A BRONZE AGE SITE AT PARWICH, DERBYSHIRE

By JOHN LOMAS

DURING 1957 in a survey of the boundary area between Hartington and Parwich, a group of over 100 ring-ditches was noted (Fig. 27). They consist of low banks enclosing shallow ditches round raised central areas, the outer banks being slightly higher than the central areas. They are called ring-ditches for this report because there is no evidence of their purpose. Most were nearly circular, but a few were oval and one had the shape of a figure eight. In size they ranged from about 12 ft. to over 50 ft. in overall diameter; although clearly visible, the difference in height between the top of the bank and the bottom of the ditch did not as a rule exceed a foot.

In 1958 the positions of the ring-ditches were plotted and one example totally excavated. During 1959 and 1960 another was excavated completely and two others partially. Trial holes were made in many more in order to establish the presence of a yellow silt layer.

The land is occupied by Messrs. Webster and Dickenson and owned by a charity administered by the Parwich parish council, all of whom readily consented to this work. The site was visited at various times by Dr. G. W. Dimbleby, Miss Nellie Kirkham, T. G. Manby, R. G. Hughes and F. W. Munslow. Assistance in excavation was given by W. E. Holt, Tom Webster, R. Hayhurst, F. Fisher, Miss M. Slade and Miss G. Webster; the kind hospitality of Mr. and Mrs. J. F. Smail saved the writer many long journeys. Soil samples were examined by Dr. I. W. Cornwall of the Institute of Archaeology and Dr. G. W. Dimbleby of the University of Oxford Department of Forestry.

The site lies in the parish of Parwich adjoining the boundary with Hartington and on either side of the lane leading from the Buxton-Ashbourne road to Parwich (SK 5717). At just over 1,000 ft. above sea level, it extends over two fields covering about 60 acres. The soil is light, yellow/brown in colour, over limestone from which it is derived. It carries a moorland type of vegetation including heather and bilberry, with large patches of bracken and gorse. The use of fertilisers and controlled grazing are now resulting in the replacement of this vegetation by grasses of better quality. Miss Nellie Kirkham, who had visited the site some years earlier, remarked on this change. Deprived of the dense covering of vegetation, the ring-ditches were more readily seen (Plate VIIa).

