PREHISTORIC SETTLEMENT IN DURNESS

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SUMMARY

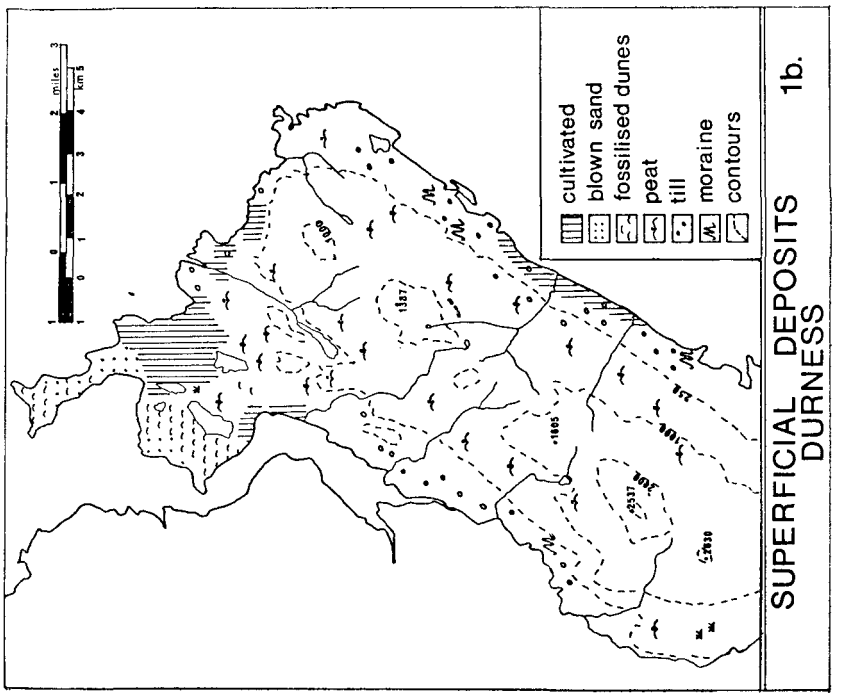
THIS paper is devoted to a study of the correlation between ancient monuments of the Neolithic period, Bronze and Iron Ages and the physical background in the Durness Peninsula, Sutherland. The study is divided into two sections. The first describes the physical background of the area. The second attempts to analyse the distribution of the archaeological material. A quantitative summary appears in Appendix B. A schedule of ancient monuments is included under Appendix A, but, in view of the paucity of detailed information, no study has been made of the monuments themselves.

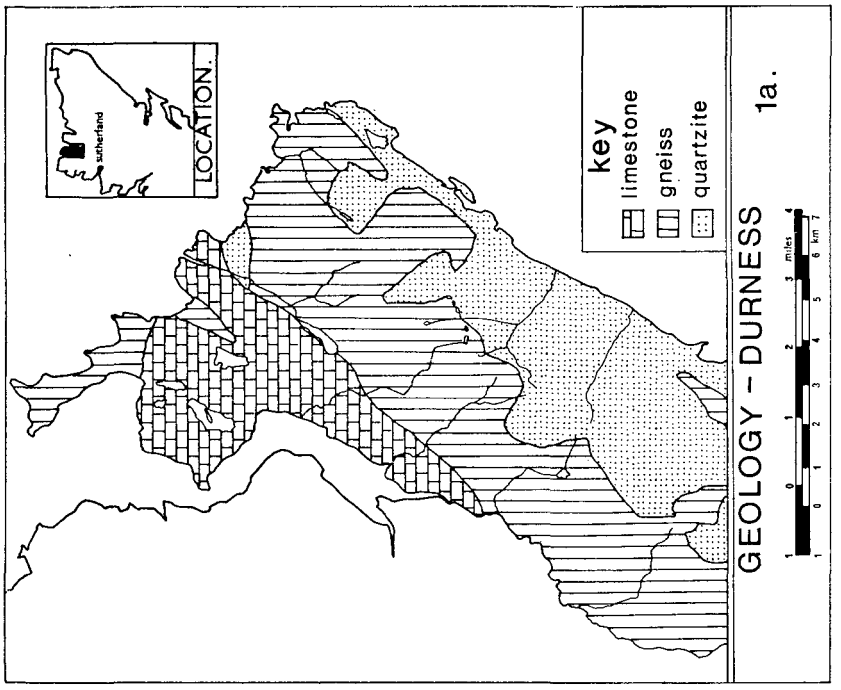
INTRODUCTION

As long ago as 1932 Sir Cyril Fox in the first edition of *The Personality of Britain*[1] demonstrated the relationship between early settlement and the chalk and limestone hills of the Lowland Zone. His main thesis rested on the distinction between porous soils and non-porous soils, the former based on limestones, sands and gravels and the latter on heavy clays. Porous soils he equated with primary settlement and clays with secondary settlement. For some time now archaeologists have tended to think in terms of 'clay soils and mixed oak forest, inimical to early settlement'. This is a not unreasonable generalisation, if a generalisation of this kind is desired. When applied to small areas it may, however, be misleading, if not plainly erroneous. This is especially the case when, as often happens, clay is equated with boulder clay. The term 'boulder clay' is doubly unfortunate, in that ground moraine of the kind referred to is often not clay and frequently does not contain boulders. For this reason the term 'till' is to be preferred.

Grimes[2] has shown that in Anglesey Neolithic, Bronze Age, and Iron Age groups settled on areas of till in preference to localities free from till. He also demonstrated the increased value of the detailed soil map in distributional studies compared with either the solid geology or drift map. There can be no doubt that when published soil maps are available the results obtained are frequently more precise, a fact amply demonstrated by the work of Crampton and Webley in South Wales.[3] Maps showing soil series or soil associations are not obtainable for the area discussed in this paper. Although within any geological classification there are soil differences resulting from the character of the superficial deposits, in the area discussed a close correlation between the solid geology and soil type may nevertheless be demonstrated. As a base for the study of early settlement the geology and drift maps therefore have enhanced value.

[1] Sir Cyril Fox, *The Personality of Britain* (1932), 53ff.
[2] W. F. Grimes, *Antiquity*, XIX (1945), 169–74.
[3] C. B. Crampton and D. Webley, *BBCS*, (1960), 387–96; (1963), 326–37.


SUPERFICIAL DEPOSITS
DURNESS
1b.
cultivated
blown sand
fossilised dunes
peat
till
moraine
contours
miles
km


GEOLOGY - DURNESS
1a.
key
limestone
gneiss
quartzite
LOCATION
sutherland
miles
km

The area covered by the survey is the Durness Peninsula, Sutherland (fig. 1a). It first came to the notice of the writers during the excavation of a souterrain in 1964 and 1965.[1] In the course of examining Durness Parish for comparative material two facts became apparent. First, there appeared to be a number of hitherto unrecorded ancient monuments. Second, the parish could be divided into well-defined, contrasting geological regions. On account of the combination of these two factors it was decided to attempt an archaeological survey of the Durness Peninsula, treating it as a pilot area on the basis of which, if successful, other areas in the NW. Highlands of Scotland might be investigated.

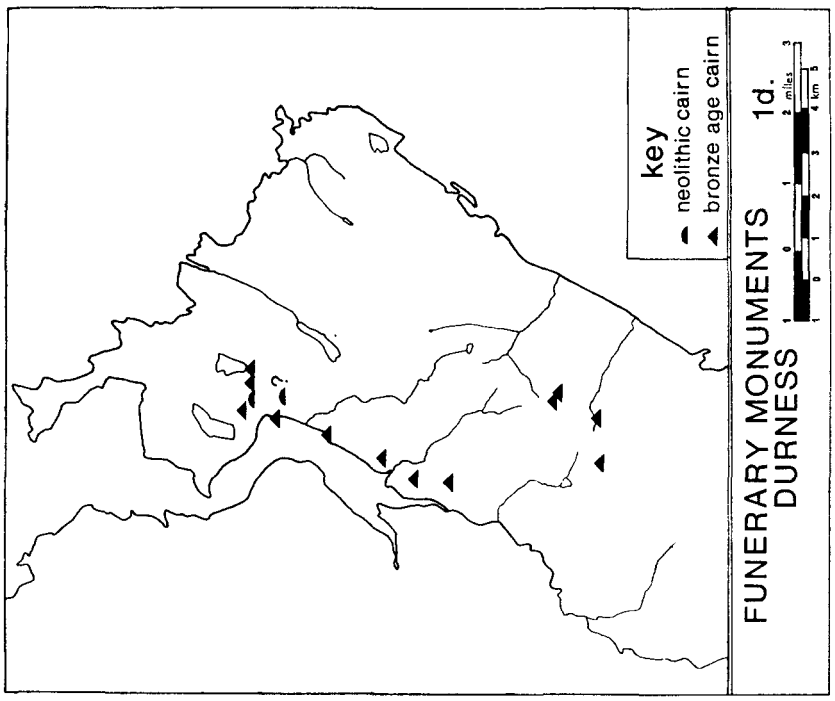
It was possible to begin compiling the distribution map before field work commenced. Archaeological bibliographies yielded a small amount of information and the Archaeological Division of the Ordnance Survey in Edinburgh allowed the use of their card index. A party of undergraduates from the University of Glasgow directed by the writers undertook the field work, which was completed in a period of two weeks in July 1966. Basic information was plotted directly on Ordnance Survey 6-inch sheets by field parties separately responsible for the archaeology or geology of a given section.[2] In practice this resulted in any section of the total area being visited at least twice. A certain degree of overlapping of sections was intentionally introduced to give some check on the accuracy of the field work. The maps are, therefore, as complete as possible. They show monuments of apparent Neolithic, Bronze Age, and Iron Age date plotted alongside a background of solid geology and superficial deposits.

