THE BRONZE AGE ROUND BARROW AT SWARKESTON.

By MERRICK POSNANSKY,
with a Pollen Analytical Investigation of the site by
DR. M. C. PEARSON.

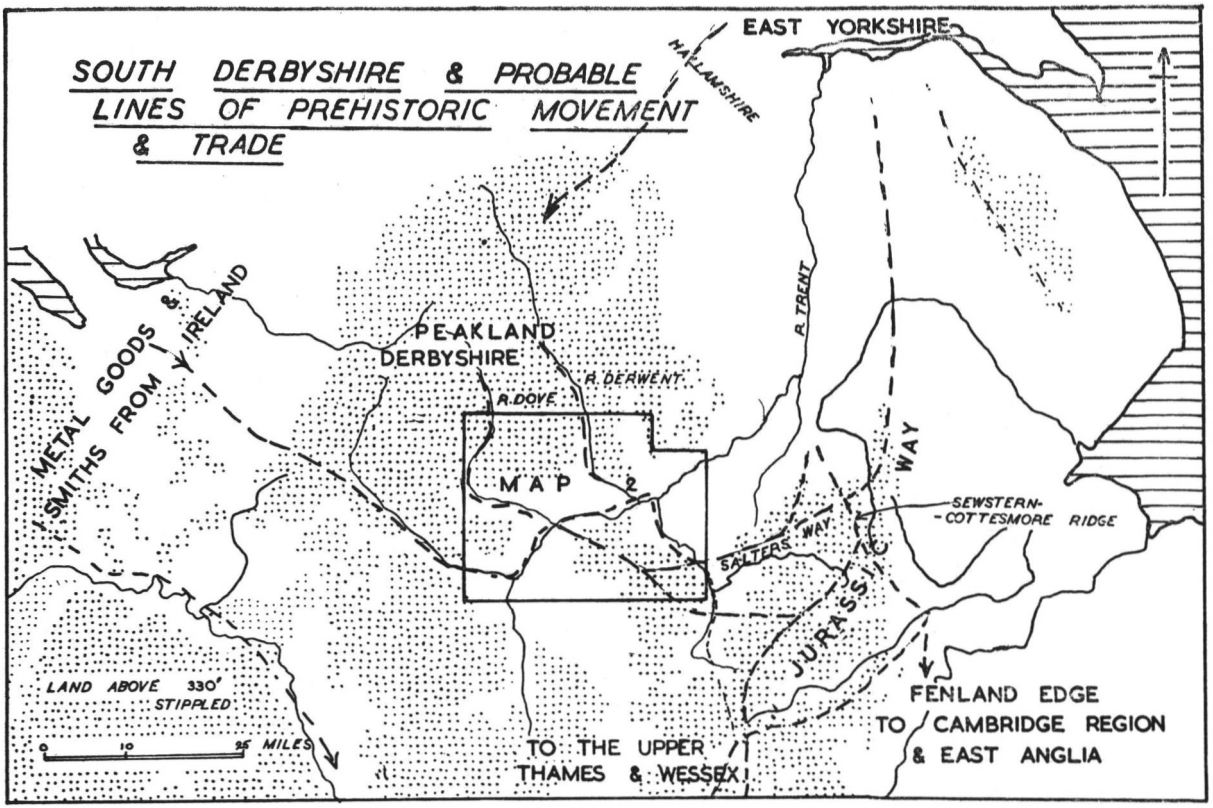
Part II. THE ENVIRONMENTAL EVIDENCE AND SOME CONSIDERATIONS ON THE PREHISTORY OF SOUTH DERBYSHIRE.

THE previous report contained in this *Journal* for 1955 gave details of the excavation of a round barrow in the group known as the Swarkeston Lows. Subsequent to that report, an excavation of a further barrow (Barrow IV) in the group was carried out by the Ministry of Works on the writer's advice, details of which are contained elsewhere in this *Journal*.

The two following specialist reports on the soil samples by Dr. I. W. Cornwall and on the pollen samples by Dr. M. C. Pearson throw light on the environmental background of prehistoric man for a period of the Middle Bronze Age.

Before discussing the environmental aspects of the Middle Bronze Age it is of interest to review the state of our knowledge of the prehistory of south Derbyshire up to the end of the Bronze Age.

Unlike Upland or Peakland Derbyshire, south Derbyshire has little claim to being a geographical entity. It is here defined (see Map II) as being the area south of the Carboniferous formations of the Peak, an area bounded by Ashbourne in the north and lying less than 600 ft. in height. The dominant physical feature of south Derbyshire is the Trent valley and its tributaries the Dove and the Derwent. The middle Trent valley here serves as a gateway between Lowland and Highland Britain (see


SOUTH DERBYSHIRE & PROBABLE LINES OF PREHISTORIC MOVEMENT & TRADE
EAST YORKSHIRE
HALLAMSHIRE
METAL GOODS & SMITHS FROM IRELAND
PEAKLAND DERBYSHIRE
R. DERWENT
R. DOVE
R. TRENT
MAP
SALTERS WAY
RIDGE WAY
SEWSTERN-COTTESMORE RIDGE
JURASSIC WAY
LAND ABOVE 330' STIPPLED
0 10 25 MILES
TO THE UPPER THAMES & WESSEX
FENLAND EDGE TO CAMBRIDGE REGION & EAST ANGLIA

