ART. I – *Survey and Excavation at a Crop-Mark Enclosure, Plasketlands, Cumbria*

By ROBERT H. BEWLEY

THE survey and excavations described here form part of the Solway Plain Project. The aim of this project is to study the prehistoric and Romano-British settlement history of the area (Bewley 1984, 1986, 1992). The following is a survey and excavation report on work carried out in 1988 and 1990 at a crop-mark site, Plasketlands, near Mawbray, Cumbria (NY 097463), (Figs. 1 and 2).

The site at Plasketlands was photographed from the air by St Joseph on 7 July 1949. Until the site was fieldwalked in 1984, when a small flint scraper and a spindle whorl were found (Bewley 1986, 35), there had been no work at the site. It has been protected as a Scheduled Ancient Monument (Cumbria 12) since 1972 and is described in the schedule as an "Enclosure, 105m south-east of Old Mawbray". This is indicative of how little was known about the site prior to this excavation and survey.

The purpose of the excavation was to locate and cut a section through the ditch of the enclosure and to sample the pits which are so clearly visible on the Cambridge aerial photographs (Plate 1). These pits are a very unusual feature on sites in this region and it was their presence which focused attention on this particular site. One major question to be answered was of the contemporaneity of the pits with the ditched enclosure; the excavations do not provide a conclusive answer to this but contemporaneity is argued for.

Location

The site is situated on the summit of a natural, glacially formed ridge at *c.* 30 m above OD. Although the ridge has a slight crest the site is situated on a plateau on the summit; it is not clear whether this flat area is natural or was created as a levelled area for the site. As Fig. 3 shows the site is only 2 km from the sea and is very well situated for fertile soils and a large peaty, low-lying area at the base of the ridge. When the site was in use it is likely that the peat had not formed and the low-lying area was a wetland, fen-carr type environment (*cf.* Coles and Coles 1986, 16). This combination of fertile soils and local, natural resources (available from the sea and the wetland areas) would have been an important factor in the location of the site if it is indeed a settlement (Bewley 1984, 193).

Aerial Survey

Since 1949 the site has been photographed by the author and by G.D.B. Jones (Manchester University) but it has never shown as clearly as it did when first discovered in 1949. The transcription (Fig. 2) was produced from a number of

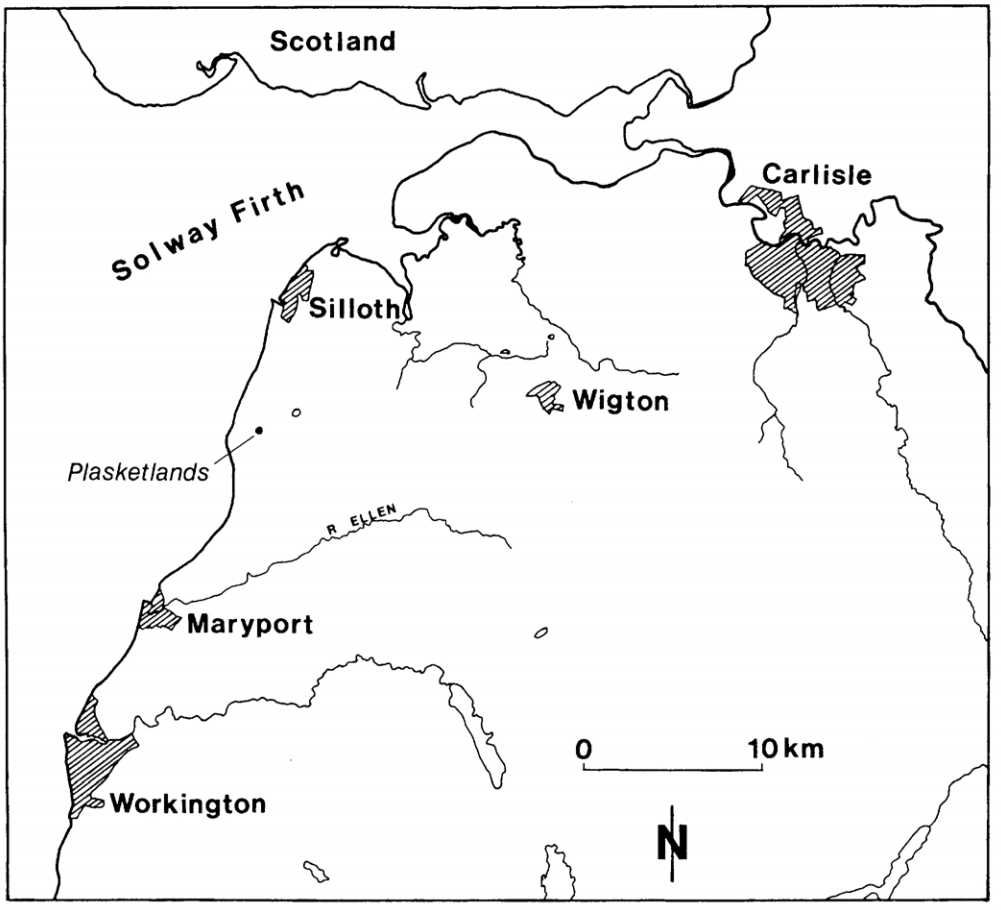

FIG. 1. Location Plan

aerial photographs but none show the archaeological features better than the Cambridge photograph reproduced as Plate 1. The value of repeated reconnaissance and geophysical survey is that no single photograph contains all the information necessary for a detailed interpretation and transcription. For example, the question marks on Fig. 2 raise the query of whether there is an entrance to the north and another to the north-east. Unfortunately the geophysical survey (Fig. 4) does not clarify these points, although it was most likely that the entrance is to the north.