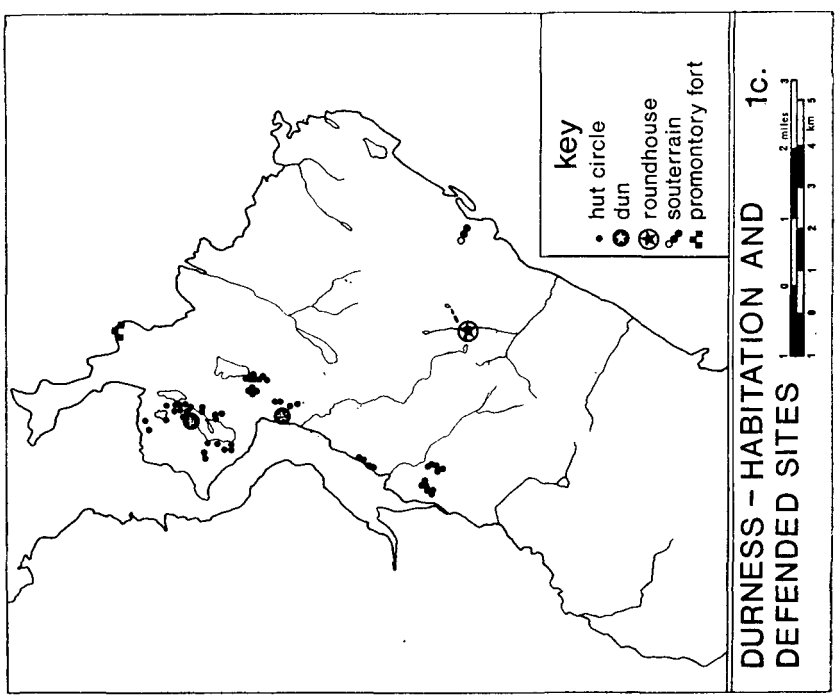
Geology

The ages of the rocks of the Durness Peninsula range from Lewisian to Lower Palaeozoic, specifically Cambro-Ordovician. Distribution is defined more by faulting than any other single factor. Faults have brought the limestone against the Lower Cambrian and Pre-Cambrian, so that there are contrasting adjacent rock types. There is a close correlation between rock type and soil character, but it must be remembered that the elements of climate, vegetation and relief are factors in soil formation. In these cool, northerly latitudes close to the North Atlantic storm tracks a high proportion of days with rain and a correspondingly low insolation may be expected. The Peninsula is exposed and reaches an elevation of over 2500 ft. O.D., so that a high percentage of the area, all the surface above some 400 ft. is commonly subject to wetting by low cloud. Above 400 ft. ground conditions are only intermittently dry. The result is that the upper layers of soil are subject to leaching. Vegetation of low nutrient status can be expected on such soils. *Calluna*, *Erica* (heathers) and the poorer grasses are dominant, plants which leave acid humus residues and contribute to further leaching and to peat formation.

The Durness limestone is made up of dolomites and limestones, with chert occurring fairly commonly. The significance of the limestone as a parent material is at once apparent. There is such an abundance of calcium carbonate that leaching is

[1] *Discovery and Excavation Scotland 1964*, 51; *1965*, 39.
[2] O.S. 100-kilometre square NC: sheets, 37 SE, 36 NE, 46 NW, 46 NE, 36 SE, 46 SW, 46 SE, 45 NW.


key
neolithic cairn
bronze age cairn
FUNERARY MONUMENTS 1d.
DURNESS
2 miles
4 km


key
hut circle
dun
roundhouse
souterrain
promontory fort
DURNESS – HABITATION AND 1c.
DEFENDED SITES
2 miles
4 km

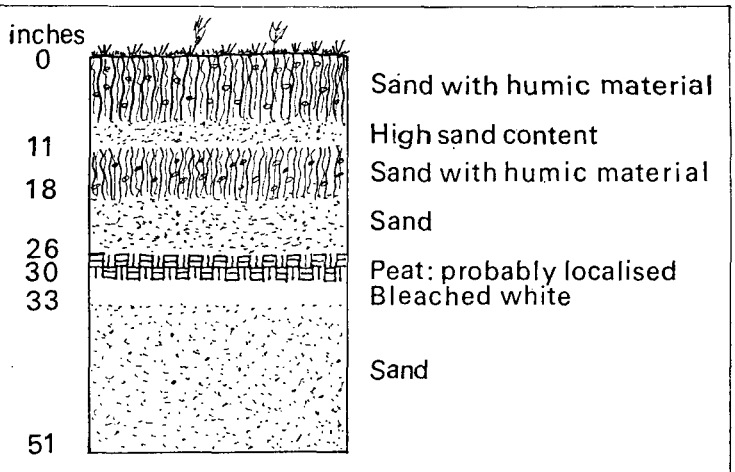
insufficient to remove it entirely from the soil. Moreover, the maximum elevation of this rock type is 286 ft. Figures available for soils on Durness limestone indicate pH values of 6·5 to 6·8.[1] The Lewisian comprises mainly biotitic and hornblendic gneisses with frequent migmatisation. It is resistant to weathering and chemically very varied. No figures are available for soils developed on Lewisian gneiss but pH values of less than 6·5 might be expected. Peaty podsols, common on the Lewisian, should exhibit pH values of under 5·0 in the top horizons. Chemically, quartzite is at the opposite extreme to Lewisian gneiss. These arenaceous Cambrian rocks are liable to physical weathering, especially frost shattering, and large areas of bare, shattered quartzite pavement occur. Because of the extreme impoverishment of nutrients vegetation tends to be poor in type and often scanty, particularly at higher elevations.

Having demonstrated the link between solid geology and soils, it must now be emphasised that the solid geology need not be the source of the parent material. In the Durness Peninsula superficial deposits often constitute the parent material. Where this is the case the nature of the superficial deposits may materially alter conditions from those normally associated with the rock types already discussed.

In general, the till has a tendency to coarseness, although its composition is varied as it is at least partially derived from rocks ground *in situ*. Deposits thin northwards. The maximum thickness appears to be some 50 ft. in the area centred on Nat. Grid Ref. 425612. In the limestone zone where there are hollows or basins containing till, drainage is sufficiently poor to have engendered peat accumulation and the growth of sphagnum. With the exception of occasional patches, ground moraine does not, on the other hand, occur above some 500 ft. O.D. Erratics may be found at above 1000 ft., and it is not improbable that a, possibly thin, covering of till has been removed from the hill slopes by erosion. Moraines occur locally in the Peninsula. Those on the E. side are particularly hummocky, creating small areas totally unsuitable for settlement.

Deposits of sand are confined to Faraid Head and to the small peninsula and its south-eastern margin lying between Balnakeil Bay and the Kyle of Durness. On the map a distinction is made between fossil and 'modern' dunes. The modern dunes are mobile, while fossil dunes, although sand-blows occur in them, may be considered stable as they have a thin covering of fine, springy turf. An exposure in a sand-blow at 39206674 afforded evidence of two periods of soil formation below present ground-level (fig. 2). Near Loch Lanlish at 38436811 there was further indication of three soil surfaces, on the lowest of which a circular hut had been built. In the remaining sand-blows, where a sufficient depth of material has been removed, a soil below the present one is easily identifiable. Wind erosion has often been markedly arrested at the level of the second soil surface. On this soil at 377667 and at 390663 are numerous examples of dry-stone dykes, cairns of loose stones, and one example of a hut circle. The available evidence suggests a period, or periods, of sand movement followed by a period of stability sufficiently long both for a soil to form and settlement to take place,

[1] Those writers are indebted to Mr D. Futty of the Macaulay Soil Institute, Aberdeen, for information on soils.



SOIL PROFILE: SAND BLOW AT 39206674. Fig. 2.

but it is problematical whether or not these soils may be correlated on a regional basis. If the phenomenon is a regional one it may be associated with some external factor, perhaps climatic change. On present evidence it is equally possible that localised movement of sand of the kind demonstrated by the current sand-blows is involved. If this is so, a biotic factor, such as overgrazing in a dry summer, could be critical.

Peat is best developed on Lewisian gneiss or where there is a cover of till on relatively flat or undulating land. Much of the peat is hagged. Where this is the case it is often possible to obtain a profile down to the base of the peat in which tree stumps and large pieces of wood occur. Examples were observed on the Lewisian, and even quartzite, in localities and at elevations where trees no longer grow. While this may or may not be evidence of climatic change, there can be no doubt that forest clearance of lower hill slopes and the depredations of sheep have modified the vegetation. One result has been a dislocation of the drainage pattern, particularly on the E. side of the Peninsula where a braided stream pattern is common. Under conditions of heavy rainfall water drains from the hillsides more or less in sheets, emphasising and illustrating the essentially poor drainage.

General Archaeological Interpretation

The most prominent feature of the distribution map is the concentration of sites on the limestone. Of the ancient monuments shown some 9% occur on the Lewisian and quartzite which constitute some 80% of the total area. Prehistoric societies evidently favoured the lighter, freely-drained, less acid soils which developed on the limestone. This accords with the known distribution of medieval and early modern settlement. Those pre-Clearance townships which existed on the E. side of the Peninsula, and not on limestone, seem to have been small, late, and were probably

associated with fishing. The present-day township of Laid is artificially sited and situated, in that it belongs to the Clearance period. Crofting in the immediate neighbourhood has never been successful and the township can be considered a failing community. The gneiss and quartzite, much of it above 400 ft. O.D. and with a high proportion of steep slopes, has always been more or less ignored. Four of the seven prehistoric sites in this zone appear to be funerary. Of the remaining three, the site of Seanachaisteal (40566943:82),[1] a promontory fort, was, of course, chosen with a view to defence but is, nevertheless, backed by cultivable or pasture land. The souterrain at Portnacon (42506129:81)[2] is associated with a small area of flatter land on the coast partially formed by stream deposition. Above the souterrain are slopes suitable for grazing. Finally, whereas all the other sites in the Peninsula are examples of monuments typical of the NW. mainland of Scotland, the roundhouse (40496101:80)[3] is exotic. It lies at a high elevation in an area of broken, poorly-drained land.

Archaeological Interpretation by Periods

Without a precise chronology for the prehistoric and early historic periods in NW. Scotland, it is impossible to offer meaningful dates for the periods involved. It is also often difficult to relate a particular monument to a particular period on the basis of the available evidence. Consideration of the distribution of finds period by period is nevertheless desirable, for, despite the inherent difficulties, other facts emerge when this is attempted.

