and grooved, the outside surface is smooth and usually bears glaze. The glaze is rather blotchy, pale to dark green in colour. Beneath the glaze the surface is pitted; where the glaze runs thin, small spots of glaze appear emanating from each pit-mark, the result of sprinkling the surface with galena, which has taken silica from the fabric on firing1.

Text figure 10. Medieval pottery.
The few sherds with recognisable features have been combined on the
drawing, text fig. 10: no. 1, as a barrel-shaped jug, although it is not certain
that these sherds all belong to the same vessel. The body sherd has on the
outside a series of horizontal grooves, a feature which appears on a barrel-
shaped handled jug with parrot-beak spout from Cardiff². The rim is squared
off on the top and has a cordon just below. Part of the spout, of parrot-beak
form, remains rising above the rim; it was made separately and added to the
jug, with a hole pierced through the neck to connect with it. The thin strap
handle is typical of this type of jug.

Other sherds include a rim, also squared off on the top (no. 2); a fragment
of another parrot-beak spout; and a body fragment with part of a vertical,
finger-pressed applied strip.

There are also a number of sherds, of good quality buff or pinkish fabric,
where it is not possible to be certain of a French origin. These include several
pieces of the slightly convex base of a vessel in hard pinkish ware with quartz
grains and red inclusions in the paste; the surface is smooth and buff-coloured,
the surviving pieces showing no glaze.

Since the first find of imported French pottery in Ireland, a sherd of a
polychrome jug from Clonroad More (Clare), was reported in 1946³, the list
of sites yielding such material has been steadily growing (text fig. 11). In Ulster,
finds have now been made at Carrickfergus Castle (Antrim; unpublished);
at Clough Castle (Down)⁴ and at Downpatrick⁵; in Leinster at Mellifont

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Text figure 11.
Abbey (Louth)\(^8\): in Dublin\(^7\); at Ballyloughan Castle (Carlow)\(^8\) and at New Ross\(^9\); and in Munster at Ballingarry Down\(^10\). These jugs point to trade connections with western France, principally with the Vendée or Charente Inférieure but also, on the evidence of the Dublin find, with Normandy as well. In Ireland, probably the earliest imported pottery is that from Clough Castle, where it was found associated with coins of King John (1199–1216). The polychrome ware, represented at Carrickfergus Castle, Mellifont Abbey and Clonroad More, can be closely dated between \(c\). 1280–1300\(^11\) on the evidence from a number of castles mostly on the Welsh seaboard. It occurs also at Kirkcudbright Castle, which seems to have had only a short occupation, \(c\). 1288–1308, together with glazed barrel-shaped jugs with parrot-beak spout, a type of vessel apparently represented at Dalkey Island.

(b) English-style glazed jugs. These are mostly of clayey, sometimes slightly sandy fabrics, usually of well-levigated, micaceous clay without a great deal of gritting and of varying degrees of hardness. The clay is usually grey in colour with a reddish surface layer outside, except where protected by glaze, and less frequently on the inside; a wholly red body is occasionally found. Glaze ranges in colour from pale green, through olive to reddish-brown; the surface beneath the glaze is usually pitted, with glaze spreading out in small circles from each pit where the glaze is sparse. (see above). On many sherds, the unglazed surfaces tend to be easily rubbed.

A few rim fragments have a raised cordon just below the lip (nos. 3, 4,) one of which bears a thumb impression where the handle was pressed on. At least two jugs have a finger-frilled applied band on the neck (no. 5), a feature which may derive from the Bristol region and which can be dated to the later thirteenth – early fourteenth century at several Ulster sites\(^12\). Only one handle is present (no. 6), of plain strap-form from a large, thick-walled vessel, part of the convex base of which is also preserved. The edge of the base has been pinched at intervals of about \(4\) cm; two other base fragments show pinching up the side of the vessel (no. 7), but never under the edge of the base angle. Ornament includes low-relief applied strips, nicked in one instance (no. 9); in another case a purple-black strip contrasts with an olive glazed background. More ambitious plastic ornament includes part of the modelled head of a stag (no. 8).

As a group, the pottery can only be dated within the thirteenth–fourteenth centuries. For the most part, there is little reason to doubt that the material is of local manufacture. A pottery kiln, producing glazed jugs and cooking pots, has now been excavated at Downpatrick\(^13\) and similar kilns may be expected in the vicinity of the larger medieval towns elsewhere in Ireland, especially close to Dublin.