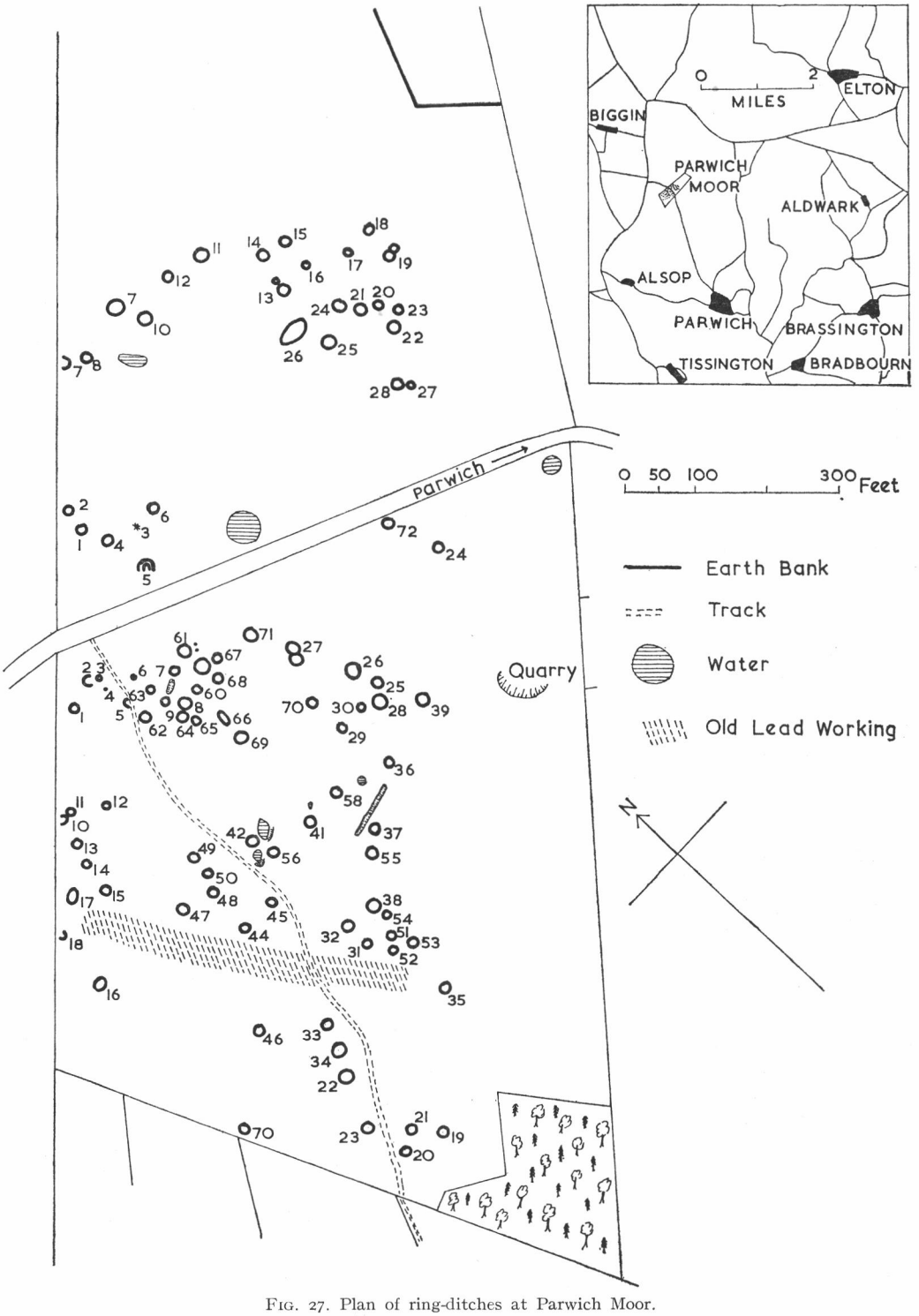
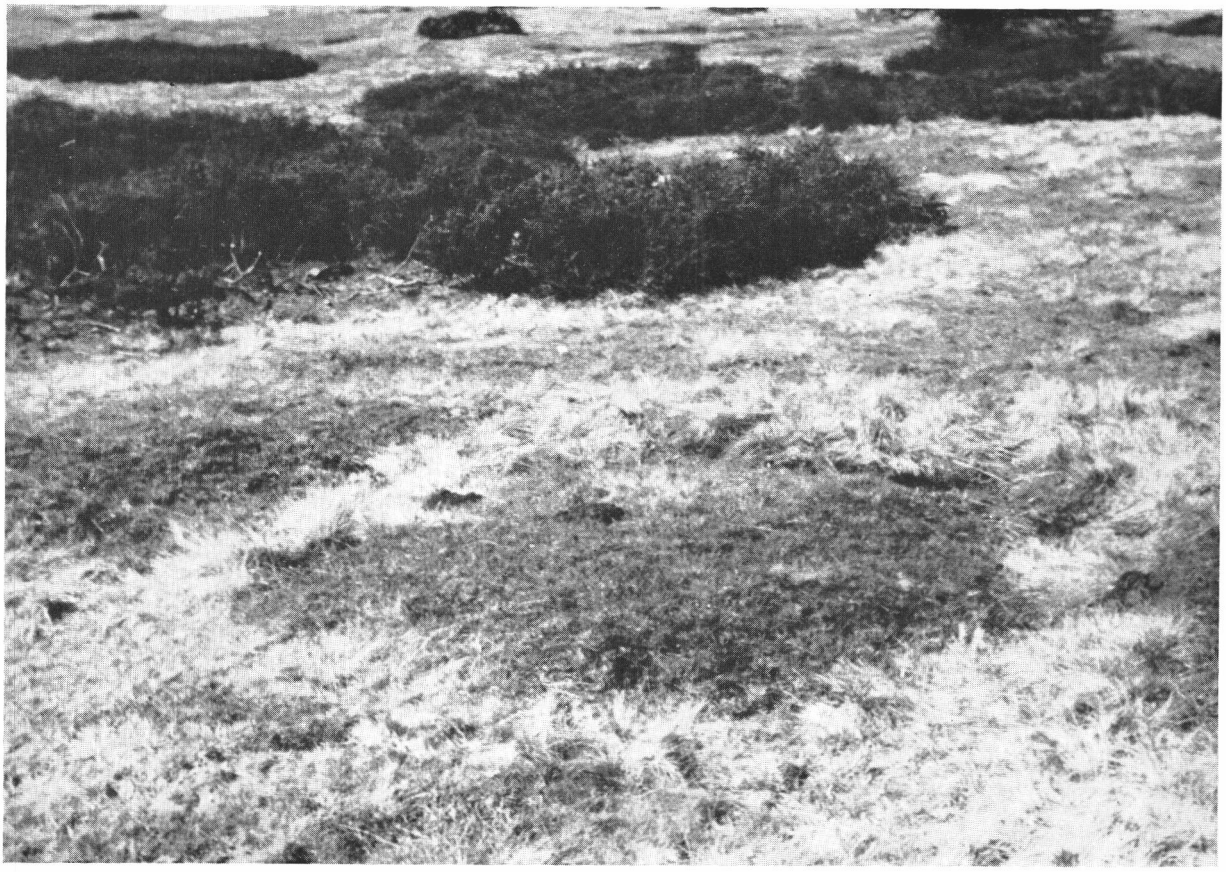
