

THE CONTINENTAL AFFINITIES OF BRITISH NEOLITHIC POTTERY

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In his paper, printed with this, Mr. Piggott presents the results of a detailed study of British neolithic pottery; his conclusions are presupposed in the following discussion of its foreign affinities. He gives precision to the division of our 'neolithic' ceramics into two great families, Windmill Hill and Peterborough wares, already outlined by Kendrick,¹ Leeds² and Menghin.³ He shows that Windmill Hill pottery preserves an astonishing uniformity from Sussex to the Orkneys, from Bedfordshire and Yorkshire to the Bristol Channel and Kintyre. Distinctive forms, peculiar tricks of manipulation and decoration recur so regularly from one end of our island to the other as to leave no doubt that Windmill Hill pottery forms a single homogeneous group throughout Great Britain. Within that unity it is indeed possible to establish temporal and local subdivisions: the pottery from Abingdon, for instance, seems more specialised and mature than that from the bottom levels of Windmill Hill or from certain Sussex camps; in Arran, Kintyre, and North Ireland, and again in the Orkneys and Hebrides we encounter vessels which cannot be exactly paralleled in technique, shape, or decoration from England. But Abingdon ware unambiguously carries on in a pure form the tradition of the earliest Windmill Hill pottery; the aberrant West Scottish and Orkney vessels are associated with others that can be precisely paralleled in southern England (cf. pp. 84, 104, 107).

¹ *The Axe Age*, p. 13.

² *Ant. J.*, vii, p. 456.

³ In Hoernes, *Urgeschichte der bildenden Kunst*, ed. 3, p. 717.

Our first task, therefore, is to determine the affinities of Windmill Hill pottery in its generalised form, reserving local groups for subsequent consideration. For this purpose certain features of British neolithic ware are common to so many widely scattered groups of early pottery as to be useless. Such are roundness of the base (universal in the earliest East Baltic, Danubian, West European, Mediterranean, Aegean, Egyptian, and Kenya fabrics), perforations in the walls for suspension or repair (recurring in Baltic, Nordic, Danubian, Thessalian and Predynastic vases), the presence of lug-handles, pierced or otherwise (as in the Nordic and Danubian provinces, Western Europe, Almeria, Italy, Sicily, the Aegaeon, Anatolia, the Nile valley, Mesopotamia, etc., but *not* in the East Baltic), and simple decorative devices such as the imprints of the potter's fingers (also in Baltic, Danubian, etc.) or simple incisions with a sharp pointed implement. The only inference to be drawn from such agreements alone would be the ultimate unity of the potter's craft.

Other features, on the other hand, such as the peculiar manipulation of the rims (present at best in a very rudimentary form on vases of phase A1¹) and finger-tip fluting, seem to mark off Windmill Hill pottery as a group *sui generis*; for I can find no significant parallels abroad.

There remain features in our ware which, taken in conjunction with the primitive traits first noted, serve to distinguish Windmill Hill pottery from other adjacent Continental groups—the East Baltic, Nordic, and Danubian—and to attach it unambiguously to the great “Western” family, spread from the Rhine and the Swiss lakes to the Atlantic coasts, whose unity was first recognized by Schuchhardt. If there be any general feature distinctive of Windmill Hill pots, it may be summed up in the phrase that they look leathery. Now this is precisely the feature by which Schuchhardt² defines the Western family. Under it may be subsumed those traits in Windmill Hill vases—

¹ p. 83.

² *Alteuropa*, pp. 48 and 51.

carination round the body and splay of the rims—never observed on the 'gourd' pottery of the Danubian culture, nor on the Nordic 'basket ware,' nor yet on its cruder sister of the East Baltic.

Fig. 1, A–J, illustrates what Piggott regards as the essential forms of Windmill Hill ware. All can be paralleled closely in one or more of the three nearest groups of the Western family, subsequently defined as the Michelsberg, Chassey, and Breton types.¹ Cognate forms, common to two or more of the Continental groups, but not attested for Britain, are denoted by Greek letters. All suggest, as Schuchhardt has brilliantly demonstrated, prototypes in a tensile material such as leather. The simple, baggy dishes and pots like A and B, could be beaten up out of a single piece of suitably prepared skin. The keeled types (D–J) might result from forcing down into a vessel like B, a springy stay, such as a withy bent into a hoop, or sewing a ring consisting of one or more leather strips, round the neck of a dish like A. The flaring mouths illustrated in G, α and β might require a similar springy hoop attached to the rim. External constriction, a cord wrapped tightly round the middle of a vessel like B or its derivatives, would yield forms like β . To the above must be added ladles or spoons, assigned by Piggott (p. 77) to the Windmill Hill class here, and common on the Continent in the Chassey and Michelsberg groups.

