I. F. SMITH

WINDMILL HILL AND ITS IMPLICATIONS

(Figs. 1-2)

Two aspects of the Windmill Hill culture¹ are to be discussed in this paper. One will be the specific problem of the function of the causewayed enclosures or 'camps' which constitute one of its characteristic earthwork structures. The other will be its rôle as the founder of traditions that were to survive long after its own disappearance.

THE FUNCTION OF THE CAUSEWAYED ENCLOSURES

Fifteen or sixteen earthworks of this type are now known in southern England², and over a dozen more may be indicated by cropmarks discovered during recent aerial surveys of valley gravels in counties north of the Thames (St. Joseph, 1966; see also Feachem, 1966). These, however, remain to be verified by excavation. The main concentration of proven sites therefore still lies in the counties of Dorset, Wiltshire and Sussex, where there are altogether eleven, all on chalk downland; two more are in the Thames valley, in Berkshire and Middlesex, and the remainder are outliers in Bedfordshire and Devonshire.

The enclosures³ are oval or roughly circular in plan and vary in diameter from about 400 m(Windmill Hill, Maiden Castle) to less than 200 m(Combe Hill, Staines). Five have diameters within the range 230–290. The ditch systems consist of one to four rings, or incomplete rings, of segments of variable length separated by causeways of variable width. The three rings at Windmill Hill must all be regarded as integral parts of the original plan, for they can be shown to have been contemporary (Smith, 1965, p. 14), and no multiple ring site has yet produced positive evidence for a constructional sequence. In three or four instances there are 'outworks' consisting of short stretches of ditch outside the rings. The long stretches of ditch exposed at Windmill Hill showed that the segments consist of series of separate and irregularly dug pits with the intervening walls sometimes only partially removed. The upcast from the ditches was placed along their inner edges to form banks, many of which have disappeared completely. Those that remain are very low and are often

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broken by gaps opposite the ditch causeways. Formal entrances, if they existed, cannot be positively identified on the ground, although post-socket arrangements which have been interpreted as the remains of timber gates have been found at Whitehawk (on the inner side of a causeway) and at Hembury (outside a causeway). Short lines of post-sockets which may have supported fences have been discovered at Hembury (outside one of the ditch segments) and at Whitehawk and Windmill Hill (along the centres of banks). But at Windmill Hill the fence had clearly antedated the bank (Smith, 1965, p. 25–27), and at Whitehawk and Hembury there is no indisputable evidence for exact contemporaneity with the earthworks. Most of the excavated enclosures are situated on hills and sometimes in defensible situations. Five were in fact later chosen by Early Iron Age tribes as suitable positions for hill-forts. But others were not constructed in such a way as to take best advantage of the protection afforded by the natural contours, and two sites, as well as all of the newly suspected ones, lie in river valleys.

Until the recent extensive excavation of the site at Staines, of which there is yet no full report, there has been relatively little excavation in the interiors of causewayed enclosures, except at Whitehawk and Windmill Hill; smaller areas were investigated at Abingdon, Maiden Castle and Hembury. All these enclosures were found to have pits and occasional isolated post-sockets within the ditch systems, but except at Windmill Hill and Hembury, where single pits could be shown to have been contemporary, none of these features could be related securely to the earthworks. At Hembury the plan of what may have been a hut was also recovered; this was said to have been built partly over the inner edge of the enclosure bank and may therefore represent a later phase of Neolithic activity.

One of the outstanding characteristics of these sites is the large quantity of pottery, animal bone, worked flint and other discards in the fill of the ditches. Until recently most of our knowledge of the material aspects of the Windmill Hill culture was in fact based upon analysis of these deposits. The presence in them of articulated animal bones (at Windmill Hill even whole skeletons of animals) and of quite large fragments of unweathered pottery is especially remarkable.

Radiocarbon determinations have been published for two enclosures, in each case based on charcoal from lower levels in the ditches. The two determinations for Hembury (BM–130, 138) overlap to give a possible range within the period 3480–3000 B.C. for the primary use of the site (Fox, 1963), but do not approach the lower result for Windmill Hill (BM–74), 2720–2420 B.C. (Smith, 1960, p. 212). Other evidence accords with the suggestion that these two sites are likely to stand respectively toward the beginning and the end of the enclosure series and it would appear that the construction of earthworks of this kind was a prolonged, if intermittent, activity.