Fieldwalking

The site was first fieldwalked in March 1984 and a flint scraper and spindle whorl (Bewley 1986, 35) were discovered. These finds only hint at a prehistoric date but are not conclusive evidence. Similarly the lack of any Romano-British pottery is not an

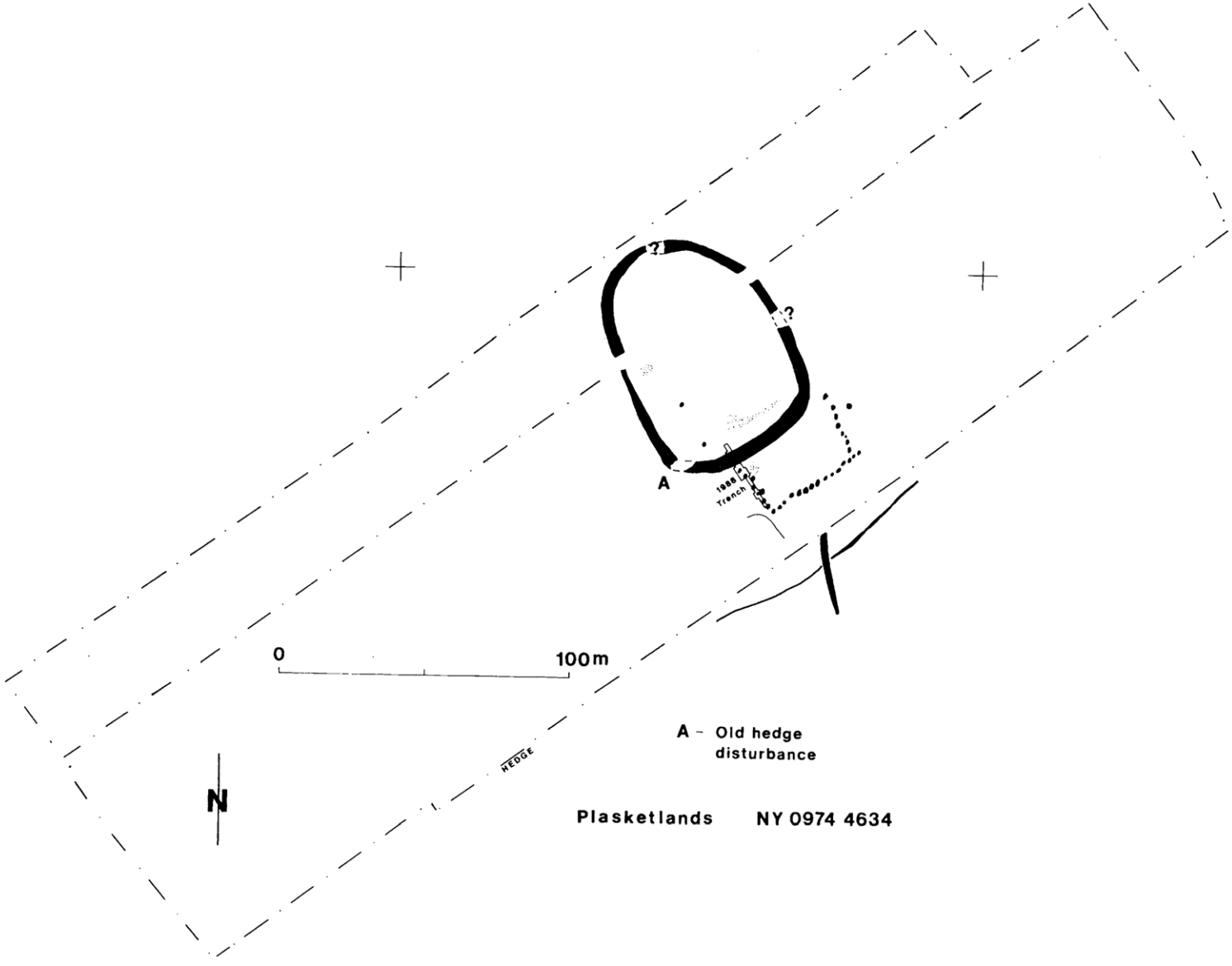

FIG. 2. Plasketlands: transcription from aerial photographs

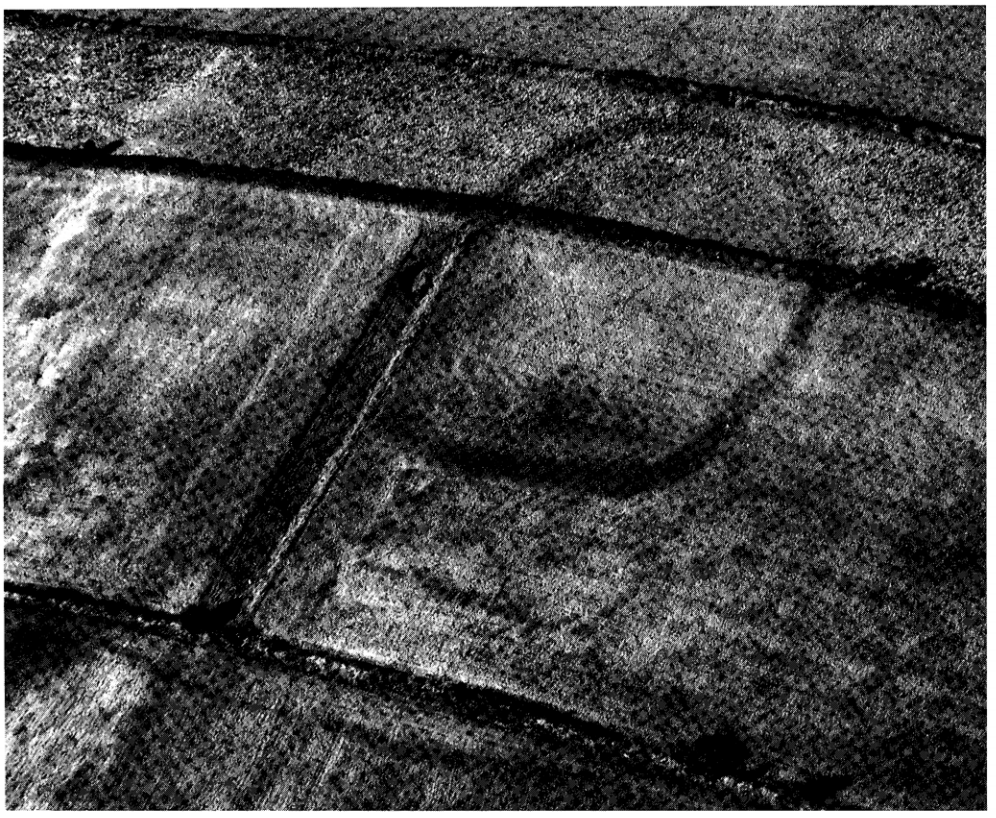

PLATE 1. Plasketlands. Courtesy of Cambridge University Collection. Crown Copyright