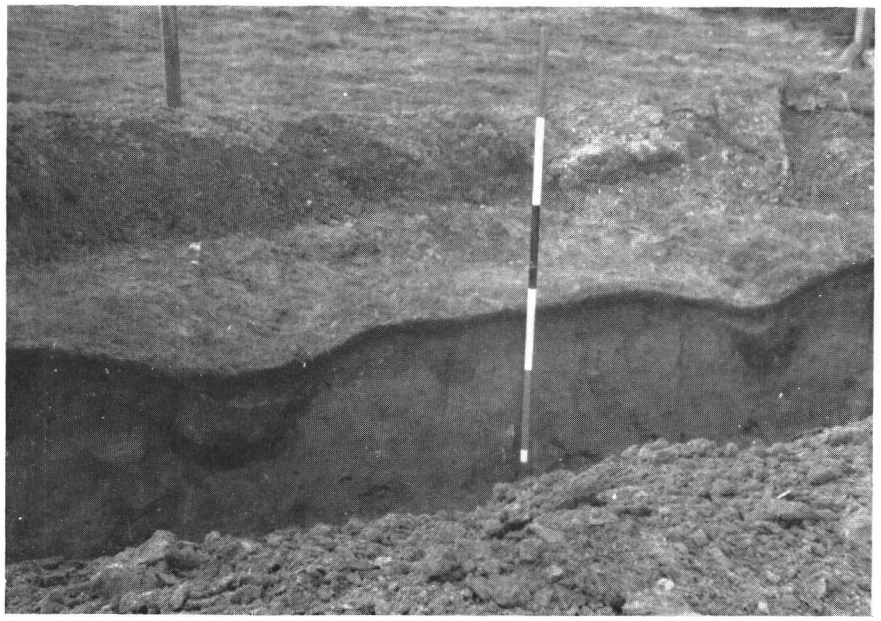


