

ART. XII.—*King Arthur's Round Table. Final Report, including the Excavations of 1939, with an appendix on the Little Round Table.\** By DR. GERHARD BERSU, Hon. F.S.A.

IN 1938 Professor R. G. Collingwood produced, in these *Transactions* (xxxviii, 1-31), an *Interim Report* on the excavations of 1937 at King Arthur's Round Table. Illness prevented him from completing the task, and the final investigation was conducted by the writer, to whom it had been entrusted, between 20th July and 27th August, 1939. Eight workmen were employed throughout, while the experienced Mr. W. Cruddas of Greenhead acted again as foreman. Mrs. Spence undertook the task of Excavations Secretary and Guide, and superintended the filling-in during the anxious days preceding the outbreak of war. Dr. J. E. Spence devoted the first week of his vacation to joint direction, while Miss M. Cross and Miss K. S. Hodgson gave voluntary help in the more delicate tasks. It was particularly useful to have Mrs. Collingwood's presence for a week during the excavation. Mr. Hay and Dr. Goodchild gave much valuable advice on geological problems. Mr. R. Morton Rigg, as during the first season, undertook the organisation of labour and tools most generously lent by the Penrith Urban District Council. Captain Anthony Lowther, on behalf of Lowther Estates Limited, kindly extended permission to excavate, with the consent of the tenant, Mr. W. Bainbridge of the Home Farm; while H.M. Office of Works authorised excavation of a scheduled monument, a visit being paid by Inspector P. K. Baillie-Reynolds. To all these helpers and to Major Porter, I offer heartiest thanks for their

\* Translated by Ian A. Richmond.

assistance. Among many visitors I had the pleasure of welcoming Messrs. Grahame Clark and J. F. Grimes. Finally three trenches were made through the so-called Little Round Table (see Appendix) and, in co-operation with H.M. Office of Works, the surviving standing-stone in the adjacent circle at Mayburgh was secured against collapse.

#### THE SITE.

(Position: Long.  $2^{\circ} 45' 30''$ . Lat.  $54^{\circ} 39' 50''$ ).

The monument, visible from the London-Carlisle Road and thus well-known to any of its users, lies in the parish of Yanwath and Eamont Bridge.\* It is a mile and a half south-south-east of Penrith, and exactly a quarter of a mile south of Eamont Bridge, in the angle of the Carlisle Road and the by-road from Eamont Bridge to Tirril and Pooley Bridge (fig. 1, p. 206 from 6-inch scale Ordnance Map, edn. 1920, Westmorland III S.W. and S.E.). It stands on the western shelf of the flat 400-foot terrace of the rivers Lowther and Eamont. The slope which rises from the terrace on the west, enables a good general view of the monument to be obtained (Pl. E, 1).

#### THE ACTUAL STATE.

As we may gather from the new plan (fig. 2) by Professor Collingwood, which we have adopted as it stands, the monument consists of (1) *a mound with gateway-opening* to south; (2) a broad-bottomed encircling *ditch* with *causeway*, not aligned upon the gap in the bank; (3) a level *platform* enclosed by the ditch, on which lies, out of centre, (4) a low flat mound, the so-called *disc*. The Tirril Road, described above, has cut off bank and ditch to north as far as the central platform, while the Carlisle Road has sliced away part of the bank to east. Professor

\* *Anc. Mon. Comm. Westmorland*, London, 1936, p. 252, with a small plan and a view, here used as plate E, 1, through the kindness of Mr. Clapham, secretary to the Commission.

Collingwood describes the actual state in detail as follows:—

"The central platform is in shape nearer to an ellipse than to a circle. A tolerable approximation to its outline can be constructed by drawing an ellipse with the foci 100 feet apart whose major axis measures 172 feet and its minor axis 145. The intersection of those two axes I shall call the "centre" of the platform. The major axis bears roughly E.S.E.; to be precise,  $114^\circ$  (true). The line joining the centres of the causeways where they spring from the central platform (the position of the northern causeway being conjectural) bears  $141^\circ$  or roughly S.E. These two bearings thus differ by  $25^\circ$ . The central line of the existing causeway is not easy to determine, but it bears about  $160^\circ$ , roughly S.S.E. This line does not pass through the gap in the mound which is meant to be opposite to it, but through the slope of the mound west of that. Placed eccentrically on the central platform is a raised disc, 75 feet in diameter and about eight inches above the general level of the platform.

The only feature which is at all regular is the ditch. This is uniformly about 40 feet wide (it never shrinks to below 40 nor expands to above 43) and is, to its present bottom, between four and five feet deep. This bottom is flat and about 20 feet wide. The two sides differ in appearance. The outer side slopes comparatively gently, the angles at top and bottom being smooth and rounded as one would expect in prehistoric earthworks. The inner side is comparatively steep and its angles are sharp, especially that of the top. The form of this angle has long been a cause of perplexity to careful observers. The sides of the causeway show in this respect the same features as the inner side of the ditch.

The bank in its present form is very irregular. On either side of the south entrance it is from six to seven feet high and from 35 to 40 feet broad, and is separated from

the ditch by a berm of some twelve to twenty feet. Elsewhere it does not rise to a height of more than four feet. All along the north side it has been completely destroyed; all along the east it has been seriously encroached upon by the London-Carlisle-Road; for about 200 feet on the south and south-west it has been mutilated by robbing material from it for making two long narrow enclosures against its outside. But this does not exhaust the tale of mutilations. From the north-east corner of the site, travelling clockwise, there is no berm at all for the first 180 feet. The bank, which is very low and has been encroached upon from the outside by the road, sinks on the inside evenly and gently to the lip of the ditch. Then comes a sudden change, and for the next 80 feet the bank is high and there is a well marked berm. Careful study of the inner side of the bank near its summit shows that it has here been robbed; the turf is dimpled by hollows which have evidently been made by quarrying. Beyond the entrance the same features are at first to be seen; then, as the berm narrows, the marks of quarrying in the inner side of the bank die away."

#### THE EXCAVATION (fig. 2).

We began our excavation with section I, three metres wide, running from the centre of the disc on the central platform to the edge of the work. When certain facts appeared which could not be reconciled with the results of 1937, seeing that I had at my disposal only Professor Collingwood's printed report of 1937, it seemed desirable to make first a general survey of the geological formation of the site. For this purpose section I was extended across the sloping terrace to the field boundary on the west. The central platform was next further examined by sections II, III and IV. There then emerged such fundamental differences in respect of the hypotheses advanced in the preliminary report, as to necessitate a

completely fresh examination linked with the excavation of 1937. A further section, VIII, was cut through the mound, and sections V and XIII elucidated still more details of its construction. Sections X, XI, XII and XIV examined the causeway and gateway-opening. Finally, in section VII, the so-called "cremation-trench," which Professor Collingwood had been unable to examine completely, was uncovered once more. Several short sections were cut (*Id.*, XV, XVI; not shown on fig. 2) where surface indications of human activity were visible close by the monument. It appeared that we were here dealing with very recent diggings associated with mortar, bricks and broken crockery, evidently buried rubbish; and we go no further into the matter. The examination of King Arthur's Round Table may be considered as thus brought to a close.

#### RESULTS OF THE EXCAVATION.

*The Geology.* Sections I, III, IV and V crossing the site from west to east (Pl. A, fig. 3) and Sections VIII, III, VII and II, from south to north (Pl. B, fig. 6), give between them a clear general picture of the natural formation. The different kinds of natural soil are shown with corresponding conventions in each diagram, while soil which has been subject to human activity is left white.

We may first consider the east-to-west section (Pl. A, fig. 3). The basic formation is a heavy red boulder clay (A), which comes to the surface on the slopes west of the monument. This boulder clay occurs, horizontally bedded, at the bottom of the ditch both on the west and on the east (sections I and V). Between the west ends of sections I and Ia there commences, on top of the boulder clay, coarse greenish gravel drift (B) containing large boulders, sandy deposits, and an occasional fraction of worked red boulder clay. There is distinct demarcation

between gravel and boulder clay. Where the edge of the gravel B is in contact with the impermeable boulder-clay A it is darkened by oxidisation for some 10-15 centimetres. Similarly, the topmost 10 centimetres of boulder clay is a deeper brown when in contact with B. Gravel B extends, in similar formation, right across the site to the east. To west, there develops beyond the bank, so as gradually to cover the top layer of the gravel, a yellow loamy soil (C). It contains boulders of all sizes, with occasional belts of gravel and sand. The line between gravel B and this material C is undulating. The material C itself, which dries into a solid mass on exposure to air, is locally called "sammel." Mr. S. E. Hollingworth, of the Geological Survey and the National Museum of Geology, London, kindly furnished the following report on a sample:—

"The sample is a pale stone-coloured stony loam. The stony fraction contains pebbles up to  $\frac{3}{4}$  inch in length and consists almost entirely of lavas, presumably derived from the adjacent Borrowdale Volcanic Series to the west. Only one different fragment—a piece of Skiddaw Slate—was noticed out of 30 examined. The finer material shows little or no trace of grading, but the paucity or absence of clay fraction is noteworthy. Test failed to reveal any trace of calcium carbonate in the finer fraction and the rarity of quartz sand grains derived from Penrith or St. Bees Sandstones is interesting as confirming the dominantly western origin of the deposit. The finer material seems to be entirely derived from pre-Carboniferous rocks. The unsorted character and general appearance of the sample is suggestive of a sandy boulder clay—possibly a decalcified one. Locally boulder clays do consist almost wholly of Borrowdale debris and are in places quite sandy. The non-calcareous character, absence of clay fraction and lack of sorting are not, however, inconsistent with deposition by water as a downwash from neighbouring higher ground, possibly a

late glacial effect. The texture resembles that of some brick-earths. I do not feel able to express a definite opinion as to which is the more probable origin from consideration of a sample without regard to field relations."

Where covered by the west bank the "sammel" retains its ancient surface (E), as when the bank was raised. It is then cut by the ditch to east and continues, at the same level and in similar relation to the gravel, across the central platform as far as the end of section IV. Then it gets steadily thinner and peters out completely in Section IX, at the east lip of the platform. In the middle of section IV there emerges fairly sharply from the subsoil a belt of fine red sand (D) covering gravel B. This then forms the eastward horizontal boundary between the gravel B and "sammel" C. Eastward beyond the ditch, however, only this sandy belt D, and no "sammel" C, is preserved on top of the gravel. On the surface of the central platform the "sammel" exhibits various signs of weathering, in the shape of very fine-grained clay, resembling loess, which lies in shallow troughs on its surface in thin deposits up to 10 centimetres thick (Pl. D, fig. 13, p. 191).

The north-to-south section exhibits (Pl. B fig. 6) the following features. Beyond and beneath the bank on the south we have the same "sammel" C as in Pl. A fig. 3, with its ancient surface E preserved under the bank. Below the "sammel" comes the gravel B and below this, just touched at the bottom of the ditch, the red boulder clay A. The boulder clay slopes quite gently northwards. In the central platform we have "sammel" C and, below it, gravel B in the same relation and formation as in Pl. A, figure 3.