MAP I

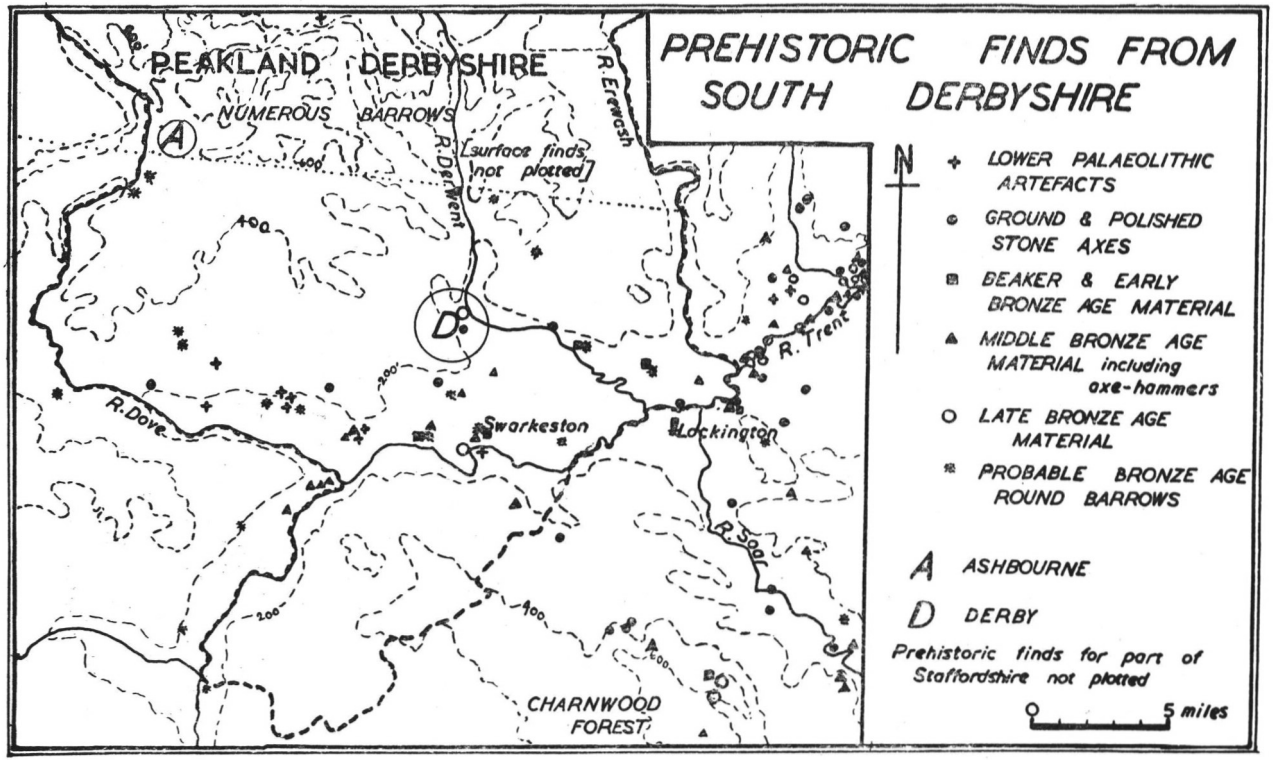
Map I). The valleys of the Dove and the Derwent provide routes into the Peak. On the western border the upper Trent valley provides a route, via the Tarporley Gap, into the Cheshire plain and the approaches to Ireland; to the east the Soar valley provides a route to the main Jurassic Belt and ultimately to the Cambridge district and East Anglia via the Salters' Way running from the Soar valley, in the vicinity of Barrow-on-Soar, to the Sewstern-Cottesmore ridge near Saltby in east Leicestershire.

Besides this focal aspect of south Derbyshire, extensive gravel terrace flats along the north side of the Trent and Dove provided easily worked soil for prehistoric agricultural activity together with the optimum conditions for trade, transit and fishing. The broad floodplain, though liable to frequent inundation, must similarly have provided opportunities for settlement and communications. The densely wooded aspect of the Keuper Marl hinterland of the floodplain would have accentuated the possibilities for its use, which, relatively free of the densest woodland, could provide summer pasturage and often tillable land.

The incidence of post-Roman arable agricultural activities in the middle Trent valley has removed from open view the majority of the barrows and other visible evidences of prehistoric settlement in contrast to the barrows and lynchets of Peakland Derbyshire where the area has largely been under rough grazing. The excavation of a ploughed-out barrow at Lockington in Leicestershire on the floodplain immediately to the east of the county boundary and the discovery of various ring-ditches from the air[1] would seem to indicate as in the upper Thames valley[2] or in the Soke of Peterborough that the sparsity of prehistoric material in this area may be more apparent than real. In these latter regions aerial photography has revealed a surprising richness of ring-ditches and ditch complexes indicative of a fairly extensive prehistoric settlement.

Map II indicates the finds of prehistoric material from

[1] M. Posnansky: 1955, *Trans. Leics. Arch. & Hist. Soc.* XXXI.
[2] D. N. Riley, *Oxoniensia*, VIII and IX, 64-101.


PEAKLAND DERBYSHIRE
NUMEROUS BARROWS
[surface finds not plotted]
R. Derwent
R. Erewash
R. Trent
R. Dove
R. Soar
Swarkeston
Lockington
CHARNWOOD FOREST
PREHISTORIC FINDS FROM SOUTH DERBYSHIRE
N
LOWER PALAEOLITHIC ARTEFACTS
GROUND & POLISHED STONE AXES
BEAKER & EARLY BRONZE AGE MATERIAL
MIDDLE BRONZE AGE MATERIAL including axe-hammers
LATE BRONZE AGE MATERIAL
PROBABLE BRONZE AGE ROUND BARROWS
A ASHBOURNE
D DERBY
Prehistoric finds for part of Staffordshire not plotted
5 miles