Among the Dalkey Island material, however, are a few sherds of harder fabric, characterised by an absence of mica in the clay, including a fragment of grey ware, approaching a stoneware in hardness, with a thin uniform dark olive glaze. Some English imports may well have been reaching the Dublin area\(^14\) brought in either by way of Chester or Bristol\(^15\), as some Chester pottery was certainly reaching the Ulster ports during the thirteenth century.
(c) Native hand-made cooking pottery. This is of fairly hard, reddish-brown or greyish-black pottery, liberally gritted mostly with mica particles up to 0·2 cm across. The reddish fabric is about 0·4–0·5cm in average thickness, the darker fabric 0·6–0·7cm thick; the surfaces are harsh and irregular and show much evidence of hand-work. Rims are everted, with finger-tip or stab marks along the lip (nos. 10, 11) or more upright and thickened (nos. 12, 13); bases are pronouncedly convex (nos. 15, 16). A couple of body sherds bear parallel incised lines, but these pieces are too small to show the pattern of this simple ornament. A flanged rim, with slight internal beading (no. 17) may be part of an open pan or dish; no. 18 is perhaps the rim of a pot-lid. A clumsily-modelled handle (no. 19) is also present.

The cooking pots are fashioned after the English style of cooking pot with everted rim and convex base. Interaction between this English style and the native pottery tradition is seen already in Ulster by c. 1200 in hand-made flat-based vessels from Dundrum Castle\(^4\). The addition of the convex base occurs on a hand-made cooking pot from Greencastle, Co. Down\(^5\), which is directly comparable with the Dalkey Island cooking pottery.

(d) Miscellaneous. There are a few sherds of wheel-thrown pottery which require separate mention, including fragments of at least two small-sized vessels in hard brown or reddish-brown clay, with squared, everted rim and traces of glaze on the outside. This is a specialised form of cooking pot, sometimes glazed, which seems to have been designed for cooking on a small scale. In Ulster such vessels are dated on coin evidence to the late twelfth—early thirteenth century\(^6\) but the Dalkey Island pots are apparently later, comparable with undated examples from Grey Abbey, Co. Down\(^7\).

No. 22 is a small pot-lid, in reddish clay similar to, but finer than that of the cooking pottery of group (c). No. 23 is an unusual piece, a shoulder fragment bearing a band of roller-stamped trellis-ornament above a girth groove. It is of hard, buff-coloured clay, with small grits and mica particles, in appearance suggestive of local manufacture.

(N.B. Apart from the material from the little midden at Site IV, there is no reason to suppose the medieval sherds were of the same age—Author.)

References


2 Archaeologia 83 (1933), 118, pl. xxvii. Other barrel-shaped jugs occur in S. W. Scotland at Kirkcudbright Castle, loc. cit. 125, fig. 3, and Glenluce Abbey, Trans. Dumfries, Galloway Nat. Hist. Antiq. Soc. 29 (1952), 185, fig. 5, and in south Wales at Llantwit Major, Glamorgan, Bulletin Board of Celtic Studies 14 (1952), 328, fig. 10: 16.


4 Ulster J. Archaeol. 17 (1954), 124–5, fig. 6: 1, 2.

5 Ibid. 158, fig. 18: 4.
From recent excavations by Office of Public Works; kindly shown to me by Mr L. de Paor.

In National Museum (Ray Coll.), founded in Francis St., 1856, Glazed jug with roller-stamped ornament on shoulder and vertical finger-pressed applied strips on body; from Normandy, perhaps Rouen.


Found by the writer in graveyard adjoining St. Mary's church.

In an excavation by Mr J. Hunt; there seems little reason to deny a 13th century date and a source in Normandy or W. France to the fragments of glazed jug with tubular handle from this site. For the tubular handle in France, see Med. Archaeol. 3 (1959), 69.


Ulster J. Archaeol. 28 (1963), 79-104.

The upper part of an olive-glazed handled jug with spout, almost certainly a tripod-pitcher of west of England origin, was found in the river at Pigeon House, Dublin, in 1954 (National Museum).