The following points thus emerge as to the geological formation: the Round Table was constructed on a river terrace, overlying a surface of red boulder clay which

slopes gently towards north and east. The terrace is composed of gravel B and "sammel" C. The "sammel" extends across the site from north to south: to south-east it peters out, and above the gravel B comes the red sand D, probably leachings from the boulder clay or a deposit of weathered Penrith sandstone. The "sammel" C in the space enclosed by the ditch is thus a natural formation.

### THE MOUND.

Two complete sections\* (I and VIII) were made through the mound. Section I gave the following data (Pl. A, fig. 4, Pl. F 3, for central detail). The mound (34m.—44m.) is here about 10 metres wide. To east and west the excavation goes down to natural gravel B, of which the lowest layers (46 m.—47 m.) darken, B 1, a sign that we are here approaching boulder clay (see above, p. 174). Between 46 m. and 47 m. the "sammel" C gradually develops so as to cover the top layer of gravel B. From 34 m. to 44 m., the surface of the "sammel," which in places is very fine and not unlike loess (C 1), is stained black (E). This blackening is heaviest between 34 m. and 35.5 m., and extends westwards to 44 m., becoming more

\* The sections are drawn in line, so as to give as far as possible an impression of the structure and shading as it appears to the eye. An idea of the relative clay fraction in the strata is given by vertical hatching. Stones are drawn to scale. No schematic convention is thus employed; for this always gives much too sharp a contrast between the layers when different masses gradually impinge upon one another; nor does it represent the composition of a given layer. The lettering of the strata is the same for each section. The points which coincide with the trenches of 1937 are left blank, and their limits are marked with the letter d; a is the edge of the red boulder clay against the natural gravel, b the edge of the natural gravel against the "sammel." Variant formations of the main strata are indicated by the addition of numbers to the class letter, as A 1—a local variation in the Red Boulder Clay A. When first mentioned the letter is put in brackets. The numbers on the upper surface of the section give the running measurement in metres, permitting convenient identification of details mentioned in the text. Drawings and many detailed photographs were made of all the sections, and are deposited in the Society's collection of archaeological drawings at Tullie House, Carlisle. The photographs, of technical interest only, have been sparingly reproduced, but a more liberal selection has been made of the drawings.

brownish-black and then reddish-brown. The upper surface of E terminates sharply in a thin band of soil (F) stained reddish-yellow by iron. Between 34 m. and 40 m. this band F is very hard, like iron-pan, and exhibits many minute light-red or dark-red striations (F 1).

Reticulated bands of iron-pan develop from F 1, between 40 m. and 37 m., and penetrate a fine grey and black soil (G), here on top of E. G, structurally resembling decomposed turf-work, is always greyer on top of any band of iron-pan passing through it, and is whitish-grey immediately above the thick band of iron-pan F 1 at its base. Horizontal sections of the material showed that individual sods could not be identified. From 39 m. to 34 m. soil F is covered by material (H), resembling "sammel" C in composition, in which layers sloping eastwards can be faintly recognised. From 39 m. to 44 m. F is covered by material (J), resembling gravel B in composition and exhibiting layers with a general westward slope. The material J thus consists of gravel of different grades, corresponding to the various formations in the natural gravel B, arranged in layers; and so demonstrating that gravel was collected from various points and piled here in separate loads, perhaps basketfuls. Between 37 m. and 41 m. H and J are cut off at the top by a thin layer of fine grey soil (K), of the structure of decomposed turf. While above K lies gravelly soil (L 2), containing modern bricks, mortar, cinders and broken crockery of the eighteenth and nineteenth centuries. Then comes the modern soil and grass (M). On the west side of the mound, between 44 m. and 47 m., C and M are separated by an older surface-line of decomposed turf (N).

The south side of the section agrees in all details with the north side, except that the piled sods G extend somewhat further westwards, while the turf-line K lies somewhat deeper.

In the actual trench there lay above E, between 34 m.

and 35 m., some of the large boulders, of which two more, lying in the heaped soil, are cut by the section (Pl. A, fig. 4). No find was made, except the modern relics in L 2.

The turf-line K, indicating a surface, shows that the mound was at some time dug away to this depth and that the hollow was filled in recent times with the modern material L 2. The convergence of layers J and H towards the middle of the mound, shows that it was considerably higher originally and that the existing flat top is simply due to modern activity. The original mound thus survives in part only, and only the material below K is ancient. Layers E and F represent the ancient surface before the mound was made, G, H and J being erected upon it as structural units in the original work. Since, however, the "sammel" C is impermeable to water, its ancient surface was chemically transformed by long-continued percolation from G, H and J. By this process, and by oxidisation, the turf-line covering C became black, and there was also formed either the line of iron-pan (F 1), or, correspondingly, the red soil F. The same process metamorphosed the whole neighbourhood of the old surface, including the lowest layer of the artificially laid soil; so that layers E and F comprise not merely the old surface, but the zone of contact between it and the base of the superimposed material. This factor also induced the metamorphosis of material G by very thorough percolation and oxidisation of its component turves so that the identity of individual sods, as originally piled, has been completely destroyed by the leaching and by the secondary veining of iron-pan.\* H is "sammel," and J the gravel below it, both artificially placed.

\* Very similar conditions occur at Pond Cairn, Coity Higher Parish, Bridgend. Here a pile of turf covering a cinerary-urn of Abercromby type I, Middle Bronze Age A (1300 B.C. on conventional dating), exhibits the same metamorphosis with 'incipient formation of iron-pan'. Cyril Fox, *Two Bronze Age cairns in S. Wales, Archaeologia, LXXXVII*, 145.

The mound was thus built as follows. Sods were first piled where the mound was to be raised, on an old surface itself covered with growing turf. "Sammel," derived from just below the surface whence the piled turf had been stripped, was then heaped at the front of the mound, while the gravel from below the "sammel" was heaped at the back. Any particularly large boulder that was occasionally encountered was pushed, to save work, to the outer edge of the mound; without, however, being placed so as to suggest any intention of strengthening the face. The red boulder clay, underlying the gravel, was not reached in getting all this material, for it does not appear in the upcast. On the other hand the layers of black gravel B 1 were touched, as is shown by the material J 1, between 42 m. and 43 m., which is identical with B 1, and, significantly enough, lies on the topmost slope of the mound. No sign was observed of selective grouping of the upcast, of timber reinforcement of either face, or of post-holes belonging to such timber-work. Traces of artificial revetment of either slope were also to seek. We must therefore be content to assume that the material forming the mound was disposed on either face at its natural angle of rest.

The second section through the mound, cut as a check, lay west of the entrance, where the work is at its best (Section VIII, Pl. A, fig. 5). We obtained the following data, though it may be observed that the cut was somewhat oblique. The mound is 10 m. broad, as before, but some 1.50 m. high, and its surface exhibits more of a roll. At its base "sammel" C recurs, capped by layers E and F in the same formation as in Section I. The old surface-line is rather more sloping\* and in the natural body of the "sammel" boulders are more abundant than in section I. The band of iron-pan (F 1) extends from 11.5 m. to 14 m. and its continuation, as a red streak (F 1), from 5.2 m. to

\* Northwards here and eastwards in section I.

11 m. Between 11 m. and 14 m. the piled sods (G) occur as before, veined with iron-pan (F 1) but more heavily mixed with gravel. Above the ancient surface, between 5.4 m. and 13 m., and dipping towards the south outside the mound, comes material (J), more gravelly in part (i.e. from 9 m. to 12 m.), and overlapping the sods G. Between 6 m. and 12 m. lies the piled "sammel" H and then, from 5 m. to 7 m., the piled gravelly material J corresponding to C. In general, these masses exhibit layers sloping towards the south. From 12 m. to 17 m., there is a gravelly layer (L), which covers G at 13 m., overlies between 14 m. and 15 m. a cutting-away of G, and, from 15 m. to 17 m., lies immediately upon the "sammel" (Pl. F, 4). It contained modern glass and china and is manifestly of recent date, covering the mound where it has been dug away. In contrast with the removal of the crown of the mound in section I, L has been deposited very soon after the cutting away of G and E: for no turf-line, corresponding to level K in section I, was able to form itself between the scarping and the filling L. From 5.2 m. towards the south E and J terminate quite sharply against a mixed layer (N), composed of "sammel," old-surface material E-F and gravel. It looks as if ploughing\* on the south had reached this point, producing the mixture described. Once again, no trace of any reinforcement was observed in the mound, which is a random upcast of a few sods, "sammel" and gravel. Nor was any red boulder clay used here either. The east side of the section showed the same features, except that the piled sods G were somewhat lower and untouched by modern delving L.

As concerning the original form of the mound we learn from this section that, as Collingwood had already noted,

\* The interior of Mayburgh has also been ploughed at some time, as is visible to-day; compare Stukeley, "within this fine plain, which is now ploughed up," (*Iter boreale*, 1776, 44).

the berm, between 15 m. and 17 m., is modern. We may further state with certainty that a very considerable mass of soil has been removed from the inner face of the mound, when L was deposited. For L is evidently material which weathered down from the higher part of the mound after the removal and came to its own angle of rest. The fact that the removal of a considerable mass is involved is shown by the extension of the marked metamorphosis of the old surface E-F to 15 m.; a condition which could only arise if E-F had originally carried sufficient material to create the change by being leached. On comparison with the state of the old surface between 10 m. and 11 m., which is the exact counterpart of the surface between 14 m. and 15 m., we may conclude that about a metre-and-a-half of soil has been removed from above the latter point. The original mound thus extended a considerable distance further inwards. Again, since only materials H and J, exclusively belonging to the ancient mound, overlie the metamorphosed surface between 9 m. and 12 m., we may further say that the metamorphosis is not recent. In section I, however, it could be supposed that the metamorphosis might have been caused by leaching from modern deposits L 2 and K, both containing a considerable amount of organic matter. And this was a reason for making a second cutting through the mound; for it was necessary to learn whether the metamorphosis derived from the ancient upcast H-J or from modern deposit. Since, then, section VIII permits us to ascribe the metamorphosis to leaching from the original upcast H-J, forming the mound, and since this metamorphosis is identical with that of section I, we can now say with certainty that the mound must belong to a period of considerable antiquity.

Even here, however, where the mound is considerably better preserved than in section I, it is much altered from its original guise. The data between 12 m. and 17 m. in

section VIII make possible an evaluation of the evidence as to the inner face of the bank in section I (Pl. A, fig. 4). There too, between 35 m. and 33 m., a sort of berm occurs: and the metamorphosed old surface, from 36.6 m. to 33.5 m., is to-day so thinly covered by soil that the pronounced metamorphosis cannot be explained by leaching from that source. Here also, then, it also follows that much soil has been removed from the inner face of the bank and this applies at every point where the berm occurs (see above p. 172 and fig. 2). Finally as to the height of the core of the bank between 42 m. and 46 m. in section I, we may conclude that at least 1.00 to 1.50 m. is to-day missing.