MAP II

south Derbyshire.[3] It will be seen that there is an absence of both Upper Paleolithic and Mesolithic material, a fact which is not at all in conflict with the present known distribution of material from these periods. The Lower Paleolithic material is relatively rich.[4] The most important sites are the gravel-pits at Hilton and Willington. This material comprises Acheulean hand-axes of flint and quartzite, and an Early Clactonoid flake industry. Typologically the hand-axes are of the Early and Middle Acheulean facies (mainly Breuill II-III). There is a marked absence of a Levalloisian flake industry. The Hilton fluvioglacial terrace gravels, in which the material is found, date from the Retreat stage of the Eastern Glaciation[5] and the implements themselves, which are all somewhat rolled, must be assigned, as regards the time of their manufacture, to the preceding Pennine-Drift Eastern Glaciation time interval (Mindel-Riss, Hoxnian Interglacial). Though the Hilton and Willington material is derived from gravel-pits, all that is known of the habitat of Acheulean man[6] would indicate that the middle Trent would be an area well suited to his needs. Hand-axes from Scropton and Church Broughton[7] are both of Middle Acheulean facies. The Scropton tool, almost certainly derived from a small pit working gravel of the Beeston Terrace, must be dated to the last Interglacial, and the Church Broughton implement probably so, on account of its comparative freshness.

A quartzite pebble mace head with an hour-glass perforation found at Chellaston may belong to the Mesolithic,[8] but is more probably Neolithic. Seven ground or polished stone axes have been found, though no flint axes. These axes have been sectioned and petrologically examined by Professor F. W. Shotton of Birmingham,

[3] See Appendix II for a Register of finds marked on the map.

[4] This material will be treated in full in a paper elsewhere by the writer on "The Lower and Middle Mesolithic Cultures of the East Midlands".

[5] A full account of the Pleistocene Succession in the Middle Trent basin is contained in a forthcoming paper elsewhere.

[6] A preference for camp sites in lowland areas, near large bodies of water is stressed by all recent environmental studies of Acheulean Man, e.g., K. P. Oakley, 1952, *Proc. Geol. Assn.*, p. 287, C. B. M. McBurney, 1950, *P.P.S.*, p. 178.

[7] H. H. Swinnerton, 1934, "Early Man in the East Midlands, Abbott Memorial Lecture, Nottingham.

[8] W. F. Rankine, 1951, *Arch. Newsletter*, IV, 53-6.

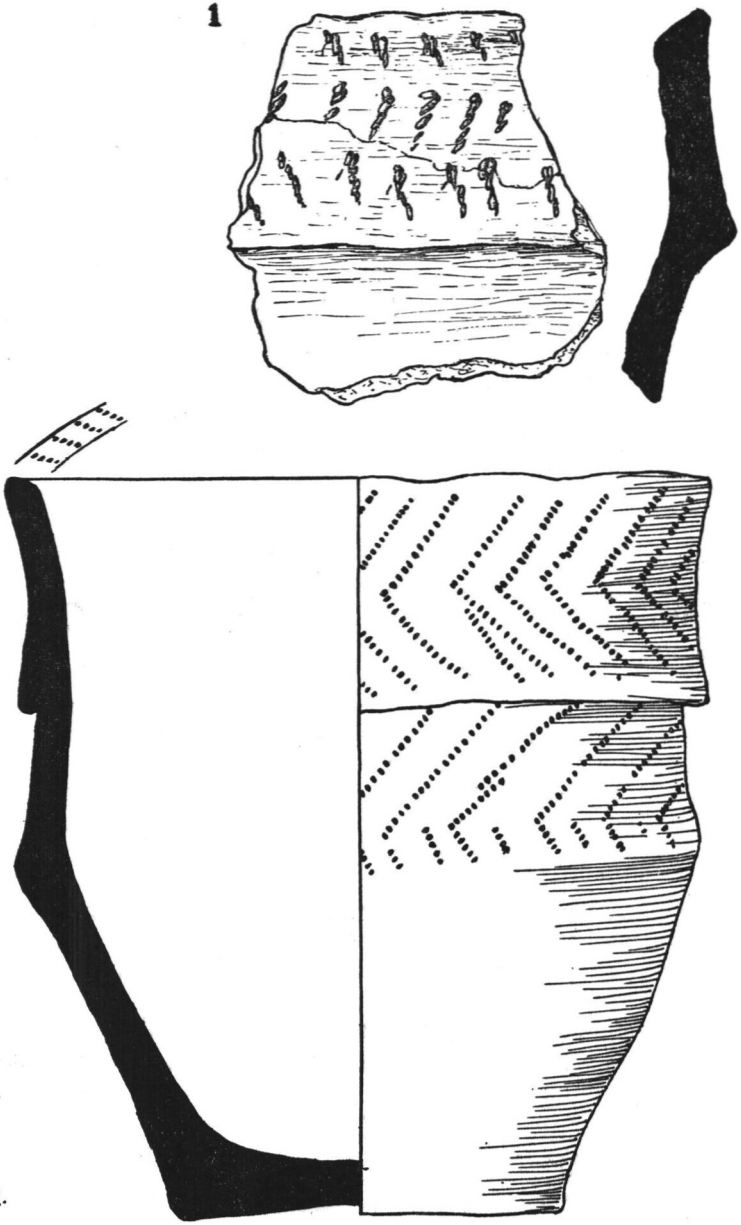


FIG. 1.
1. Fragment of Cinerary Urn from Stenson.
2. Cinerary Urn from Willington ($\frac{3}{8}$)

who has indicated a probable Lake District origin for several.[9]

No undoubted Neolithic pottery has been found from the area, though the pottery described by Mrs. Fowler and that found at Swarkeston by Mr. Greenfield, consisting of A/C Beaker sherds and a domestic ware bearing decorative motifs of a kind often found on Secondary Neolithic pottery, could indicate a cultural borrowing by the Beaker Folk from the Secondary Neolithic cultures. The only other finds possibly assignable to the Beaker Folk[10] are two battle-axes from Borrowash and Breaston.