Evidence of Neolithic settlement is scanty. It is almost certainly represented by a much ruined cairn (38976609:25). A structure at 38846556:14 may possibly be the remains of a chambered cairn, but precise identification must await excavation. The more northerly of the two monuments is on well-drained limestone with a thin covering of till merging into sand. The other is also on a dry site, although there is evidence of much peat accumulation at least since an adjacent Iron Age hut was constructed. A limestone outcrop on which the structure is built overlooks gently sloping land with a thin covering of loamy till. The facts accord with the conditions which might be considered desirable by early agriculturalists. Soils are light and freely drained and may be placed in an intermediate group between the very light, inherently less productive, sands, and the heavy clays.

It is surely significant that although funerary monuments account for the greater part of the evidence of the Bronze Age in the Peninsula, the weight of distribution remains on the Durness limestone. Six certain Bronze Age cairns and one probable cairn marked by standing stones stretch in a line from 36896151 to E. of Keoldale. There can be no doubt that good pasture and well-drained soils attracted the builders of the cairns; each one is directly associated with good grazing or a patch of cultivable land. The cairns are often built on the shoulder of a ridge, not necessarily on the highest point, and appear to be in a position which is prominent relative to once

[1] Digits appearing after the grid reference refer to the schedule of ancient monuments. (Appendix A)
[2] R. J. Buxton, *PSAS*, LXIX (1934–5), 431–3.
[3] J. Mathieson, *PSAS*, LIX (1924–5), 221–3.

settled localities. The cairn at 38876641 : 39 was probably intended to be visible from Keoldale, an arable area which is on record as having been cultivated for some considerable time. At Ach' na h-Anaite the tomb is close to the shore between the 25 and 50 ft. contours but its position, as the place-name suggests, is related to good land. The cairn at Sarsgrum conforms closely to this pattern, contrasting with the findings of Crampton and Webley.[1] In the Vale of Glamorgan they suggested that burial sites had been pushed to the edge of the settled areas, perhaps to minimise the possibility of the dead affecting the living.

The cairns on the quartzite form a loose agglomeration. With other, smaller, cairns (77; 78), the nature of which cannot readily be determined without excavation, they may form a Bronze Age cemetery. All the monuments are constructed of frost-shattered quartzite boulders. The inclusion of occasional lumps of quartzite in Neolithic and Bronze Age funerary monuments is a well-known occurrence, but it is probably altogether too fanciful to explain, even partially, the sites of the cairns under discussion in these terms. The locality has a high proportion of bare, quartzite pavement with little evidence of soil formation. Vegetation is sparse and poor. While it is not impossible that there was, in the Bronze Age, a thin covering of till, since stripped off by erosion, there is neither evidence of this nor necessity for such a hypothesis. The cairns were not necessarily associated directly with any form of settlement, not even with temporary summer settlement, such as might be used by shepherds or cowherds. There may have been totally different motives for the choice of site. All the cairns lie above the 1000 ft. contour with inspiring views eastward across Loch Eriboll to Ben Hope and beyond. Càrn an Righ is situated above 2000 ft. O.D. On clear days it is possible to see far to the N., E., and W., and the structure itself is very conspicuous. It is visible from almost any position on the Durness Peninsula, and from a considerable area beyond. If the position of Càrn an Righ does not belie its importance it is possible that other cairns were attracted to the area on account of its 'sanctity'. It must, however, be admitted that a relative chronology for the cairns has not been established. They may, perhaps, be associated with Bealach Loch na Seilg, one of the easier routes across the Peninsula. In the recent past, Bealach Mór, a little to the N., was used in conjunction with a ferry by travellers journeying to Tongue. Before modern roads round the sea lochs were built, a more direct route which crossed the lochs and peninsulas appears to have been generally in use.

Monuments attributable to the Iron Age are not only more numerous than those of earlier periods but also include well-attested dwellings. Apart from funerary monuments, the only definite evidence for settlement in the Bronze Age may lie in numerous small heaps of loose stones, possibly field-clearance heaps, centred on 38806525 and 38886578. From one of these mounds came a fragment of Late Bronze Age pottery.

Of the three Iron Age sites outside the limestone belt, the positions of the promontory fort and souterrain have already been discussed. The site and situation of the round-house must remain something of an enigma. Reference to the distribution

[1] Crampton and Webley (1960), 391; (1963), 335.

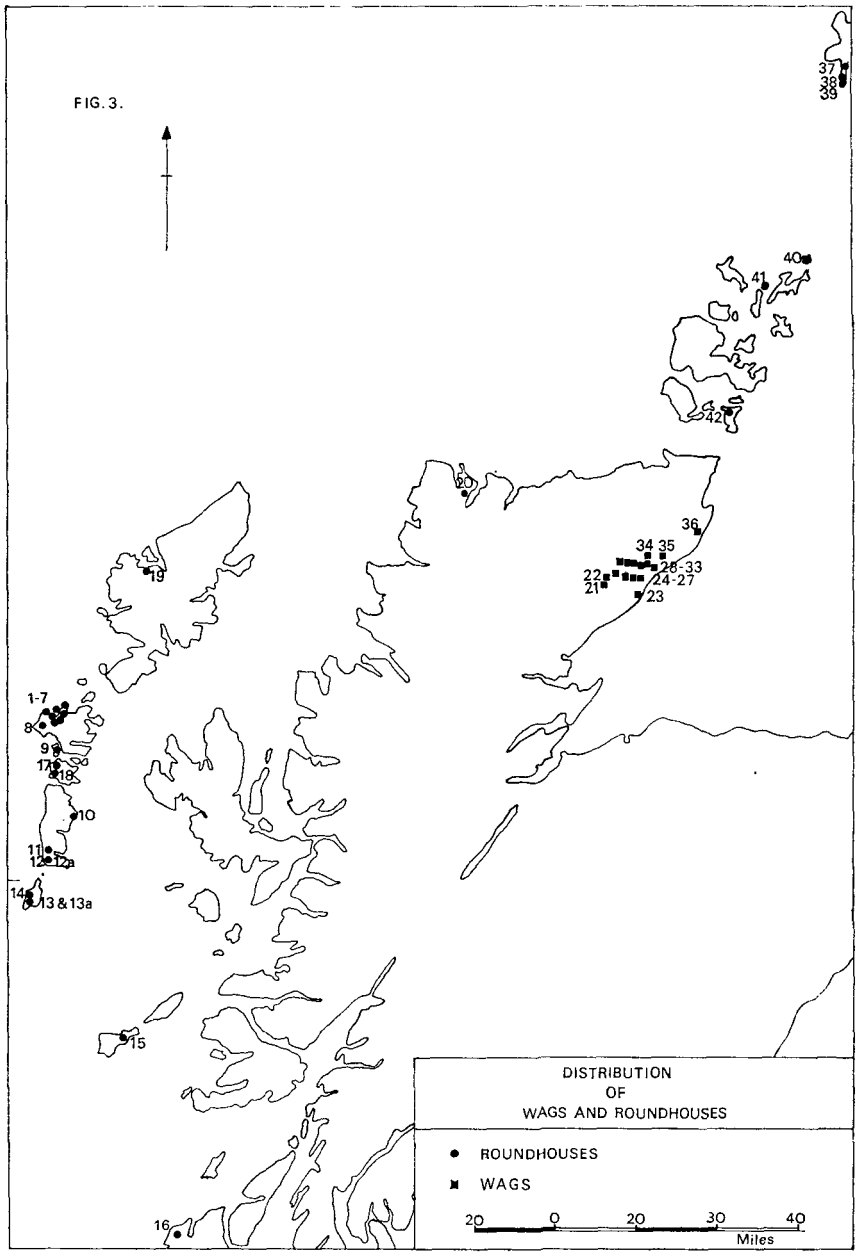


FIG. 3.
37
38
39
40
41
42
20
36
34 35
28-33
22
21
24-27
23
19
1-7
8
9
17
18
10
11
12
12a
14
13 & 13a
15
16
DISTRIBUTION
OF
WAGS AND ROUNDHOUSES
ROUNDHOUSES
WAGS
20 0 20 30 40
Miles

map (fig. 3) shows that a concentration of monuments related to this structure occurs in three separate regions. In the Outer Hebrides and Northern Isles some thirty-five round-houses are known with an outlier on Tiree, several on Islay, and two reported in Caithness[1]; some sixteen wags are known in Caithness.[2] The round-house at Durness is thus well outside the focal zones of the distribution pattern. It must, however, be remembered that no matter how carefully a distribution map of these monuments is compiled, the result is what may be called an immature distribution map. Such a map not only reflects the survival rate of a particular class of monument, but also the state of archaeological knowledge at a given moment in time, a reminder which is particularly apposite in relation to N. and NW. Scotland. There may still remain a case for regarding the round-house at Durness as exotic. Nearly all the related structures in the Western Isles and in Orkney and Shetland lie below the 50 ft. contour. An Tigh Clach[3] on Barra is at an elevation of 950 feet. Even on the E. coast, where generally higher elevations may be expected, the highest recorded elevation for a wag, Allt Preas Bhealaich, is some 800 feet.[4] As has already been remarked, ground conditions above 400 ft. O.D. in the Durness Peninsula are only intermittently dry, and at 950 ft. there is a high incidence of hill fog. Agriculture in the proximity of the round-house would be impossible though animals could be grazed and fish obtained from the hill lochans. There must have been a telling reason to induce the construction of a dwelling in one of the most remote and least hospitable places in the Peninsula. As there is no evidence of climatic amelioration, neither here nor elsewhere in Scotland, during the period when the round-houses were in use, an explanation in economic terms would be difficult to sustain. The thought that the reasons were social, that the people were strangers, is, perhaps, not unreasonable, but such a suggestion is not susceptible to proof.

Both duns (38466539:22; 38396753:46) are associated with well drained, gently sloping land. The availability of cultivable land backed by good grazing seems to have been the critical factor, for, although both structures are built on small promontories, neither is well defended on two sides.