The more distinctive features of Windmill Hill ornament again recur in the Western family of the Continent and are in part susceptible of the same

¹ The distribution of these types among the Western cultures is illustrated by the following examples:

	<i>Michelsberg.</i>	<i>Chassey.</i>	<i>Brittany.</i>
A	Reinerth, vi, 16	Dechelette, fig. 202, 3	Dechelette, 206, 9
B	Loe, fig. 66, 3	Schuchhardt, fig. 9, 1	„ 206, 1
E	Reinerth, v, 10	„ fig. 9, 12	
F, D & J		„ fig. 9, 22–3	<i>Real</i> , iv, 38, k; 45, g.
G	Reinerth, vii, 1; our pl. i, A, 2.	Dechelette, fig. 202, 13	Our pl. vi, B.
Spoons,	Forrer, fig. 28.	Dechelette, fig. 202, 2–4	
Also in Switzerland, Ischer, 'Chronologie des Neolithikums der Pfahlbauten der Schweiz,' fig. 18, 22.			
Reinerth = <i>Chronologie der jüngeren Steinzeit.</i>			

Real = Ebert's *Reallexikon*.

Loe = *La Belgique ancienne*.

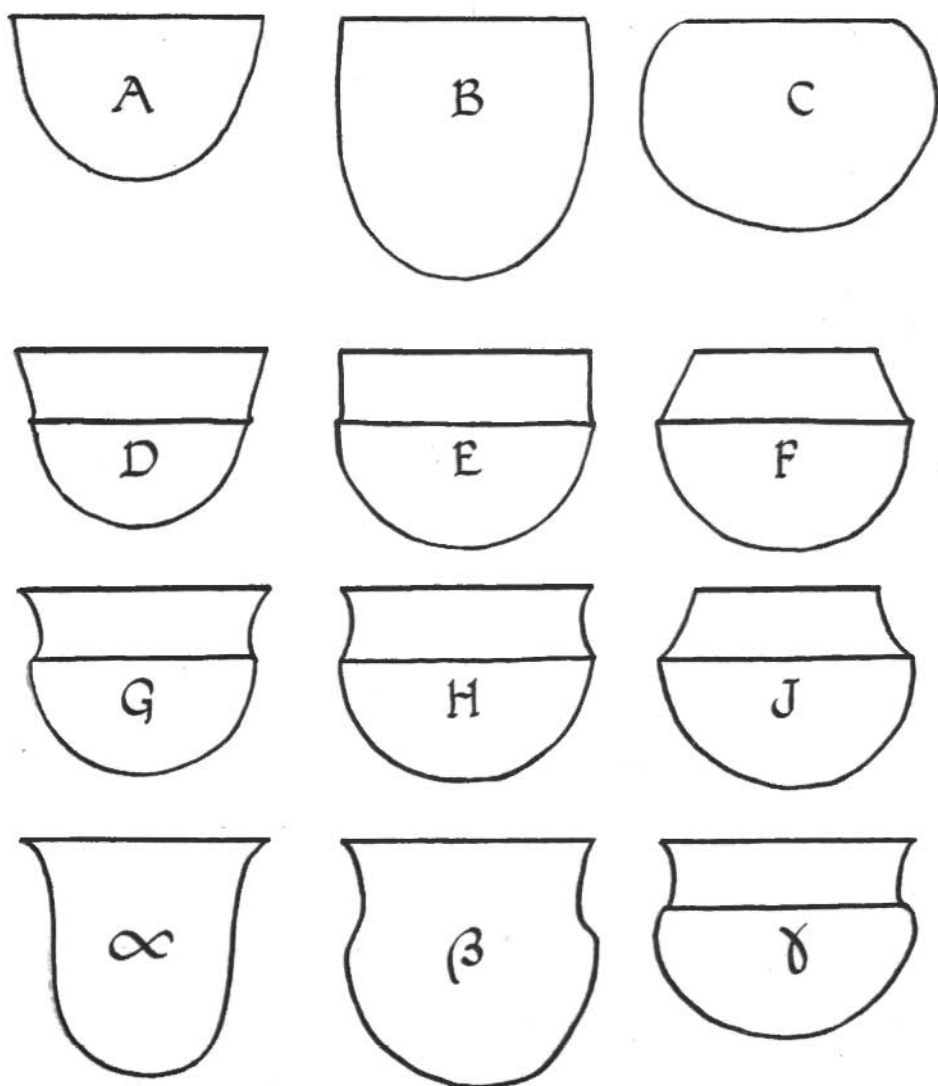


FIG. 1. SHAPES OF WESTERN NEOLITHIC POTTERY

technological explanation as the forms. The vehicle of decoration is the rim, the keel, or the whole neck. Now at precisely these points the walls of our forms D-γ might, in their leather prototypes, have needed attachment to internal stays, have been sewn together, or have revealed external supports or constricting cords. Piggott¹ has elaborated this idea in connection with the rim decoration of our Windmill Hill pottery, Schuchhardt in the case of rows of jabs or strokes along the keel of Michelsberg vases—a style of decoration also conspicuous in Britain, notably in Sussex. When the whole neck is decorated, the motives tend to be arranged vertically and to form panels, a feature also prominent in Brittany and noticeable on a few Michelsberg and Chassey vases. This 'metopic' arrangement is in sharp contrast to the purely horizontal zoning that dominates Peterborough and Baltic decoration, and the 'free style' of the Danubian potters. If the neck of our prototype had consisted of several strips of leather sewn together, the stitches joining the segments would have suggested such panelling.