Mr de Paor refers to a 13th century Bristol jug at Ferns, J. Roy. Soc. Antiq. Ireland 92 (1962), 9, presumably shipped into the port of Wexford; by this route, and up the Slaney, freestone from Dundry, near Bristol, was carried for building works on the 13th century cathedral at Ferns.

Ulster J. Archaeol. 14 (1951), 25, fig. 4: 4, 5.

Ibid. 15 (1952), 95, fig. 5: 11.

With coins of the period 1177-1216; Clough Castle, Ulster J. Archaeol. 17 (1954), 128; Ballyronney motte and bailey castle, ibid. 18 (1955), 90.

Ibid, 21 (1958), 69, fig. 1: 11, 12.

APPENDIX 9

FIELD WALLS

A plan of the walls is given in text fig. 1. The dotted lines indicate a narrow bank and ditch of modern type which appears on the Ordnance Survey maps, and which excavation at Site I showed could not be older than the earlier part of the eighteenth century. It was difficult to trace all remaining walls, as they are sometimes very worn down and overgrown, and the map may not be entirely correct. They appear not to form a regular system of enclosed fields, but can be interpreted on other principles.

The walls immediately north, south, and east of the church probably form boundaries to the churchyard and therefore form a system centred on the church. The churchyard was partially closed on the west by a natural rock ridge. The remainder of the walls can be explained as a series of arrangements of different
ages intended to separate the N.W. corner of the island from the remainder, so that livestock could graze freely in the central and southern part, excluded from the cultivated area near the promontory fort. The clearest arrangement is a large north-south orientated bank some 75m east of the promontory fort, extending from the shore scarp to a large area of rock east of the church, together with an east-west orientated bank of similar appearance joining the other side of the rock area with the western shore scarp. A part of this east-west wall appears secondarily to have been shifted northward to another alignment within the recent field. Some barricade would still have been necessary to prevent animals from wandering in over the rock east of the church, but this part of the boundary, if it ever existed, has disappeared. A boundary further away from the promontory fort is indicated by slight traces joining the southern end of the same area of rock with the outcrop on which the Martello tower is situated. This boundary, too, was presumably associated with a barrier on top of the rock area east of the church, and also with one from the Martello tower down to the west shore. A boundary nearer to the promontory fort is indicated by a slight north-south bank and ditch ca. 45m east of the promontory fort ditch. It is not clear whether a massive east-west terrace 45m north of the church, joining two high rock ridges, formed part of a system for excluding animals from the sown land, or is another part of the system surrounding the church. The wall of a small enclosure overrides it, and is therefore subsequent. Traces of a wall along the shore immediately east of the promontory fort presumably survive from a barrier to keep animals from straying into the cultivated area via the shore.

It is a reasonable supposition that these walls were not all in simultaneous use, but followed one another as they fell into decay and as the need for enlargement or reduction of the cultivated area was felt.

The dating evidence at present available is:

1. An early eighteenth century clay pipe in the modern type wall at Site I gives a terminus post quem for this enclosure. The only enclosures which appear to be unconnected with the church or the promontory fort are the latter, together with the small partial enclosure overriding the massive terrace 45m NNW of the church.

2. A large stone recently visible in the shore scarp at the N.E. end of the promontory fort ditch, low in the ditch silt, seems to belong to the wall running along the shore here. If so, it indicates that this particular wall was built at an early stage in the silting of the ditch.

3. A rubbish layer with thirteenth century pottery at Site IV accumulated when the northern boundary wall of the graveyard was already in decay.

4. A greyish layer and quite different stratigraphy south of the main promontory fort ditch at Site II than north of it, is thought to indicate cultivation on the northern brink of the ditch. Its extension into the ditch fill underlay the thirteenth century finds.

The evidence allows part, at least, of the field system to be referred to the Dark Ages.
APPENDIX 10

NOTE ON GLASS FRAGMENTS FROM DALKEY ISLAND.

by D.I.B. Harden

The first seven of the fragments listed below are undoubtedly dark-age. No. 8 is too small to show what kind of a vessel it comes from, so we can only judge the date from the glass-metal and the colour, and neither of these criteria permits firm differentiation between Roman and dark-age glass; it could belong anywhere between the first and the tenth century A.D. No. 9 must fall within that same date-span, but if my suggestion (see below) that it comes from a base-ring bowl is correct, it is most probably late Roman, i.e. late third to fourth century A.D.