This Beaker material from south Derbyshire is of interest in considering the sources of the Beaker material in Peakland Derbyshire. Fowler[11] has indicated the similarities of the Peakland beakers to those from east Yorkshire and has suggested that the Beaker elements came from east Yorkshire up the Trent. It would however appear more feasible that movement into the Peak should be via the Humber rivers into Hallamshire rather than by the Trent through the marshy Carrlands of the lower Trent. This is the route also suggested by Varley and Jackson[12] for the distribution of Beaker-type battle-axes from east Yorkshire into the Peak. If this is so the battle-axes and the beakers of south Derbyshire would represent a movement from the Peak into the middle Trent valley and would thus account for the absence of Beaker material from the rest of the Trent valley.[13]

Apart from a fragment of Food Vessel from Barrow II at Swarkeston, no finds directly assignable to the Early Bronze Age have been found, though the axe-hammers from the area may belong to this period. We have to think of this period of the Neolithic and Early Bronze Age in south Derbyshire as one general cultural continuum characterised probably by a Secondary Neolithic culture

[9] These are to be published together with the other Derbyshire axes by the Stone Age Survey.

[10] W. J. Varley and J. W. Jackson, *Prehistoric Cheshire*, Chester 1940, p. 30 suggest that battle axes were not part of the Beaker material complement, but were introduced at the same time.

[11] M. J. Fowler, 1953, *D.A.J.*, p. 122.

[12] Varley and Jackson, 1940, *op. cit.* fig. 26.

[13] A Beaker sherd from Cromwell and a flint dagger from Staythorpe in the Newark area of Nottinghamshire probably represent a minor infiltration into the Trent valley from the Grantham area.

receiving Beaker cultural strains from the Peak and possibly engaged in a trade in Lake District stone axes from Highland to Lowland zones, later possibly to be followed by a movement through the area of Early Bronze Age metal forms from Ireland via the upper Trent route of Peake.

Middle Bronze Age material is represented by cinerary urns or fragments of such from Willington, Stenson, and Swarkeston and a looped palstave from Melbourne, whilst a rapier has been found in the gravel-pit at Stretton and palstaves from Horninglow and Stretton just over the Staffordshire border. Tanged and barbed arrow-heads and flint chippings of probable Early or Middle Bronze Age date have been found at Melbourne, Allenton, Alvaston, Chellaston, Kirk Langley and Swarkeston.[14] Though it must be admitted that the amount of material is meagre, the presence of numbers of round barrows on the terrace gravels[15] would suggest the probability of further finds when it is considered that all the Middle Bronze Age finds have in fact been found since 1938. The only Late Bronze Age finds are a socketed sickle which probably came from near Derby and a twin rivetted knife from Barrow-on-Trent.

For all these finds the basic distribution pattern is the same (Map II), being confined to the terrace gravels the floodplain and the immediate forested hinterland. Apart from the waste flakes and palstave from Melbourne there is a signal absence of material to the south of the Trent floodplain.

The environmental background of the Middle Bronze Age and the nature of this middle Trent area would suggest that the agriculture economy was probably very mixed. We have to envisage a small amount of grain cultivation on the terrace soils with the clearings becoming larger due to grazing activites, summer kine pasturage on the floodplain, possibly pigkeeping in the woodland edge, hunting in the forested hinterland and fishing and fowling along the river and by the small lakes and meres

[14] Material in Derby Museum
[15] See Part I, p. 129.

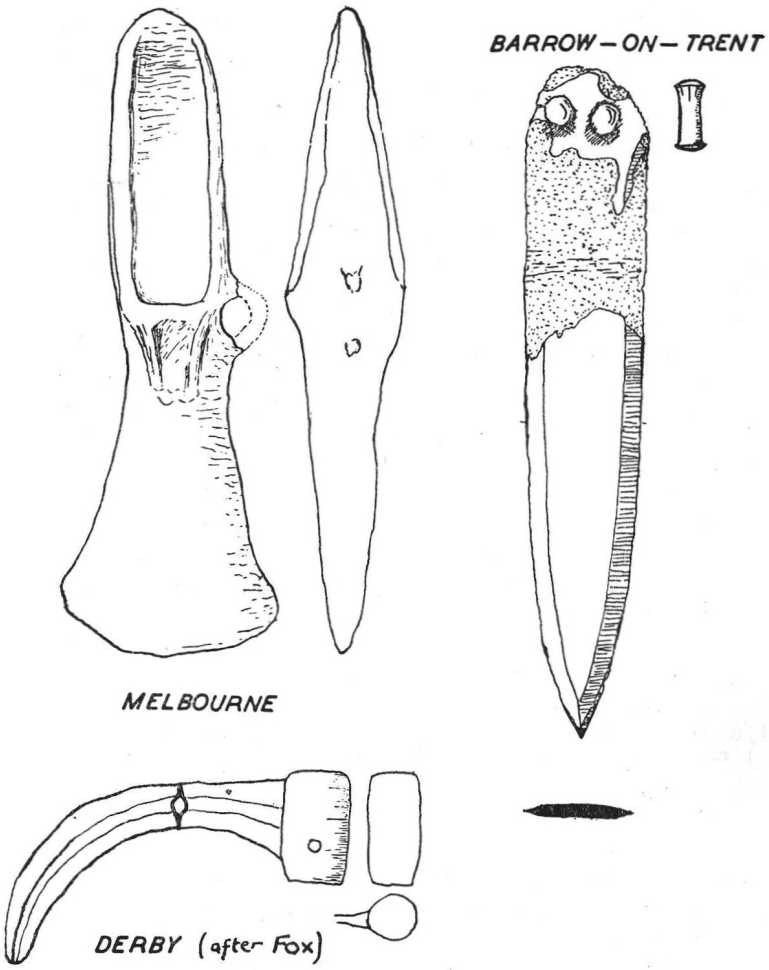


FIG. 2. Stray Finds from South Derbyshire.
Palstave, Melbourne; Knife, Barrow-on-Trent; Socketed Sickle, Derby, after Fox (1939).