As to the specific devices employed in ornamenting Windmill Hill pots, we may note the recurrence of pits² under the rim on the Michelsberg vase from Spiennes, reproduced as Pl. i, A, triangular impressions produced with a wedge-shaped point on Michelsberg and Chassey vases,³ and, above all, the highly characteristic shallow grooving on vases from Brittany and South France (described on p. 54 below).

Other aspects of the Windmill Hill culture help to confirm its affinity with the Western to which the leather pottery belongs. That culture was essentially upland; the settlements lie typically along the hills overlooking the Rhine Valley, on the chalk plateaux of northern Gaul, and on the granitic heaths of Armorica. The Danubian culture was at home rather in valleys, and is practically restricted in the west to

¹ p. 81 below.

² The possible relation of this element to corresponding traits in

Baltic decoration will be referred to below, pp. 63, 119.

³ e.g. Schuchhardt, *op. cit.*, Pl. x, c.

the löss lands of the Meuse, Rhine, Main, and Neckar valleys; the Baltic settlements finally are normally on the shores of inlets, lakes, or streams. Near parallels to our fortified neolithic villages are to be found only in the Western province. There, besides the interrupted ditch camps of Mayen and Urmitz, I might mention the defended sites of Boitsfort (Brabant, Belgium),¹ Camp de Catenoy (Oise).² Fort Harrouard (Eure),³ Camp de Chassey² (Saône-et-Loire) and the Camp de Lizo (Morbihan),⁴ all certainly attributable to branches of the Western culture.

As to industrial types the predominance of axes serves to dissociate Windmill Hill culture from the Danubian, while the pointed oval instead of rectangular cross-section of the flint specimens connects them with the 'Western' flint culture in contradistinction to the Nordic. While perforate axe-hammers of Danubian type⁵ do occur, very sporadically at many Western sites, they appear as an obviously alien element in the culture never appropriated and soon eliminated; the three fragments from Fort Harrouard, for instance, all come from the lower neolithic settlement. Finally, leaf-shaped arrow-heads, virtually unknown in the Baltic, Nordic, and Danubian provinces

¹ Apparently a promontory fort protected by five earth ramparts, with ditches between and outside them. Under the banks the excavators found layers of 'foyers,' dark clay containing sherds and incinerated bones; these they consider represented burials after cremation, and hence they describe the whole complex as a 'necropole a ustion' The human character of the much comminuted bone-ash seems, however, open to doubt, and the above interpretation far from convincing. Cf. *BSA Brux.*, xxxix, fasc. 2, pp. 150 ff., and esp. the plans, figs. 11 and 14, and sections fig. 15.

² No details available.

³ A promontory fort defended in neolithic times by a rampart of chalk rubble along the edge of the declivity. The neolithic defences of the neck,

where a ditch was dug in the Iron Age and might be expected earlier, have not been identified.

⁴ Another promontory camp encircled by a stone rampart following the contour of the hill. The neck is defended further by a ditch (not excavated, and now choked with high bushes) and a second stone rampart outside it.

⁵ Childe, *Danube*, p. 179 (Michelsberg sites in the Rhine valley; in the Belgian stations they are absent); *BSPF*, 1929, p. 95 (Chassey); le Rouzic, 1930, p. 33 (Er Lannic, Morbihan; there are none from Er Yoh). At Fort Harrouard the (unpublished) fragments all come from the first neolithic layer; for Switzerland, Middle Neolithic, see *Danube*, p. 171.

are the commonest single type in the Western stations of Belgium and northern and central France.¹

The agreements just enumerated suggest that the culture associated with Windmill Hill pottery, belongs, like the pottery itself, to a Western family. But just as our pottery has a distinct individuality of its own, so other traits or the lack of them prevent the identification of the British culture with any of the distinct Continental groups of the Western family, and incidentally serve to emphasise the internal diversity of the latter.

Throughout the Western province on the Continent celts were frequently hafted in antler sleeves. The distribution of these was, however, very uneven in the province, and none of the types used in it can be paralleled at any British neolithic site. Hafts made

¹ The following table of *percentages*, based upon the author's notes compiled in several museums gives some idea of the distribution of the types in our area.