Nos. 1–7, however, form a homogeneous and very interesting little group of Teutonic glass fragments wholly comparable to the series from Mote of Mark, Kirkcudbrightshire, and Dinas Powys, Glamorganshire, to mention only the two major groups of comparable material.1 There are stray fragments also from other dark-age sites in the Highland Zone, e.g. one recently shown to me from Deganwy, Caernarvonshire, by Mr L. Alcock, and there are, of course, parallels among vessels found in Saxon graves and from contemporary cemeteries on the continent, especially in Belgium and the Rhineland. The Mote of Mark fragments are described and illustrated in my general account of Anglo-Saxon glass published in 1956,2 in which I also mentioned a number of similar pieces, especially those from Garranes, Ballycatteen and Garryduff in Ireland. When that article was being written I had seen only a few of the Dinas Powys fragments and these I mentioned briefly. Since then I have been privileged to study and report on the full assemblage from that site, the Teutonic portion of which amounts to 256 fragments of which 92 had opaque white trail decoration. There were besides 4 fragments of Roman vessels, one of Roman window-glass and a number of beads (mainly Teutonic and Coptic) and other items.3 In 1956 I dated the Mote of Mark group sixth to early eighth century, but I now prefer to date both it and the comparable Dinas Powys material fifth to sixth century, because of their shapes and because both groups include so many fragments with opaque white trails which are specially characteristic of that period. This must also be the date-span of the Dalkey material.

Nos. 1–4 are all bowl rims with diameters ranging from c. 4 to c. 8in; nos. 5–7 are probably all from cone-beakers. The proportion of bowl fragments as compared with cone-beakers at Dinas Powys was much less, and even at Mote of Mark beakers were commoner than bowls. This difference, however, is not of special importance. At all three sites yellow or greenish-yellow glass is predominant and there is a strong family resemblance in the glass-metal from all three also, so that we may assume that each of them derived its fragments from the same centre or centres of fabrication—presumably from somewhere in north France, Belgium or the Rhineland.
The cones belong to my type III, c-f, and the bowls to my type XI, b; all belong to my chronological sub-groups Bi and ii of the fifth-sixth centuries. These fragments have also been studied by Mr. E. M. Jope, who is generally in agreement with my diagnosis and conclusions; but he takes the view that the striations on nos. 5 and 6 are not (as I believe they are) fashioning marks and/or surface weathering, but are abrasions made by a grinding-wheel. He remarks: 'In a band from about 7mm. to 14mm. below the top of the rim on no. 5 the grinding lines are quite clear under a hand lens or microscope and, in a good glancing light, to the naked eye. I do not think this is weathering; the edges of the lines are too sharp and the surfaces too smooth and regular, though they, most significantly, preserve all the minor striations. The inside surface, too, seems to have been ground, because many of the long almond-shaped bubbles are cut through sharply. Presumably the surface treatment was effected by rotating the vessel against the grindstone. I see no reason why this technique should not have been used on dark-age glasses. I note similar marks on no. 6.'

The fact is, however, that amongst the great quantity of complete or nearly complete vessels of this period from Britain and the continent no trace of wheel-cutting or abrasion in any form has ever been noted. This technique seems to have died out in the west at, or soon after, 400. The only two vessels from Saxon graves with abraded decoration are the High Down (Sussex) goblet with Greek inscription, which I have claimed to be eastern, probably Egyptian, work of the late fourth or early fifth century, and the Holme Pierrepont (Notts.) fragmentary bowl with a Latin inscription, which must be late Roman in origin even if it belonged in the end to a 'Teuton'. Moreover the lines on these two fragments are uneven and irregular and do not cover the whole surface, as they would do if they were due to the use of an abrading wheel. What a ground and polished surface looks like can be seen on many early Roman glasses and it is quite different from the aspect of the marks on these two pieces of Teutonic cone-beakers.

References

1 I adopt the term 'Teutonic' for this glass because it begs no questions, other than that it is dark-age and comes from NW. Europe and not the Mediterranean. The terms 'Anglo-Saxon,' 'Frankish' and 'Merovingian' might seem to make unwarranted assumptions about origins.