Section XIII (Pl. C, fig. 9) is cut to the middle of the mound, across one of the curious hollows mentioned above (p. 172). It emerged that exceptionally extensive delving had occurred. From 6 m. to 8 m. the body of the bank has been entirely removed.\* The ancient surface E-F dips more steeply southwards than in section VIII. The piled sods G lie further within the mound. J and H are the heels of gravel and "sammel," mostly removed. The exact correspondence of the state of the ancient surface E-F to that in sections I and VIII confirms our previous hypotheses. L contains modern sherds, as above.

Section V told us nothing about the mound, which is there entirely removed to below ancient surface-level.

The sections thus seem to demonstrate that the mound is nowhere now preserved in ancient state. The intensive metamorphosis of the old surface and piled sods (G) is considerably more developed than in the Roman Turf Wall of A.D. 122-6 at High House,† where this is subject to similar geological and climatic conditions; an observation not without importance as giving some sort of relative

\* For purposes of comparison the metric numbering in this section is made to correspond with that of section VIII (Plate A, fig. 5).

† CW<sup>2</sup> xxviii, 379, fig. 1: cf. *JRS* xxv, pl. ii.

date to the mound. Again, the mound is not the ruins of an elaborate structure but a random heap of sods, "sammel" and gravel, all piled upon the growing turf. The sods apparently come from the place whence the "sammel" and gravel had been removed. They served as the first material in building the mound, and were dumped on the surface in irregular heaps devoid of structural purpose at a varying distance from the inner face of the mound to be. Material for a mound is normally provided by an accompanying ditch.

#### THE DITCH.

Sections I and VIII were complete sections of the ditch. Sections V, XI<sub>a</sub> and XI<sub>b</sub> cut the lip only. Section I revealed the following points (Pl. B, fig. 7). The outer, or west, lip of the ditch occurs at 32.8 m., the inner at 29.2 m. As the section shows, each side is dug through successive layers of "sammel" (C), gravel (B) and red boulder clay (A), while the bottom is of boulder clay. The section of the ditch thus cut in undisturbed subsoil is peculiar: From 27.8 to 23.5 m. the bottom is flat; then the sides rise in steps, with vertical faces of varying depth and horizontal planes between them. The steps vary in definition, since at the angles looser material, like gravel B, collapsed almost as they were made. Well-preserved steps occur between at 32 m., 31.2 m., 30 m., 29 m. and 21.8 m. The ditch-filling (O) is quite distinctive. It is a loose humus, mixed with much gravel, containing occasional larger boulders. Between 29 m. and 30 m. the proportion of humus (O 1) is especially large, and this point is always wet. From 30 m. to 32 m., and 24 m. to 20.5 m., the gravelly soil is blacker. It is of great significance that in the middle of the ditch no sign either of layering or of growth appears above the flat bottom. Again, since there is no connexion between the metamorphosed ancient surface, between 33 m. and 34 m., and the ditch-filling, it

is impossible to relate the filling to the ancient mound. On the contrary, the ditch in fact appears to cut into the mound-material. But here the relationship is not sufficiently plain to warrant the conclusion that the ditch and its contents, as now visible, are later than the ancient mound. The decisive argument in favour of the hypothesis, that the ditch and filling, as we now see them, are relatively recent, is as follows. The filling, though highly charged with humus, does not exhibit, even in contact with the impermeable red boulder clay A, any metamorphosis of the zone between them by formation of iron-pan or by deposition of either ferric oxide or manganese; nor does any change whatever occur in upper layers; while the surface of the boulder-clay, stripped by us to a depth of about 10 centimetres, is quite fresh. The same argument also applies where the filling lies upon gravel B or "sammel" C. If, however, the ditch were contemporary with the bank, its filling and the zone between the filling and undisturbed subsoils A and C—and, in less degree, B—should exhibit signs of metamorphosis like those apparent in the zone between mound and original surface.

This explanation of section I is entirely confirmed by Section VIII (Pl. B, fig. 8). The stepped ditch, cut in "sammel" (C), gravel (B) and red boulder-clay (A), here extends from 17 m. to 30.8 m., and its flat bottom from 19.8 m. to 27.6 m., while the steps, on one side at 17 m., 18.5 m. and 19 m., and on the other at 28 m., 30.1 m. and 30.8 m., are clearer than in section I. The loose filling (O) is particularly rich in humus between 19 m. and 20 m. (O 1); and this point, as in section I, is always wet. The space between the ditch and the ancient surface (E, F), at 15 m., is filled with recent soil (L), which, between 17 m. and 18 m., evidently dips on to the first step in the ditch, clearly exposed at the time. Neither the filling nor the surface of the boulder-clay exhibits the slightest sign of metamorphosis. The ditch in its present form is thus

quite modern; and, as the position of layer L shows, was made at a time when the drastic modifications of the mound were taking place. Similar evidence may be seen in section V and XI<sub>a</sub>, XI<sub>b</sub> (Pl. C, fig. 11, see below p. 186).

Examination of the soil thus affords no proof that an ancient ditch occupied the place of the modern one. If this was so, however, and earlier notices strongly suggest it (see below, p. 199), the ancient ditch cannot have been deeper than 1.50 m.: for the boulder-clay situated at this depth below the ancient surface was never disturbed in ancient times and never occurs in the upcast of the bank, which is composed solely of the gravel and "sammel" lying above the boulder-clay. Immediately above the boulder-clay, however, occurs a layer of blackened gravel (B 1, section I, Pl. B, fig. 7, 42-43 m.); which was reached in procuring material for the bank, for it occurs among that material in section I (J 1). We may therefore postulate a depth of 1.50 metres for the ancient ditch.

Presuming, then, as is probable, that the upcast for the ancient mound came from the site of the modern ditch, we may venture, in reconstructing the shape of the ancient ditch, to conclude that it was not a V-shaped ditch 1.50 metres deep, but had a flat bottom. This follows from the fact that, despite spoliation, there even yet remains in the mound considerably more upcast (see particularly Plate A, fig. 5) than a V-shaped ditch 1.50 metres deep could have provided. If we then add to this upcast the material certainly removed from the inner face up to the probable height of 1.50 metres, as deduced above, the total amount of upcast in the ancient mound would have had to be derived from a flat-bottomed ditch not much smaller than the existing one. In other words, the ancient ditch has been cleaned out in modern times by re-digging, except that its sides have been enlarged by the stepping. From the content of the upcast in section VIII and the size of the modern ditch we may conclude that, apart from

the spoliation of the inner face, the ancient mound did not much exceed its present height in section VIII. If this conclusion is right, then the ancient mound was flat-topped.

#### THE SOUTHERN CAUSEWAY.

Section X, cut along the length of the causeway, confirmed the conclusion drawn in the *Preliminary Report*, that the causeway leading across the ditch was an integral part of the ancient monument. On the other hand, it did not confirm the opinion there expressed, that the causeway had been paved in modern times. The short section of 1937, cut straight across the causeway, had evidently hit a point below the top-soil where a natural pack occurred in the "sammel." Our section X revealed the "sammel" (C) immediately below the top-soil, and under this in turn the gravel (B), in usual formation and at normal level. Pl. C, fig. 11 then illustrates the north sides of our sections XIa and XIb, cut straight across the causeway. The boulder clay (A), here sloping gently eastwards, exhibits the usual formation in greater depth, except between 10 m. to 13 m., where it contains more drift (A 1). The ditch, with stepped profile now familiar, begins at 5.2 m. on the west and at 8.5 m. on the east, and has the same kind of filling as in sections I and VIII. Our hope of discovering some remains of the ancient ditch here remained unfulfilled. An important point for the restoration of the monument's original state is, however, the fact that the modern delving encroaches less upon the causeway at the east than at the west. This lack of symmetry is clear in the section: the plan, while showing the present condition of the site, does not convey the point. Further, a comparison of the north and south sides of the section shows that on the east the delving is less pronounced as it goes south: it follows very nearly the line with two arrowheads on the plan (fig. 2, XIb). It is thus clear that the

causeway, which lies so far west of the axis of the gap in the mound, only acquired its curious shape when the modern ditch was planned. Its ancient surface, however, no longer exists.

#### THE GAP IN THE MOUND.

The information required as to conditions at the entrance was furnished by Section XII. Its north side (Pl. C, fig. 12) exhibits the following data. From zero to 4 m. the subsoil is "sammel" (C), in normal formation. At 2 m., the fine red sand (D), which takes the place of the "sammel" in the south-east quarter, begins to emerge below the "sammel" (Pl. A, fig. 3, and p. 175). From 8.5 m. to 12 m., the uppermost layer in the red sand has a higher gravel content (D 1). Above it, from zero to 4.8 m., comes the metamorphosed old surface (E, F), lighter coloured from 3 m. eastwards. The iron-pan F, very definite at zero, weakens towards the east and fades out at 2 m. Discolouration of the old surface E begins at 9 m., and from 10 m. to 11 m. underlies piled sods (G). The old surface itself, very heavily metamorphosed, continues in now familiar formation, with a band of iron-pan F, up to the end of the section at 12 m. From zero to 1.8 m., E is covered on the west side of the section by heaped "sammel" (H); on the east side it is covered first by heaped gravel (J), from 11 m. to 12 m. and then by heaped "sammel" H, covering G and J, from 10 m. to 12 m. While H (from zero to 1.8 m.), E (1.8 m. to 4 m.), the natural sand D (5 m.-9 m.) and D 1 (8 m.-9 m.), E (9 m.-10 m.), G (10 m.-11 m.) and H (10 m.-11.5 m.) are again covered by a layer of loose dark gravel (L), containing modern crockery. Then comes the present top-soil (M). Between 8 m. and 9 m. the stratification is destroyed for a short way by the little trench (*a*) for a modern water-pipe.

The lower edge of L reveals the extent to which both

the upcast H-J-G, composing the ancient mound, and the old surface have been recently dug away. The entrance is thus no longer preserved in its ancient state, while the turf-line marking the surface in the gap is completely destroyed. In the light of our experience in sections I and VI we may, however, say something as to the ancient form of the gap. On the west, the ancient surface E is preserved from 3 m. to 5 m.; but the metamorphosis there present, faint as compared with that between zero and 3 m., demonstrates that little of the bank can have been removed. On the other hand, the old surface at the corresponding point (9 m.-10 m.) in the present gap is so discoloured that on this east side a very large portion of bank must be missing. It thus follows that the present gap has been pushed much further eastwards as compared with its original state. The comparison between the north and south sides of the section clearly shows that the axis of the ancient gap lay further west than the present northward axis: and this brings the axis of the original gap into line with that of the original causeway, as deduced above. In ancient times, before the modern changes, access to the centre platform was straight, in contrast with its state to-day. The gap in the bank was narrower, the causeway broader. Drastic though the destruction is, we can add something more about the mound in the gap. The layering of H and J, on both sides of the gap, shows that the upcast was not piled against any fixed flanking walls. This agrees with the fact that the ground revealed no trace of any such erection in the shape of post-holes or sleeper-trenches. For the modern delving penetrates the old surface so little that, if posts had ever been present, we must have discovered on the ground some remains of holes for them, particularly when one stratum is the red sand D, in which any kind of digging whatever must have made the clearest impression. No attempt was made even to revet the gap in turf. On

the east side the piled turfwork G soon vanishes completely in the south side of the section, exhibiting the same irregular surface as in sections I and VIII; and its place on the old surface-line is taken by material H. The same phenomenon appears on the west in the south side of the section, where the condition of the old surface-line is such as to show that between 1 m. and 5 m. there was no turf-work but a covering of piled "sammel" H. The piled turfwork G on the east is irregularly disposed in the mound, just as in sections I, XIII, VIII (Pl. A, fig. 4; Pl. C, fig. 9; Pl. A, fig. 5); while on the west the turfwork present is less than usual, and cannot have performed any structural function. The layering of H and J tells us that the entrance to the monument was a simple gap in the bank, with slopes at the natural angle of rest of the material, as to-day, but narrower and at a point further westward.