From the time of their first recognition as earthworks of a specifically Neolithic

type, the causewayed enclosures have posed a problem of interpretation. Suggestions have ranged from pit-dwellings, the ditch segments themselves being regarded as the living-quarters (Leeds, 1927, p. 443), to fortified villages (Curwen, 1930, p. 50) or 'towns' (Wheeler, 1943), to cattle-pounds (Crawford, 1933, p. 344; Piggott, 1954, p. 29). All these suggestions sprang from the very natural assumption that the earthworks had been intended by their builders to stand as permanent structures. Yet an objective consideration of their history, as revealed by excavation, leads to doubts about the validity of this assumption.

The features to which attention is now directed are illustrated by a series of typical ditch sections from Maiden Castle, Robin Hood's Ball, Windmill Hill and White-sheet Hill (Fig. 1). To facilitate comparison, all have been redrawn to the same scale and, in order that uniform conventions might be used, the original drawings have been slightly simplified. The ditches shown have all been cut in chalk, but this is irrelevant to the matter in hand, for phenomena precisely similar in nature to those discussed below are to be found at sites on other subsoils⁴.

Reference has been made above to the denuded condition of the banks and to their frequent total disappearance. (Here it may be mentioned that these circumstances cannot be attributed to the levelling effects of cultivation, for the majority of sites have never been wholly ploughed.) It is evident from the dimensions of most ditches that the volume of material quarried from them will have produced substantial banks, which are unlikely to have been destroyed simply by the effects of time and weather. Natural agencies must in any case, all things being equal, operate in a uniform and not a selective manner. Thus they cannot be called to account for the fact that inside some ditches there remains no trace of bank while others of comparable sizes still have visible ones.

The excavators of Maiden Castle and Hembury, where hill-forts had been built on top of the Neolithic enclosures, both pointed out that the latter earthworks had already been obliterated by the Early Iron Age. And, although the significance of this seems not to have been appreciated until now, Maiden Castle also affords evidence that at least part of that enclosure was in a flattened condition when abandoned by its makers. As shown in the section included in Fig. 1, the inner enclosure ditch was full nearly to the top, hardly anything remained of its bank, and both were covered by a thin but continuous 'turf-line' by the time the Neolithic 'Long Mound' was raised over them. The length of the interval between the two structures is not exactly determinable, but cannot have been inordinately great, for the pottery and other artifacts associated with them are nearly identical. The ditch appears to have been about 1.5 m deep and 2.5 wide at the bottom, so that the spoil from it will have produced a heap much too massive to have weathered away in even a few centuries. One other site at least still has to the present day a higher bank standing within a much shallower ditch⁵.

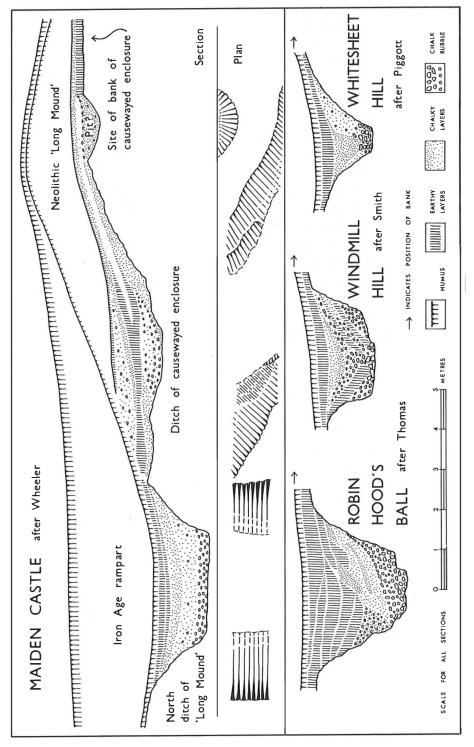


Fig. 1. Ditch sections of causewayed enclosures.

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From repeated observations (Jewell, 1963) it is known that the natural refilling of ditches similar in shape and size to those of the causewayed enclosures proceeds in an orderly fashion and produces a series of superimposed layers which are, in general, laid down in a predictably symmetrical pattern. Once a ditch has been dug, the rate of erosion of the upper edges is the same on each side; each angle at the bottom is therefore filled simultaneously with equal quantities of material and this gradually builds up against the sides, leaving a hollow along the centre. The principle is illustrated (albeit somewhat schematically) in the section of the north ditch of the Maiden Castle 'Long Mound' shown in Fig. 1. The pattern of layers in this ditch should be compared with the typically asymmetrical disposition of layers in the sections of causewayed enclosure ditches shown along with it. The latter all have in common a feature that is, however, especially well-marked at Robin Hood's Ball and Whitesheet Hill: disproportionately thick runs of fill have entered on the inner (bank) sides and come to rest at an unnaturally steep angle. These can only represent bank material, and substantial quantities of it.