which still existed at that time in the Trent valley.[16] The large number of simple finds like grain rubbers, hammer-stones, bone needles, flint chippings, whetstones, etc., made by the late T. W. Armitage[17] along the Trent near the Soar confluence at Thrumpton, is indicative of the scope for painting in the social and economic picture of prehistoric man in the area if sufficient private observers existed.

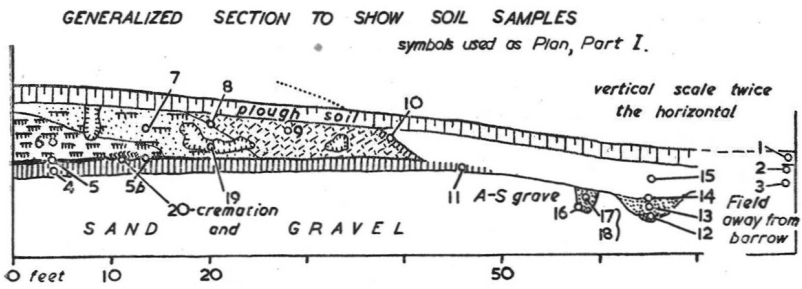
Though there is insufficient material to indicate lines of communication and trade, the distribution of bronze tools in surrounding areas would seem to suggest the passage of tools or smiths through the area. The import-ance of this trade will probably never be reflected in numerous finds since as Powell[18] has reflected in discussing the Jurassic Way, a through route is "not dependent on a continuous local population for its prosperity", Peake in 1912[19] suggested two routes for the passage of metal goods and smiths from Ireland across the area from the upper Trent, one via the Trent, the Soar and the Salters' Way to the Jurassic Way and the other across Charnwood Forest from the vicinity of Stretton to the Salters' Way. It is of interest to note here the Late Bronze Age hoards from Beacon Hill and Welby in Leicestershire and Cottes-more in Rutland on the line of this latter route to the main Jurassic Way. It is not improbable that the routes across Charnwood were developed in the Late Neolithic and Early Bronze Age, when it would appear that some of the Charnwood rocks were being exploited for the manu-facture of stone axes and axe-hammers.

[16] A Late Bronze Age Sword was found in the peats at Highfields near Nottingham and would indicate that these meres were still in existence at that time.

[17] The collection made by Mr. Armitage seems to have been lost about the time of his decease in 1955, though the contents were recorded but not drawn by the writer in 1954.

[18] T. G. E. Powell, 1950, *Arch. Jnl.*, p. 38.

[19] H. Peake, 1912, in *Memorials of Old Leicestershire*, ed. A. Dryden, London.



APPENDIX.

SOIL SAMPLES.

Dr. I. W. Cornwall of The Institute of Archæology, University of London, examined twenty samples taken from the barrow as indicated in the generalized section above, and contributes the following notes on various of the samples.[22]

Nos. 1 and 2 represent, respectively, the modern plough-soil away from the monument and its immediate undisturbed subsoil, overlying natural sand and gravel of a river-terrace (no. 3).

A microscopic section of no. 2, the presumed (B)-horizon of a brownearth, showed the typical brownearth structure and the pH value, close to neutrality, though on the acid side, confirmed the visual determination of the soil-type. The importance of this is that iron is evidently *not* mobile in the modern soil.

Nos. 3, 4, 5, 5b represent a section through the buried soil below the inner turfy core of the barrow-mound, from the natural sandy gravel subsoil through 4, the ancient (B)-horizon to 5, a dark, presumed to represent the original surface.

A microscopic section of no. 4 also showed a brownearth structure, with immobile iron and considerable humus. The only slightly acid pH value indicates a brownearth, though of the ologotrophic type, yet not so acid as to approach a podzol in character.

Nos. 5 and 5b, samples from the buried ground-surface itself, show some concentration of humic matter and a pH as low as 6.0m as could be expected, but also very marked concentration of iron. This must be secondary (i.e. formed since the erection of the barrow-mound).

No. 11. Essentially, this is the same as no. 4, below the mound. The absence of secondary iron seems to suggest that it has not

[22] "All were examined for pH value and presence of carbonates, their contents of alkali-soluble humus and phosphate estimated and their acid-insoluble residues prepared and examined visually. Total iron estimations were carried out on Nos. 1-11". The full report on all the samples is deposited with Derby Museum.

until comparatively recently been buried; nevertheless, some wash-down must have occurred between the building of the barrow and ploughing, so that the earliest silt on the berm is not likely to be plough-soil only.

Nos. 12, 13, 14, ditch-filling. The pH's are very close to neutrality, the two upper samples even slightly alkaline. The somewhat higher base-status of these, as compared with other samples, indicated by the pH, must be extraneous in origin, for the mound samples and "natural" have no store of bases on which to draw. The relatively high phosphate figures bear this out — about three times the concentration in mound or "natural". Occupation-débris or animal remains, including dung and bones, is the probable source of the phosphate. Even the modern plough-soil shows less than half this concentration. In no. 12, the lowest sample, organic matter is high and there is some charcoal, indicative of human activities contemporary with the early ditch-filling.