#### THE CENTRAL PLATFORM.

According to information furnished by sections I and VIII (Pl. B, fig. 7 and Pl. B, fig. 8) the outer edge of the central platform nowhere retains its ancient shape; for the inner lip of the ditch has throughout the circuit the same shape and profile as in sections I and VIII, where we can prove it to have been destroyed by the modern ditch. How much of the edge has been removed is unknown, but in the vicinity of sections I and VIII at least we can conclude with some certainty that the extent of the delving cannot be very large. This impression should be valid for the whole work, since the ditch has to-day the same general dimensions throughout. The basic formation of the central area comprises "sammel" (C), in the same formation and at the same level as outside the monument, except that in the south-east (Pl. A, fig. 3, Pl. C, fig. 12) it is replaced by red sand (D). Below these lies the gravel (B). An artificial spread of "sammel," as

described in the *Preliminary Report*, could nowhere be observed. Both "sammel" and sand in this area lack a covering of ancient turf, and tipped material (P) lies immediately above the "sammel" at every point.

Stratification at the edge of the platform is given by Pl. B, fig. 7, from 15 m. to 20 m. (section I). Line *d-d* denotes the trenching of 1937. Between 18 m. and 17 m. lie two thin belts of gravel, such as occasionally occur in "sammel." The top-covering P, black soil with many boulders, is dated as modern by crockery and cinders occurring throughout, down to the "sammel." From the bottom of the tipped material P mouse-holes and mole-galleries penetrate the sammel everywhere and are filled with trickles of dark soil (see arrows in Pl. B, fig. 7). Section VIII (Pl. B, fig. 8) gives a similar picture between 30 m. and 32 m., the line *d* marking the bottom of the 1937 excavation on the east side of the trench, and the burrows being shown by arrows.

Sections VI and IX were made in search of post-holes on the edge of the platform. But neither in sand D, at the south end of section IX, nor in the "sammel" at its north end, nor, again, in the "sammel" of section VI, could there be found any trace whatever either of post-holes or of packing for standing-stones. Every trace of dark soil observed in the carefully cleaned floor of the section, which was always meticulously removed in layers, explained itself, by appearance and course, as a burrow filled with soil that had trickled in later from the modern top-covering P. In the red sand particularly traces of post-holes would have been especially well preserved had they existed. While occasional collections of large-sized gravel, which might possibly have been considered as traces of packing for standing-stones, always proved, on careful examination, to be those occasional packs of larger material which occurs at different levels in natural "sammel." We shall presently reconsider them together.

Precisely the same data were furnished by sections I, II, III and IV in the inner area of the central platform: "floors I and II" could nowhere be distinguished.

A good example of stratification in the central platform is given by Pl. D, fig. 13, the west side of section III, where the gravel subsoil (B) was removed throughout, while on the east side it was taken away between zero and 1 m. and between 10 m. and 11 m. Above it lies the "sammel" (C), which in places contains more boulders than usual; while at a different level in the same stratum, the natural gravel packs (B<sub>2</sub>), referred to above, also occur, examples being visible between zero and 2 m., and 10 m. and 11.6 m. The top of the "sammel" merges with the tipped material (P) without sharp definition, and here, on the central platform, looks as if it had been ploughed before modern tipping, since neither a buried turf-line nor even a continuous surface can be recognised.\* Occasionally, however, traces of weathering, as noted above, do occur on the surface of the "sammel," as between 8 m. and 9 m., in the form of patches of clay resembling loess (C 1). The sloping edge of the disc, or higher part of the central platform, cut very obliquely by our trench, begins at 4 m. and at 5.8 m. we reach its summit. The section shows clearly how the modern tipping P covers the whole central platform since the disc is also its result. The point is clearly seen in this section, and we were also able to satisfy ourselves at other points in cutting the disc, that tipping was carried out in one operation over the entire central platform, including the disc. The only change is in the material used. In contrast with the black earth P containing numerous boulders, reddish sandy soil (P 3) occurs as tipped material, for example between 5.2 m. and 8.6 m. From 9.8 m. to the end of the section we again encounter the normal covering of black material P with boulders, including many broken fragments of Borrowdale

\* cf. Stukeley, *Iter Boreale*, 1776, 44, on Mayburgh.

igneous rock (P), which may also be observed among the modern tip at the east end of section I. The related stratification of P 3 and P proves that the tipping is all one.\*

From the tipped layer the burrows, marked with arrows, penetrate the "sammel" (see Pl. F, 6). In every trench on the central platform, these burrows were observed in every square metre uncovered. We can thus offer a variety of proof that they were mistaken for post-holes in the preliminary work of 1937: for example, in sections III and IV both horizontal and oblique branches were connected with vertical burrows which had then been explained as post-holes and still lay on the undisturbed edge of the earlier trench. Since mouse-holes and mole-galleries always fall into groups, these structures are sometimes densely and sometimes thinly distributed. Pl. C, fig. 10 gives a ground-plan of section I, 6 m. to 17 m. It is taken at the natural clean "sammel" (C), on the same level as the putative "floor I," and at a point where "circles B and C" of the *Preliminary Report* must have occurred, had they existed. If there had been time in 1937 to widen the trenches in the "avenue" to east and west, there need not be the least doubt that the mistake which gave rise to the hypothesis of a wooden building in the central area would have been evident. In fact, the excavation of 1937 had to be closed down at the moment when the reality of the "avenue" and "circles B and C" could have been checked by cutting trenches like our sections I, II, III and IV.

The larger "second-period" posts are burrows of bigger creatures, such as rabbit, fox or badger, and were noted at the south ends of sections II and IV (Pl. F, 5): and the fact that we were dealing with burrows here also, was demonstrated beyond doubt by encountering not only

\* P 3, the red humus, is wrongly interpreted in the *Preliminary Report* (p. 18-29) as belonging to a third prehistoric period.

horizontal and oblique galleries branching from the vertical holes but also the larger and wider lairs. The galleries were filled with any sort of loose soil, as described in the *Preliminary Report*, and this kind of filling is typical of disused burrows. But because the galleries, associated in the "sammel" with larger boulders which the creatures had to circumvent, follow most irregular courses up or down, the vertical portion of any gallery creates very much the impression of a post-hole. When, too, in deeper levels a burrow, now filled only with loose, dark soil, is cut in stripping the "sammel," a hole is again created. It then looks as if a post-hole were covered with "sammel," while the covering, to agree with the explanation of the burrow as a post-hole, must automatically be considered as an artificial spread. The burrows also belong to every possible epoch. The "post-hole" A. 7, touched by us in section I, has certainly been a larger burrow of this kind, for further uncovering revealed the horizontal gallery branching from it. Again, on the causeway, section X struck the remains of a large burrow. Some of the "post-holes" on the south-west lip of the central platform, so very various in size, may thus be thought of as burrows; for animals prefer a sloping site for their holes. Mouse-holes were also found in section XIV outside the monument. Nor is it surprising that burrows are ubiquitous, for traces of ploughing, before the central area was covered with tip, have been observed on the central platform and to south of the Round Table (see south end of section VIII); and rodents accompany tillage. In sections across the central platform we also encountered various gravel packs, such as are shown in plate V of the *Preliminary Report*, and such as we have noted, under the convention C 2, in our drawing of the west side of section III. They are, however, very irregularly distributed on the surface and on closer examination prove to be not artificial packing but natural packs in the "sammel" (Pl. F, 2).

Our very thorough examination in sections already described, stripping the "sammel" of the central area in thin horizontal layers down to the level of the 1937 trenches, and in some parts still further down to the gravel, leaves no doubt that wooden posts never occupied either the edge or the interior of the central platform. Still less was any certain trace of bedding for a standing-stone discernible.

#### THE CREMATION TRENCH.

The cremation-trench, lying one metre further west than in the plan of the *Preliminary Report* and incompletely examined in 1937 according to the same source, was subjected to thorough examination in section VII (fig. 2). The *Preliminary Report* describes it as follows:—

"It was a bed-like hollow, eight feet three inches long by three feet wide by ten inches deep, with rounded bottom and rounded ends. It was made of stones and well lined with clay whose surface was burned and blackened. It was full of fragments of stones that had been split up by heat into the size of large road-metal; these were mixed with a great deal of oak charcoal and unctuous blackened earth. It was evidently the site of a cremation. The fragments of stone would be explained by suggesting that the trench had been surrounded with a wall built of river-cobbles intended to keep the burning matter together during the process of cremation, and that after the process was complete the cracked remains of these cobbles had been swept into the cremation ditch. The expiration of our time prevented us from digging further in the central area."

The hollow of the cremation trench was identified without difficulty; for the newspaper with which the floor of the excavated hollow was covered in 1937 was still there. It was thus easy to distinguish the undisturbed soil from the filling. The floor of the cremation-trench was still covered with about one centimetre of

dark earth, containing much charcoal. An examination of the charcoal by Dr. Kathleen Blackburn, of King's College, Newcastle-upon-Tyne, showed this to be all hazel. No fresh trace of calcined bones could be found, despite most careful sifting. The examination of the few very small fragments of burnt bone noted by Professor Collingwood, by Dr. Short, lecturer in Anatomy, Newcastle, supplied us with the following results of his research:—The bones are too fragmentary to be able to state that they were human. It is certain that they were burnt, though the fire had not been severe, as agrees with the use of hazel-wood. The bones were well formed and developed, a point strongly in favour of adult status.

The boundary between undisturbed "sammel" and filling was sharp. The "sammel" exhibited no trace whatever of firing but looked the same as everywhere else. Similarly, the floor exhibited not the slightest particle of burnt clay, though this is always present where fire has burnt in an excavated hollow in clayey soil. On the other hand, we confirmed by experiment that the "sammel" does turn red with firing. Thus, on the site of the cremation-trench there had never been any fire sufficiently intensive to cremate a corpse.