If sections of this nature had been recorded only once or twice, they might be explained in terms of the accidental collapse of an inefficiently constructed bank. As they are a regularly recurrent feature⁶ of sites that, to judge from the radiocarbon determinations mentioned above, were being built at intervals over a period of several centuries, some other interpretation must be sought. The only evident one that seems to remain is that these phenomena are to be attributed to human agency, that the banks, or parts of them, were deliberately pushed back into the ditches very soon after they had been thrown up. The presence on the bottoms of some ditches of large blocks of chalk (a rock that is rapidly shattered into small fragments by frost) suggests that the interval may have been measurable in months.

The extensive deposits of refuse found in some enclosure ditches have already been referred to, and attention has been drawn to the presence in them of articulated bones and unweathered pottery. It is noticeable that the most prolific ditches are the ones that have no banks remaining (*e.g.* the inner and middle ditches at Windmill Hill and Whitehawk, the inner ditch at Robin Hood's Ball); conversely, where banks can still be seen, the adjoining ditches yield relatively little archaeological material (the outer rings at Windmill Hill, Whitehawk, Robin Hood's Ball, and those single ring sites like Whitesheet Hill and Knap Hill). The implication seems to be that bank substance was thrown down, in varying quantity as required, for the purpose of covering over the objects put into the ditches. This would also account for the fact that, apart from the topmost layers, there is no meaningful stratification of finds; at Windmill Hill, for example, parts of the same objects (usually pots) were found scattered in positions that were widely separated both vertically and horizontally.

This interpretation still leaves a number of puzzling features unexplained, and

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the need for more information and for further critical examination is obvious. At the moment, however, the inescapable conclusion seems to be that the causewayed enclosures were not meant to be permanent 'enclosures' at all, and that their function was a non-utilitarian one. Without speculating further about the precise nature of this function⁷, it may be pointed out that it now seems rather less certain than formerly that the construction of earthworks of this kind was a tradition carried from the European continent to England. Comparisons made with continental Neolithic earthworks which, however superficially similar, were constructed for demonstrably different purposes may only retard the search for the origins and relationships of the Windmill Hill culture.

THE SURVIVAL OF WINDMILL HILL TRADITIONS

If the causewayed enclosures can be accepted as non-utilitarian and therefore in some sense 'ritual' in character, the possibility of a connection between these and the later 'henge' monuments⁸ may be worth serious consideration, at least until some more plausible antecedents can be found for the latter. In details of construction and in what may be inferred as to manner of use, the two types of monument have almost nothing in common. On the other hand, it seems unlikely that within the limited area of the British Isles there could have arisen in close succession two entirely independent systems of belief, each requiring the construction of large circular earthworks. Some continuity of beliefs and practices is indeed more directly attested by the presence of certain votive objects carved from chalk – cups, balls, phalli - that are found in causewayed enclosures (and flint mines) (Piggott, 1954, p. 85-88) and in some henge monuments⁹. And ritual sites like those at Dorchester, Oxon.¹⁰, and another recently excavated at Rainham, Essex¹¹, seem, despite their relatively minuscule size, to hint obscurely at a relationship of some kind. Deliberate refilling of the irregularly cut but continuous ditch by throwing in the internal bank was definitely established at Rainham, where a quantity of large, unweathered sherds of Windmill Hill ware had been incorporated in the material returned; at Dorchester the causewayed ditches of three sites were suspected to contain layers of intentionally introduced fill (Atkinson et al., 1951, p. 26, 39, 49).

The hypothesis that the causewayed enclosures stood in an ancestral relationship to the admittedly ceremonial monuments of the henge class receives support from evidence, now to come under discussion, that demonstrates the long-continued existence of the bearers of other Windmill Hill traditions. The argument rests mainly on continuity of ceramic tradition and the possibility of tracing a series of successive developmental stages over a period of more than a thousand years. The

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main stages are illustrated in Fig. 2, together with absolute dates intended to give a general indication of time-scale.