No. 15. This "redistributed material" is certainly to some extent wash-down from the mound, though the plough is probably mainly responsible for the spread.

No. 16. Lining of Anglo-Saxon grave. The red colour of this sample can be exactly reproduced by ignition in air of no. 3, the "natural". The compaction and colour are, therefore, probably due to firing *in situ*. This is borne out by the "whitening" (milky opacity) of the naturally mainly clear quartz-grains, seen also in the ignited sample of (3). Organic matter is also very low, as would be expected in a fired sample.

No. 19. Filling of rodent hole. From its size the rodent looks like rabbit — therefore presumably post-Norman. There is three times as much organic matter as in the natural, but only two-thirds as much as in the turf mound surrounding the burrow. There must be some introduced, cleaner material. Phosphate is x 5 as compared with the natural and nearly as much in comparison with the turfy material. It is probably due to droppings in the burrow.

On this surface was raised the mound of the barrow, consisting of an inner core of locally humic material (no. 6) encased in progressively cleaner subsoil (nos. 7, 9), presumably scraped up from the neighbourhood. The latter were separated by a thin humic and somewhat ferruginous horizon (no. 8). A similar, but more pronounced layer (no. 10) covered no. 9 and represented, presumably, the surface of the mound as originally constructed.

No. 6 was clearly composed of unit masses. These look like facsimiles of the buried surface and are, I think, correctly interpreted as turves cut from it. If we conclude that the iron in the buried surface is secondary — as I think we must, for in that position the section represents no known natural soil-profile — then that in the turves is probably secondary also.

On consultation with Mr. L. Biek of the Ministry of Works,

Ancient Monuments Dept., who had a similar problem in another turf-cored barrow nearby (Barrow IV), it seemed likely that the iron in no. 6 was original — the B-horizon of a distinct podzol. The anomaly in the observed order of the soil-horizons — black, ferruginous, grey — is explicable on the assumption that Sample 6 comprised portions of two adjacent turves.[23]

Podsol Turf I { A_1 black, A_2 grey, B ferruginous } Sample 6 (inverted).

Podsol Turf II { A_1 black, A_2 grey, B ferruginous }

The general conclusion that a podzol at the time of the erection of the mound has since been regenerated into a somewhat acid brownearth is confirmed by the pollen findings of Dr. Dimbleby.[24]

The mineral particles of the mound material are noticeably finer in grade than those of the buried soil. It seems possible that these finer particles somewhat restricted percolation and that deposition of iron at the buried surface followed the emergence of such percolation as penetrated the mound into a coarser-grained and better-aerated layer.

There is nothing much, one way or the other, to suggest whether or not no. 7 represents a later structural phase than no. 6. Soil-formation in this mixed material is not at all distinct, for small samples for chemical tests taken from different parts of the large field-samples often gave quite distinct results. This shows that the material is not homogeneous and this lack of uniformity approaches in scale what could be expected to be significant as evidence of soil formation. The tests thus afford no definite evidence of any soil intervening between nos. 6 and 7. If the ferruginous matter of no. 8 is a continuous "pan", it is more likely to be derived from nos. 10 and 9 than to denote a surface.

No. 9. The orange-coloured part of this may well be clean material from the quarry-ditch, but layer 9 is mixed and contains much finer and bleached stuff also, which seems at one time to have formed part of a poor brownearth profile — i.e. scraped-up rather than dug material.

No. 20. Material from beneath cremation. This was undoubtedly wood, but the vessels are so crushed that the structure in transverse section is impossible to see. From the longitudinal section (radial, tangential or between these?) I would guess at

[23] From work undertaken by Mr. L. Biek on Barrow IV it would appear that the writer was mistaken in Part I of this report (pp. 126-7) in his interpretation of the superposition of the turves of the turf core. The turves were stacked upside down and the tripartite banding of the individual turves involved little if any secondary iron movement consequent to their stacking.

[24] These findings confined to Barrow IV (author's note).

oak, without any great conviction, for the characteristic structures are much blurred even here.

Archæological note to Sample 20.

The possible presence of the remains of wood beneath the small cremation deposit was noted during excavation but not commented on in Part I of this report. Its confirmation as wood could suggest a platter or burial on a board similar to those described by Glasbergen[25] for Middle Bronze Age cremations from Holland. The extent of the wood traces suggested an oval "platter" some 3 ft. in length though poor preservation prevents further description.

A POLLEN ANALYTICAL INVESTIGATION OF A BRONZE AGE BARROW AT SWARKESTON.

The aim of this investigation is an attempt to show, by means of pollen analysis of samples taken from various horizons in the barrow, the nature of the surroundings vegetation at various stages of the barrow's history. The report which follows is a preliminary account since it is not possible to reach other than tentative conclusions from the data now available. It is hoped, however, that a peaty deposit nearby will yield further information about the history of the regional vegetation.

The samples analysed were taken from

(a) the old soil surface (occupation layer) of the barrow

(b) the turves which form the mound

(c) the material filling the ring ditch.

They were prepared for analysis by the method outlined by Faegri and Iversen (1950) and at least 5 slides were prepared for each sample. Unfortunately, of the three sets of samples examined, only that from the old soil surface proved to have a countable number of pollen grains. Furthermore the poor state of preservation of much of the pollen belonging to this sample meant that a large number of fragments were unidentifiable. This makes the interpretation of the data very difficult and any conclusions reached must of necessity be only tentative. In accordance with the normal procedure for British pollen analytical investigations the different pollen types have been expressed as a percentage of the total tree pollen (excluding Corylus = hazel); in addition they have been expressed as a percentage of the total pollen count.