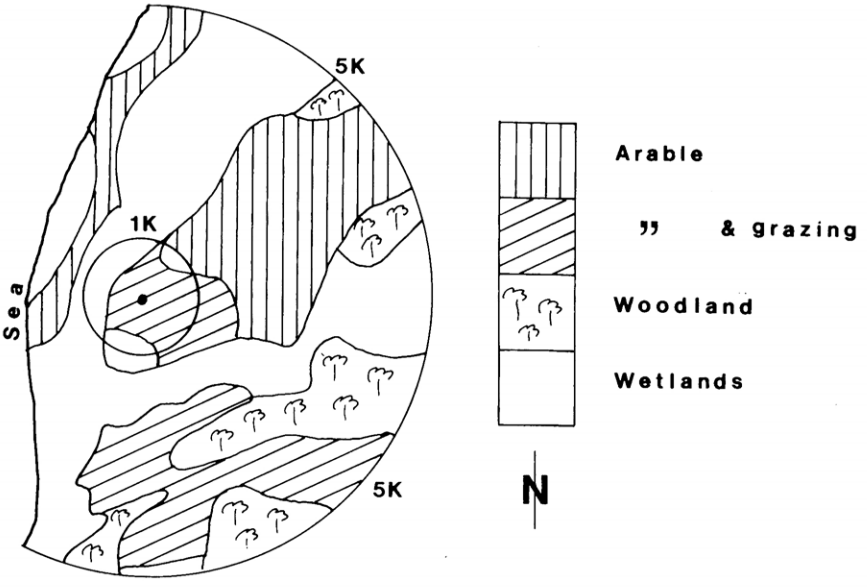

FIG. 3. Plasketlands: site territory (1 km and 5 km radii)

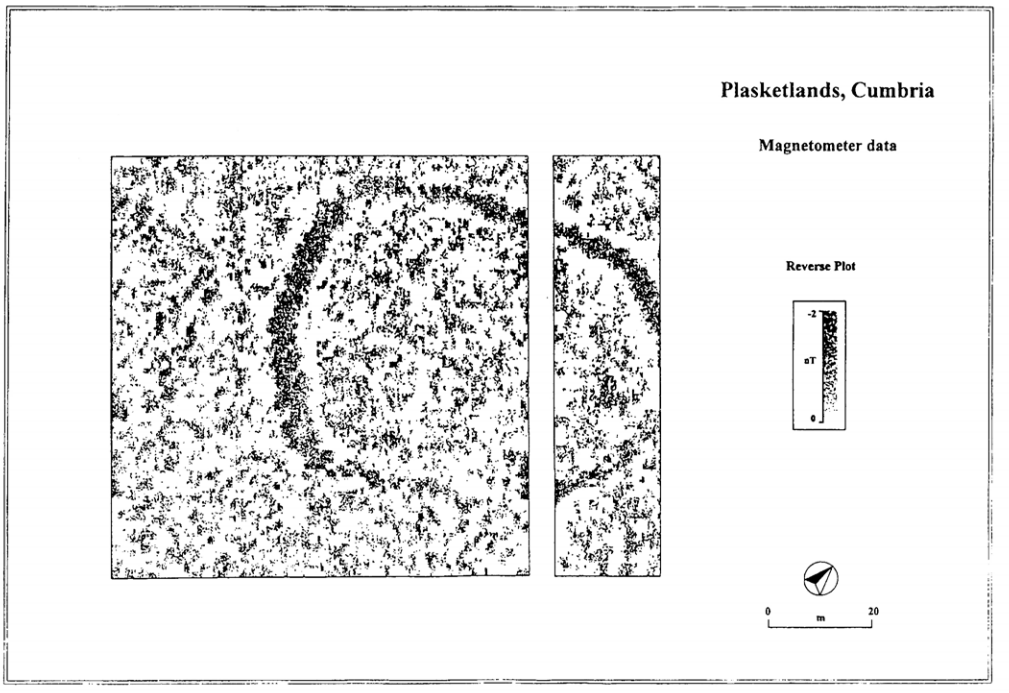

FIG. 4. Plasketlands: magnetometer survey

indication of date. Each year from 1988 to 1990 the site was fieldwalked and the only items found were either from recent muck-spreading or nineteenth century manuring.

Excavations

The excavations took place from 12 to 22 September 1988. The trench was initially laid out along the line of the pits (25 m x 1 m); this was later widened so that the full extent of the post pits could be obtained; a total of 33 sq. m was excavated (see Fig.5). A welcome trend in professional archaeology today is for minimal destruction of even small parts of archaeological sites when the purpose of the excavation is research; the excavations represent an acceptable rate of loss for the information gained (English Heritage 1991). The total area enclosed by the ditched enclosure and the area within the pits is approximately 4,400 sq. m. The total area excavated was 33 sq. m. The excavations covered less than 1% of the total area available and took less than two weeks with a team of 3–4 people at any one time.

The Ditch

The ditch is 6 m wide and very shallow; the depth below the ploughsoil is only 80 cms, and only 1 m deep from the top of today's land surface (Fig. 6). Its width and