The filling of the 1937 excavation further contained some fragments of stone, which were then considered as "split up by heat" and were now identified by Mrs. Collingwood as some of the fragments then noted. These proved to be broken flakes of dark, ferrous, volcanic rock, of which splinters (P 1) occurred, in the tipped material P, in the undisturbed part (2-6 m.) of Section VII (Pl. D, fig. 14). The dark colouring, the splintered condition and the red ferric-oxide skin of the original surface of this splintered boulder had clearly given rise to the view that the stone had been fired. This is not so. A large block of the stone had been either split on the spot by frost or, as is more likely, deliberately

broken like some blocks or splinters P 1 already noted among tipped material P in section III, which will presently be considered. The "unctuous black earth," observed by Professor Collingwood, was also found by us as tipped material P 2 (see below, p. 197), in sections IX and IX $\alpha$ , far distant from this point; while in the west side of section III this kind of earth P 2 also underlay the tipped sandy soil P 3 (Pl. D, fig. 13, 7-12 m.). It is therefore certainly a component part of the varied material tipped on top of the central platform in modern times.

Pl. D, fig. 14 gives the west side of section VII, upon which the position of the cremation trench is shown in relation to surrounding strata by a broken line e-e. This line represents a vertical section across the long axis of the cremation-trench. The result is to show that the "unctuous black earth" (P 2) forms no constituent of the ancient filling of the cremation-trench, but belongs to the modern filling, and that the cremation-trench was opened up when the tipping took place. Remains of the ancient filling, dark soil charged with charcoal, were, however, also present, and were found by us on its floor. The piling of quantities of boulders observed in 1937 over the cremation trench in contrast with elsewhere, occurs in the modern tip P throughout section VII, and was also observable in the west end of section III and the east end of section I. In the light of these facts it cannot any longer be directly related to the cremation-trench.

The cremation-trench is, however, the sole point at which an excavation in the natural "sammel" is discernible. It is also the one place where charcoal in larger quantities has been discovered. It should, again, be noted that in its vicinity a particularly large area of the weathered surface of the "sammel" (C 1) is preserved: for in this light large smashed boulders, resembling both those observed by Professor Collingwood and two found by

us at the east end of section I and the north end of section III, assume particular importance.

The block in section I is a fragment of Borrowdale igneous rock, 1 m. long and 40 cm. thick: it was originally larger and has been broken on the spot, as numerous splinters near it and in layer P show. The block in section III was 0.60 m. long and fragments of it (P<sub>1</sub>) have been noted above in describing section III (10-12 m. Pl. D, fig. 13). These remains of blocks originally much larger clearly lie in soil P or P<sub>2</sub>, and therefore among the modern tip covering the central platform. Even in their present condition, however, both blocks are so big that we may hardly suppose them to have been idly carried for some distance to be tipped on to the central platform and there broken up for the first time. Further, since other splinters of similar material, large and small, occur at the south end of the east part of section II, it may be assumed that more blocks were broken up there. In company with the especially numerous bigger boulders in the tip (Pl. F, 1) just round the "cremation-trench," they may have formed part of a cairn covering an interment in the "cremation-trench." Though a cremated body was placed here, however, it must certainly have been burnt elsewhere than in the "cremation-trench."\* The tomb was destroyed in spreading the tip, as is proved by the broken stones P<sub>1</sub> and "unctuous black earth," P<sub>2</sub> noted in the filling of the "cremation-trench"; and how much of the cairn then existed is beyond our ken. Its position—the survival of the weathered surface C<sub>1</sub> of the "sammel" here gives another clue to its existence—falls, *mutatis mutandis* (see above, pp. 187-9), on the axis of the causeway and gap. That is what the excavation teaches us.

\* There may also have been a skeleton in the hollow of the cremation-trench, in view of its form, while the cremated bones belonged to a secondary burial. But it is impossible either to prove or deny this.

### THE RESULTS OF THE EXCAVATION AND LITERARY TRADITION.

The literary tradition about the monument has been collected by Professor Collingwood in the *Preliminary Report*, in a fashion deserving our gratitude. If we combine this with the results of the excavation, we get the following further results. C. W. Dymond\* said of William Bushby, who built the Crown Inn immediately north of the monument, that "more than 60 years ago (i.e. before 1829) one Bushby, either this man or his son, deepened the ditch and threw the earth on the banks." Dymond relied for his facts on the memory of old Abraham Rawlinson, 83 years of age in 1889.

We also heard from village folk of Eamont Bridge that Bushby undertook this remarkable restoration of the monument to use it as a tea-garden. It is, then, Bushby to whom we owe the clearing-out of the ditch, the scarping of the bank (in so far as it was not already destroyed) and the heightening of the central platform, including the disc. We can further demonstrate that the erection of the disc is contemporary with that of the platform. The broken china found on the central platform in layer P goes well with a date at the beginning of the nineteenth century. The layer L 2 in section I is, however, still more recent. From the description by Stukeley in 1775 (*Iter Boreale*, 43) it emerges that, in the last quarter of the eighteenth century, before the raising of the central platform and disc, the space enclosed by the ditch was not a flat surface. He says, "the *area*" (meaning the central platform, G.B.) "had a circle within, somewhat higher in elevation than the other." We do not know what this "circle within" was, but we are well entitled to relate it to the

\* C. W. Dymond, CW<sup>1</sup> xi, 287 (1891), had treated K.A.R.T. in detail and published a good plan of the monument. The condition of the monument in this plan of 1889 shows no change from the present condition. The excavations in the western slope at c in this plan are those which were proved by sections XV and XVI to be modern (see above p. 173).

cairn in the vicinity of the "cremation-trench," whether it indicated traces of robbing the cairn, or whether something of the cairn itself still survived. Obviously stones were no longer visible, for Stukeley would have certainly noted them and would have defined his impression of a "circle within" in a more concrete manner. The "circle within" cannot, however, be linked with the disc. When the proximity of the monument to the Carlisle road and the houses of Eamont Bridge is taken into account, it is not rash to postulate an early robbery and destruction of the cairn erected on the central platform. Stukeley's description\* offers yet another most valuable incidental point for a recovery of the ancient state of the monument. He says that the monument had a second causeway on the north, opposite that on the south.

Pennant, in 1769, also noted two causeways, and so did Hutchinson, in 1773 (Dymond, *op. cit.* 204). The earliest notice of the monument, by Leland, in 1538 (Dymond, *op. cit.* 203), gives no topographical detail, and is of importance only in noting that the work sometimes bore the name *Round Table* and sometimes *Arthur's Castle*. Finally, Mr. Stuart Piggott unearthed a seventeenth-century drawing by Dugdale, which shows two large standing-stones at the north entrance. Mr. Stuart Piggott writes kindly to me: "The drawing of Sir William Dugdale is contained in his manuscript 'Heraldic Visitation of Westmorland and Cumberland,' 1664-1665 (College of Arms MS. C 39), now not accessible. John Aubrey in his manuscript 'Monumenta Britannica,' dated about 1670, gives a copy of Dugdale's drawing" (reproduced here, plate E. 2 from a photostat made for Mr. O. G. S. Crawford). The text of Aubrey runs as follows: "About a mile distant from Brough Castle Northward, and north-westward of the river Lowther, on the west side of the great Roman way leading from Appleby to Penrith is a circular bank of

\* Dymond, *op. cit.* p. 203.

earth, called by the neighbouring people King Arthur's round Table; it is in depth from the crest thereof to the middle of the trench fifty foot and thence to the levell ascending 14 foot; the diameter of which Levell is about 160 foot. The two entrances into it lyeing north and south are in widenesse about 15 foot apiece. That towards the North having two huge stones (vice: on each side) one of about five foot in thicknesse."

We learn from this that the measurements of the mound at that time were much the same as we have calculated above (page 181).

#### CONCLUSION.

A consideration of the present state of the monument of the excavation and of the literary tradition supplies the following points for the ancient form of the work: First, there was a flat-topped mound at least 10 metres wide and about 1.50 metres high, which had no berm and reached to the very edge of the ditch. The mound is made of ditch-upcast, casually disposed; and, to judge from the metamorphosis of the ancient surface, is of high antiquity. Secondly, within the mound lies a broad flat ditch, whose bottom comes about 1.50 m. below the surface which carries the mound. The ditch has been about 10 metres wide. Thirdly, two opposite entrances led into the space thus enclosed. The gaps in the mound exhibit no particular structural feature. Two causeways led across the ditch to the enclosure, on the same axis as the gaps. Standing-stones occurred at the northern entrance (outside the mound? cf. Pl. E, 2). On the axis of the entrances, though not in the middle of the platform, lies an excavation, the "cremation-trench," which contained a burnt corpse covered by some sort of structure, for which rather large blocks of stone were employed. Elsewhere on the central platform no trace

of any sort of building or of any use of the central platform over a long period can be defined. Any trace, indeed, could hardly have been present, for the ancient surface of the platform had been ploughed, and so destroyed, before Bushby covered it. The lack of structural arrangements in the gap through the mound is evidence that there was no intention of providing permanent access to the platform. The piling-up of the mound indicates the casual character of the work. All the facts lead to the conclusion that the earthwork was erected as a sepulchral monument and then left without further attention. Finds to date the work are lacking. The Roman coin, found among material from the disc during filling-in (*Preliminary Report*, 30), has no meaning in this connexion. We can, however, limit its erection within prehistoric times, in that monumental tombs of this kind, where dated, do not precede the Early Bronze Age (1900-1600 B.C.).\*

If we attempt, using these data, to relate the monument to similar works, with outer mound, inner ditch, two entrances and an approximately central tomb, there is hardly yet sufficient evidence to place our badly preserved work in any definite group of such sepulchral monuments. But if we may go a little further, the following point emerges. Attention has been always directed to the notable berm on the inner side of our bank. Since Dugdale, as early as the seventeenth century, saw only two stones at one entrance to our monument, it is clear that the monument was already no longer completely preserved, since in all our experience no megalithic monument exists with only two stones at one entrance. If, however, stones once stood on the inner face of the mound, then its edge would naturally be in bad condition owing to their removal.† Since Bushby was clearly attempting, in his

\* R. E. M. Wheeler, *Anc. Mon. Comm. Inventory, Westmorland*, p. xxx.

† Stukeley, *Iter Boreale*, 43, writes of the mound, that it sloped inwards with a very gradual declivity' while its outer face was 'pretty steep.'

peculiar restoration, to put the monument, as far as possible, into slightly and smooth condition, it was not for him to create the irregular inner lip on that berm which is such a striking feature in the appearance of the monument. There was no way of smoothing these berms without putting the inner lip of the mound into bad condition. We may thus venture to ask whether the monument had a circle of standing-stones on the outer edge of the ditch. While it is to be regretted that the inner tip of the mound is now so transformed that a test excavation must be relinquished because it seems to promise no result. In view of the extensive destruction of the monument we must thank our chances that it was even possible to make any sort of reconstruction of the site in its guise as a prehistoric tomb. We must therefore also refrain from any attempt to relate our monument to the neighbouring work of Mayburgh (see fig. 1).