Hut circles are by far the most numerous class of monument represented on the map (fig. 1c). It must be remembered, however, that although they are here being treated as a group this is a reflection only of lack of detailed evidence from NW. Scotland. Not a single example has been excavated in the Peninsula. From the evidence available a standard type of hut circle in the region would measure from 25 to 40 ft. in diameter; walls constructed of a double ring of boulders infilled with rubble, and the entrance facing approximately SE. Although some two-thirds of hut circles measure from 25 to 40 ft. in external diameter the extreme range varies from 13 ft. 6 in. to 40 ft., perhaps suggesting functional differences. Whether or not variation in form, examples of which are shown in fig. 4, implies differences in function or date, it is almost certain from evidence elsewhere in Scotland that hut circles were used over a long period; it is among this group of monuments that

[1] *Discovery and Excavation Scotland 1960*, 44.
[2] A schedule of round-houses and wags appears in Appendix C.
[3] *Discovery and Excavation Scotland 1965*, 20.
[4] RCAM (*Caithness*), No. 249.

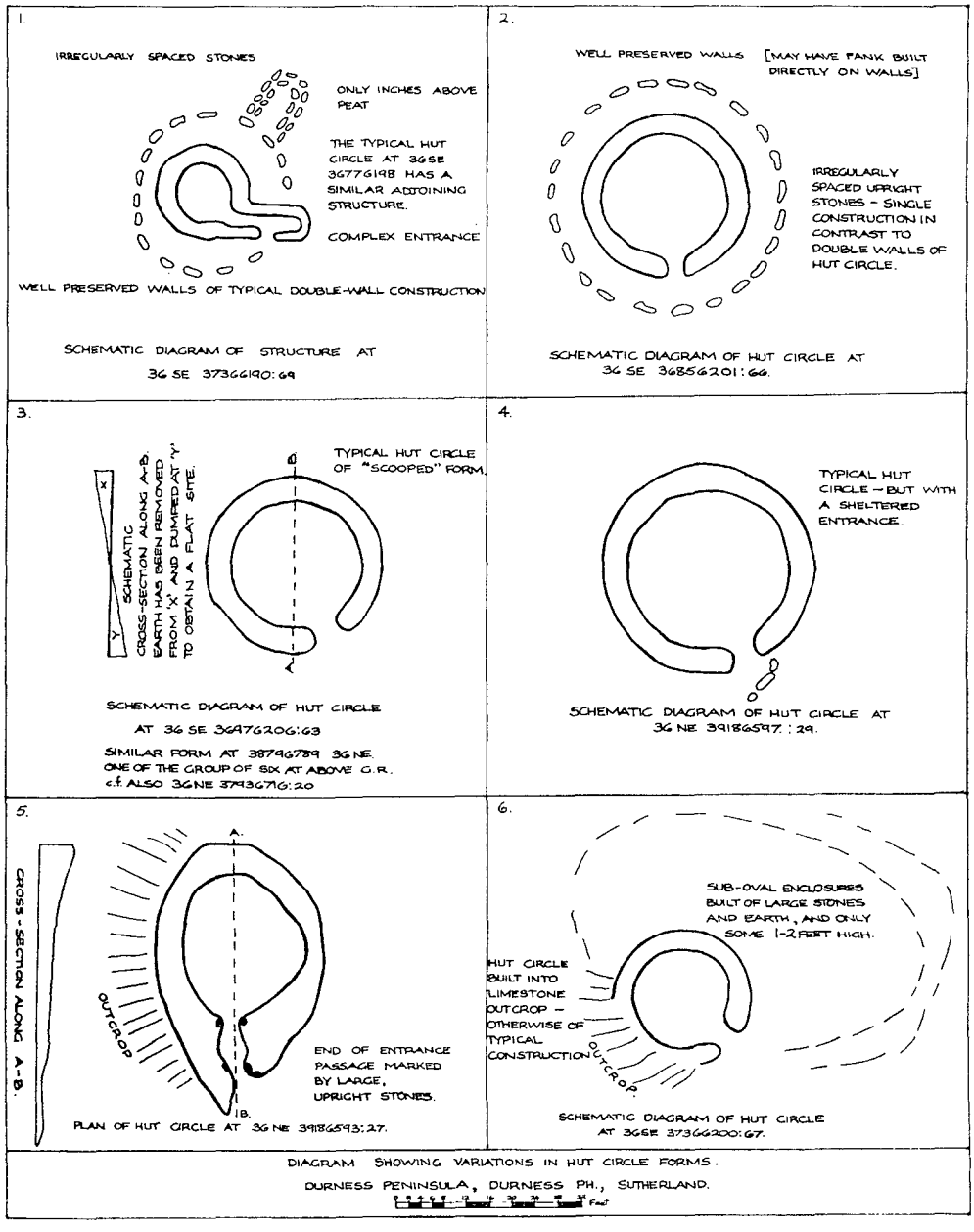

1.
IRREGULARLY SPACED STONES
ONLY INCHES ABOVE PEAT
THE TYPICAL HUT CIRCLE AT 36SE 3677G198 HAS A SIMILAR ADJOINING STRUCTURE.
COMPLEX ENTRANCE
WELL PRESERVED WALLS OF TYPICAL DOUBLE-WALL CONSTRUCTION
SCHEMATIC DIAGRAM OF STRUCTURE AT 36 SE 3736G190:69
2.
WELL PRESERVED WALLS
[MAY HAVE FANK BUILT DIRECTLY ON WALLS]
IRREGULARLY SPACED UPRIGHT STONES - SINGLE CONSTRUCTION IN CONTRAST TO DOUBLE WALLS OF HUT CIRCLE.
SCHEMATIC DIAGRAM OF HUT CIRCLE AT 36 SE 3685G201:66.
3.
X
Y
SCHEMATIC CROSS-SECTION ALONG A-B. EARTH HAS BEEN REMOVED FROM 'X' AND DUMPED AT 'Y' TO OBTAIN A FLAT SITE.
B
A
TYPICAL HUT CIRCLE OF "SCOOPED" FORM.
SCHEMATIC DIAGRAM OF HUT CIRCLE AT 36 SE 3697G206:63
SIMILAR FORM AT 3879G789 36 NE. ONE OF THE GROUP OF SIX AT ABOVE G.R.
c.f. ALSO 36NE 3793G716:20
4.
TYPICAL HUT CIRCLE - BUT WITH A SHELTERED ENTRANCE.
SCHEMATIC DIAGRAM OF HUT CIRCLE AT 36 NE 3918G597.:29.
5.
CROSS-SECTION ALONG A-B.
A.
B.
OUTCROP
END OF ENTRANCE PASSAGE MARKED BY LARGE, UPRIGHT STONES.
PLAN OF HUT CIRCLE AT 36 NE 3918G593:27.
6.
SUB-OVAL ENCLOSURES BUILT OF LARGE STONES AND EARTH, AND ONLY SOME 1-2 FEET HIGH.
HUT CIRCLE BUILT INTO LIMESTONE OUTCROP - OTHERWISE OF TYPICAL CONSTRUCTION
OUTCROP
SCHEMATIC DIAGRAM OF HUT CIRCLE AT 36SE 3736G200:67.
DIAGRAM SHOWING VARIATIONS IN HUT CIRCLE FORMS.
DURNESS PENINSULA, DURNESS PH., SUTHERLAND.
Feet

FIG. 4

Bronze Age as well as Iron Age living sites must occur. In this respect, the results of the excavation at West Plean, Stirlingshire, are relevant.[1] The excavator found that a house typical of a form used in the Late Bronze Age had been replaced by an Iron Age farmstead. It was calculated that the house timbers might have lasted for thirty or forty years, and that the total duration of occupation may have extended over some eighty years. This raises another point. If house timbers had to be replaced every three or four decades there is no reason why the house had to be rebuilt on exactly the same site and a single family may well have occupied two separate hut circles at different periods fairly close in time. Apart from the question of survival of evidence there are thus several other pertinent reasons why any attempt to postulate population densities based on numbers of huts would be, to say the least, premature.

A cursory glance at the map is sufficient to emphasise the importance of the limestone in the distribution of hut circles. Not a single example occurs on the gneiss or quartzite. With only three exceptions the huts shown fall into four more or less well defined groups. Group one comprises those structures which are on, or peripheral to, the area of fossilised dunes. A second is situated near bodies of water, either Loch Borralaidh or the Kyle of Durness. The remainder are located along, or close to, the limestone outcrops which trend in a SSW. direction from Loch Caladail to Ach' a' Chorrain, with a small concentration at either extremity. Discussion of the elevation of these structures is irrelevant, for the limestone attains over 250 ft. only in isolated bare outcrops, and its maximum elevation is a mere 286 feet. There is thus the propitious combination of calcareous rocks, low elevation, and a low proportion of steep slopes.

Within the limestone zone it is nevertheless possible to distinguish between used and apparently unused areas. Hut circles have not been found on land which is at present under cultivation. This is, of course, negative evidence of the most unreliable kind. The two main areas of cultivation, at Keoldale and Sangomore, have been in use for some considerable time and there is no reason why the soils could not have been worked by prehistoric peoples. The corridor running between Allt Smoo and a line drawn from Sarsgrum to the E. edge of Sango Bay is devoid of any traces of early settlement. This corridor comprises a basin with a covering of till on which considerable peat formation has taken place. The marshy valley which debouches on Loch Croispol must also be regarded as negative. Overlooking Loch Borralaidh is an area of rough, broken ground composed of limestone, patches of which are bare and fretted. A single hut circle (38646686:16) overlooks a small, gently-sloping hollow which could have provided a patch of arable. This is one of the three exceptions outside the four main distribution groups.

The two remaining exceptions to the general pattern are the structures overlooking Balnakeil Bay. The example at 38266867:51 is only 14 ft. 6 in. in external diameter and that at 38446880:52 measures only 18 by 15 ft. Both structures are resting on bedrock for the sand cover is minimal with many small pieces of chert on the surface. Vegetation is scanty, consisting principally of patches of thin grass.

[1] K. A. Steer, *PSAS*, LXXXIX (1955–6), 227–51.

The sites are exposed, open to winds from the sea, so that even in summer there are often strong breezes. Possibly these small huts were occupied only seasonally, in summer, and might be regarded as shielings.