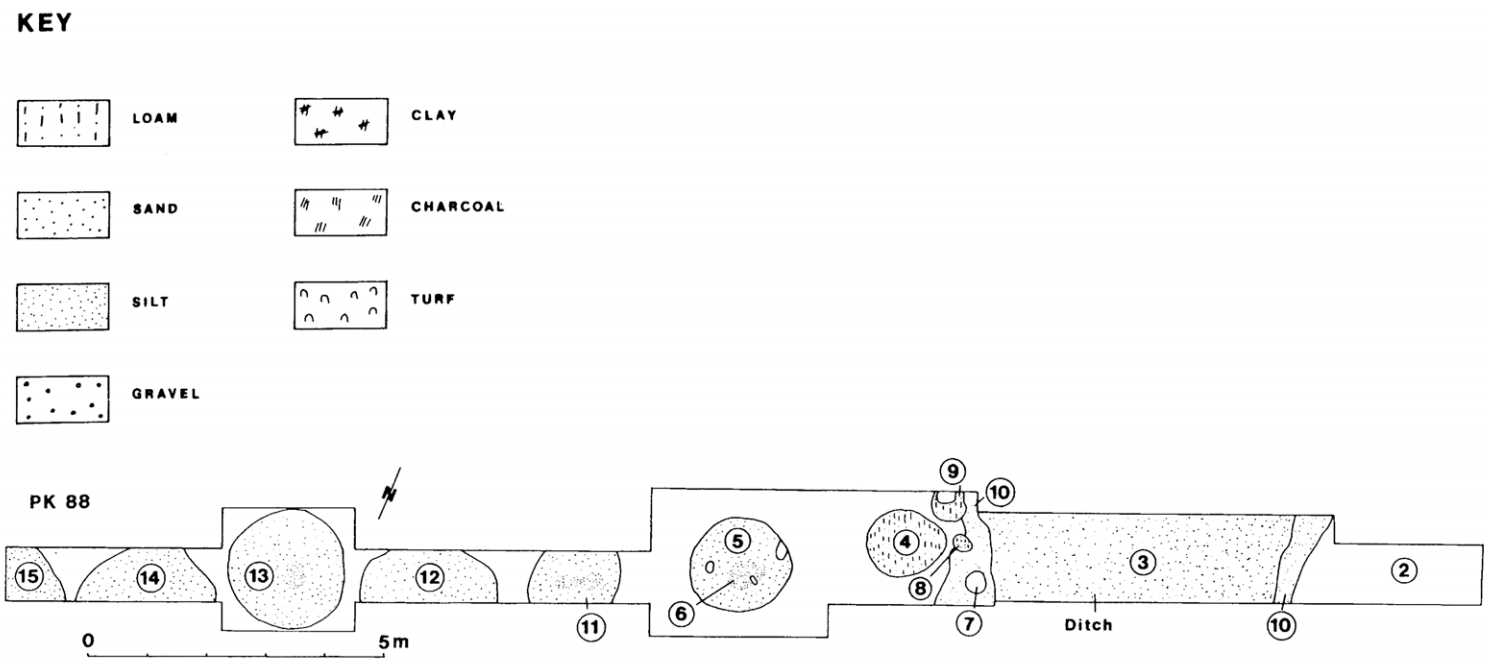

FIG. 5. Plan of Excavation trench 1988

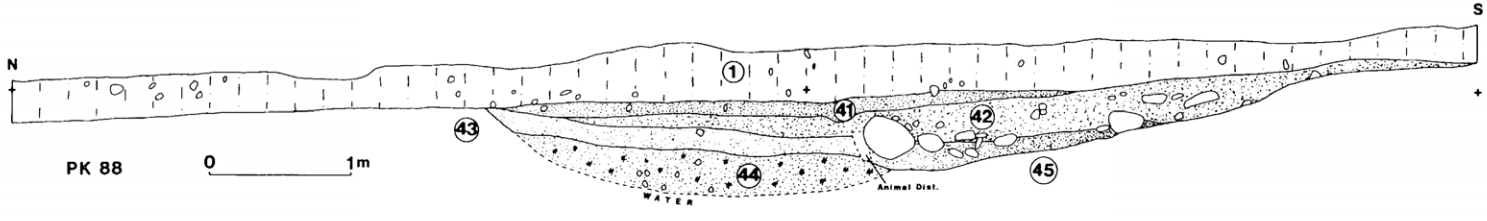

FIG. 6. Section of ditch

PLATE 2. Plasketlands: view north along trench. Copyright N. Hawley

relative shallowness are significant in two respects. The first is that the water table was reached at approximately 70 cms below the topsoil; this is a perched water table at *c.* 30 m above O.D. The glacial ridge is a combination of sands and gravels but it also has lenses of clay within it. At this particular site a clay lens maintains a perched water table which frequently causes the farmer problems. The second point is that this high water table is likely to have been present when the site was constructed, thus a case for the contemporaneity of the ditched enclosure and the pits can be made. If the ditch was intended to be defensive or a restricting feature, but could not be built to a sufficient depth, another means of controlling the southern approach (along the ridge) would have to be constructed. One successful solution would be a series of large timber posts which would form the southern "defence" of the site. Without further work this cannot be proven but it is a practical interpretation to a very local situation; it also supports the interpretation that the site was a settlement as it required some permanent protection from cattle or unwanted human intrusions.

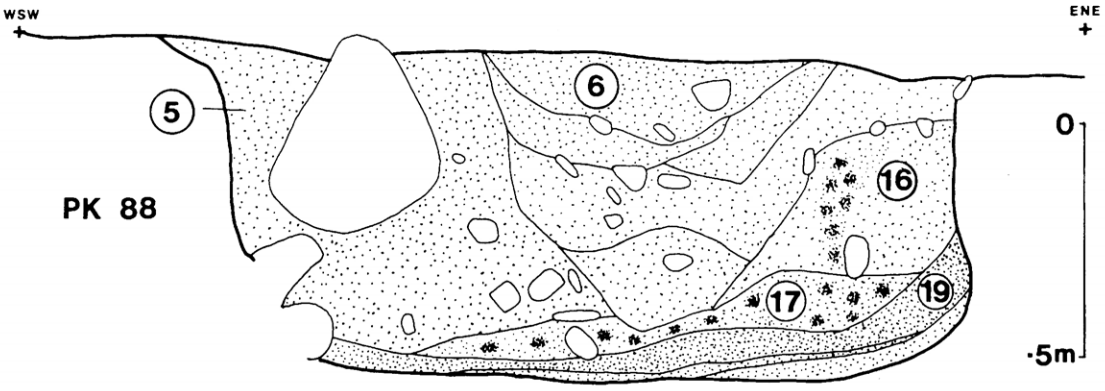

FIG. 7. Section of post pit (context 5)

The post pits

Seven post pits were revealed in the 25 m long trench (contexts 4, 5, 11, 12, 13, 14 and 15). Contexts 5, 11, and 13 had a central post hole which was noticeable by the lighter colour of the post hole (Plate 5). Half sections were made of contexts 4, 5, and 13 (Figs. 7–9, and Plates 4 and 6).

Context 5 was totally excavated; the post pit was 1.75 m in diameter (Fig. 7 and Plate 5). The packing stones were sizeable (up to 45 cms diameter) and appear to have been all round the post. This suggests that the posts were of considerable girth (perhaps as much as 60 cms in diameter). It is impossible to estimate the height of the posts but the post pits as excavated were up to 75 cms in depth; the actual depth would have been greater given over 5,000 years of erosion of soil. The base of the pit had a hard layer, similar to an iron-pan, presumably derived from the leaching of minerals from the soil. Radiocarbon dates were obtained from charcoal in context 16, and the dates range from 3970–3610 or 3580–3525 cal BC and from context 17, 3775–3750 or 3710–3500 or 3420–3380 cal BC (see below). The significance of these very early dates is discussed below.

Context 4 was also totally excavated and it had a diameter of 1.6 m; this post pit was different from the others in terms of its fill (darker with more charcoal); the central post was defined by a ring of charcoal and packing stones rather than a lighter area. Charcoal from its central post, 53 cms in diameter (context 20, Figs. 8a and 8b, and Plates 3 and 4), gave a radiocarbon date 4030–4025 or 4000–3780 or 3735–3720 cal BC.

Context 13 was also half sectioned (Plate 6 and Fig. 9). The packing stones in context 57, adjacent to the central post were a particular feature of this post pit, given their size and distribution.