FIG. 27. Plan of ring-ditches at Parwich Moor.



a. Parwich Moor. Unexcavated ring-ditch marked by the change of vegetation.



b. Section of ring-ditch.

The fields have an interesting history. Until the enclosure act of 1788, they formed part of Hawkslow Common, which extended to 560 acres, and were very probably included in 395 acres allotted to Sir Charles Levinge. In 1847 the tithe award stated, "the Big and Little parts of Whitecliffe Common, 38 acres and 28 acres respectively, are held by the Surveyors of the Highways, Benjamin Lees and another, for Beresford's Charity." This charity ownership resulted in the land being let for short terms until recently, so that tenants took no interest in long-term improvement. This accounts for the remarkable difference between its appearance and that of surrounding fields. In an interview in 1958, Harry Beresford, then well over 80 years of age, said that this land "had always been the same". There are no signs on the surface that the land has ever been cultivated. In the lesser (southern) field, there are extensive disused lead workings, of which Miss Kirkham says, "It is impossible to give any accurate estimate of their date, but judging from the small size of these series of run-in shaft hollows and their very close pitting, they will probably be not less than 200 years old."

In the larger (northern) field is a prominent outcrop of limestone, which probably accounts for the name Whitecliffe Common and which may also have been a boundary mark before the enclosures; it is at a turning-point on one of the disputed boundary lines mentioned in the Hartington enclosure award. In that field there is also a linear bank (about 160 yds.) forming an approximate right angle, the short leg of which (about 50 yds.) runs more or less east to west, the other north to south. A trial trench through this bank showed that it consisted of plain earth with no sign of stonework; it probably formed part of a pre-enclosure field boundary. The ring-ditches are spread fairly evenly over the smaller field, whereas in the larger they are concentrated in its southern part with one or two examples in the north-east corner. There is also a single example some distance away to the north-west on a narrow strip of land between two natural pools of water (SK 173584). This strip, left unploughed because of its inaccessibility when the rest was ploughed some years ago, may be the only survivor of many. Since work on the site began, much of the southern part of the larger field has been ploughed and re-seeded to grass in 1960; this has had some levelling effect on the ring-ditches, but has by no means rendered them invisible.

The site lies in a district very rich in archaeological interest, with Hawkslow barrow $\frac{1}{4}$ mile to the south, Minning Low 2 miles to the east, Aleck Low 1 mile to the north and Nettly Knowe 1 mile to the south-west. Although search of the ploughed portion of the larger field failed to produce any worked flints, they can often be found in the neighbouring fields after ploughing.

The only visible clues to the date of the ring-ditches are that two of them appear to have been partly demolished when the field wall was built very soon after 1788. Another is situated very close to and is partly covered by spoil from lead workings, which may be over 200 years old. The commonest type of ring-ditch is that shown in the drawing (Fig. 28, I-III). Others have a much less distinct form and show only as slight depressions of the ground surface (Fig. 28, IV).