3 A full report on this glass is forthcoming in Mr Alcock's monograph of his Dinas Powys excavations.

4 Harden (1956), p. 140, Pls. xvi, f and xvii, b, c.

5 Ibid., p. 143, Pl. xvi, h.

1. No. 591. Fragment of rim of bowl, yellow; rim inturned and thickened, solid; sides taper downwards. D. c. 6 in. Dulled by usage on exterior, retains original glossy surface within. Good glass, no bubbles. Fig. 32.

2. No. 503. Fragment of rim bowl, greenish yellow; rim inturned and folded outwards and downwards with very small hollow, c. 1mm diam.; sides taper downwards. D. c. 8 in. Dulled and roughened surface caused by weathering; one strain channel. Many tiny bubbles. Fig. 33.

3. No. 1121. Fragment of rim of bowl, greenish yellow; rim thickened, solid; sides vertical above, but beginning to taper downwards. D. c. 4 in. Dulled, roughened and iridescent surface inside and out. Many tiny bubbles. Fig. 19.

4. No. 719. Fragment of rim of bowl, green; rim inturned and thickened, solid; sides taper downwards. D. c. 6½ in. Dulled by usage on exterior, retains original glossy surface on interior. Good glass, no bubbles. Fig 19.

5. No. 632. Fragment of rim of cone-beaker, yellow; rim slightly inturned and thickened, solid; sides taper downwards. D. c. 3 in. Horizontal striations on both surfaces, but uneven and crossing each other in one or two places; these lines are probably fashioning-marks and/or surface weathering. Many black impurities and tiny bubbles. Fig. 19.

6. No. 607. Fragment of side of cone-beaker (?), yellow; sides taper downwards. D. c. 2½ in. One line near top is a weathered opaque white horizontal marvered trail; the fragment also shows striations like those of no. 5 on both surfaces. Many black impurities and tiny bubbles. Not illustrated.


9. No. 627. Flake struck accidentally from part—probably the base—of a vessel, green; one side retains original surface, the other is rippled by flaking. Striations (from blowing). Black impurities and some bubbles. L. 1½ in. Not illustrated.

The original shape of the vessel is not ascertainable, but the slight curving on the unrippled side indicates that it is from a vessel and not a flat sheet of glass, and a sharp turn on the edge near the bulb of percussion suggests that it may be from the under side of the base of a base-ring bowl.
APPENDIX 11

CHARCOAL

by Maura Scannell

Charcoal from old ground surface below basal midden and from basal midden, Site V.

Pieces fragmentary. The larger were examined and they are:

<table>
<thead>
<tr>
<th>Tree</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quercus (oak)</td>
<td>11 pieces</td>
</tr>
<tr>
<td>Fraxinus (ash)</td>
<td>1 piece</td>
</tr>
<tr>
<td>Ilex (holly)</td>
<td>1 piece</td>
</tr>
</tbody>
</table>

Site V, pit at N. 0-00, W. 5-50 with E-ware.

<table>
<thead>
<tr>
<th>Tree</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxus (yew)</td>
<td>14 pieces</td>
</tr>
<tr>
<td>Quercus (oak)</td>
<td>1 piece</td>
</tr>
<tr>
<td>Ilex (holly)</td>
<td>3 pieces</td>
</tr>
</tbody>
</table>

Site II, fill of kiln or oven.

<table>
<thead>
<tr>
<th>Tree</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fraxinus (ash)</td>
<td>11 pieces</td>
</tr>
<tr>
<td>Corylus (hazel)</td>
<td>4 pieces</td>
</tr>
<tr>
<td>Salix-Populus (willow-poplar)</td>
<td>7 pieces</td>
</tr>
</tbody>
</table>

Site II, hearth (T21) in ditch near Burial I.

Mainly charred bone and lumps of soil. Charcoal very fragmentary. The larger pieces are:

<table>
<thead>
<tr>
<th>Tree</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ilex (holly)</td>
<td>9 pieces</td>
</tr>
<tr>
<td>Quercus (oak)</td>
<td>1 piece</td>
</tr>
</tbody>
</table>

Site II, (T8a), ditch silt with hearths.

The larger pieces were examined, they are as follows:

<table>
<thead>
<tr>
<th>Tree</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fraxinus (ash)</td>
<td>7 pieces</td>
</tr>
<tr>
<td>Quercus (oak)</td>
<td>3 pieces</td>
</tr>
<tr>
<td>Ilex (holly)</td>
<td>17 pieces</td>
</tr>
<tr>
<td>Corylus (hazel)</td>
<td>10 pieces</td>
</tr>
<tr>
<td>Salix-Populus (willow-poplar)</td>
<td>7 pieces</td>
</tr>
<tr>
<td>Ulmus (elm)</td>
<td>2 pieces</td>
</tr>
</tbody>
</table>
Site II, (T8b), primary silt of ditch.