Soil Analysis

The site is situated on the junction of two major soil types which are both glaciofluvial drifts; one is the Newport 1, 551d and the other is the Wick 1, 541r (Soil Survey 1983). Both are deep well drained sandy and coarse loamy soils and both favour the production of crop marks (Bewley 1984, Fig. 3.2). The ridge is surrounded by a fen

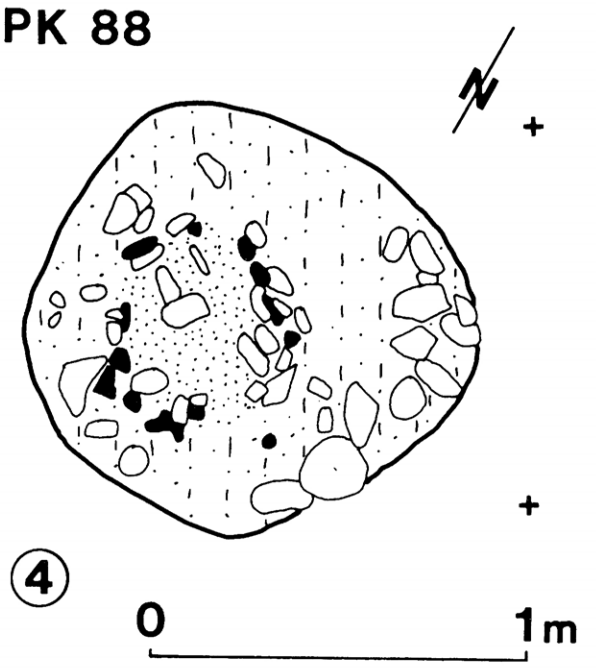

FIG. 8a. Section of post pit (context 4)

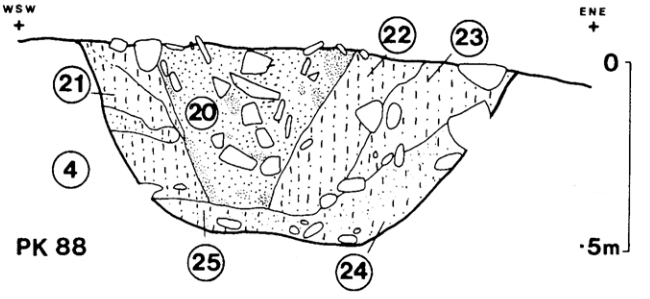

FIG. 8b. Section of post pit (context 4)

peat (Altcar 1, 1022a) which has probably formed since the site was in use. It is not surprising that the majority of the soils encountered had a high sand content.

During the initial cleaning of the post pits the colour difference between the central post hole and the surrounding fill was very marked; the post hole was lighter in colour than the surrounding fill of the post pit. The post hole would appear to have been freer draining than the surrounding fill and this may account for the lighter colour. This colour difference does not appear to indicate a different soil or a different material, but differential leaching and percolation of water from above. Initially it was thought that the lighter soil was ash, perhaps as a result of the burning of the post. Inspection of soil samples done by Dr Helen Keeley (pers. comm.) shows that the lighter soils (contexts 16, 17, 19 for example) are a coarse sand

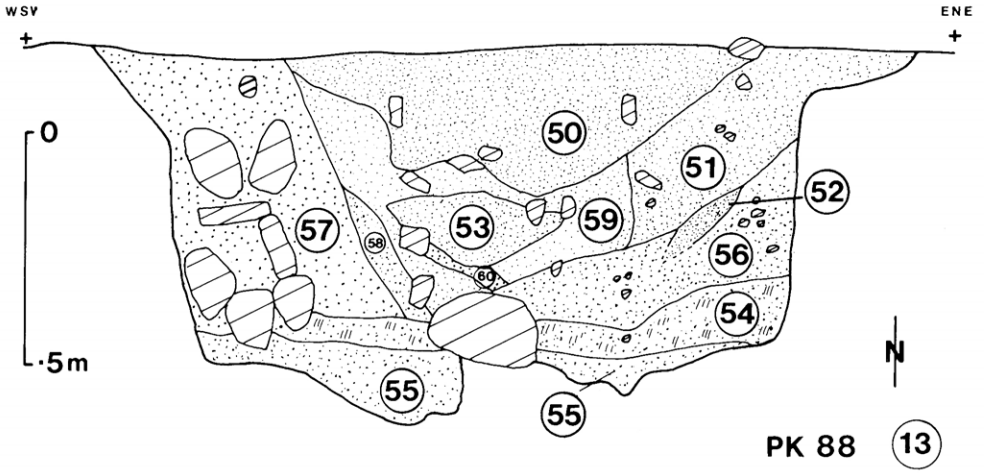

FIG. 9. Section of post pit (context 13)

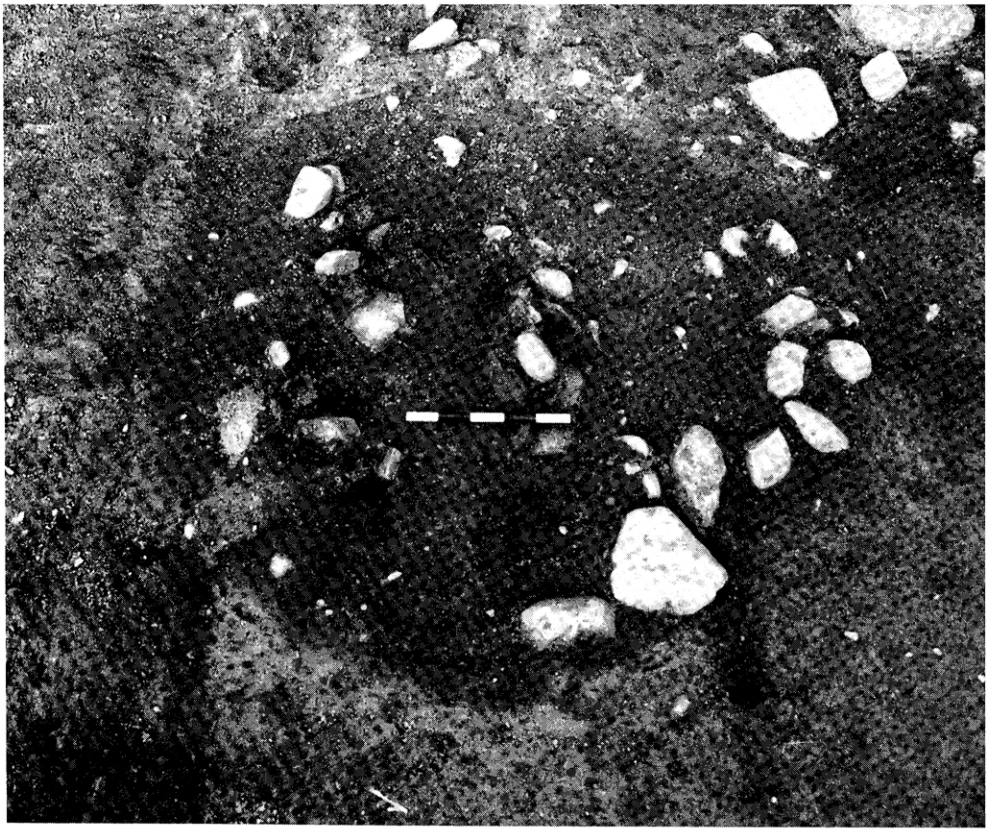

PLATE 3. Plasketlands: plan view post pit (context 4)

mixed with finer sand. No evidence for ash was found and the fill of the post hole appears to have been washed in from the surrounding packing when the posts were removed or after they had decayed. Context 6, which was the fill of the post hole within post pit 5, had a high fine-sand content mixed with coarser sand.