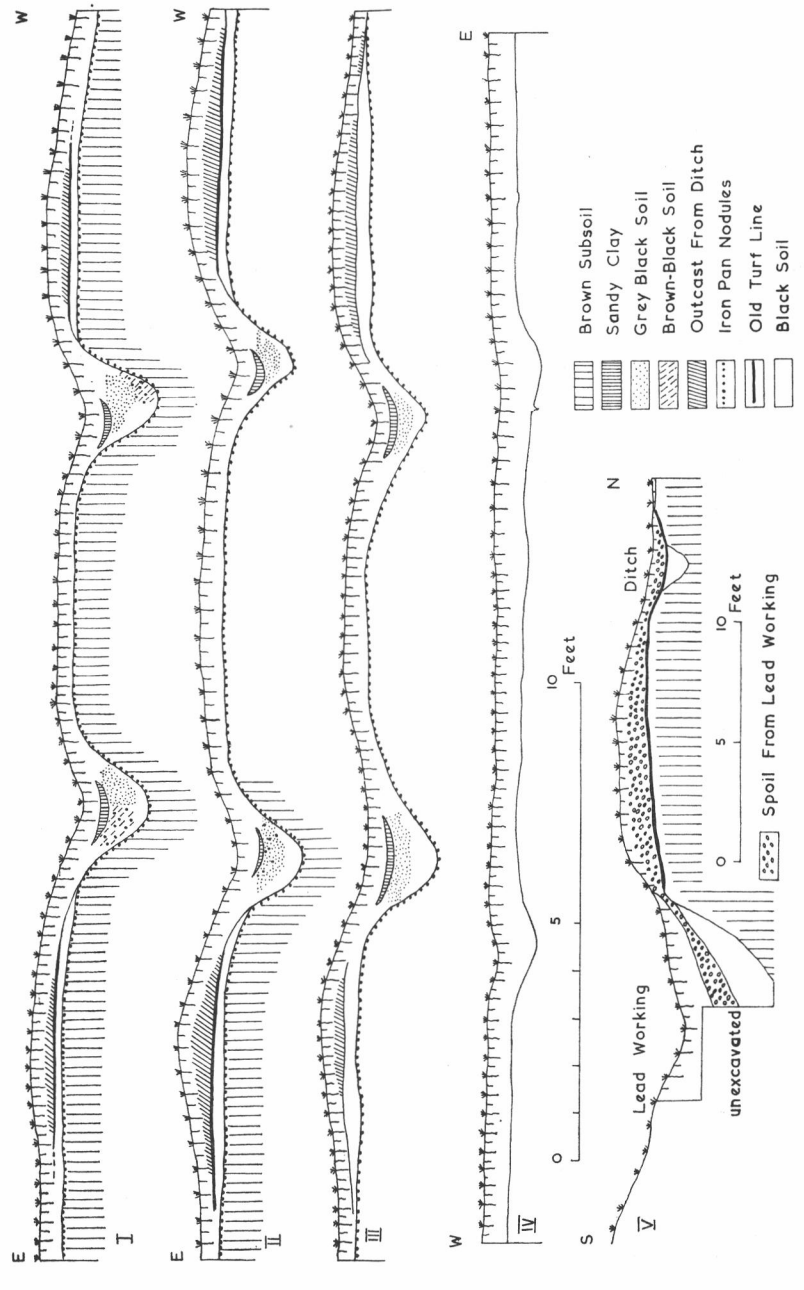


FIG. 28. Sections of ring-ditches.

THE EXCAVATIONS (Plate VIIb)

The aim was to discover the underground features of the ring-ditches in the smaller field and clues to the date of their construction and their purpose. No. 35 was chosen as a fairly representative example, which had no very coarse vegetation. A trench 14 ft. long and 3 ft. wide was dug from a point outside the ring-ditch to its approximate centre and was later extended to 27 ft. The very strong matted turf was found to overlie a layer of soil, blackened by undecayed vegetable matter and varying in thickness from 3 in. in the central area to 14 in. in the ditch. In the outer bank a thin layer of lighter coloured soil showed that the material removed in digging the ditch had been placed there. A strong iron-pan spread over the whole area below the black soil and immediately above the normal yellow/brown soil which extended down to the limestone bedrock, the upper surface of which showed signs of very rapid breakdown due to the action of the acid-laden water above. The most conspicuous feature of the section exposed was a thin lens of yellow, rather sandy, silty soil immediately below the turf in the ditch at each side of the central area; this made a striking contrast with the black soil above and below. In the outer bank, a thin black line below the yellow layer of soil from the ditch in its transported position indicated the old soil surface. No objects of archaeological interest were found.

The next ring-ditch to be excavated fully was sited to the north of the long line of old lead workings that stretches across the field. A trench cut through the ditch and the bank of spoil into the working showed that the spoil material overran the completely silted up ditch (Fig. 28, V). Again no small finds were obtained.

An indistinct type that was examined later showed little difference from the others, except that no yellow silty layer was found (Fig. 28, IV).