[25] Glasbergen W., 1954, "Barrow Excavations in Eight Beatitudes, *Palaeohistoria*, II and III.

The Old Soil Surface (Occupation Layer)

This soil, which lay under the barrow, consisted of a thin upper horizon, dark brown in colour, composed of a mixture of humus and mineral material; and of a thicker lower horizon of yellow-orange sand. It was the upper horizon which proved to be rich in pollen. The results of the analysis of this horizon are given in the accompanying table. The interpretation of these results is based on the methods of Jonassen (1950) and Dimbleby (1954). Jonassen (1950) has shown that the recent pollen spectra of open country are distinguishable from the recent spectra of forest by their higher values for the ratio $\frac{\text{N.A.P.}}{\text{AP.}}\% \quad \frac{\text{(Non Tree Pollen)}}{\text{Tree Pollen}}$

He obtained the following values for this ratio from the analysis of samples taken from recent moss tufts and mud deposits in different situations with respect to forest vegetation.

(a) The value of this ratio inside the forest was generally under 50. [Only in the most open forest of birch and of pine did it reach somewhat higher values].

(b) In small glades in the forest where the distance from the trees is less than 0.2 kms, the values for this ratio lay between 50 and 100. [Only in pine forest glades did it exceed this value].

(c) In the open country in a wooded region where the distance to the forest varied between 0.2 and 1.0 kms, the average value of this ratio was 159.

(d) In entirely treeless country where the distances from the forest varied between 1 and 11 kms, the average value for the ratio was 195.

Dimbleby (1954) has shown that the following three ratios are important in interpreting pollen analytical data in terms of changes in the vegetation brought about by the influence of man. These ratios are:—

(a) $\frac{\text{N.A.P.}}{\text{A.P.}}\% \quad \frac{\text{(Non Tree Pollen)}}{\text{Tree Pollen}}$ which gives a measure of the relationship between forest and herbaceous vegetation. The higher the value the more open is the vegetation.

(b) $\frac{\text{A.P.} + \text{Co.}}{\text{≷P.}}\% \quad \frac{\text{Tree Pollen} + \text{Hazel)}}{\text{Total Pollen}}$ which is a measure of the predominance or otherwise of woody plants in the vegetation; its value will decrease as deforestation proceeds.

(c) $\frac{\text{N.A.P.}}{\text{Co.}}\% \quad \frac{\text{(Non Tree Pollen)}}{\text{Hazel}}$ which is a measure of the relationship between hazel shrubs and herbaceous vegetation.

Values for these ratios are given, based on data obtained from the examination of a series of barrows situated on the Dorset and Hampshire heathlands. The values for one of the earliest sites, which belongs to the Early Bronze Age are:—
Ratio (1) 225%, ratio (2) 59% and ratio (3) 99% and those for the

latest site, which belongs to the Iron Age, are 1164%, 23% and 466% respectively. These two sets of values indicate the composition of the vegetation during early and late stages of forest clearance respectively.

Applying these methods to the present investigation the values for the three ratios are as follows:—

(a) 169% (b) 73% (c) 152%.

The values obtained for all three ratios are indicative of open deciduous woodland; oak, lime and alder are well represented. The mixed oak forest may have been confined to the gravel ridges, on one of which is situated the barrow, whereas it is probable that the alder was associated with waterlogged habitats on the flood plain of the Trent valley.

The high percentage of Corylus (111%) suggests localised hazel thickets, probably at the margins of patches of forest.

The value of 14% recorded for the pollen of oak, together with the preponderance of pieces of oak among the charcoal found in the cremation deposit and in the old ground surface, suggest that this tree was found in some quantity in the vicinity of the barrow.

Comparison of the non tree pollen figure (169%) with those quoted by Jonassen (1950) gives support to the suggestion that open woodland was the characteristic type of vegetation on the gravel ridges. Furthermore the open areas within the woodland would appear to have been up to 1 km in diameter. The high percentage of grass pollen and the absence of ericoid pollen indicate the grassy nature of the open areas. Clearly this evidence does not indicate heathland vegetation. Among the other herbs present are several plants which are characteristically weeds of disturbed or cultivated land and this evidence, together with that of the two records of cereal pollen, suggests that a limited use may have been made of open areas for cultivation. From the above evidence we may tentatively conclude that at the time of the construction of the barrow the general vegetation of the gravel terraces consisted of open mixed woodland with hazel thickets and large grassy areas.

M. C. Pearson.

REFERENCES.

Dimbleby, G. W. (1954). Pollen Analysis as an Aid to the Dating of Prehistoric Monuments. *Proc. Prehist. Soc.*, **20**, 231-235.

Faegri, K. and Iversen, J. (1950). Textbook of Modern Pollen Analysis. Copenhagen, Munksgaard.

Jonassen, H. (1950). Recent Pollen Sedimentation and Jutland Heath Diagrams. *Dansk. Bot. Ark.*, **13**, 1-168.

RESULTS OF POLLEN ANALYSIS

(upper horizon of old soil surface) No. of Traverses 52.

Pollen Types	Absolute Numbers	Percentage Total Tree Pollen (≶AP)	Percentage Total Pollen (≶P)
Pinus (Pine)	1	+	+
Ulmus (Elm)	4	2	+
Quercus (Oak)	20	14	4
Tilia (Lime)	14	11	3
Alnus (Alder)	100	70	18
Carpinus ? (Hornbeam)	5	3	1
≶A.P.	144	100	—
Corylus (Hazel)	160	111	29
Salix (Willow)	1	+	+
Gramineae (Grass)	100	70	18
Cerealia (Cereal)	2	+	+
Caryophyllaceae	16	11	3
Compositae (Tubuliflorae)	2	+	+
,, (Liguliflorae)	20	14	4
Succisa pratensis (Scabious)	30	21	6
Ranunculaceae	15	10	3
Plantago (Plantain)	16	11	3
Chenopodiaceae	1	+	+
Polypodium (Fern)	39	27	8
Pteridium (Bracken)	2	+	+
Unidentifiable	≏600	—	—
Non tree pollen, N.A.P. (excluding Corylus)	244	169	44
Tree Pollen ≶A.P.	144	100	26
Tree Pollen ≶P.	548	380	100

A Register of Prehistoric finds from South Derbyshire marked on Map II.