<i>Site.</i>	<i>Hollow-based.</i>	<i>Triangular.</i>	<i>Tanged</i>	<i>Tanged and barbed.</i>	<i>Leaf-shaped.</i>	<i>Number of specimens.</i>
S. Servais, (Namur) ..	6	—	—	15	78	80
Boitsfort (Brabant)	20	—	—	10	70	10
Ottembourg (Brabant) ..	2.2	6.6	—	21.1	72.2	90
Aisne and Marne (M. Reims) ..	—	—	14	60	8	50
Environs of Epernay, Marne	—	—	—	32	68	210
Cote d'Or, M. Châtillon s. Seine ..	12	12	36	32	24	50
Camp de Chassey ..	3.5	14.8	26.6	21.1	32	445
Camp de Recouz, near Angoulême	—	3	5	51	26	200
Grotte de Nermat, M. Auxerre ..	13.3	21.3	18.6	10.6	16.6	35
Fort Harrouard, I-II ..	2	39	4	26	30	105
Er Lannic, Morbihan ..	—	—	—	100	—	20
Er Yoh, Morbihan	—	—	—	94	6	17
Denmark and Scandinavia ..	29	2	25	10	50 (Clarke in Man.)	
Palmella (Portugal)	72	—	19	—	9	53

For Switzerland, see Reinerth, *Schweiz*, p. 200; leaf-shaped mainly in West. In Rhenish Michelsberg sites no arrow-heads seem to occur. Four leaf-shaped specimens, but no pottery, were, however, found at Boitsfontaine, in Alsace.

from the end of a tyne (*gaines perforantes*) or those made from a section of antler, hollowed out at both ends into sockets, into one of which the end of a knee-shaft was inserted (socketed mounts, *gaines a douille*) are very common in the Swiss lake-dwellings and at Camp de Chassey¹ and recur sporadically in Michelsberg stations of the Rhineland, in Fort Harrouard I and in Brittany. A second type made from a section of antler sawn off at either end and perforated transversely with a shaft-hole is very common in the flint-bearing region of North Gaul, being found, for instance, in the Michelsberg site of Spiennes and in tombs of the Seine-Oise-Marne group. Such perforated mounts are, on the other hand, rare at Chassey (which has yielded only three examples) and in Brittany (one from Er Yoh) and absent at Fort Harrouard. Both types go back to the earliest mesolithic (Mullerup) times in the Baltic, yet neither occur on British neolithic sites.²

So again transverse arrow-heads, another mesolithic type, are abundant in the flint area of northern Gaul, and appear sporadically in Swiss lake-dwellings and Breton sites.³ Yet in Great Britain the type is absent from neolithic sites with the exception of Windmill Hill and a single specimen from Whitehawk Camp, Brighton.

In view of their uneven distribution on the Continent it might be doubted whether the above types were integral traits of the Western culture at all. Perhaps that culture had been superimposed upon older ones of mesolithic ancestry in North Gaul and Switzerland respectively and had locally only assimilated some elements therefrom.

Finally, considerable diversity reigns in burial rites. In Great Britain Windmill Hill pottery is frequently found in collective sepulchres—long bar-

¹ At Chassey, while the simple type, *Dawn*, fig. 122, B predominates, 13 specimens belong to the heeled type, C in the same figure, which in the lake-dwellings of Lake Neuchâtel first appears in Vouga's Middle Neolithic layers.

² The perforated haft from the long barrow of Seamer, North Riding of Yorks, is made from the base of the antler in contradistinction to the Gaulish type.

³ There are 69 from Er Lannic (le Rouzic, p. 33); for Switzerland see Vouga in *Antiquity*, ii, p. 406.

rows and chamber tombs. But the chamber tombs in question seem to represent distinct architectural traditions that might be connected with different series of Continental structures.¹ And Windmill Hill pottery is relatively common in regions like Sussex or Morayshire, where long barrows and chambered tombs are relatively or absolutely rare; on a map the distribution of the monuments and the pottery is not unambiguously concordant. So on the Continent Western pottery is regularly found in megalithic

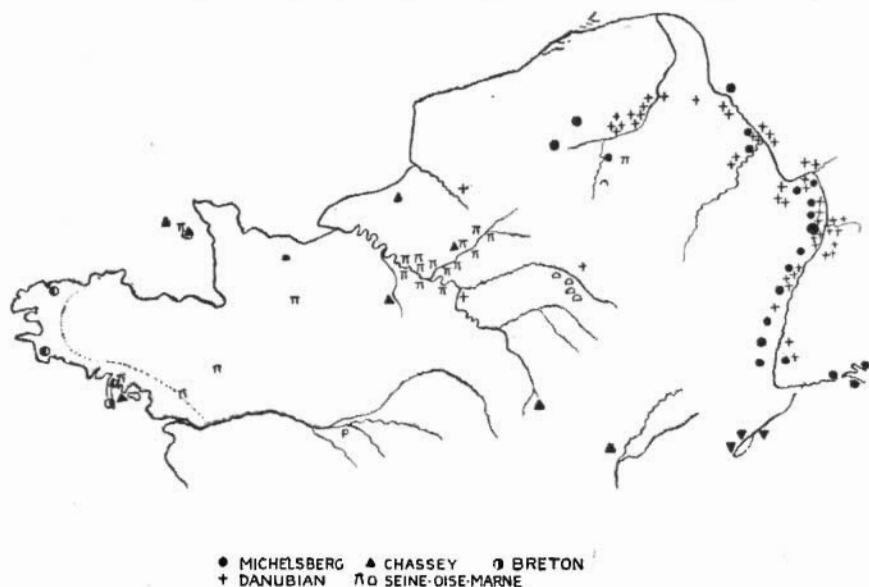


FIG. 2. NORTH GAUL, SHOWING KNOWN DISTRIBUTION OF CULTURES MENTIONED IN THE TEXT

collective tombs in Brittany, and ruined dolmens (*allées couvertes*) are not uncommon round Fort Harrouard and Camp de Chassey, but the Michelsberg people of Belgium² and the Rhineland were buried individually under the floors of their dwellings.