<table>
<thead>
<tr>
<th>Plant</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salix-Populus (willow-poplar)</td>
<td>5 pieces</td>
</tr>
<tr>
<td>Ilex (holly)</td>
<td>21 pieces</td>
</tr>
<tr>
<td>Quercus (oak)</td>
<td>4 pieces</td>
</tr>
<tr>
<td>Corylus (hazel)</td>
<td>6 pieces</td>
</tr>
<tr>
<td>Ulmus (elm)</td>
<td>4 pieces</td>
</tr>
<tr>
<td>Fraxinus (ash)</td>
<td>6 pieces</td>
</tr>
</tbody>
</table>

Smelting pit in trial cutting 1c

<table>
<thead>
<tr>
<th>Plant</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corylus (hazel)</td>
<td>29 pieces</td>
</tr>
<tr>
<td>Quercus (oak)</td>
<td>1 piece</td>
</tr>
</tbody>
</table>

Early Christian hearth in trial cuttings 3 and 4.

<table>
<thead>
<tr>
<th>Plant</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corylus (hazel)</td>
<td>13 pieces</td>
</tr>
<tr>
<td>Prunus (cherry)</td>
<td>7 pieces</td>
</tr>
<tr>
<td>Ilex (holly)</td>
<td>14 pieces</td>
</tr>
<tr>
<td>Fraxinus (ash)</td>
<td>2 pieces</td>
</tr>
</tbody>
</table>

Author's note—perhaps the high incidence of holly charcoal in the Early Christian deposits should be compared with the earliest recorded name of the island, which means "thorny island".

APPENDIX 12

SAMPLE OF SHELL LAYER FROM NORTHERN BASAL MIDDEN

by G. F. Mitchell

The sample, which had a dry weight of 5kg., was of unselected material. It was largely composed of broken limpet shells, with an admixture of brown earth; there was only a very small quantity of charcoal. The identifiable shells in the material were counted, and other items of interest noted. Only the apices of limpet shells were counted; despite the fact that these were the most numerous objects noted, the count probably does not fairly represent the preponderance of limpet remains in the material. In the following list the nomenclature is that of Winckworth (1932).

<table>
<thead>
<tr>
<th>Molluscan Shells</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patella vulgata (L.)</td>
<td>272</td>
<td>75</td>
</tr>
<tr>
<td>cf. Monodonta lineata (da Costa)</td>
<td>1</td>
<td>+</td>
</tr>
<tr>
<td>Littorina littorea (L.)</td>
<td>76</td>
<td>20</td>
</tr>
<tr>
<td>littoralis (L.)</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Nucella lapillus (L.)</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Mytilus sp.</td>
<td>1</td>
<td>+</td>
</tr>
<tr>
<td>Cardium cf. edule (L.)</td>
<td>1</td>
<td>+</td>
</tr>
</tbody>
</table>
STONE
15 heat-shattered fragments of granite
1 small rounded beach pebble

FLINT
5 small fragments

BONE
FISH 3 vertebrae, 1 small bone
BIRD 1 broken long bone
MAMMAL 1 broken small rib, 1 broken small vertebra,
         3 fragments

A second sample, made up of shells collected during excavation, showed an essentially similar composition; this sample included one specimen each of *Anomis ephippium* (L.) and *Pecten maximus* (L.).