Environmental Evidence

Samples for environmental analysis were taken from contexts 4, 5, 6, 13, 15, 16, 17, and 20. The samples were a minimum of two buckets in size (where such quantities of soil allowed). The samples of context 4 were wet-sieved. None of the samples contained any seeds but they all contained fragments of charcoal. The charcoal was from oak, hazel/birch/alder and pine. The samples were taken on a context by context basis and were usually very small. Larger samples might have resulted in more success but each context was differentiated from another by its colour rather than soil type or texture; this means that the difference in archaeological terms between the contexts is very small. The fact that none of the samples from any context produced evidence of seeds of any sort suggests that whatever environmental evidence there may have been has not survived. This could be due to the acid soils which exist in the area; seeds of modern species such as corn spurrey and hemp nettle are present in the samples and these are indicators of acid soils. (Huntley pers. comm.)

Radiocarbon Dates

Three samples of charcoal were submitted for radiocarbon dating. One was from the post pit 4, context 20, and two were from post pit 5, contexts 16 and 17 (Bewley 1990). The dating of the samples of charcoal was carried out by the Scottish Universities Research and Reactor Centre (SURRC).

SURRC NO.	Context	Uncal. bp	Possible calendar age ranges in years BC*
GU-2573	16	4940 ± 90	3970–3610 or 3580–3525
GU-2571	17	4810 ± 60	3775–3750 or 3710–3500 or 3420–3380
GU-2572	20	5090 ± 60	4030–4025 or 4000–3780 or 3735–3720

* The calibrations for these dates were carried out by Janet Ambers of the Research Laboratory of the British Museum; they are expressed to the two sigma level of confidence using the intercepts method with the CALIB program (REV 2.0) of Stuiver and Reimer (1986) and the curve of Pearson *et al.* (1986).

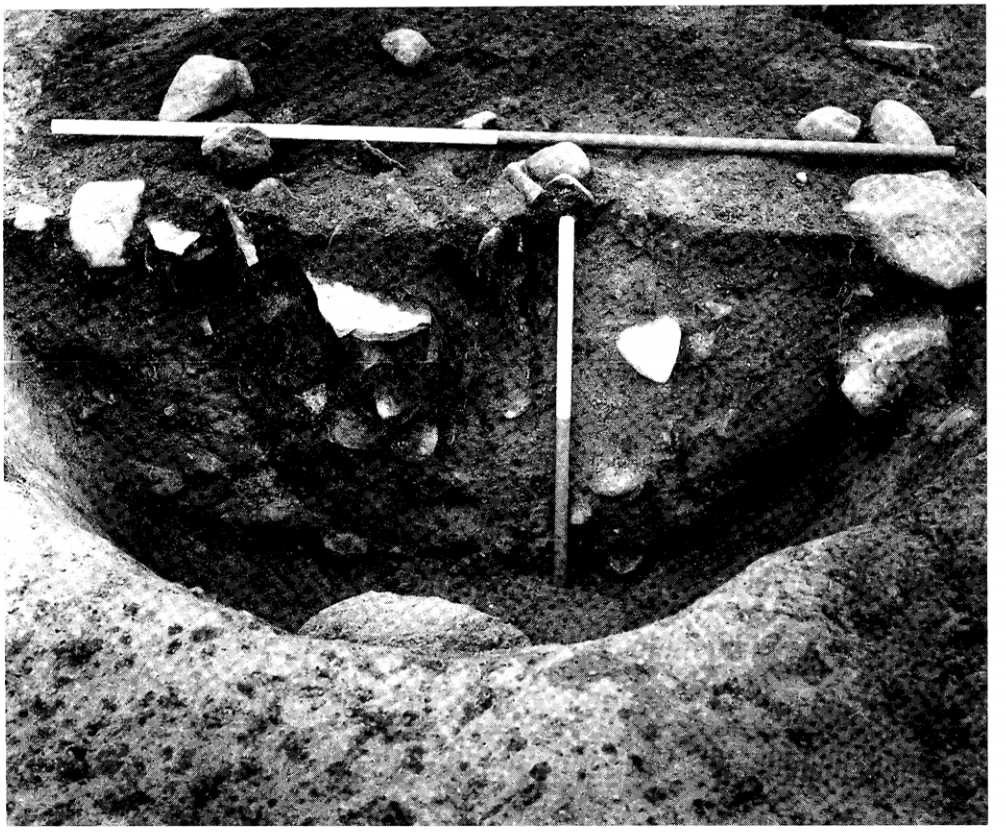

PLATE 4. Plasketlands: section of post pit (context 4)

Pearson (1987) explains the dangers of radiocarbon dating and using radiocarbon dates for interpreting samples and sites; the interpretation offered here of an early neolithic settlement is therefore tentative. The laboratory which dated the samples was confident of the accuracy of the dates. Archaeologically the dates are very interesting as they provide the earliest radiocarbon dates for this part of Cumbria. It had been expected that the site would have produced material of Iron Age or Romano-British date. These early neolithic dates are very encouraging for the study of early settlement in the area. Further work in the area will show if they are anomalous or if they are part of a wider pattern of early neolithic settlement. Understandably, research of this period in Cumbria has tended to focus on the more visible monuments such as the henges near Penrith or the Langdale axe factory area (Bradley and Edmonds 1988) which are of a later neolithic date.