#### APPENDIX. THE LITTLE ROUND TABLE.

In his description of the monument at Eamont Bridge Stukeley (*Iter Boreale*, 1776, 43) mentions\* another work, discernible close to King Arthur's Round Table, as follows: "just 700 feet from the verge of the south entrance is another circle, 300 feet in diameter, made contrariwise to the former: the vallum is small, and the ditch whence it was taken outermost. Thus those two circles and the interval make 1000 feet in length." The mound of this Little Round Table has to-day completely vanished. A slight hollow in the field south of King Arthur's Round Table may be recognised as its site, marked as *Earthwork* on the 6-inch O.M. (fig. 1). The site is on the same terrace and at the same level as King Arthur's Round Table; while the slopes of boulder clay accompany the terrace on the west at the same distance away. The time at our disposal permitted three trenches to be cut across the shallow hollow and its vicinity, which is considered to be the site. The first of these sections encountered

\* See reprint in CW<sup>1</sup> vi, 453, where Stukeley's view is also reproduced. The view gives no information for the reconstruction of either monument. The mound of the Little Round Table is missing.

a ditch in the depression, and section II cut it again. Section III met with no ditch. Pl. D, fig. 16 gives a selected portion (1 m.-16 m.) of the east side of section I, 18.2 m. long. The basic formation is the same gravel (B) as at King Arthur's Round Table, not examined by us between 10 m. and 14 m. and 2.4 m. and 4 m. It is crowned by yellow clayey soil containing numerous boulders, the equivalent of "sammel" (C), here rather more gravelly in formation than at King Arthur's Round Table.

In this natural soil, between 10.6 m. and 13.6 m., is cut an almost V-shaped ditch, three metres wide and now 1.30 m. deep. Its outline in the clay C is distinct, but less clear in the gravel B in accordance with its nature. The ditch-filling (R) is of gravel and clayey material, of such a consistency as would be created by mixing soils of types B and C with a rich addition of brown humus, so that the filling now looks dark brown. Against sides and bottom this filling becomes blackish (R 1). An indistinct layer (R 2), more black-brown in colour but of the same consistency as the rest of the filling, caps the lower filling. This layer stretches up both sides of the ditch as far as the change in profile. No finds whatever occurred in the filling here, nor, as may be anticipated, in similar filling of section II. The discolouration of filling R 1 at the lip is explained by thorough secondary leaching of the filling and the holding-up of this leached material at edge of the undisturbed subsoil. It is a certain indication that we are dealing with a ditch cut in the soil a very long time ago. The ditch may therefore very well be that of the monument described by Stukeley, and, accordingly, the ditch of a prehistoric earthwork. The dark layer R 2 indicates a pause in the long process of the natural filling of the ditch with material R. The upcast, mixed material B and C, was deposited over a long time in the ditch, together with remains of organic material. Later, the land was ploughed, and the hollow of the ditch almost completely vanished, as the contour of the present surface of modern turf (M) shows. The ground is now pasture. The gentle rise on the east, however, between 2 m. and 8 m. is not, as Stukeley wrote, the remains of a mound which once rose on the inner side of the ditch. Between 3 m. and 8 m., below the modern turf (M), there is a layer of moist black-brown earth, which between a shallow post-hole *g*, at 5 m., and a little trench *h*, between 3.6 m. and 4.1 m. covers an unctuous black earth (P 2) such as we encountered at many points in the tip on the central platform of King Arthur's Round Table. In *h*, however, in

contrast with *g*, we are dealing with a runnel which can be traced right across our section, one metre wide. Much decayed organic material is obviously present. As the sharp separation of *P* 2 and of excavations *g* and *h* from the subsoil shows, these excavations are relatively recent in origin. Further, layers *P* and *P* 2 yielded a large quantity of broken clay-pipe stems and glazed ware, which date *P* and *P* 2 without contradiction to modern times. There then comes, between *B* and *M*, the ploughed material *N*, from which numerous burrows, here indicated by arrows, penetrate layer *B* and are filled with soil *N*. The ancient surface of *C* is no longer preserved; for *C* itself is removed below *P* and *P* 2, and the surface is elsewhere destroyed by the ploughing which followed the deposition of *P* and *P* 2 (see section, 7 m.-9 m.). It remained uncertain whether the somewhat thicker layer *N*, west of the bank, could be taken as a sound indication of a mound which would here once have lain outside the ditch. The darker shade of the filling *R* on the west or outer side of the ditch seems to offer a clue, in that more material came into the ditch from the west than from the east. That the west side is the outside and the east the inside of the ditch follows from connecting the lips in sections I and II. This shows that the ditch did not run straight between the two sections, but was curved; and if we combine this with the tradition of a circular work we get at this point a curving ditch set out from a centre on the east.

Let us next consider the east side of section II, 8.8 m. long, of which Pl. D, fig. 15, illustrates the part between 1.5 m. and 8.2 m. It strikes the ditch 10 m. north-west from section I. Further, gravel *B* is here the basic formation with clayey soil *C*, resembling "sammel", deposited above it. The ditch occurs between 2.5 m. and 6.5 m., and, as a comparison of the direction of its sides in the east and west faces of the section shows, has been cut a little obliquely, about 6 degrees from the right-angle. On taking this into account it is not difficult to see that the ditch here had the same shape as in section I, where it is cut almost at right-angles. The filling (*R*) and the blackened demarcation (*R* 1) of the edges of the ditch against the subsoil are identical with those in section I. The layer *R* 2 is not here recognisable. A darker shade in the filling *R*, between 4.2 m. and 5.2 m., attests, however, that here too more material has come in by natural deposition from the outside (west) than from the inside (east). The old surface of *C* is destroyed by ploughing; while on the modern surface no trace of a mound remains, and the hollow of the

ditch can hardly be recognised. Below the modern turf (M) lies the dark layer (N), and below this the undisturbed stratum C.

Section III was cut 15 metres away from section II, at the point where we calculated that the ditch would run. No ditch was encountered. We lengthened the section for three metres at either end, so that the total length was nine metres, without even then meeting with the ditch. Under the modern top-soil (M) traces occurred in various places of shallow excavations, filled with black soil (P 2), glazed sherds and clay-pipe stems. These are easily recognisable on the ground and look like the surface disturbances that may yet be noted all over the field. Stukeley writes, "upon part of the plain are marks of the tents of the Scots that accompanied Charles II on his way to Worcester. They encamped here for some time and drew a small line across part of the southern circle: this was done within memory" (see *CW*<sup>1</sup> vi, 454). They are, however, so shallow that they cannot have destroyed a ditch, yet the section reveals everywhere only undisturbed subsoil. From this discovery two possibilities follow as to the course of the ditch. If we construct a circle including the two points where the ditch has been cut and take into account the position of section III, then the radius of the circle, if it ran near section III, must have been larger than 27 m. or smaller than 18 m. over the ditch-centre. But circles of this radius do not accord with the position of the ditch-lips. The second possibility is that section III happened to hit a causeway at the north-east side of the circle. A circle of 24 m. radius would best fit the ditch-lips and centres as discovered in sections I and II, the corresponding radius of King Arthur's Round Table being about 35 m. The centre of the circle would then fall about 10 m. away from the park-wall which is eastern limit of the field. In that case the park has in fact destroyed the monument as much as is commonly supposed. Time did not permit, however, the cutting of a fourth section which would have elucidated these questions and substantiated our rather weak calculations.

The positive results are thus the following. The contour of the present surface in the vicinity of the supposed Little Round Table offers no clue for the reconstruction of the monument. The site was in fact occupied by an ancient earthwork of unknown date with a ditch. If a bank accompanied the ditch, it lay in all probability outside it rather than inside. If the upcast from the ditch served for the bank, then the latter cannot have been very high. The ditch ran in a curve. The subsoil has been disturbed in modern times.

## EPILOGUE.

I cannot conclude without expressing my sincere thanks to the Cumberland and Westmorland Archaeological and Antiquarian Society, whose zeal for scientific work has given the opportunity to excavate these sites. It is the fault of none of us that the results were not more positive, and the Society has earned the thanks of science for having undertaken the ungrateful task of investigating thoroughly earthworks of this type and continuing the work to its conclusion.

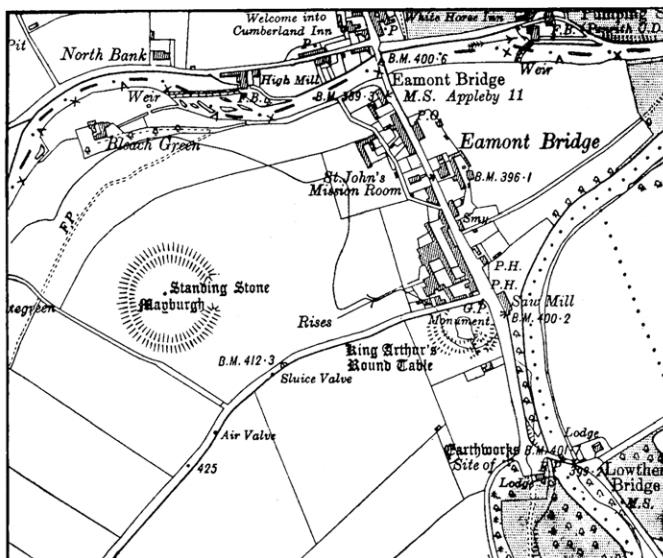


FIG. 1.—King Arthur's Round Table. Block by Philipson, Newcastle-on-Tyne, reproduced from the six-inch Ordnance Map with the sanction of the Controller, H.M. Stationery Office. Scale 6 inches to 1 mile.