The habitat of the limited number of shell types collected suggests that the midden users collected only on the rocky shores of the island and its immediate vicinity, and did not visit the sandy shores of Dublin Bay in search of food.
Fig. 1—Site V. Neolithic pottery.
Fig. 2—Site II. Neolithic pottery. 285 is from Southern Basal Midden.
Fig. 3—Trial cuttings. Prehistoric pottery. 635 by courtesy of B. K. Davison. 635 from Southern Basal Midden.
Fig. 4—Site V. Neolithic pottery.
FIG. 5—Site II. Neolithic pottery
Fig. 6—Site II. Neolithic and Bronze Age pottery.
Fig. 7—Site V. p. 35 Neolithic lugs; remainder B Beaker. p48 by courtesy of Miss Fionnuala Pyle.
Fig. 8—Site V. B Beaker and B Beaker coarse ware.
Fig. 9—Site V. B Beaker above, A Beaker below; p61 by courtesy of B. K. Davison.
Fig. 10—Site V. Beaker pottery.
Fig. 11—Site II. Beaker and other pottery; p180 and p187 by courtesy of B. K. Davison.
Fig. 12—Site V. A Beaker pottery.
Fig. 13—Site V. p75 Beaker and p94-p95 Food Bowl.
Fig. 14—Site V. p91 and p93 Miscellaneous. Remainder Food Bowl.
Fig. 15—Site V. p117 (?). Food Vase. Remainder Food Bowl or thought to be related to Food Bowl.
FIG. 16—Site V. Above (?) Irish Food Vase pottery; below Late Bronze Age pottery.
Fig. 17—Beaker and later pottery from the trial cuttings, p206 by courtesy of B. K. Davison. 321 at different scale is stone with chipped out hollow from Early Christian layer below bank at Site II.
Fig. 18—Above, miscellaneous prehistoric pottery. 1112, 2587, 2444, 3067, 2818, 2499, wheel-made wares of the Early Christian period. Below, copper and bronze objects.
Fig. 19—156, 1120 Samian ware; 2644 unidentified sherd; 1121, 719, 632 early glass; ec3 and ec4 amphora handles; remainder Early Christian wheel-made wares of various kinds.
Fig. 20—Fragments of baked clay moulds from Site V.
Fig. 21—Fragments of baked clay moulds and crucibles from Site V. 157 stone (?) crucible fragment from Site II.
Fig. 22—A—selected flints from Northern Basal Midden. B—2910 willow-leaf point of chert, and flint scrapers from Site V.
Fig. 23—Selected flint and chert implements from Sites II and V.
Fig. 24—Top 3 rows—complete and partially made 'laurel leaf' implements. 302 fragment of polished flint javelin head. Rest of bottom row—arrowheads of various kinds. 2941, 306, 305, 104 by courtesy of A. E. P. Collins.
Fig. 25—A—selected flints from Southern Basal Midden. B—selected retouched chert flakes from Sites II and V.
Fig. 26—Site V. 3045 metal; 1053–2769 bone; 2926–2199 stone; 2271 glass; 2440–3006 jet, lignite, or shale; 2080 soapstone. Bottom row stone.
Fig. 27—Site II and Trial Cuttings. Top two rows and 286, copper or bronze objects. 290 weight of lead and iron. Remainder bone.
Fig. 28—Site II. Objects of bone, stone, and iron. 12 is of soapstone and 548 is of baked clay.
Fig. 29—1-3 'limpet scoops' from Site II. 1109 stone axe from trial cuttings. 300 pestle. 294 utilized human femur from Site II ditch.
Fig. 30—Polished stone axes and roughouts; 2758 flint.
Fig. 31—Axe polishing stones. 301 whetstone. 260 by courtesy of Miss Fionnuala Pyle.
Fig. 92—591 and 874 are from Site IV. Remainder Site III overlying or unrelated to black midden and overlying brown rubble. 131 and 553 by courtesy of Miss F. Pyle.
Fig. 33—Site III. A—finds stratified in black midden. B—finds from brown rubble overlying the black midden. 507 and 1124 by courtesy of Miss F. Pyle.
Fig. 34—Site IV. a–g roof slates; h–l glazed ridge tiles.
Fig. 35—539 anchor fluke from Site II. Tuyère from trial cutting 1c. 549 and 1133 stone cutter’s pick and window moulding from Site IV.
Fig. 36—Plan and section of Site V.
NATURAL GRANITE IN SITU
STONE SET ON EDGE
STONE SET FLAT
PITS { PREHISTORIC
       EARLY CHRISTIAN
BASAL SHELL-MIDDEN { SUBSTANTIAL
       TAILING OUT
     'BEAKER SHELLS'
SMALL HOLLOWs
POST HOLES
ASH CHARCOAL OR BURNED CLAY
IN SITU

W-E SECTION 2m. FROM N. END OF SITE
basal clay soil stippled
"Beaker shells"
thought to be set

grave of burial
XVIII

section of Site V.
CRUMB OF MORTAR IN SECTION. OTHER 5

Fig. 37—Site II (northern part), plan...
(northern part), plan and sections.
DALKEY ISLAND
SITE II SOUTHERN PART

SQUARE I

METRES

FEET

large post hole

basal shell midden

crumbly earth with much bone

(Early Christian)
STONES
GRAVEL
SHELLS
HEARTH MATERIAL
CLAY STIPPLED IN VARIOUS WAYS.
OCCUPATION EARTH LEFT WHITE.