The last ring-ditch to be excavated was very plainly formed, but there were no signs of waterlogging. Its structure proved to be the same as in the others, except that the yellow silty (sandy) layer was rather less distinct. Test boreholes in twenty other ring-ditches showed that in most the yellow layer of sandy silt was present very close to the upper surface of the ditch filling.

One other small mound near the gateway to the smaller field was examined and found to contain only a rather thicker layer of black soil than the surrounding area.

DISCUSSION

The failure to find any tangible dating evidence in the form of pottery or artifacts associated with the ring-ditches makes it impossible to add anything to the conclusions of Dr. Dimbleby in his report on the pollen (Appendix II), namely that the ditches were constructed in the Late Bronze or Early Iron Age. Their purpose remains uncertain. There is no evidence of mounds within the ditches as their spoil was piled up to form the outer banks. The acid nature of the soil would destroy any human bones had they been used as burial places.

The records of these excavations, plans, sections and photographs have been deposited with the Society.

APPENDIX I

REPORT ON THE SOIL SAMPLES FROM A RING-DITCH

By I. W. CORNWALL

Thirteen samples were received, forming four groups, each of these being a vertical section of the deposits: nos. 1-3, of the buried soil below the bank; nos. 4-6 of the section down to subsoil in the centre of the monument; nos. 7-10 from the ditch filling and nos. 11-13 from an undisturbed soil profile away from the monument. No. 14 was a sample of the carboniferous limestone underlying the immediate subsoil.

The samples were examined for pH value, the presence of charcoal and, in the case of no. 7, a mechanical analysis was carried out. Alkali-soluble humus, iron and calcium were determined in all of them save no. 14, from which the acid-insolubles were extracted in order to explain, if possible, the origin of the yellow silty subsoil.

Replies to specific questions asked are as follows:

1. *Are there any signs in the soil under the bank of its use before the bank was raised?*

The buried soil, podsolic in character, like the modern soil, is unlikely to show any recognizable signs of use, such as cultivation. In the special cases of rendsina soils on chalk and other limestones and of brownearths with a high base-status, worm-action tends to produce a stoneless superficial layer which, in a buried soil, is clear evidence of there having been no disturbance by human use, at least for a good many years before burial. If a soil of this character is stony up to its summit, it almost certainly means that it has been dug or cultivated. In the case of a soil as acid as this, the cast-forming species of worms is not active, so that no stoneless layer is ever formed. In the absence of clear ploughmarks in the subsoil, we were therefore unable to say whether or not it has ever been cultivated.

2. *Is there any indication of the date of burial of the old land-surface?*

No. The pollen assemblage might give a relative date, or at the least a guess. Nothing in our samples enables us to do so.

3. *Is there any sign of a burial in the central area?*

We have tried phosphate determination. As might be expected in these acid conditions, the absolute concentrations of phosphate were very low (a maximum of 4.6 mgs./100 gms. in the modern soil (sample 4) at the centre of the circle). Subsoil values were even lower and there was no concentration out of sequence which might have characterized a burial or cremation. Such might be preserved from prehistoric times in a soil of higher base-status, but would not be expected to survive in one as acid as this. The answer to your question is that there is no evidence of a burial, but that this negative does not mean that there could never have been one.

4. *Is there any charcoal in any of the samples?*

Yes, in nos. 1, 4, 9 and 11. Of these nos. 4 and 11 represent the modern surface, so that the charcoal may easily be recent — due to heath fires, for example. No. 1 is the buried soil, certainly contemporary with the monument. No. 9 is from the lower part of the ditch-filling and, therefore, just post-dates the digging of the ditch. The charcoal was present only as tiny grains in the acid-insoluble residues of the samples, so that the species of wood represented were not determinable. The possibility that all are of natural origin cannot be discounted.