A full description is only given of those objects published for the first time and of those stray finds unlikely to receive publication elsewhere.[20]

PLACE (and National Grid Reference where known)	NATURE OF FINDS	COLLECTION AND IF PUBLISHED
LOWER PALÆOLITHIC:		
CHURCH BROUGHTON, found 1932	Hand-axe, broken Middle Acheulean ovate.	University Museum, Nottingham, Swinnerton 1934 op. cit., p. 6.
HILTON, gravel pits east and west of road to Sutton-on-the-Hill.	Some 50 Early Acheulean, 4 Middle Acheulean hand-axes (5 non flint), 7 Clacton flake cores and 19 flakes known to the writer. Mostly very heavily rolled.	Private Collections. University Museum, Nottingham, A. L. Armstrong, 1939, *Mem. Manch. Lit. & Phil. Soc.*, LXXXIII, 87, for description of site but not of individual implements.
HILTON, surface find north of village, east of road.	Early Acheulean hand-axe.	Private collection.
SCROPTON, found 1929, SK 179 315	Middle Acheulean Ovate.	University Museum, Nottingham, Swinnerton, 1934, op. cit., p. 6.
SWARKESTON, found 1953, gravel pit.	Quartzite ?Acheulean core tool.	University Museum, Nottingham.
WILLINGTON, gravel pit north of railway line.	Some 20 Early Acheulean and 6 Middle Acheulean hand-axes (3 non flint) and 3 flakes.	Private Collections, University Museum, Nottingham, Armstrong, 1939, op. cit.
GROUND AND POLISHED STONE AXES (Neolithic – Early Bronze Age):		
DERBY.	Polished stone.	Derby Museum, 819-4.
DUFFIELD, EATON BANK.	,, ,,	Derby Museum, 417-33.
ETWALL.	,, ,,	Derby Museum, 746-37.
SOUTH NORMANTON.	,, ,,	Derby Museum, 411-33.
SAWLEY WHARF.	,, ,,	Derby Museum, 866-22.
SPONDON.	,, ,,	Private Collection.
SUDBURY.	,, ,,	Derby Museum, 140-51.
BEAKER AND EARLY BRONZE AGE:		
BORROWASH, found 1841, in cutting for Midland Railway.	Twin ridged Beaker "battle-axe".	Sheffield Museum, 93-8, J. J. Briggs, *History of Melbourne*, London, 1852, p. 15. Evans, *Ancient Stone Implements*, 1897, fig. 128.
BREASTON.	Greenstone Beaker "battle-axe".	Private Collection.
STENSON, SK 331 301.	A/C Beaker and other sherds.	Private Collection, Fowler, 1953, op. cit.
SWARKESTON, below Barrow IV.	A/C Beaker and other sherds.	Derby Museum, Greenfield, publication forthcoming.
SWARKESTON, Barrow II.	Fragments of Food Vessel (Abercromby type 5).	Derby Museum, Posnansky, 1955, *D.A.J.*, p. 132.
MIDDLE BRONZE AGE AND AXE HAMMERS:[21]		
ALLENTON.	Axe Hammer (Stone Axe Survey Group XV).	Derby Museum, 285-55.
BREADSALL.	Quartzite Pillow mace.	Derby Museum, 819-54.
LONG EATON.	Axe Hammer.	Private Collection.
MELBOURNE.	Looped palstave, very badly corroded, loop broken, possible shield or trident pattern on blade. cf. Figure 2.	Derby Museum.
SINFIN.	Axe hammer (Group XVIII).	Derby Museum, 344-31.
STENSON, disused gravel pit.	Rim fragment of overhanging rim urn, poorly fired very friable fabric. Collar decorated with short whipped cord impressions in herring bone pattern, internal rim bevel undecorated. cf. Figure 1.	University Museum, Nottingham.
SWARKESTON, Barrow IV.	Fragments of coarse cinerary urn.	Derby Museum, Greenfield, publication forthcoming.
WILLINGTON, found 1937, nr. Level crossing.	Two cinerary urns, one figured above, cf. Figure 1.	One in Derby Museum, W. H. Hanbury, 1938, *D.A.J.*, LIX, p. 95.
LATE BRONZE AGE:		
BARROW-ON-TRENT.	Twin rivetted knife, thin blade, no tang, bevelled edges, large rivets (0.55″ long), length 5.15″. cf. Figure 2.	Derby Museum. M. J. Fowler, 1955, *D.A.J.*, p. 110, there given as Beaker.
NR. DERBY.	Socketed sickle, Group 1, closed socket top, length 3.2″. cf. Figure 2.	Farnham Museum, C. Fox, 1939, *Proc. Preh. Soc.*, V, p. 243.

[20] For full description, M. Posnansky, 1956, unpublished thesis, "Some Considerations on the Pleistocene Chronology and Prehistory of Part of the East Midlands". University of Nottingham.

[21] Axe-hammers may well be of Early Bronze Age date. Both battle-axes and Axe hammers from the Cwm Mawr factory, Shotton, Chitty and Seaby, 1951, *Proc. Preh. Soc.* XIX, pp. 159-67.