PITS
BASAL SHELL MORTAR
POST HOLES
ASH CHARCOAL
CLAY IN SMALL HOLLOW

Fig. 38—Plan and section of Site II (southern part).
SHELL MIDDEN
HOT HOLES
CHARCOAL OR BURNED
CLAY IN SITU
SHELL HOLLOW

- Grey soil
  (?slid from cultivation)
- Upcast from hearth dug
  at edge of ditch

ROCK
(at 45°)
SITE III

METRES

FEET

FOR CONTINUATION OF THESE CUTTINGS SEE GENERAL PLAN OF PROMONTORY FORT

SECTION A-B

A

GRANITE BEDROCK

MIDDEN

BANK WEATHERING

B

AREA WITH MIDDEN

LIMITS OF BANK

STONE SET UP

SHERD OF EC14

SMALL FIND

Fig. 39—Site III, plan and section.
Site III, plan and section.
pre-wall soil with flints

centre packing of wall

post hole with post's "ghost"

WIDTH OF FIELD WALL (BEHIND SECTION)

hole of gate post (projected)

section featureless along edge of gateway

midden layer
black smear

fallen wall stones with midden

stones at low level
natural

Fig. 40—Site IV, plan and
Site IV, plan and section.
Plate I—Site V. Neolithic pottery.
PLATE II—Site V. Neolithic pottery.
Plate III—Site V. Neolithic Pottery (Sandhills ware).
Plate IV—Site V. Neolithic and Beaker pottery.
Plate V.—p. 141 unidentified pottery from Site V. Remainder Neolithic and Beaker pottery from Site II.
Plate VI—Site V. Beaker and other Bronze Age pottery.
PLATE VII—Site V. p54 giant straight-walled B Beaker. Remainder A Beaker coarse ware.
Plate VIII—Site V. Bronze Age pottery.
Plate IX—p129, p125, Late Bronze Age pottery from Site V; 69 and p171 Sandhills ware from Site II; p123 Trevisker ware from Site V.
Plate X—Early Christian wheel-made wares.
Plate XI—1-3 'limpet scoops'; 322 perforated shell from Southern Basal Midden; 512 iron pin with bronze chain from Site III; 792 bone handle (?) from trial cuttings; 303 flint hoard from Site II.
Plate XII—Reconstructed skull of Burial II.
Plate XIII—1. Northern part of Site V from the E., showing stones in the 'black layer' (prehistoric level). Topsoil (earthwormage) being cleared in the new spit to the left.

2. The same cleared down to the brown 'neolithic' soil on the right, to boulder clay in the centre, and down to the rubbly surface of the 'black layer' below the topsoil on the left.
Plate XIV—1. Site V from the E., with northern part cleared to boulder clay and a mass of stones low in the 'black layer' exposed south of the baulk. A strip of undug basal midden can be seen along the short baulk on the extreme left.

2. Site III from the SW. (A) baulk showing bank and underlying turf-line (B) fill-back of 1957 trial cutting (C) baulk backed against (B), showing midden and inner margin of bank in section (D) unexcavated bank, ranging rod showing its approximate boundary where cut squarely into in front of (C). (E) promontory fort ditch. Hearth and post-holes are also visible.
PLATE XV—1. Site IV, gateway end of churchyard boundary wall from the SW. Ranging rod stands in hole of gate post.  
   2. Burial X (arms at sides).  
   4. Site II, section through main bank of promontory fort from the S., showing deep black layer below bank. Basal midden beginning to show up on floor of cutting.
Plate XVI—1. Kiln or oven at Site II from the SE., with filling still in position.

2. One of the prehistoric pits (T30) below bank at Site II.

3. Skull of Burial II in situ after the discovery of the shells inside it. Some of the shells have been placed on the paper beside it. The midden and the rest of the skeleton had been removed by this stage.