Geophysical survey

The survey was carried out by Geophysical Surveys in 1990 (Gater *et al.* 1991) using a Geoscan FM36 (fluxgate gradiometer), with readings being taken at 0.5 m intervals

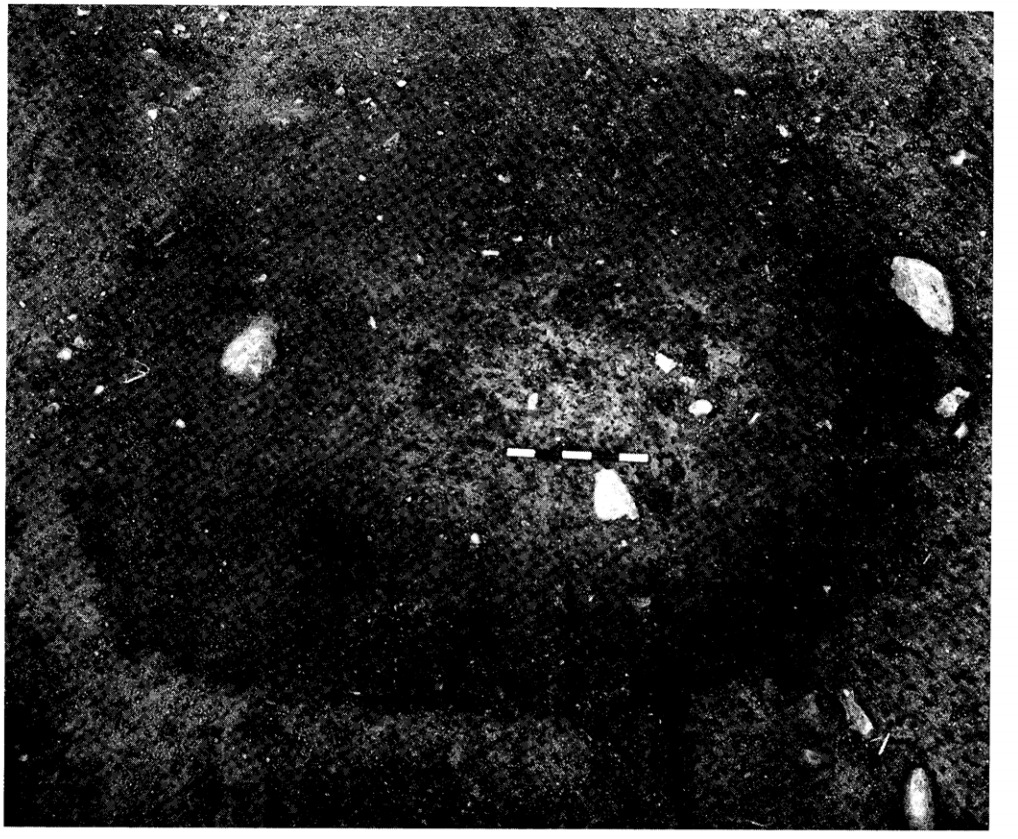

PLATE 5. Plasketlands: plan view of post pit (context 5), after initial cleaning; the lighter centre represents the post hole

in one direction and 1.0 m in the other. The aim of the survey was twofold; firstly to attempt to identify more of the post pits (seen on the aerial photographs and the excavations), and especially to locate any within the enclosure. The second purpose was to locate any internal features, such as houses or smaller enclosures. Crop-mark sites normally contain much more information than the aerial photographs alone suggest. Differences between the geophysical survey and the original aerial transcription highlighted the difficulties of attempting accurate location of ridge-top sites. Some of the differences were ironed out after a subsequent transcription but close comparison between Fig. 2 and Fig. 4 will show that the two depictions of the same site do not match exactly.

Results (after Gater & Gaffney 1991)

The magnetic responses were not only low but they were negative anomalies rather than positive as expected; they were of a strength of less than ± 1 Nt. This has led to difficulties in making archaeological interpretations from the results which suggest

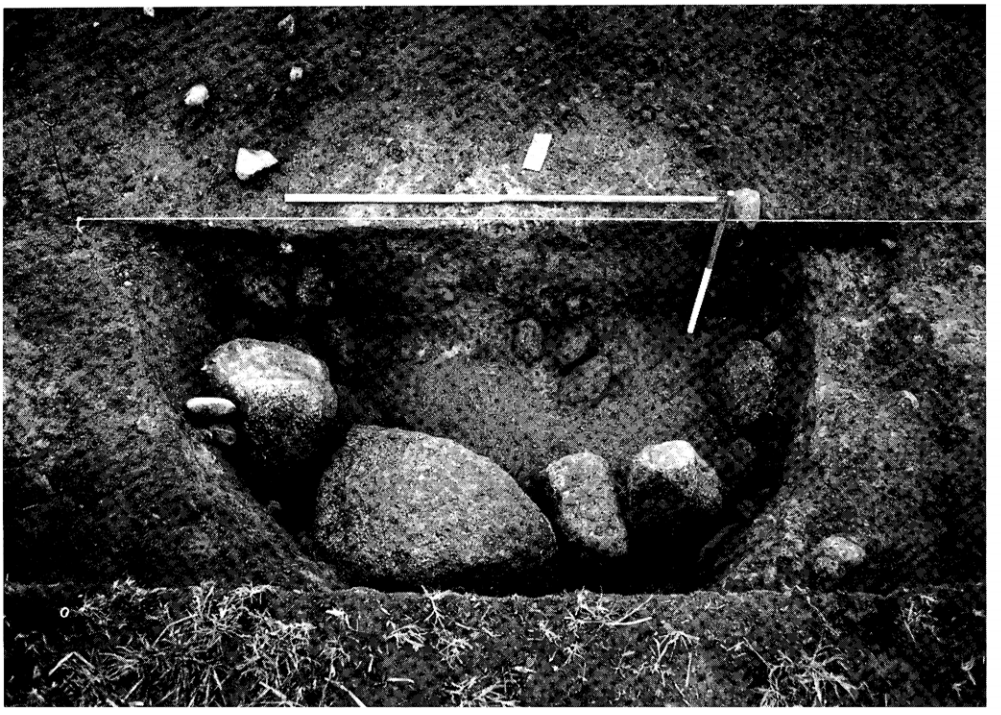

PLATE 6. Plasketlands: section of post pit (context 13); note large packing stones

that the topsoil and the fill of the ditches are LESS magnetic than subsoil or natural. This is unusual in that human activity tends to enhance the magnetic levels of the topsoil and filled features. It is possible that this is due to the glacial sands and gravels on which the site is situated; such a subsoil can produce spurious magnetic anomalies. Fortunately the aerial photographic and excavation evidence confirmed that the readings were archaeologically significant, and not as a result of geological interferences.

The survey was carried out during the farmer's ploughing of the field; this did not assist with the results because the operator had to move from a reasonably smooth surface to a ploughed one. The line of the change over was exactly in the area where a line of pits should have been detected. The main enclosure ditch was clearly identified, albeit as a negative rather than a positive anomaly (Fig. 4). This Figure has been produced as a reverse plot, showing the ditch as darker mark; this is solely for clarity. The readings confirm that the site is ringed by a broad shallow ditch (Fig. 6).