Only four structures occur within the zone of fossilised dunes, two in sand-blows (37736673:7; 38436811:49), and two where the depth of sand accumulation is considerably less than normal for the area (37636732:10, 11). The presence of three soil surfaces and the evidence for land-use based on the second soil has been discussed elsewhere.[1] With walls of corbelled construction, the structure (49) on the lowest soil is unusual. No dimensions are recorded as the monument was only partly visible, and it was considered undesirable to disturb a site which, it is hoped, may be excavated in the future. The area occupied by sand-blows in relation to the total area of fossilised dunes is small and it seems reasonable to assume that a number of structures are buried. It also seems likely that the known sites other than the corbelled structure are of the Iron Age and later Bronze Age, for in Sub-Boreal conditions the sandy areas would, no doubt, suffer from seasonal drought in summer which would limit their full usefulness as pastures to spring and autumn. In the wetter conditions of the Sub-Atlantic the pastures would presumably be improved. It is unlikely that the stabilised sand would be used as ploughland for the top-soil would be blown away very quickly. In this respect, the site of the corbelled structure is significant. It is not impossible that it is sited on till, small patches of which appeared to be present in the very lowest levels exposed in the sand-blow. This would accord with what is known about soil conditions immediately to the N. of the stable sand zone, where coarse till is covered by a thin layer of sand.

The large number of hut circles peripheral to the sand are all on areas of better soil. Soils often have an admixture of sand but have a much higher proportion of humic material. Adjacent to the group centred on 367678 are a number of probable clearance cairns, although these need not be contemporary. It is evident that this peripheral group has the advantage of cultivable land backed by excellent grazing.

The sites of those hut circles included within the second group exhibit interesting features. The huts at 38546730:40 and 38606731:41 are sited on the narrow zone between the shore of Loch Borralaidh and steep limestone cliffs. Cultivable land is negligible although a small patch of such land is associated with the two other huts on the loch shore (38406696:17, 18). At the present time many sea-birds nest and roost on the island in the loch suggesting that at least the former pair of hut circles may have been seasonally occupied at a time when eggs, or even young birds, were available. Similarly, the huts on the shore of the Kyle of Durness, particularly those on the raised beach (37286349:56, 57 and 37196327:58, 59), suggest fishing, possibly with stake nets, as when the tide is at its lowest ebb large expanses of sand are left temporarily dry. Again, seasonal use of these sites, during the period of salmon runs, is not impossible, especially as the River Dionard is today rich in salmon.

The final group, between Loch Caladail and Ach' a' Chorrain, is in three diffuse clusters of ten, six and five hut circles with a further four strung out along and at the foot of the outcrop S. of Cnoc na Moine. A typical site for these huts is a

[1] p. 25, *supra*.

structural bench overlooking a small area of flat or gently sloping land, always at a premium in the Highlands. An excellent example is the group centred on 392660. Those farmsteads on the bench had the advantage of a dry site; those below the bench are nowadays covered with peat and sphagnum. There has thus been considerable peat accumulation on the flatter land with which they are associated and which was, presumably, farmed in Iron Age times. The tendency to build on the E. side of the ridge is marked in its northern half. Experience of conditions has shown why this is so. Even in summer the E. side has markedly lower wind velocities and there is some protection from the rain. Farther S., Ach' a' Chorrain is sheltered by the hills to the W. so that a cluster of six hut circles occurs on the W. side of the ridge.

Conclusion

Consideration of agricultural potential indicates why the limestone zone was favoured by prehistoric peoples. When the digging stick and spade, or cas-chrom, were in use, before the introduction of the plough, it was no doubt possible to cultivate slopes of steeper gradient. Slopes on the Lewisian and quartzite are, however, often excessively steep. In these northerly latitudes soils developed on these rocks are leached and the upper limit of cultivation is low. Soils developed on sand were also avoided until the Iron Age except, perhaps, seasonally, and even during this period their use must have been for grazing. It seems to have been realised that inherent fertility of sandy soils is low, and that ploughing would lead to wind erosion. Sandy soils, on the other hand, produce excellent pasture and, as their thermal conductivity is high, warm up early in spring. At a time when the keeping of young animals through the winter was difficult the early growth of young grass must have been a considerable advantage.

It is realised that this paper has posed many more problems than it has solved, and has indicated the limitations of the techniques employed. It has, nevertheless, at least shown the validity of the physical background as a basis for the study of prehistoric settlement in a given region. Unquestionably, the soil map is a more useful base than the geology map, but detailed soil maps are available for only a very limited number of areas and are not likely to be available for much of Scotland for some time. Many of the problems posed can be solved only by excavation, but it is almost an axiom that field work is an essential preliminary to excavation and no detailed field work has before been attempted in the Durness region. Apart from its usefulness in planning an excavation, this approach would seem to offer other opportunities. Much archaeological research is attempted on the basis of correlating information from often widely dispersed sites. This approach has, of course, shown itself to be a valid one. To date there has been no attempt, at least in Scotland, to study a small area in depth. Possibly such a study, involving field work and a series of planned excavations, would give results different in quality from those obtained using more usual methods.

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APPENDIX A

Schedule of Ancient Monuments in the Durness Peninsula[1]

No.	*Type*	*N.G.R.*	*Comments*	*References*
1	Hut circle	Centred on 38796789	Partly overlain by modern sheepfold. Overall diameter 38 ft. Elevation 75–100 ft. O.D.	O.S. Card index
2	Hut circle	38796789	Adjacent to No. 1. Overall diameter 33 ft. Elevation 75–100 ft. O.D.	O.S. Card index
3	Hut circle	38796789	Oval hut 23 ft. by 19 ft. 6 in. Elevation 75–100 ft. O.D.	O.S. Card index
4	Hut circle	38796789	Scooped into slope on its S. side. Overall diameter 19 ft. 6 in. Elevation 75–100 ft. O.D.	O.S. Card index
5	Hut circle	38796789	Oval hut 32 ft. 6 in. by 26 ft. Elevation 75–100 ft. O.D.	O.S. Card index
6	Hut circle	38796789	Overall diameter 26 ft. Elevation 100–125 ft. O.D.	O.S. Card index
7	Hut circle	37736673	In a sand-blow and built on soil surface two. Dykes and clearance cairns also occur in the blow. Partially destroyed. Overall diameter some 34 ft. Elevation 100–125 ft. O.D.	
8	Hut circle	37736661	Well preserved hut 27 ft. in overall diameter. Elevation 75–100 ft. O.D.	
9	Hut circle	37736661	Eighteen feet to NE. of No. 8. Overall diameter 33 ft. Elevation 75–100 ft. O.D.	
10	Hut circle	37636732	On a slight rise where there is very little sand accumulation. Overall diameter 30 ft. Elevation 125–150 ft. O.D.	
11	Hut circle	37636732	125 ft. to NE. of No. 10. Much ruined hut 29–30 ft. in overall diameter. Elevation 125–150 ft. A clearance cairn and dyke nearby.	
12	Hut circle	38826548	Elevation 150–175 ft. O.D. Recorded on O.S. 6 in. sheet.	O.S. Card index
13	Hut circle	38826548	Some 180 ft. to N. of No. 12. External diameter 18 ft. 6 in. Elevation 150–175 ft. O.D.	

[1] Sites 1–52 are situated in O.S. 100-kilometre square NC 36 NE, 53–73 in square NC 36 SE, 74–79 in square NC 35 NE, 80–81 in square NC 46 SW, and 82 in square NC 46 NW.

No.	*Type*	*N.G.R.*	*Comments*	*References*
14	Chambered cairn (?)	38846556	The arrangement of stones marked by the O.S. does not appear to be a ruined hut. The arrangement is somewhat confused, but there are indications that the remains may be those of a chambered cairn.	
15	Sub-circular enclosure	38926594	Built against a steep outcrop is an enclosure with a double wall of the kind associated with hut circles. It is probably a pen for animals and could have been built within the past century. Not shown on map (fig. 1c).	
16	Hut circle	38646686	On thin soil amidst series of limestone outcrops. Overlooks small area of flatter land which is now somewhat damp. Overall diameter 28 ft. Elevation 150–175 ft. O.D.	
17	Hut circle	38406696	Composed of two D-shaped enclosures back to back. Overall diameter 28 ft. Elevation 50–75 ft. O.D.	
18	Hut circle	38406696	Some 80 yds. to NE. of No. 17. Overall diameter 13 ft. Elevation 50–75 ft. O.D.	
19	Hut circle	37876695	Overall diameter 18 ft. Elevation 100–125 ft. O.D.	O.S. Card index
20	Hut circle	37936716	Partially scooped into ground. Overall diameter 21 ft. Elevation 50 ft. O.D.	O.S. Card index
21	Cairn	38426566	Cairn with cist known as Cnoc nan Ceannan. Diameter *c.* 48 ft. Human bones and a bronze 'elliptical cockade' found about 1835. No evidence of cist now. Elevation 25–50 ft. O.D.	RCAM (*Sutherland*) No. 16 *NSA*, xv, 94
22	Dun	38466539	Planned by O.S. Very ruined. On a slight promontory within 100 yds. of high water mark. Elevation 75 ft. O.D.	O.S. Card index
23	Hut circle	38726530	Overall diameter 27 ft. 6 in. Elevation 125–150 ft. O.D.	O.S. Card index
24	Hut circle	38776511	Much mutilated. Elevation 125–150 ft. O.D. Between Nos. 23 and 24 lie a number of presumed clearance cairns in one of which a fragment of Late Bronze Age pottery was found in 1958.	O.S. Card index
25	Chambered cairn	38976609	Badly mutilated. Elevation 175–200 ft. O.D.	O.S. Card index *D & E 1960*, 44