¹ Very accurate parallels to the segmented cists of the Arran-Bute-Kintyre type are to be found round the Pyrenées, e.g., La Halliade, Basses Pyrenées (*Real.*, iv, pl. xxviii, c) and Puig Rodo in Catalonia (Pericot, *Civil. megalit. Catal.*, pls. i, 14 and

iv, 2). The corbelled chambers under the long cairns of Caithness have no less close analogues at Alcalá in South Portugal and at Los Millares in Almeria.

² At least at Spiennes; Loe, *La Belgique ancienne*, p. 193.

Despite the reservations involved in the last paragraphs, I have, I think, demonstrated the Western affinities of Windmill Hill pottery and the associated culture; it remains to attempt to fix more precisely its position within the vast Western province. Western pottery is, in fact, found over the greater part of Gaul, and perhaps extends even into North Spain¹ and Portugal.² For our purpose it will suffice to consider the three geographically nearest groups and their interrelations. These are the Michelsberg, Chassey and Breton groups, the distribution of which is roughly indicated on the attached map (Fig. 2).

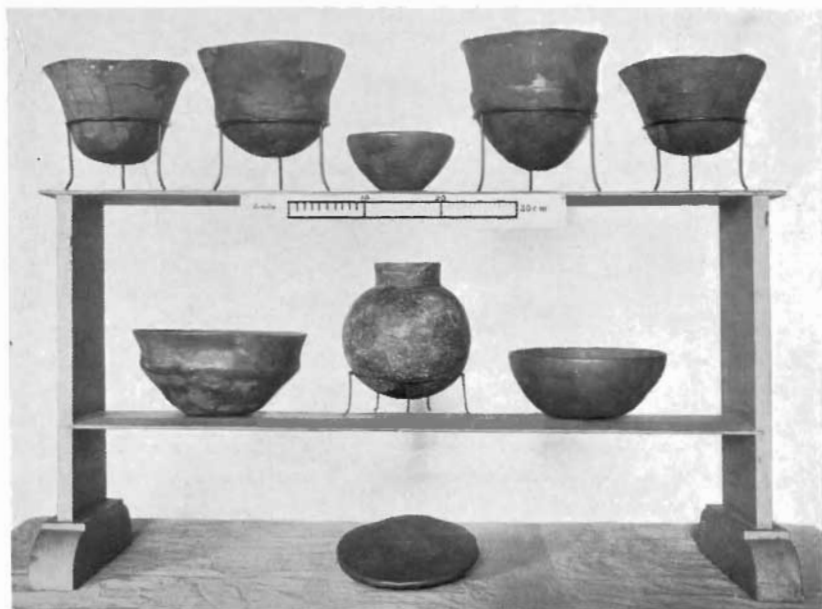
In the case of the first-named group, whose general features may be assumed to be familiar, it is necessary to insist here that, despite an unmistakable uniformity, the types from northern sites diverge increasingly from those in the south. Deep vessels, notably the 'tulip' beakers, globular jars with short necks, flat-bottomed jars with a moulding round the rim, keeled dishes with flat bases, and flat baking plates (Pl. i, A) recur every where. But the beakers become shallower as we go north and constricted forms (Fig. 1, G, β , γ) commoner.³ In the south we have, in addition to the foregoing, dippers with broad tongues, and jugs with genuine strap handles; in Belgium, handles, apart from lugs, are unknown. Ornament is everywhere rare, but fingertip impressions on, or just under, the rims (Pl. i, A), finger-nail marks, short strokes along the keel, triangular imprints and warts or pits seem general. At Michelsberg itself and a few other sites in the south, on the other hand, we find in addition, true Chassey ornament⁴ as described below. So again in Belgium flint was the normal material for the manufacture of

¹ In the comparatively late megalithic tombs of Catalonia (Pericot, *Civ. meg. Catal.*, figs. 8 and 10, pl. viii, 3-4). The forms of the Bronze Age El Argar culture in south-eastern Spain approximate to our 'Western' series; the 'Copper Age' Los Millares types are, on the whole, different.