The writer has argued at length elsewhere ¹², and these views have been summarized by Piggott (1961, p. 568–570) and more recently by Clark (1966, p. 175) that the series of pottery styles known collectively as Peterborough ware must have originated as a variant form (Ebbsfleet ware) within the Windmill Hill series, and that the resemblances to the later Funnel-Beaker and Pit-Comb wares of northern Europe are of so generalized a nature as to be of dubious value as an indication of direct relationships that are not otherwise substantiated. The Peterborough series must also be removed from Piggott's 'Secondary Neolithic' (Piggott, 1954, p. 276– 364) category for, despite an unfortunate paucity of associated artifacts, it is clear that any flint implements that do occur in *primary* association with this kind of pottery(except in its latest stages, and then very rarely) are Windmill Hill types¹³. There is, moreover, no other positive evidence that Peterborough ware had a more 'Mesolithic' background or economy than the Windmill Hill culture, where any elements derived immediately from Mesolithic sources are hard to identify¹⁴.

Apart from a few simple cups, the only pottery form known in the Ebbsfleet style is the round-bottomed shouldered bowl. It therefore seems likely that this style is derived from one of the Windmill Hill variants in which shouldered forms are prominent, either Abingdon ware (Fig. 2, No. 3) or Mildenhall ware (No. 2)15. The markedly concave necks of Ebbsfleet pots (Nos. 4, 5) are more like those in the latter series, and the often inturned or T-shaped rims seem to betray a connection with the former. Some Ebbsfleet pots, however, have simple rims, and assemblages that may be taken to represent an early stage of development, as at the type-site (Burchell & Piggott, 1939), Combe Hill (Musson, 1950) and the Whiteleaf barrow (Childe & Smith, 1954), include plain or sparingly ornamented pots which can only be distinguished from Windmill Hill types by slight variations in the shapes of neck, shoulder and body. The fabrics are not distinguishable as a rule. As in all styles of Windmill Hill ware, ornament is applied only to the upper part of the vessel, including the rim, and may extend over the inner surface of the neck. Incised patterns (No. 4) and small punch-marks like those below the shoulder of No. 2 seem to be early features; the patterns and the details of execution depart, however, from Windmill Hill customs. The cord-impressed decoration, at first only occasionally employed, also has antecedents or parallels in Windmill Hill styles. A number of Abingdon ware pots have had twisted fibres of an indeterminate nature impressed on their rims (No. 3) and an effect similar to that of whipped cord was produced by another technique¹⁶. A feature of Ebbsfleet ware which recurs throughout the whole Peterborough series is a ring of pits round the neck; this, too, may derive from Windmill Hill pots on which small deep pits, sometimes perforations, run beneath the rim (No. 1).

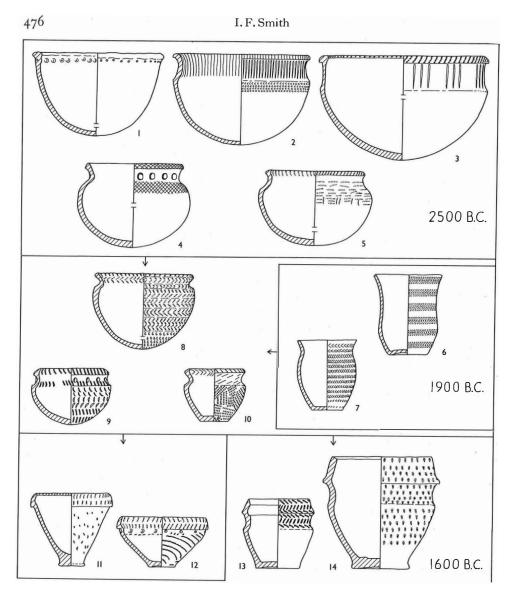


Fig. 2. Typological series showing the relationships between Windmill Hill ware (1-3), Peterborough ware (4-5, 8-12), Beakers (6-7) and Collared Urns (13-14). Nos. 4 and 6 after Piggott. Scale: 1: 8.

Wood from immediately above the deposit in which Ebbsfleet ware was recovered at the type-site has recently given a radiocarbon date of 2710 ± 150 B.C. (BM-113) (Barker & Mackey, 1963, p. 106); No. 4 is a pot from this site. Typical sherds have come from deep in the ditches of the Combe Hill, Whitehawk and Windmill Hill enclosures and the date of 2570 ± 150 B.C. (BM-74) for the latter site applies to No. 5¹⁷. The emergence of the Ebbsfleet style seems to have initiated the closing phase of the Windmill Hill culture. Many of the elements that give substance to this culture disappeared and there is a curious lack of evidence that they were replaced by new types. This apparent impoverishment is accompanied by a reduction in the variety of pot forms, the shouldered bowl taking the place of the somewhat wider range of shapes that had been used before. The regional styles that are so prominent a feature of the Windmill Hill culture also disappeared; Ebbsfleet ware and its successors are quite uniform in style wherever they occur. As a result of these changes the archaeological record becomes somewhat exiguous and is almost wholly confined to pottery.