No.	*Type*	*N.G.R.*	*Comments*	*References*
26	Hut circle	39046614	Badly ruined. Overall dimensions 24 ft. Elevation 175–200 ft. O.D.	
27	Hut circle	39186593	Overall 29 ft. by 37 ft. 6 in. Built against a steep bank. Extended entrance. Cf. fig. 4, No. 5. Elevation 150–175 ft. O.D.	
28	Hut circle	39186597	Overall dimensions 36 ft. Elevation 150 ft. O.D.	
29	Hut circle	39186597	Some 50 ft. to S. of No. 28. Overall dimensions 32 ft. Entrance sheltered by boomerang-shaped arrangement of stones, thought to have protected a cooking-fire. Elevation 150 ft. O.D. Cf. fig. 4, No. 4.	
30	Hut circle	39066603	Well-defined example; 175–200 ft. O.D.	O.S. Card index
31	Hut circle	39066603	Some 50 metres from 30. Elevation 175–200 ft. O.D.	O.S. Card index
32	Cairn	39066613	Shown on O.S. 6 in. sheet as 'standing stones'. Six upright stones form a circle 18 ft. in diameter. Probably the retaining side of a cairn. Elevation 200 ft. O.D.	O.S. Card index
33	Hut circle	39226614	Overall diameter 32 ft. Elevation 150 ft. O.D.	
34	Hut circle	39226613	Elevation 150 ft. O.D. On bench overlooking basin at head of Loch Caladail, as are Nos. 33 and 35.	
35	Hut circle	39206609	External diameter 40 ft. Elevation 150 ft. O.D.	
36	Hut circle	39226605	Overall dimensions 36 ft. Elevation 125–150 ft. O.D.	
37	Cairn	39486613	Low, heather-covered mound 31 ft. 6 in. in diameter and 2 ft. 6 in. high. There are four large kerb stones *in situ* and two recumbent in the SE. segment. Others may have been removed as there is a slight ditch round the cairn. Three of the kerb stones *in situ* are only 4–8 in. apart, so there may have been a more or less continuous kerb.	O.S. Card index
38	Hut circle?	39606592	Possible hut circle in a very ruined condition. Overall diameter some 28 ft. 6 in. Elevation 150–175 ft. O.D. Not shown on fig. 1c.	

No.	*Type*	*N.G.R.*	*Comments*	*References*
39	Cairn	38876641	Much mutilated, 40 ft. 6 in. in diameter. Elevation 175–200 ft. O.D.	O.S. Card index
40	Hut circle	38546730	Remains of hut with butt or lambing-pen built inside it, the secondary structure incorporating material from the hut circle. Overall diameter 19 ft. 6 in. Elevation under 50 ft. O.D.	
41	Hut circle	38606731	Hut circle with later sub-rectangular structure built partially on and partially inside it. Overall diameter 29 ft. Elevation under 50 ft. O.D.	
42	Hut circle	38706765	Very small; overall diameter only 13 ft. 6 in. Elevation 75 ft. O.D.	
43	Hut circle	38576769	Partially built into rock outcrop. Overall dimensions 17 ft. 6 in. by 14 ft. Elevation 50 ft. O.D.	O.S. Card index
44	Hut circle	38506778	Near spring NW. of Loch Borralaidh. Overall diameter 39 ft. Elevation under 50 ft. O.D.	
45	Hut circle	38546772	Overall diameter 30 ft. Elevation under 50 ft. O.D.	
46	Dun	38396753	On a rocky eminence above Loch Borralaidh. Planned by O.S. Elevation 75–100 ft. O.D.	O.S. Card index *D & E 1960*, 44
47	Enclosure	38576768	A limestone outcrop has been utilised to form two sides of an enclosed area, 21 by 14 ft. The other two sides are formed of large boulders. Date and function uncertain. Not shown on fig. 1c.	
48	Hut circle	38816788	Very small structure, overall diameter 16 ft. Elevation 75–100 ft. O.D.	
49	Circular structure	38436811	In a sand-blow. Well preserved stone dykes are also present below the current soil. Elevation 125 ft. O.D.	
50	Hut circle	38806817	Overall diameter 18 ft. Elevation 100–125 ft. O.D.	
51	Hut circle	38266867	Small hut, overall diameter 14 ft. 6 in. Elevation 100–125 ft. O.D.	

No.	*Type*	*N.G.R.*	*Comments*	*References*
52	Hut circle	38446880	Overall dimensions 18 by 15 ft. Elevation 100–125 ft. O.D.	
53	Cairn	37906435	Cairn at Sarsgrum, some 50 ft. in diameter. Stone cist in centre with covering slab supported on three upright slabs. Elevation under 50 ft. O.D.	RCAM (*Sutherland*), No. 165 O.S. Card index
54	Hut circle	37866414	External diameter 36 ft. Elevation 50–75 ft. O.D.	
55	Hut circle	37866414	Some 80 ft. S. of No. 54. Overall diameter 29 ft. Elevation 50–75 ft. O.D.	
56	Hut circle	37286349	On raised beach. Elevation under 50 ft. O.D.	O.S. Card index
57	Hut circle	37286349	Some 16 ft. to S. of No. 56. Very much ruined.	O.S. Card index
58	Hut circle	37196327	On raised beach. Overall diameter 32 ft. Elevation under 50 ft. O.D.	O.S. Card index
59	Hut circle	37196327	Some 43 ft. NE. of No. 58. Only the western segment remains. Elevation under 50 ft. O.D.	O.S. Card index
60	Cairn	37336314	Round cairn with central chamber. Diameter some 43 ft. 6 in. with a maximum height of 5 ft. 2 in. Remains of a cist in centre. Fragmentary remains of a kerb can be traced round the eastern and south-eastern edge. Elevation 75–100 ft. O.D.	RCAM (*Sutherland*), No. 164 O.S. Card index
61	Cairn	37166234	Round cairn some 44 ft. in diameter and 7 ft. high. Elevation 100–125 ft. O.D.	RCAM (*Sutherland*), No. 163 O.S. Card index
62	Hut circle	36996208	Overall diameter 30 ft. Elevation 125–150 ft. O.D.	
63	Hut circle	36976206	Material scooped from upslope and dumped downslope to make a level site. Overall diameter 28 ft. Elevation 100–125 ft. O.D. Cf. fig. 4, No. 3.	
64	Hut circle	36896202	External diameter 20 ft. Elevation 125–150 ft. O.D.	
65	Hut circle	36896202	Overall diameter 36 ft. Elevation 125–150 ft. O.D.	

No.	*Type*	*N.G.R.*	*Comments*	*References*
66	Hut circle	36856201	In places, stonework three or four courses high probably constitutes a fank built directly on the hut wall. At some 11 ft. out from the outer edge of the hut wall is an irregularly spaced circle of large, upright boulders. Dimensions 29 by 26 ft. Elevation 100–125 ft. O.D. Cf. fig. 4, No. 2.	
67	Hut circle	37366200	Built against limestone outcrop. Series of sub-oval enclosures associated. External diameter 23 ft. Elevation 125–150 ft. O.D. Cf. fig. 4, No. 6.	
68	Hut circle	36776198	Overall diameter 30 ft. Elevation 75–100 ft. O.D.	
69	Circular hut	37366190	Inside an outer circle of irregularly spaced stones of diameter 28 ft. is a circular hut with walls of typical double construction. The outer diameter of the hut is 16 ft. Elevation 125–150 ft. O.D. Cf. fig. 4, No. 1.	
70	Hut circle	37366190	Some 70 yds. to N. of No. 68. Overall diameter 30 ft. Elevation 125–150 ft. O.D.	
71	Hut circle	37236185	Overall diameter 30 ft. Elevation 200 ft. O.D.	
72	Hut circle	37296180	Overall diameter 24 ft. Elevation 175 ft. O.D.	
73	Cairn	36896151	Badly mutilated. Large slabs amidst the cairn material probably formed a cist. Delimited by a shallow ditch. Diameter of cairn some 54 ft. Elevation 200–225 ft. O.D.	
74	Càrn an Righ	37355797	There is some doubt as to whether or not this structure is an antiquity. It measures 30 by 26 ft. overall. On the southern side large, thin slabs have been used to construct a dry-stone wall. At least three courses survive. The interior is made up of an indeterminate mass of loose boulders. Elevation 2050 ft. O.D.	O.S. Card index
75	Cairn	38285798	Oval cairn 35 by 26 ft. Elevation 1225 ft. O.D.	
76	Cairn	38775866	Diameter 21 ft. and maximum height of 12 ft. There may be the remains of a cist in the centre. Elevation 1050 ft. O.D.	O.S. Card index

No.	*Type*	*N.G.R.*	*Comments*	*References*
77	Cairn	38775866	Some 80 ft. NW. of No. 75. An oval cairn 16 by 13 ft. It is difficult to be certain whether this is an antiquity or not. Not shown on fig. 1d.	
78	Cairn	38775866	Some 100 yds. NW. of No. 76. Constructed of thin slabs placed on edge with their long axes tangential to the 'circle', 17 by 14 ft. Elevation 1075 ft. O.D. Not shown on fig. 1d.	
79	Cairn	38775866	Some 80 yds. N. of No. 77. Cairn 25 by 16 ft. with an upright pointed stone at the SW. end. Elevation 1075 ft. O.D.	
80	Round-house	40496101	An account appears in *PSAS*, LIX (1924–5), 221–3. Elevation 950 ft. O.D.	O.S. Card index
81	Souterrain	42506129	Elevation 75 ft. O.D. A brief account appears in *PSAS*, LXIX (1934–5), 431–3.	O.S. Card index
82	Promontory fort	40566943	Known as Seanachaisteal. Elevation under 50 ft. O.D.	RCAM (*Sutherland*), No. 158 O.S. Card index

APPENDIX B

Quantitative Summary

In the past, archaeological field studies have generally been attempted on a qualitative basis. In an attempt to give a more accurate and objective assessment numerical data may be used to render a quantitative summary. The method used here is areal sampling by random numbers modified so as to include all the ancient monuments shown in fig. 1. Random sampling gives a representative cross-section of the whole range of conditions, the choice of sample being made by reference to a table of random sampling numbers of the kind available in *Cambridge Elementary Statistical Tables*.[1]

On the 1:63360 O.S. sheet of the Durness Peninsula, a grid was drawn based on the kilometre squares. The key table[2] shows that 100 units were used so that total figures on tables 1–6 also represent percentages. This gives an almost complete coverage of the Durness Peninsula. Reference to a table of random sampling numbers gave 100 values, the first digit of each value being used as an easting and the second as a northing. At the various points arrived at in this way, elevation, superficial deposits, and solid geology could be read straight from the relevant maps. Slope was assessed by reading the horizontal distance between contours and taking an average of the limits shown. Archaeological sites were treated as two groups, funerary and non-funerary monuments. Numbers referring to archaeological sites on the key table give the actual number of remains within the kilometre square. In this respect, the sample is not, therefore, strictly random. Contingency table 7 illustrates that the introduction of this modification has led to certain anomalies. When dealing with archaeological data it must be remembered that the data is almost inevitably only partially extant. The total available information is a sample of the total information and is, at least partly, a biased sample. This sets limits on using such data as samples from which facts concerning the total population can be calculated. Quantitative methods such as this should, nevertheless, at worst obviate conclusions of doubtful validity, and at best should enable more or less firm deductions to be drawn. A preliminary numerical assessment may also permit the full study to be made more effectively. The method adopted has the advantage that it is simple, and the only ability required is that the compiler should be able to read maps. Moreover, the data can be presented in easily understood tables with or without an accompanying text. Application of more sophisticated techniques would increase the information which could be derived from the sample area, particularly as far as items 1–4 on the table are concerned. This has not been attempted. The aim is merely to indicate the kind of approach which might be adopted in the solution of this type of problem and, it is hoped, to point the way to a conscious attempt to provide a more quantitative approach to the problems of the archaeological field worker.