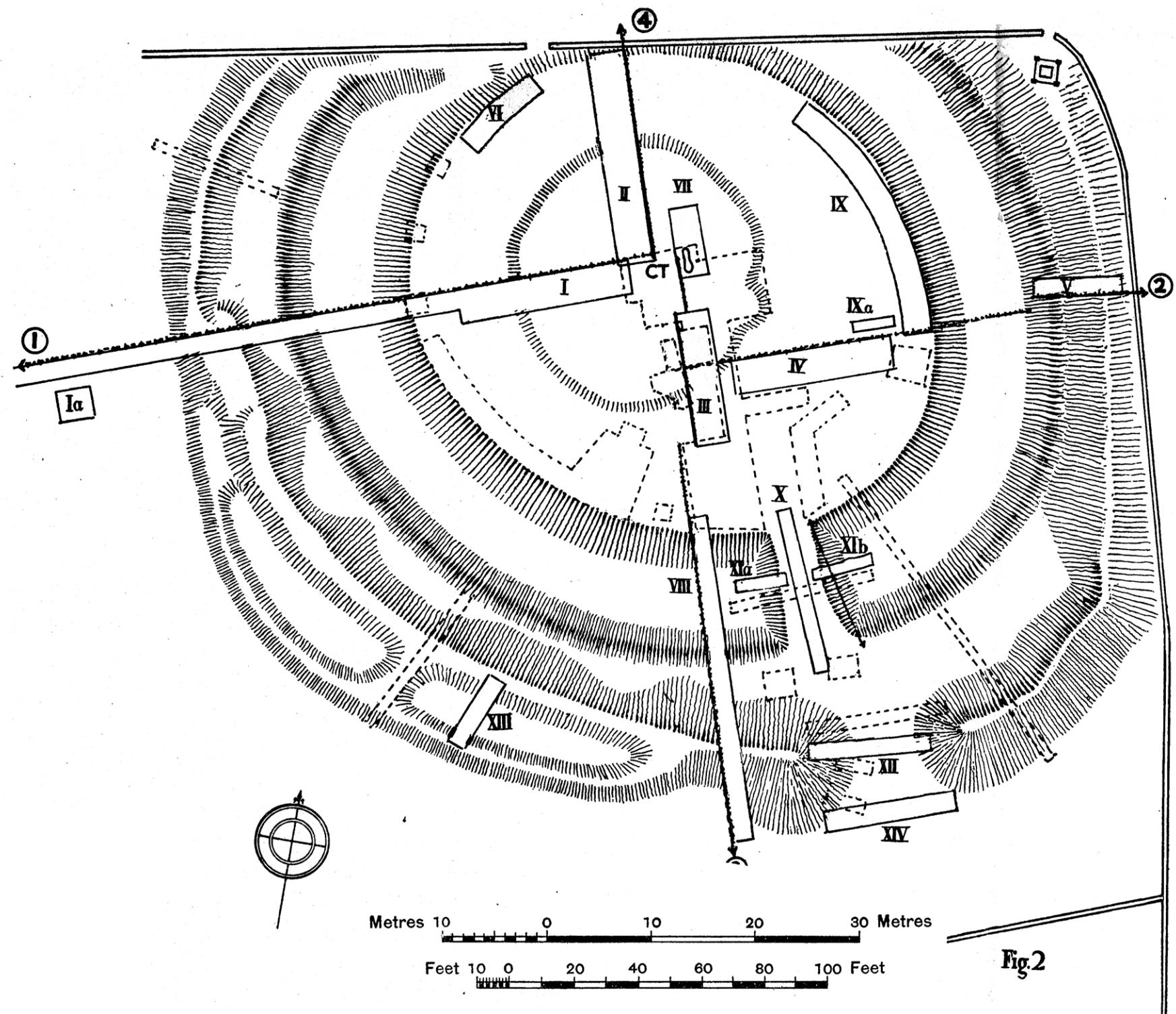
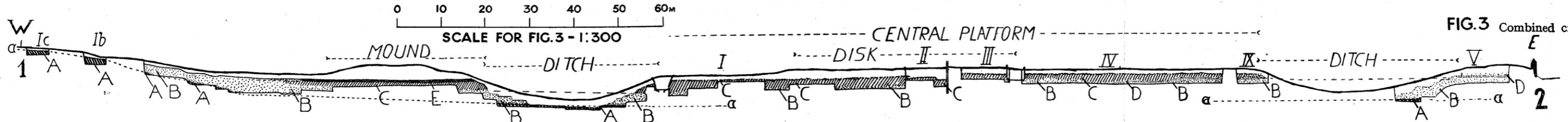


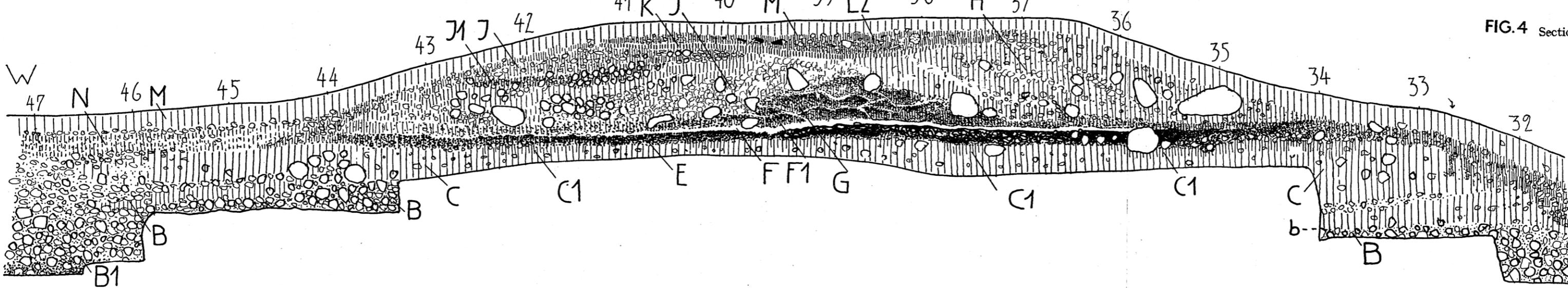
Fig. 2

Plan of King Arthur's Round Table (after R. G. Collingwood).

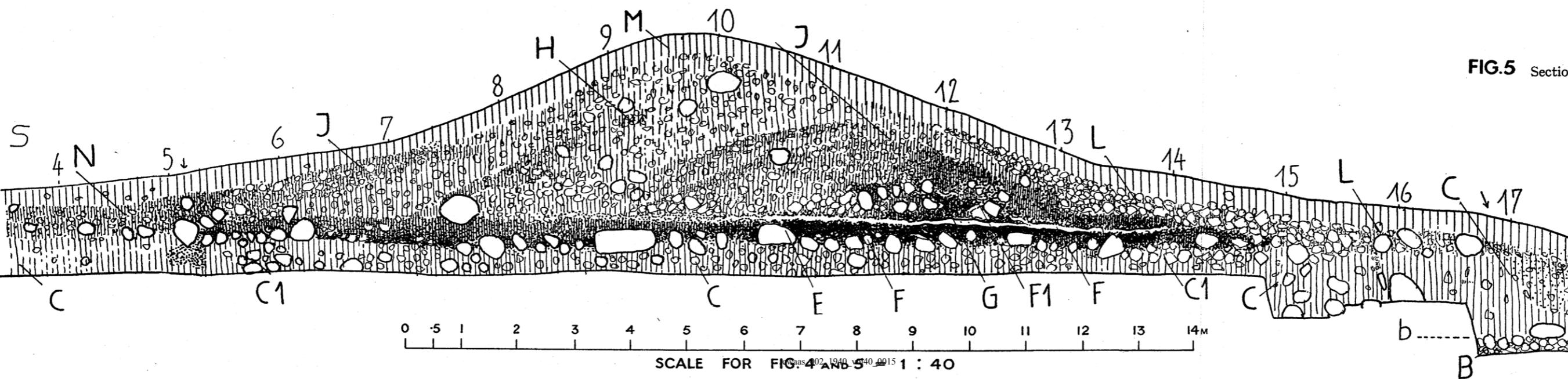
PLATE A.



**FIG. 3** Combined cross-section of site, W-E.



**FIG. 4** Section I, 32-47 m.



**FIG. 5** Section VIII, 4-17 m.

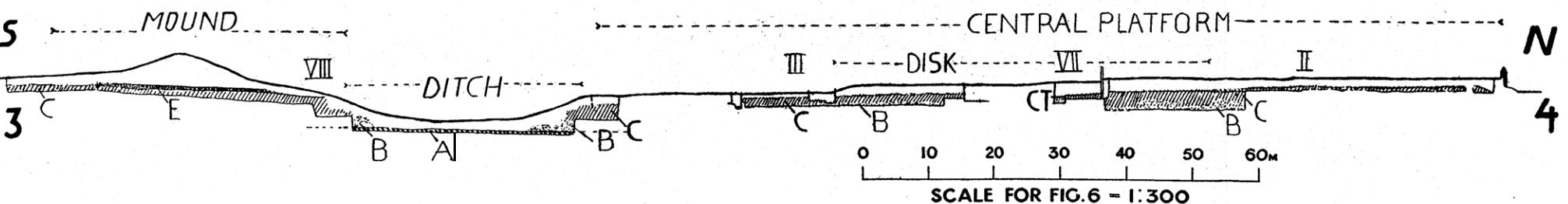
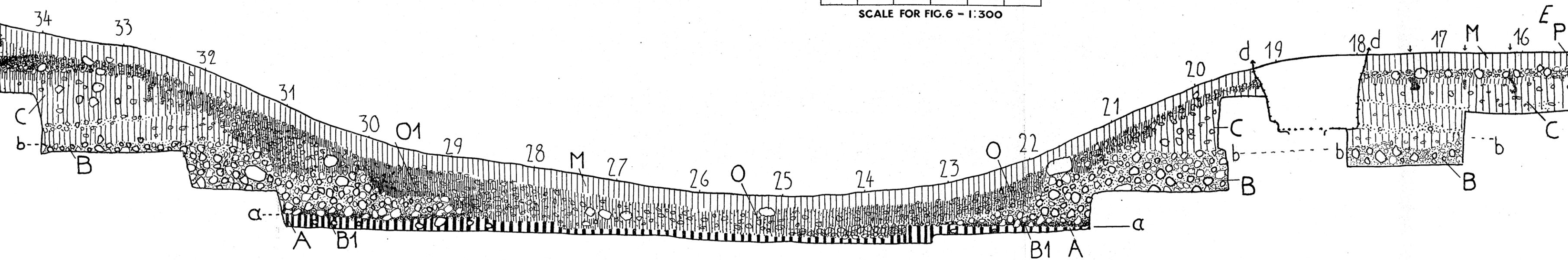
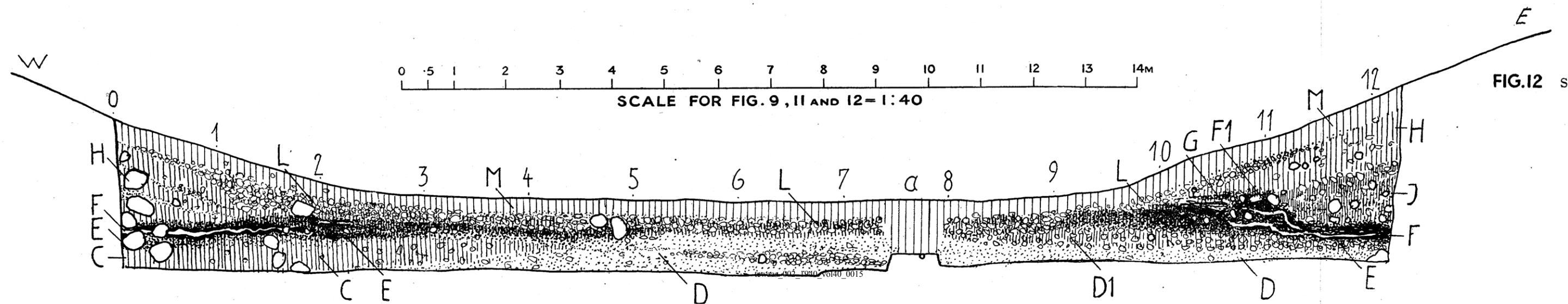
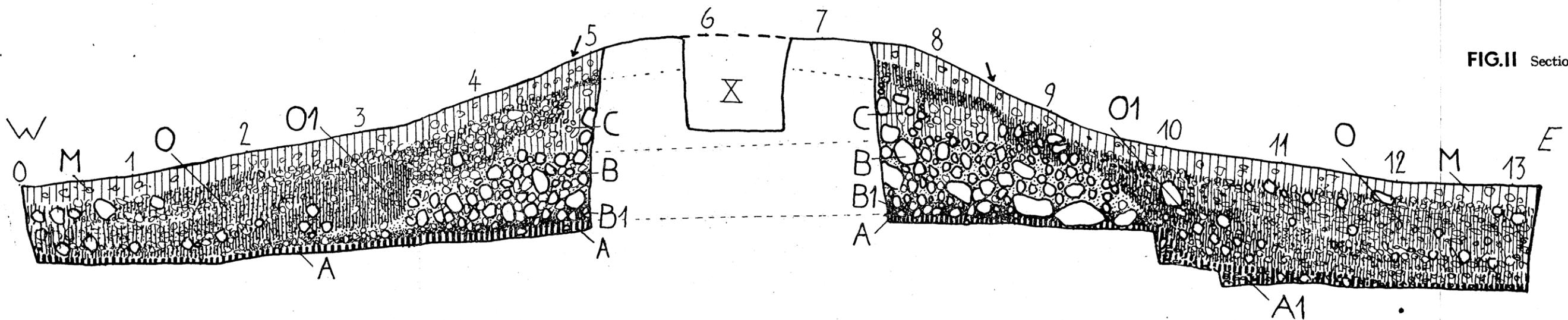
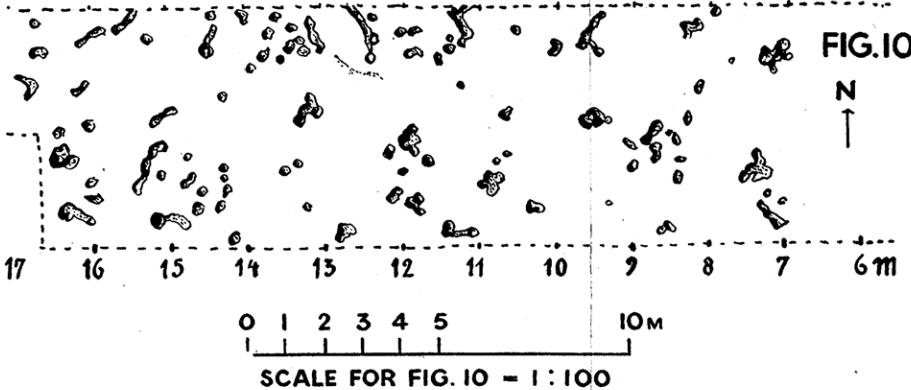
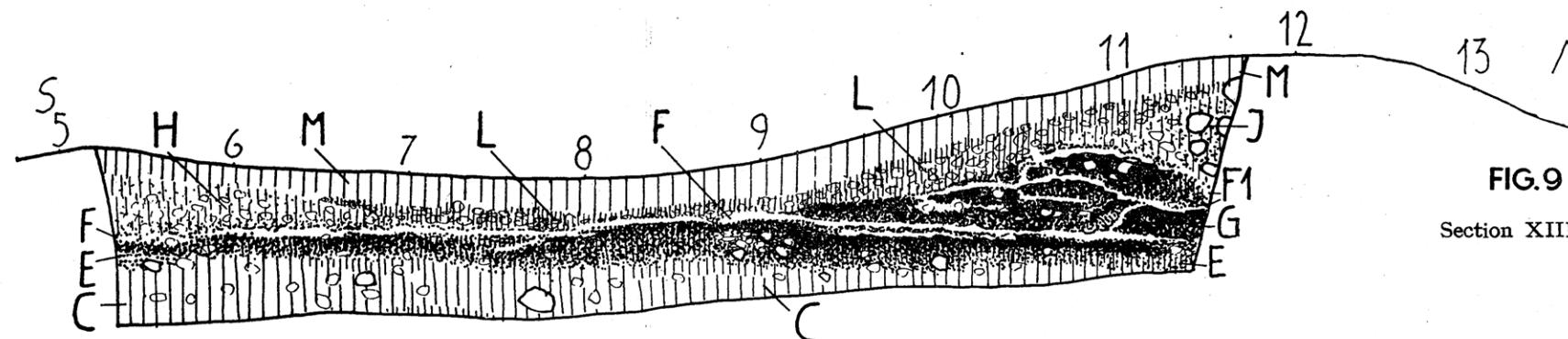