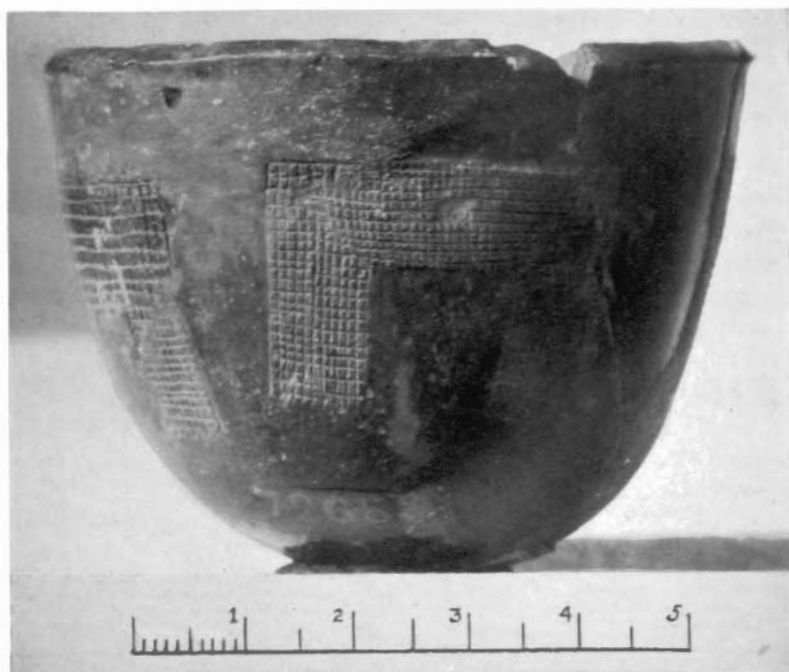
² e.g., Åberg, *Iberique*, fig. 11; Correia, *Neolítico de Pavia* (Com. Invest. Pal. y. Preh. Mem. 27), figs. 40-44.

³ Forrer, *Nouvelles acquisitions du Musée de Strasbourg*, 1924, p. 25, cites constricted forms as a late product of the Michelsberg culture in Alsace.

⁴ Reinert, *Chronologie der jüngeren Steinzeit*, pp. 17-19, fig. 3.



A. MICHELBERG VASES FROM SPIENNES. MUSÉES DU CINQUANTENAIRE, BRUSSELS



B. VASE IN EARLY CHASSEY STYLE FROM ER MAR, CRAC'H. ST. GERMAIN



VASE OF SOM. TYPE FROM OSSUARY OF VAUCELLES
(NAMUR). MUSÉES DU CINQUANTENAIRE

celts which might be mounted in perforated hafts ; outside the flint area fine grained rock was employed, and the hafts belong to the perforating or socketed types.

Chassey pottery is characterised by the so-called *vase support*,¹ and its decoration—cross-hatched ribbons, chevrons, triangles, and chequer patterns—always finely engraved with a sharp implement in the clay when nearly dry (Pl. i, B). Neat little knobs arranged in rows are used decoratively both at Chassey and in Fort Harrouard I. Simple finger-nail imprints and short jabs occur in this group as elsewhere. Owing to the stratification carefully observed by Abbé Philippe² at Fort Harrouard we can there recognise a later stage in the development of the pottery, also represented, but not stratigraphically distinguishable, at the type site. Handles and flat bases first make their appearance in Fort Harrouard II. In the same levels the fine incision of the early Chassey style gives place to deep incision, or stab-and-drag. Punctured ornament now becomes common, including, besides simple pricks, the tiny circles (circle-points) made with a small hollow bone (Pl. iii). Curvilinear patterns may be executed in this technique.

At Fort Harrouard I we encounter baking-plates of Michelsberg form, which recur also at Campigny, and clay figurines, otherwise unknown in the Western province.

At Chassey the axe-heads were all made of fine-grained rock ; at Fort Harrouard (I and II) flint was the normal material. Besides 26 polished axes, 69 *tranchets* and 9 *pics* had been found down to 1925.

Finally in Brittany and the Channel Islands, besides a local group of Western pottery, we have to reckon with three 'foreign' ceramic groups : (1) Bell-beakers occur in tombs of all types, but not in camps like Lizo, stations like Crocollé and Er Yoh, nor the cromlechs of Er Lannic ; (2) Chassey pottery is found

¹ Chassey, Fort Harrouard and Camp de Catenoy, *BSPF*, 1930, p. 271.

² 'Cinq années de fouilles au Fort Harrouard,' *Soc. Normande d'Études préhistoriques*, T. xxv bis., 1927.

in tombs, camps and stations, chiefly in the form of *vases supports*. Fine incised ware of the early style is rare (Pl. i, B).¹ Punctured ornament (both pricks and circle-points) is much commoner and may include curvilinear² motives; knobbed ornament and stab-and-drag occur at Er Lannic, and a curious sort of button lug, found in Fort Harrouard II, is known from Lizo. The Chassey pottery of Brittany thus belongs, on the whole, to a late variety. With it came, as Leeds³ has noted, the use of Grand Pressigny flint. (3) Splay-footed vases of SOM type, as defined below, have been found in several tombs and stations.⁴ Kendrick⁵ has pointed out that these must have come in with a cultural current from the Paris basin that also brought the appropriate tomb type, the *allée couverte*, sometimes with port-hole entry as at Kerlescant in Morbihan and Le Couperon in Jersey, the transverse arrow-head and perhaps the perforated antler haft.