[1] D. V. Lindley and J. C. P. Miller, *Cambridge Elementary Statistical Tables* (Cambridge, 1953).
[2] cf. p. 44.

1·2 D G 4 0 0 1	1·7 D G 4 0 0 2	2·1 C G 4 0 0 3	1·1 D G 4 0 0 4	0·4 E G 4 0 0 5	0·5 D Q 2 0 1 6	0·4 C L 4 0 0 7	1·4 F L 4 0 4 8	1·6 E L 2 0 0 9	0·7 C L 2 0 0 10
1·2 E L 4 0 3 11	0·1 F L 4 0 13 12	1·3 E L 2 0 0 13	1·9 C L 2 0 0 14	1·7 D L 1 0 0 15	0·9 D L 1 0 0 16	0·4 D L 4 0 4 17	1·1 E L 4 2 4 18	2·2 D L 2 2 7 19	2·1 E L 1 0 0 20
1·9 C Q 1 0 0 21	0·9 D G 1 0 0 22	0·9 C L 2 2 5 23	2·4 D L 1 0 3 24	2·3 D Q 1 0 0 25	3·7 C G 1 0 0 26	4·5 B Q 1 0 0 27	3·1 B G 1 0 0 28	1·9 C G 1 0 0 29	0·9 D L 1 1 2 30
2·6 D L 1 0 0 31	3·4 C G 1 0 0 32	3·8 C G 1 0 0 33	9·1 C G 1 0 0 34	7·1 B G 1 0 0 35	4·1 B G 1 0 0 36	1·4 D G 1 0 0 37	1·3 D L 1 1 4 38	2·1 D L 1 0 0 39	3·2 C G 1 0 0 40
6·2 D G 1 0 0 41	6·4 C G 1 0 0 42	8·1 C G 1 0 0 43	3·2 B Q 1 0 0 44	1·9 D Q 2 0 0 45	0·9 D Q 1 0 0 46	0·7 D L 3 0 5 47	0·9 D G 3 1 1 48	3·8 D G 1 0 0 49	6·4 C G 1 0 0 50
11·4 C G 1 0 0 51	11·1 C Q 1 0 0 52	4·7 C G 1 0 0 53	1·9 D G 2 0 0 54	0·3 C Q 2 0 0 55	0·3 D L 3 1 1 56	1·9 D G 1 0 4 57	5·6 C G 1 0 0 58	10·1 C G 1 0 0 59	8·9 B Q 1 0 1 60
9·2 B Q 1 0 0 61	2·6 C G 2 0 1 62	0·6 D Q 2 0 0 63	1·1 D L 3 0 0 64	7·8 B G 1 0 0 65	5·4 C G 1 0 0 66	7·7 C Q 1 0 0 67	8·7 B Q 1 0 0 68	3·2 C Q 1 0 0 69	2·2 D Q 2 0 0 70
4·7 A G 1 0 0 71	8·9 B G 1 0 0 72	14·9 A Q 1 0 0 73	10·6 C Q 1 0 0 74	9·3 D Q 1 0 0 75	3·3 C Q 2 0 0 76	0·4 C Q 2 0 0 77	10·4 C G 1 0 0 78	13·1 A G 1 0 0 79	13·9 D G 1 0 0 80
10·9 D Q 1 2 0 81	8·2 C Q 1 0 0 82	2·7 C Q 2 0 0 83	0·4 C Q 2 0 0 84	19·9 A G 1 0 0 85	23·9 B Q 1 0 0 86	14·7 C Q 1 1 0 87	11·7 C Q 1 1 0 88	6·2 C Q 2 0 0 89	0·7 E Q 2 0 0 90
18·3 B G 1 0 0 91	22·1 B Q 1 0 0 92	17·7 B Q 1 0 0 93	6·7 C Q 2 0 0 94	1·2 C Q 2 0 0 95	18·7 B G 1 0 0 96	13·7 B G 1 0 0 97	9·4 B Q 1 0 0 98	0·7 E G 2 0 0 99	0·4 E Q 2 0 0 100

Key Table of Numerical Data obtained from random sampling.

Height	Slope	Solid Geology
1	2	3
Superficial Deposits	Funerary Monuments	Other Sites
4	5	6

(1) Heights—1·2 = 120 ft. O.D.

(2) Slope— A = severe (0)
B = steep (50)
C = moderate (100)
D = medium (200)
E = gentle (400)
F = slight (800)
} (Figures in brackets refer to the horizontal distance between contours)

(3) Solid Geology—
Q = Quartzite
G = Gneiss
L = Limestone

(4) Superficial Deposits—
1 = hill peat
2 = till
3 = river and marine gravels
4 = sand

(5) Funerary monuments

(6) Sites other than funerary monuments

Height (ft.)	A	B	C	D	E	F	Total
2400		2					2
2200							
2000	1	2					3
1800		1					1
1600	1		1				2
1400	1	1		1			3
1200			6	1			7
1000		4	3	1			8
800		2	5	1			8
600	1	2	3				6
400		2	10	7	1		20
200			10	20	8	2	40
0 Total	4	16	38	31	9	2	Slope

TABLE 1

Correlation of Height with Slope.

The area is between 0 and 2400 ft. in elevation with 40% of the surface lying below 200 ft. and a further 20% between 200 and 400 ft. The indications are of a low erosion surface between 400 ft. and sea level, a further surface between 700 and 1100 ft., and isolated peaks rising to 2400 ft. With only 11% of slopes in the E and F categories a scarcity of flat land is indicated.

Height (ft.)	Q	G	L	Total
2400	2			2
2200				
2000		3		3
1800	1			1
1600	2			2
1400		3		3
1200	4	3		7
1000	6	2		8
800	3	5		8
600		6		6
400	6	8	6	20
200	11	12	17	40
0 Total	35	42	23	Geology

TABLE 2

Correlation of Height with Solid Geology.

All the limestone is below 400 ft. and most is less than 200 ft. O.D. Quartzite apparently forms the greater part of the 700–1100 ft. erosion surface.

Slope	Q	G	L	Total
A	1	3		4
B	10	8		18
C	16	17	4	37
D	6	12	12	30
E	2	2	5	9
F			2	2
Total	35	42	23	Geology

TABLE 3

Correlation of Slope with Geology.

There is a higher proportion of gently sloping land under limestone. Slopes developed on quartzite are steepest with a high proportion in the B and C categories.

Slope	1	2	3	4	Total
A	4				4
B	16				16
C	24	12		2	38
D	17	6	4	4	31
E	1	5		3	9
F				2	2
Total	62	23	4	11	Superficial deposits

TABLE 4

Correlation of Slope with Superficial Deposits.

Sand produces the gentlest slopes with the emphasis on category D. It is evident that much till on flat land will be covered with peat, a fact brought out extremely well by this table.

Height (ft.)	1	2	3	4	Total
2400	2				2
2200					
2000	3				3
1800	1				1
1600	2				2
1400	3				3
1200	7				7
1000	8				8
800	8				8
600	6				6
400	13	6		1	20
200	9	17	4	10	40
0					
Total	62	23	4	11	

TABLE 5

Correlation of Elevation with Superficial Deposits.

Geology	1	2	3	4	Total
Q	23	12			35
G	32	4	1	5	42
L	7	7	3	6	23
Total	62	23	4	11	

TABLE 6

Correlation of Solid Geology with Superficial Deposits.

Peat predominates on both gneiss and quartzite. On the limestone there is a relatively even distribution of peat, till and sand.

Height (ft.)	
2200	
2000	
1800	
1600	1
1400	
1200	3
1000	
800	
600	
400	2
200	8
0	
Total	14

TABLE 7

Correlation of Height with Funerary Monuments.

The table does not bring out the actual very high elevation of Càrn an Righ but the general trend is not misrepresented.

Height (ft.)	
2200	
2000	
1800	
1600	
1400	
1200	
1000	1
800	
600	
400	11
200	51
0	
Total	63

TABLE 8

Correlation of Height with other Monuments.

Again the trend is clear and the anomalous location of the wheelhouse is at once evident.

A	
B	
C	4
D	8
E	2
F	
Total	14

TABLE 9

Correlation of Slope with Funerary Monuments.

A	
B	1
C	6
D	32
E	7
F	17
Total	63

TABLE 10

Correlation of Slope with other Monuments.

The high proportion on slopes of category D may reflect the information on Table 3 but may equally reflect a desire for drainage. The anomalous position of the wheelhouse is again evident.

Q	4
G	1
L	9
Total	14

TABLE 11

Correlation of Solid Geology with Funerary Monuments

Q	2
G	6
L	55
Total	63

TABLE 12

Correlation of Solid Geology with other Monuments.

The inclusion of one funerary monument and six other monuments on gneiss is inaccurate, but the tables bring out the general trend. The low proportion of sites on gneiss and quartzite would indicate the necessity of checking these results.