Nevertheless an unbroken typological series links Ebbsfleet ware with the next developmental stage, Mortlake ware; there are many examples of intermediate forms similar to No. 6.

In Mortlake ware tendencies already manifest in Ebbsfleet are accentuated, but with an increment of new features derived from an alien source. The characteristics of typical Mortlake ware are the generally heavier, somewhat expanded rims (No. 9), a shortening of the neck (No. 8), the extension of ornament to cover the whole of the external surface, a preference for its arrangement in zones (Nos. 8, 9), and the use of new techniques of decoration – impressions made with fingernails, cuneiform stamps, and the articular ends of bird-bones. Sometimes two techniques are combined on the same pot (Nos. 9, 10). Most bases are still round, but a few are flat (No. 10). Fabrics are noticeably coarser and surfaces rougher. A new potting technique, that of adding crushed pottery (grog) to the clay instead of, or in addition to, the crushed stone or shell used in Windmill Hill and Ebbsfleet wares, was often employed.

Some of these new features – flat bases, zonal arrangement of decoration, fingernail impressions and perhaps cuneiform stamps, the use of grog – can be interpreted as borrowing from the ceramic traditions of the Beaker folk (see Nos. 6, 7). A fairly definite upper limit for the appearance of Mortlake pots exhibiting these particular characteristics can then be set at about 1900 B.C., and this is confirmed by the stratification at, for example, Windmill Hill, where Mortlake ware is found only in the topmost layers of the ditches together with Beaker sherds.

At some point during this stage two parallel ceramic styles seem to have emerged. The one, Fengate ware (Nos. 11, 12), continued in use as domestic pottery; the other, the Collared Urns, are known almost exclusively in funerary contexts. By about 1600 B.C. (that is, from the beginning of the Early Bronze Age) they were being used as containers for cremated bones (or occasionally as accessory vessels accompanying inhumations) in Beaker-derived round barrows¹⁸.

A proportion of pots retaining some archaic (Mortlake) features were still made side by side with the most evolved Fengate ware, and again many intermediate forms can be discerned. Typical Fengate ware has elongated 'overhanging' rims (Nos. 11, 12); the necks have been reduced to mere grooves (No. 12) or suppressed altogether (No. 11), and flat bases, sometimes disproportionately narrow, as in the two examples illustrated, are the rule. Pits beneath the rims still occur, as do cord and fingernail impressions. The latter are often placed end to end to make continuous lines which often tend to curve, probably owing to the difficulty of keeping them straight; nicks made with the fingernail along the inner edge of the rim are especially common. Patterns similar to the filled-triangle, lozenge and other motifs used on Collared Urns may cover the rims, where decoration is nearly always different in arrangement and technique from that on the body. Overall zoning of the decoration is rare. Fabrics are normally soft, greasy in texture, and may be very ill-fired. Grog is more often than not the only additive to be found in the clay. Apart from this and the narrow bases, which Piggott (1961, p. 570) has suggested may reflect *potbeker* influence there seems to be little sign of an increased borrowing from Beaker sources.

At present there is no reason to suppose that Fengate ware survived very far beyond the beginning of the Early Bronze Age; sherds incorporated in the turves or soil gathered to make the mounds of Wessex Culture barrows¹⁹ suggest a limit of c. 1600 B.C. But in the almost complete absence of Early Bronze Age domestic sites, evidence of this kind may be misleading.

The relationship between Fengate ware and the Collared Urns was first noted some forty years ago and for a long time it was assumed that the former, still evidently 'Neolithic', must have been ancestral to the latter, which were admittedly 'Bronze Age'. In a recent study of the primary series of Collared Urns, Longworth has shown (Longworth, 1961) that both probably sprang directly from Mortlake ware. In the case of the Collared Urns the transition seems to have been abrupt, for no morphologically intermediate forms are known. Some urns that are demonstrably early have a quite Beaker-like appearance in proportions and decoration. The dentate spatula was never used, but the whipped or twisted cord impressions sometimes produce a very similar effect when arranged in zones (No. 13). The urns are on the whole the products of a more competent potting technique than Fengate ware, but are noticeably inferior in this respect to most Beakers. Grog was the only additive employed. The consistent, though not invariable, association of the urns with round barrows, ultimately of Beaker origin, provides further clues to a relationship that is presumably to be envisaged in terms of cultural fusion. But the Collared Urns were to remain in use for perhaps as long as half a millennium after the eventual demise of the Beaker culture, an impressive measure of the tenacity of a tradition.