Of the native types the most distinctive are the carinated pots (which may have flat bases) found in all types of tomb⁶ and settlement. These bowls are generally polished and may be slipped. They often exhibit a thickening of the rim, different, however, from that normally illustrated by Windmill Hill ware. The ornament consists of groups of vertical ridges. In the Channel Islands the place of these pots is taken by the 'biconical pots' of Kendrick's⁷ group C, some with cupped bases, normally ornamented with vertical groups of horizontal lines and rows of punctuations. Both classes may denote divergent local variations of a common model that grew up after the separation of the megalithic culture of the Islands from that of the Peninsula, and therefore after the arrival of the

¹ Examples from Er Mar, Crac'h (M. St. Germain) and Beg-er Roche plate, Kouregan (M. Miln, found with beaker ware).

² Le Rouzic, *Er Lannic*, nos. 1, 7, 15, 22, 23, 47, 48, 54, 66, 76.

³ *Ant. J.*, vii, p. 457, n. 7.

⁴ e.g. Quelvezin, Carnac with beakers (B.M.), Bilgroes, Arzon (M. Vannes), Camp de Lizo (M. Miln),

Motte Ste. Marie (L.I., *Real.* iv. pl. 43, h), cf. p. 49.

⁵ *Axe Age*, pp. 34, 37, 118.

⁶ e.g., Quelvezin, Kercado, and Mane Gragueux (passage graves); Kerlescant (*allée couverte*); Luffang (*allée coudee*), Crocolle and Er Yoh (stations); Lizo (camp); and Er Lannic.

⁷ *Archaeology of the Channel Islands*, p. 84.

Beaker, Chassey and SOM cultures which affected both regions equally.

In addition to the foregoing we may note (a) the large coarse vessels with a plastic ring below the rim, generally, but not very convincingly, compared to the Nordic collared flasks; (b) the curious group illustrated best in the dolmen of Conguel and apparently confined to the Quiberon Peninsula; and (c) a cognate but more widely distributed series of vases ornamented with bands of alternately hatched triangles round the neck. The last two groups will be discussed more fully below.

In conclusion we must refer to a class of vase (Pl. ii), already mentioned, that occurs in our area but that cannot be assigned to the Western family as above defined. Such are characteristic of the Seine-Oise-Marne culture¹ (elsewhere referred to as SOM) and are found in collective sepulchres, either natural caves (Vauclles, Belgium), chamber tombs cut in the chalk (Marne and Oise²) or covered galleries with port-hole entries (Paris basin). The coarse jars are easily recognisable by their light colour, everted rims, distinct shoulders, splayed-out flat bases. The sole ornament is a row of finger-nail imprints on or just below the rim. Though Peake³ refers them to leather prototypes, they fall quite outside the typical series of Western forms defined above. The same remark applies to a square-mouthed vessel from Tertre Guérin (Marne)⁴ but a flat-bottomed carinated pot from the *allée couverte* of Mureaux⁵ and a fragmentary bowl with a scalloped rim and a row of pits below from that of La Pierre plate near Presles,⁶ have vague Western affinities.

These curious vases are associated with other distinctive traits: conventionalised figures carved on the tomb walls, trepanation and cranial amulets, flint celts mounted in perforated hafts, transverse

¹ On this see Kendrick, *Axe Age*, and *Real*, iv.

² Near Nogent-les-Vierges, *Mem. Soc. acad. d'Arch., du Dep. de l'Oise*, iv (Beauvaix, 1860), p. 465.

³ *JRAL*, lviii, p. 22.

⁴ *L'Homme préhistorique*, 1909, p. 145, fig. 51.

⁵ *Real*, iv, pl. 10, a.

⁶ *Rev. arch.* xxviii (1928), pp. 1 ff., fig. 1.

arrow-heads, the use of Grand Pressigny flint, ornaments made from segments of flat stone rings perforated at the end, and axe-amulets. Leaf-shaped and tanged-and-barbed arrow heads are represented in many tombs, but never by more than two or three specimens.¹ These, together with the segmental ornaments, the use of Grand Pressigny flint² and the perforated antler hafts, constitute points of contact with the Western cultures of Fort Harrouard and Spiennes respectively. Yet, as a whole, the SOM culture looks like an alien group, interposed as a solid block between the Michelsberg area of the Rhineland and Belgium and the Chassey groups on the Yonne, Eure, and lower Seine. It has already been noted that this SOM culture, as such, spread to Brittany and the Channel Islands. The close similarities of the Swedish and Danish long stone cists and some of the vases from them³ to those of the Paris basin might be held to prove a comparable eastward extension. We thus see that the Western province is not only broken up into distinct ceramic groups, but also interrupted by alien intrusions.

But cutting across this diversity, and secondary to the underlying uniformity with which we started, are complex inter-relations between the several groups as such. Some are legitimately explicable by the blessed word 'trade.' That is clearly the case with the diffusion of Grand Pressigny flint to Brittany, North France and Switzerland. But at least in the first two cases the distribution of Grand Pressigny flint corresponds fairly accurately with that of Chassey pottery (I suspect Chassey influence too in the pottery of the 'énéolithique' levels on Lake Neuchâtel in which the flint first appears). The introduction of a particular ceramic technique is not, in early societies, likely to result from a mere interchange of goods, but rather implies an actual infiltration of people. We must

¹ Leaf-shaped: From the grottoes of Villevénard, Marne two, from dolmens of la Pierre plate 2, Meudon 2, and Argenteuil 2, with one tanged and barbed, 2 more of the latter from la Pierre plate.