5. *What is the cause of the ditch silting?*

Samples 8 and 9, from the ditch filling, seem to indicate the usual processes of rain-wash and tumble of the surrounding humic surface soil. No. 7 has however so clean an appearance and forms such a distinct lens in the section, without apparent connection with the lips of the ditch, that its origin is clearly different.

Layer 7 is either a deliberate filling by human agency, or (as is more likely if it occurs in all ditch sections here, as well as on other, similar, sites) has been deposited from an airborne source, e.g. wind-blown sand and dust. In a shallow depression like the half-silted ditch, deposition would take place just like this, the lips being scoured by wind preventing any accumulation there. This hypothesis was tested by a mechanical analysis of the material: sand forms 17%, silt 76%, clay 7%. Only some 1% of the sand is coarser than 0.2 mm. particle-diameter. Such a concentration of the material in the fine-sand and silt grades is characteristic only of wind-sorted sediments. The presence of so much sand, however, even though only of the finest grade, shows that the material was not derived from any great distance, for the sand is too coarse to remain for long suspended in air. It seems that the natural silty subsoil (samples 3, 6, 10, 13) would provide a source for much of the yellow silt in the ditch (sample 7), which resembles these closely in respect of, for example, iron, calcium and the low organic-matter contents.

A phase of wind-erosion and dust-deposition could hardly occur under present climatic conditions, with rain at all seasons in most years and a perennial close cover of vegetation. It must connote at least a short period of drier, and perhaps warmer, summers (greater continentality), so that the surface deposits were seasonally and in places bare, and dry enough to lose their coherence. The last time that such conditions are known to have prevailed here was the Sub-boreal climatic phase, corresponding approximately with our Early Bronze Age.

Evidence similar to that from Parwich Moor has been gathered from buried soils under Early Bronze Age round barrows and from the ditch-filling of a Neolithic long barrow.[1] Its implication here is clear. The ditch and bank had been made long enough for the ditch to have been silted up, for some two-thirds of its depth, before the deposition of the lens of sandy silt. If, as seems likely from the accumulated evidence, this event falls in the Early Bronze Age, the construction of the monument must have preceded the wind-activity by a century or two at least, perhaps longer, and so probably be the work of a Neolithic people.

6. *Are there other points of interest?*

The iron determinations show that the modern soil is in the nature of apodsol, with mobilization and eluviation of iron compounds from the humic layers, even though there is no apparent bleaching (A_2-) horizon. (The mineral residue of the humic samples, nos. 1, 4, 8, 11 is seen to be considerably bleached, after removal of the organic matter.) This and the pH figures point to conditions of such acidity that few archaeological remains save charcoal, pottery and stone artifacts can be expected to have survived in any of these sites. In particular, bone and other acid-soluble materials can hardly be expected.

A fragment of the carboniferous limestone was treated with hydrochloric acid to obtain a specimen of the acid-insolubles for examination. It was thought that secular solution under weathering might have contributed significantly to the yellow silty

[1] I. W. Cornwall, "Soil science and Archaeology with illustrations from some British Bronze Age monuments", *P.P.S.*, 19 (1953), 129-147; "Appendix III: Report on the soil-samples from the ditch section at Nutbane", *in* F. de M. Morgan, "The excavation of a long barrow at Nutbane, Hants.", *P.P.S.*, 25 (1959), 49-51.

subsoil. The residue consisted of a very reddish silt and clay, with only a few tiny quartzes. This would not be sufficient to yield a significant amount of the rather strikingly sandy subsoil deposit. The time available for such solution is confined to the 10,000 years or so of the postglacial period, since the district was presumably scoured down to the rock by ice during the Last Glaciation. Water-sorted and wind-sorted drifts from the margin of the receding ice-sheet seem likely to have provided the bulk of the material.

APPENDIX II

POLLEN ANALYSIS

By G. W. DIMBLEBY

When excavating one of the circles, Mr. Lomas took a sample of the buried soil surface for pollen analysis. At a later date a series of samples was taken at one-inch intervals through a soil profile in the undisturbed moor. This, it was hoped, would provide comparative material against which the pollen spectrum of the buried soil surface could be matched.