[Revised September, 1966.]

NOTES

¹ The term 'Windmill Hill culture' is used here in the sense originally defined by Piggott (1954, p.17–101). The present concern is with his 'area of primary settlement', south of the Severn-Wash line. Since this paper was written Clark has rightly emphasized the need for a revised nomenclature for the Neolithic cultures of this area (Clark, 1966, p. 176). It must be admitted that the terms 'Windmill Hill' and 'Peterborough' have outlived their usefulness.

² To the 10 excavated enclosures listed by Piggott(1954, p. 20–1), four can be added: Robin Hood's Ball, Wilts. (Thomas, 1964); Rybury, Wilts. (Bonney,1964); Staines, Middlesex (Robertson-Mackay, 1962); and Barkhale, Sussex (unpublished). The last remnants of what may have been a fifth were uncovered during an excavation at High Peak, Sidmouth, Devon (Pollard, 1966). No further work has been done at Maiden Bower, Beds., but this site may be included on the basis of earlier finds.

³ For plans, more detailed descriptions, and references not otherwise supplied, see Piggott (1954, p. 21–25). The Whitesheet Hill excavation mentioned there is published by Piggott (1952); the Hambledon excavation is still unpublished. A second (outer) ditch has been found at Abingdon (Case, 1956) and some supplementary excavation done at Windmill Hill (Smith, 1965, Chaps. I and II) and Knap Hill (Connah, 1965).

⁴ At Abingdon, on gravel, and at Hembury, on greensand.

⁵ As in a section cut at Whitesheet Hill additional to the one illustrated here, where the ditch was only 0.30 m deep.

⁶ Sections of this type can also be found in the excavation reports (see note 3) for Abingdon, Hembury (where a curious feature is the presence of a heavily burnt layer at the inner sides of the ditch segments), The Trundle, Whitehawk; and there are three others from Windmill Hill.

⁷ A tentative suggestion has been made by Smith (1965, p. 19-21).

⁸ For a general account, see Atkinson *et al.* (1951).

⁹ At Stonehenge, Woodhenge and Maumbury Rings: Thomas (1952), Piggott (1954, p. 343, 361); at Avebury: Gray (1935, p. 147).

¹⁰ Sites I, II, IV-VI, XI, see Atkinson et al. (1951).

¹¹ Excavated by D.D.A.Simpson and the writer in 1963.

¹² Unpublished Ph.D. thesis, Univ. of London, 1956.

¹³ There remain many instances of apparent association with flint types alien to the Windmill Hill tradition, but critical examination of the circumstances leads to the conclusion that the material has been mixed by successive occupations or other factors. It may be noted that the abstraction of the Peterborough element from the 'Secondary Neolithic' of southern England leaves only the Rinyo-Clacton culture within this category, and it is in fact to this culture that the flint industry described by Piggott really belongs.

¹⁴ An 'association' with a Mesolithic flint industry at a rock shelter has been claimed; charcoal from a hearth produced dates of 3700 \pm 150 B.C. (BM-40) and 3780 \pm 150 B.C. (BM-91) (Money, 1962). Pending confirmation from other and better stratified sites, it is hardly possible to discuss this seriously.

¹⁵ For the definitions of these wares, see Piggott (1954, p. 72) and Clark (1960, p. 228–240).

¹⁶ Apparently a string of small seeds pressed into the clay (Percival & Piggott, 1934, p. 248–250); known from several sites.

¹⁷ This drawing is based on Smith (1965, p.237, fig. 31).

¹⁸ The two urns shown in Fig. 2 as Nos. 13, 14 were found to have been nearly contemporary with a primary inhumation accompanied by a Long-Necked ("A") Beaker and a bronze awl in a Wiltshire barrow (West Overton G.6b) excavated in 1962 by D.D.A. Simpson and the writer. They must therefore stand at the very beginning of the Wessex Culture. For a full report see Smith & Simpson, 1966.

¹⁹ E.g. at Arreton Down (Alexander & Ozanne, 1960, p.277–281).

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