Discussion

It is the date of the site which raises the most important questions. Bronze Age material has been found in Salta Moss, a raised bog one mile to the south-west of the site (Coles 1961). The only neolithic material in the area is from finds of

polished stone axes, mainly Group VI material which was found during the building of farms in the seventeenth and eighteenth centuries along the low ridges above the floodplain (Bewley 1984, Fig. 5.2). The axes are thought to have used and traded in the later neolithic (Bradley and Edmonds 1988) so the discovery of an early neolithic site in this area does open up new research questions about the occupation of the Solway Plain in this period. It was argued by the author in Bewley (1984) that the early neolithic settlement pattern was of a mobile dispersed population living off the land and sea without necessarily having settlements which would be discovered by aerial photography, or engaged in farming. Most of the neolithic finds in northern Cumbria have been from single find spots or when the "mosses" and bogs have been drained. Ehenside Tarn in West Cumbria is perhaps the best example of a northern neolithic settlement; this is later in date, although the settlement there is probably not too dissimilar from earlier periods (Darbishire 1874). The Sites and Monuments Record for Cumbria has no neolithic radiocarbon dates as early as these and therefore this site could be the earliest known defended settlement in northern Cumbria.

The environmental evidence would suggest that the low-lying areas were still wet, and the peat had not begun to form by 4000 BC. Research by Walker (1966) shows that the bogs which formed later were still open water and did not fill up for another 1,000 to 1,500 years. It is known that the sea level was 5 m higher for a short period at 3000 BC (Tooley 1978); the evidence for this comes from the same ridge near Plasketlands at Pelutho. The little information we have on the climate does point to the need for neolithic settlements (or activity areas other than fishing or fowling) to be well above the low-lying areas; the ridge on which Plasketlands is situated would have been relatively free from inundation but within easy reach of the marine and terrestrial resources.

One method of attempting to discover if a site is a settlement, or could have been used as a settlement is by looking at its immediate location and the "site catchment" or "site territory" (Higgs 1975, Jarman, Bailey and Jarman 1982). The site is well situated on a ridge top for a number of purposes, be they domestic, ritual or defensive; a domestic role cannot be ruled out. The local region or "site territory", up to 5 km in any direction, can also be analysed for its resource base. This has been discussed at some length in Bewley (1984, 164–216). Fig. 3 is a representation of the land use as it would have been in the neolithic period. It is clear that there would have been an abundance of natural resources, in terms of deer and fowl as well as good grazing for any domesticated animals and a good, easily workable soil for cultivating crops. Freshwater fish, marine resources, including salmon and shell-fish would have been an important and readily available, part of the diet; the Solway is still well-stocked with salmon and sea-trout. It is not possible to be definitive about the function of the site but there are indications that it could have functioned as a domestic site.

Finally, it is worth discussing the name of Plasketlands which has two possible derivatives. The first is from *plassetum* meaning "a fence of living wood"; the second is from *plash* meaning a "puddle" (Fell pers. comm.). Either interpretation is attractive given the large oak posts which formed the southern boundary of the site and the perched water table which causes puddles even today. It is, however, highly unlikely that the "fence of living wood" can have had any bearing on the present name; the puddle interpretation is the most likely reason for the name Plasketlands.

Acknowledgements

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Contexts

1 Plough Soil. Sandy Loam. Very dark brown.
2 Subsoil. Sand and gravel. Strong brown.
3 Top of Ditch Fill. Silty sand. Black.
4 Post pit. Sandy loam with charcoal. Dark reddish brown.
5 Post pit. Sandy soil. Reddish brown.
6 Post hole within post pit 5. Fine sand. Light yellowish brown and greyish brown.
7 Circular feature; small pit. Perhaps part of bank. Sand fill. Strong brown.
8 Small circular feature. Sandy loam fill. Dark brown.
9 Pit with stones. Sandy loam fill. Dark brown.
10 Natural both sides of ditch fill. Sand. Dark reddish brown.
11 Post pit. Silty sand. Reddish yellow (centre) to reddish brown.
12 Post pit. Silty sand. Dark reddish brown.
13 Post pit. Silty sand and sandy loam on surface. Brown.
14 Post pit with stones. Silty sand. Yellowish red (centre) to strong brown.
15 Post pit. Silty sand. Yellowish red to strong brown.
16 Fill of post hole. Sand with charcoal flecks. Dark greyish brown.
17 Fill of post pit 5. Below 5 and 6. Sand. Dark greyish brown.
19 Fill of post pit 5. Below 17. Reddish grey.
20 Fill of post-hole within post pit 4. Sandy silt, ash in texture. Black and strong brown.
21 Fill of post pit 4. Sandy silt. Dark brown.
22 Fill of post pit 4. Below 21. Sandy silt, fine ash texture. Grey.
23 Fill of post pit 4. Below 22. Charcoal and fine silt ash in texture. Dark grey.
24 Basal layer of post pit 4. Below 23. Fine silty sand. Reddish brown.
41 Ditch fill. Below 1. Sandy silt. Very dark grey.
42 Ditch fill. Below 1 and 41. Sandy silt. Brown.
43 Ditch fill. Below 41 and 42 and next to 45. Silty sand. Strong brown.
44 Primary silting of the ditch. Below 45 and 43. Silt almost clay. Waterlogged. Reddish brown.

45 Ditch fill, perhaps fill of context 7. Sandy silt with small stones and grit. Strong brown.
46 Natural = 10. Below 1 and 43. Strong brown.
50 Fill of post pit 13. Post hole in pit. Above 51, 53, and 59. Sandy silt. Light brown.
51 Fill of post pit 13. Fill of post hole. Below 51. Sandy silt with small stones. Yellowish red.
52 Fill of post pit 13. Cohesive sandy silt. Dark reddish grey.
53 Fill of post pit 13. Fill of post hole. Sandy silt. Pinkish grey.
54 Fill of post pit 13. Silting layer beneath post hole. Sandy silt with charcoal. Dark grey.
55 Fill of post pit 13. Primary silting. Sandy silt. Light grey.
56 Fill of post pit 13. Bottom of post hole. Sandy silt. Dark brown.
57 Fill of post pit 13. Fill around packing stones on WSW of post hole. Sand. Reddish brown.
58 Fill of post hole in post pit 13. Below 53 and 50. Sandy silt. Dark reddish brown.
59 Fill of post hole in post pit 13. Fill of post hole adjacent to 51. Sandy silt. Reddish brown.
60 Fill of post pit 13. Animal disturbance. Sandy silt. Brown.

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