The analyses were carried out and the results presented diagrammatically in the usual way (Fig. 29).[1]

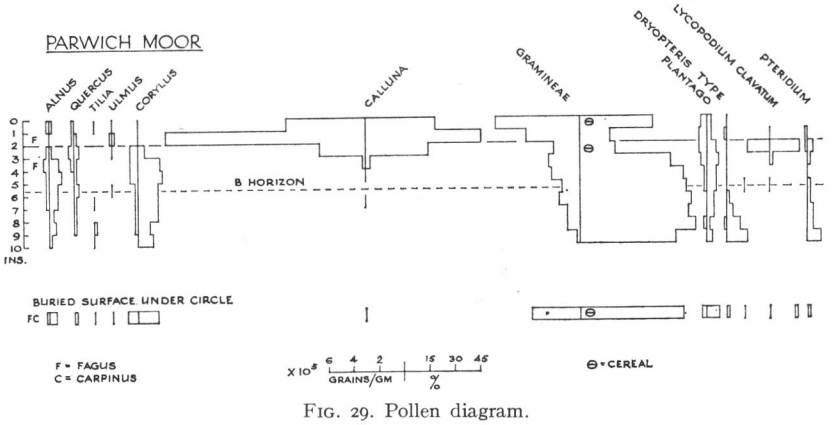


FIG. 29. Pollen diagram.

Interpretation.

The pollen spectrum of the buried turf was dominated by grasses (*Gramineae*). Plaintain (*Plantago*) was the most abundant of a variety of herbs represented and a trace of cereal pollen was also seen. At the same time considerable quantities of hazel (*Corylus*) and alder (*Alnus*) pollen were present. The site seems to have been open country, though with scrub woodland in the neighbourhood, and was probably in use as pasture. Contemporaneous cereal cultivation was apparently taking place in the region.

The poor representation of forest trees makes dating difficult, but the presence of beech (*Fagus*) and hornbeam (*Carpinus*) indicates a Sub-atlantic date. On the other hand lime (*Tilia*) and elm (*Ulmus*) were also present; these generally disappeared at

[1] G. W. Dimbleby, "Soil Pollen Analysis", *J. Soil Sci.*, Vol. 12 (1961), 1-11.

the beginning of the Sub-atlantic period, so a date near the Sub-boreal/Sub-atlantic transition seems indicated.

The pollen profile from the moor soil gives a framework into which the interpretation given above can be fitted. The top two inches of the soil are raw humus which contains pollen almost exclusively of heather (*Calluna*) and grasses, reflecting the present vegetation. There is, however, a dramatic change as one passes into the mineral soil. Heather rapidly falls away, showing that it has only colonized the site in the later stages. It was present only as a trace in the buried surface.

Through most of the profile the grasses are predominant with a considerable accompaniment of plantain in the upper layers, though its proportion falls off with depth. Hazel and alder are also present, as in the buried surface. Indeed, the spectrum of the buried surface corresponds well with that of the soil between 4 to 6 in. The chief difference lies in the absolute frequency of the pollen, which is higher in the buried surface, as is to be expected. No hornbeam was seen in the soil profile, but beech, lime and elm occurred sporadically. Though these trees are not adequately represented in the soil counts, it is seen that the 4-6 in. zone straddled the distributions of the recent beech and the earlier lime.

A point of interest is the extraordinary concentration of spores of the club-moss, *Lycopodium clavatum*, at the surface of the mineral soil. This has no obvious ecological explanation and may be an artificial concentration. Traces of these spores were found in the buried surface under the circle. The species has become virtually extinct in this region in recent times.

Conclusion.

It seems justifiable to conclude that these circles were constructed during the Late Bronze Age or Early Iron Age, on land which had for long been cleared of forest and which was probably under pasture. No indication of the purpose of the circles is given by the pollen analyses.