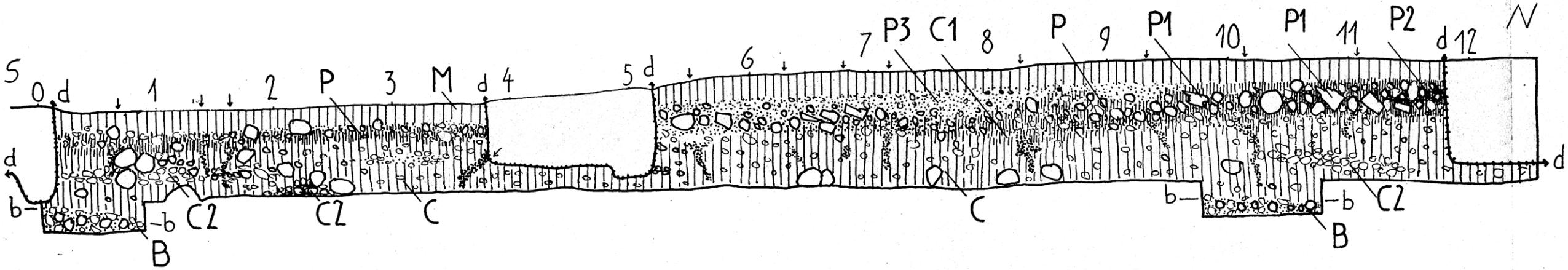
FIG.6 Combined cross-section of site, S-N.

FIG.7 Section I, 16—34 m.

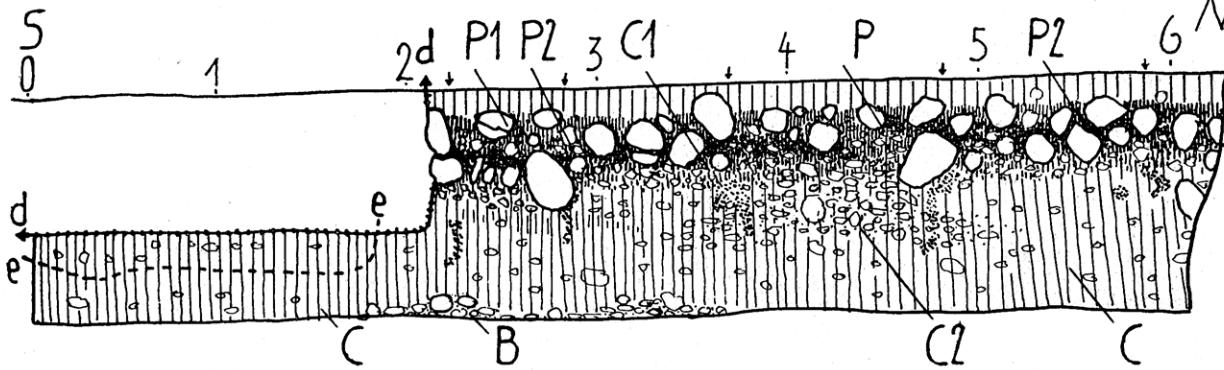




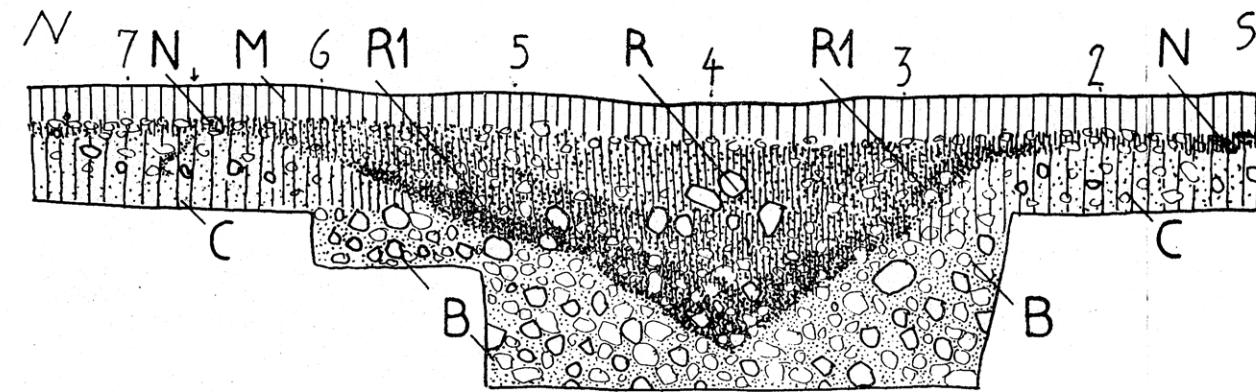
**FIG. 13** Section III.



**FIG.14** Section VII.



**FIG. 15** Little Round Table, Section II, 1.5—8.2 m.

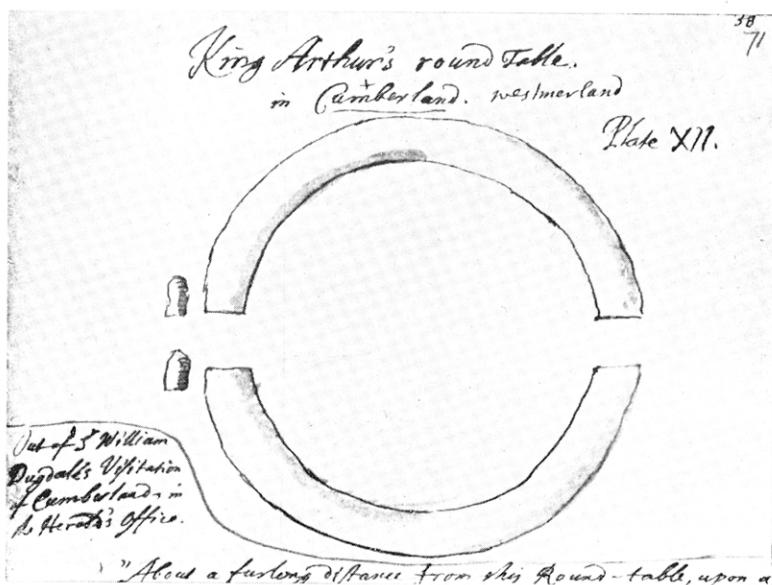


**FIG. 16** Little Round Table, Section I, 1—15 m.

### **SCALE**



1. King Arthur's Round Table, 1936: photo, J. Charlton.  
CP = central platform. D = disc.



2. John Aubrey's copy of Dugdale's sketch of King Arthur's Round Table, as it was in 1664-1665.  
To face p. 206.



1



2



3



4



5



6

KING ARTHUR'S ROUND TABLE. 1. The central boulders: 2. Gravel pack: 3. Central section of mound: 4. Mound, with later interference at the tip: 5. Putative post-hole: 6. Bushby's stone layer, covering mouse-hole (in section).

To face p. 206.