1	8
2	4
3	
4	2
Total	14

TABLE 13

Correlation of Superficial Deposits with Funerary Monuments.

The two sites tabulated under sand are on the edge of the area of blown sand and the soil is composed of till with an admixture of sand merging into till.

1	21
2	14
3	
4	28
Total	63

TABLE 14

Correlation of Superficial Deposits with other Monuments.

The high proportion of monuments on sand is an inaccuracy but the table emphasises the large number of sites which are peripheral to the sand area.

APPENDIX C

Schedule of Round-Houses and 'Wags'

No. on Sketch Map	*Name*[1]	*N.G.R.*	*References*[2]
North Uist group			
1	Machair Leathann	17/8075	*PPS*, XIV (1948), 71–72 *PSAS*, LXVI (1931–2), 33 RCAM, 272
2	Eilean Maleit (A)	17/773742	*PPS*, XIV (1948), 72–73 *PSAS*, LXVI (1931–2), 33 RCAM, 270
3	Cnoc a Comhdhalach (A)	17/769741	*PPS*, XIV (1948), 73 *PSAS*, LXVI (1931–2), 33 RCAM, 269
4	Garry Iochdrach (A)	17/772743	*PPS*, XIV (1948), 73–74 *PSAS*, LXVI (1931–2), 32, 63
5	Foshigarry (3 or more houses) 2—(A)	17/ ?	*PPS*, XIV (1948), 74–75 *PSAS*, LXV (1930–1), 299–357 *PSAS*, LXVI (1931–2), 63–64 *PSAS*, LXIII (1928–9), 319
6	Bac Mhic Connain	17/ ?	*PPS*, XIV (1948), 75 *PSAS*, LXVI (1931–2), 42–66 RCAM, 271
7	Dun Thomaidh	17/757758	*PPS*, XIV (1948), 75 *PSAS*, LXV (1930–1), 299–357
	(All the above are in Vallay Strand.)		
8	Clettraval (A)	17/752711	*PPS*, XIV (1948), 46–68 *PSAS*, LXIX (1934–5), 483–4
9	A Cheardach Ruadh	17/775617	*D & E 1963*, 31–32
South Uist group			
10	Usinish (A)	23/848340	*PSAS*, VII (1866–8), 165 RCAM, 395
11	Kilpheder (A)	23/735205	*PPS*, XVIII (1952), 176–93 Feachem, 98–99
12	A Cheardach Mhor (Drimore Smiddy)	23/ ?	*PSAS*, XCIII (1959–60), 135-73 *D & E 1956*, 33
12A	Drimore Farm	23/768403	*D & E 1956*, 33, 34, 38

(N.B. 'At least seven sites' between Isle Ornsay and Daliburgh—*vide* Lethbridge, *PPS*, XVIII (1952), 193.)

[1] The following abbreviations are used in this column:
(A) =Aisled Round-house.
(WG) =Wag.
All others are wheelhouses or presumed to be so.

[2] The following abbreviations are used in this column:
'Feachem' —*Guide to prehistoric Scotland* (1963).
'Hamilton' —*Jarlshof* (1956).
RCAM —Appropriate inventory of the Royal Commission on Ancient and Historical Monuments.

Situation	*Outer walls or outbuildings*
In a sand dune, overlooking the beach.	'Outer courtyard'
On a small islet, on the beach.	Several chambers adjoining.
On the machair, overlooking the beach.	Several outbuildings.
On the machair, overlooking the beach.	Oval outer enclosure.
In a sand dune, overlooking the beach.	Souterrain: 'harbour'.
On the machair, overlooking the beach.	Several outbuildings.
On a hillock, overlooking the machair.	?
On the South slope of Clettraval Hill (438 ft. O.D.)	Byres, etc, and outer wall.
Just above High Water Mark, West coast of Baleshare Island.	?
On the lower slopes of Hecla (1988 ft. O.D.), and half a mile from Usinish Bay.	Souterrain.
Among the dunes, on the machair.	?
On the machair, 300 yds. from the shore.	'Forecourt.'
On the machair.	Souterrain.

No. on Sketch Map	*Name*	*N.G.R.*	*References*
Barra group			
13	Tigh Talamhanta (A)	32/ ?	*PSAS*, LXXXVII (1952–3), 80–105 RCAM, 459 ?
13A	Allasdale	32/657029	*D & E 1962*, 32
14	An Tigh Clach	32/667997	*D & E 1965*, 20
Tiree			
15	Dun Mor Vaul (Phase 4—post-broch) (A)?	44/042492	*Antiquity*, XXXIX (1965), 272
Islay group			
16	Loch Gorm (Five or more)	57/ ?	*D & E 1956*, 10
Benbecula group			
17	Bruthach a Tuath	23/785567	*PSAS*, L (1915–16), 12 *PSAS*, LXIV (1929–30), 14 RCAM, 354
18	Bruach Ban (Two or more)	23/ ?	*D & E 1956*, 32 *PPS*, XXIII (1957), 227
Lewis			
19	Berie Sands (since destroyed)	12/ ?	*PSAS*, LXVI (1931–2), 285, 395 RCAM, 98
North West Sutherland			
20	Eriboll	9/405610	*PSAS*, LIX (1924–5), 221
Caithness Group			
(a) Latheron Water			
21	Wagmore Rigg (WG)	15/003262	RCAM, 248
22	Allt Preas Bhealaich (WG)	15/ ?	RCAM, 249
23	Borgue Langwell (WG)	16/102218	*PSAS*, XLVI (1911–12), 77–89 RCAM, 250 Feachem, 95
(b) Berriedale Water			
24	Dail a Chairn (WG)	15/028294	RCAM, 255
25	Achnihavish (WG)	16/ ?	RCAM, 251
26	Carn Tighe Chreagaich (WG)	16/089294	RCAM, 252 RCAM, 253
27	East Achnihavish (WG)	16/ ?	RCAM, 254

Situation	*Outer walls or outbuildings*
On a rocky outcrop in the machair, on the South slope of Cora Bheinn.	Souterrain, kiln, steading, barn, byre, etc., a within an outer wall.
Among the sand dunes.	?
On the machair, at an elevation of 500 ft. 3 miles S. of No. 13.	?
On a rocky eminence, next to the sea.	?
On gently sloping ground a few hundred yards N. of Loch Gorm.	?
On the edge of the machair.	?
On the edge of the machair.	?
In a sand dune, just above high water mark.	?
On a rocky outcrop between two sets of lochans. Remote situation (950 ft. O.D.)	Crescent-shaped enclosure on South-West side. Outer walls to NE.
Upper part of valley, 1 mile S. of Morven, at an elevation of 750 ft. O.D.	Secondary structures (?) in front of one entrance.
As above but ¾ mile SE. of Morven. Elevation 800 ft.	Oblong structure to the SE.
S. side of Langwell Water. Elevation 350 ft. O.D.	?
South bank of Berriedale Water. Elevation 700 ft. O.D.	?
N. Bank of Berriedale Water. Elevation 450 ft. O.D.	?
S. bank of Berriedale Water. Elevation 500 ft. O.D.	'Various indeterminate structures.'
N. Bank of Berriedale Water. Elevation about 500 ft. O.D.	?

No. on Sketch Map	*Name*	*N.G.R.*	*References*
(c) Dunbeath Water			
28	The Wags (3 or more) (WG)	16/106330	RCAM, 257
29	Wag Burn (2) (WG)	16/ ?	RCAM, 258
30	Wag Mor (2 or 3) (WG)	16/ ?	RCAM, 256
31	Achorn (Bad na Glac) (WG-3 Wheel-houses-2)	16/119304	*D & E 1960*, 44
32	Achorn II (WG-4)	16/ ?	RCAM, 259
33	Bridge of Rhemullen (WG)	16/ ?	RCAM, 261
(d) Burn of Houstry			
34	Cor Tulloch (WG)	16/152356	RCAM, 262
(e) Forse			
35	The Wag (WG)	16/204352	*PSAS*, LXXV (1940–1), 23–39 *PSAS*, LXXX (1945–6), 11–25 *PSAS*, LXXXII (1947–8), 275–85 Feachem, 95 RCAM, 263
(f) Possible outlier			
36	Yarrows (? WG)	16/308434	RCAM, 260
Shetland group			
37	Clickhimin	4/464408	*PPS*, XXIII (1957), 227 *D & E 1956*, 34
38	Jarlshof (A) and Wheel-houses (4)	4/398096	*PPS*, XIV (1948), 84–89 Hamilton
39	Hestensgot	4/384122	*D & E 1964*, 49

Note: Nineteenth-century reports suggest further examples of round-houses in association with brochs.

Orkney group			
40	Howmae Brae	5/758524	RCAM, Vol. II, 48–50 *PSAS*, XIX (1884–5), 23–32 *PSAS*, XXIV (1889–90), 451–61 *PPS*, XIV (1948), 82–83
41	Calf of Eday	5/578386	RCAM, 245 (3) *PPS*, XIII (1947), 25 *PPS*, XIV (1948), 81–82
42	Little Howe of Hoxa	7/423940	*PPS*, XIV (1948), 83–84

Situation	*Outer walls or outbuildings*
N. bank of Wag Burn. Elevation 400 ft. O.D.	Possible outbuilding(s).
N. bank of Dunbeath Water. Elevation 350 ft. O.D.	?
E. side of Raffin Burn. Elevation 500 ft. O.D.	?
Head of Allt Bhrailteach and half a mile from this burn. Elevation 550 ft. O.D.	?
N. bank of Achorn Burn. Elevation 400 ft. O.D.	?
480 yds. NW. of Bridge, at an elevation of 250 ft. O.D.	?
Near head of glen, at an elevation of 400 ft. O.D.	?
South slope of Ben-a-Chielt, at an elevation of 400 ft. O.D.	Traces of turf wall and ditch on one side—? farmyard wall.
Outside broch, on edge of Loch. Elevation 300 ft. O.D.	?
Within broch tower, on edge of loch.	Several outbuildings.
On edge of bay.	?
?	?
In a sand dune on the edge of the bay.	Several huts, conjoined in a very irregular plan.
On the shore of Calf Sound.	?
Just above the beach, overlooking a bay.	?