² Both already in Fort Harrouard I but continuing in II.

³ e.g., *Real.*, ix, pl. 86, a.

accordingly admit that settlers of Chassey folk from the Upper Loire first introduced the taste for Pressigny flint both in Brittany and on the Eure. Conversely callais beads and other Breton types in the artificial grottoes of the Marne would be a reflex of that extension of the SOM culture to Armorica, already traced as implying an actual settlement of folk of that culture, not necessarily numerous but certainly influential, in the peninsula. In other words, the trade in both cases followed routes of folk migration.

Other interrelations remain that are less easily comprehensible. Decoration in the early Chassey style is seen on a few Michelsberg vases from the Upper Rhine (Baden and Alsace). On the other hand, a few distinctively Michelsberg forms, like baking-plates, appear at stations like Campigny and Fort Harrouard (I-II) assigned to the northern branch of the Chassey group. One of the rather abnormal vases from the corbelled chamber-tombs of Fontenay-le-Marmion, Calvados,¹ has multiply perforated ridges on the inside, a peculiar device seen on a fragmentary Michelsberg vase from Mayen.² Peculiar forms like the button-lug are common to Fort Harrouard II and Brittany. Chassey, but not Fort Harrouard or the corresponding Breton sites, possessed the peculiar "heeled hafts" for celts, proper to the Middle Neolithic stage in Western Switzerland, as well as the less specialised earlier types.

This sort of interlocking presupposes the prolonged maintenance or the establishment of fairly intimate contacts between the groups inhabiting different areas within the Western province. The undifferentiated ancestral continuum from which the common traits uniting all the groups had been inherited must either have persisted in the case of individual groups during stages of their divergent specialisation (e.g. between Chassey and the southern Rhineland till the Chassey decorative style was established, or between Chassey and the Swiss lakes till the heeled haft was evolved) or a fresh nexus of comparable intimacy must have

¹ Guebhard, 'Sur l'Anse funiculaire,' *Mem. Soc. Preh. Fr.*, ii, pl. 27, 2.

² *Bf*, 119, p. 225, fig. 14, 1.

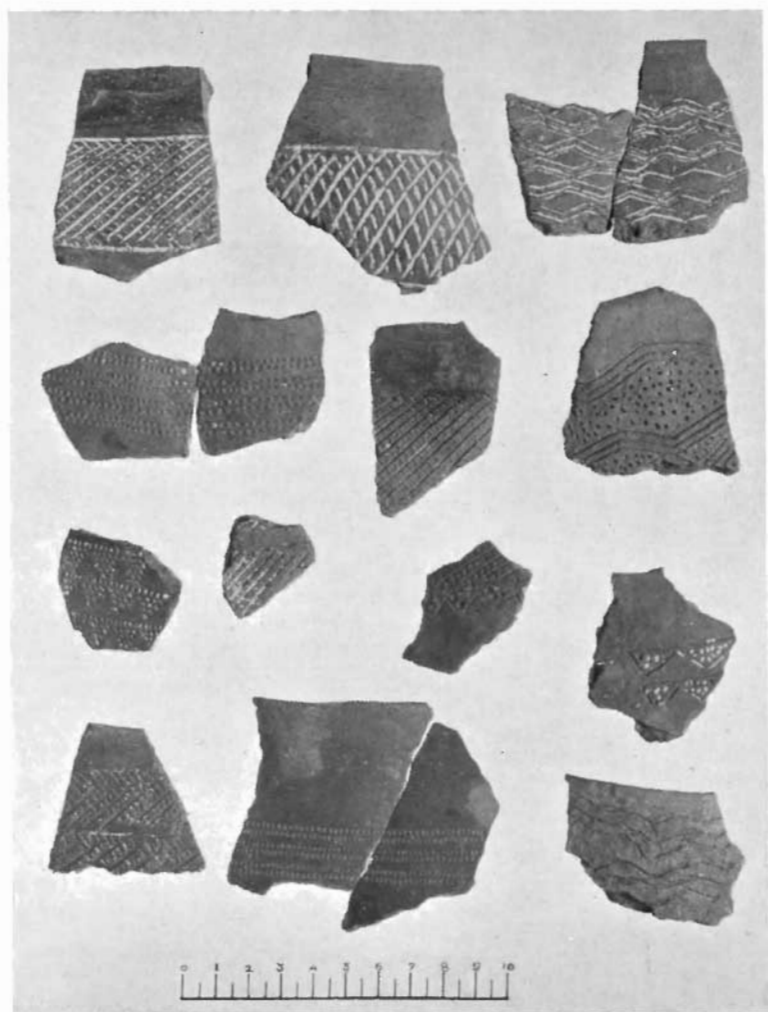
been established. In any case the Western cultures in Gaul long formed a continuum.

From this continuum it would seem that Windmill Hill culture was early cut off, assuming a thoroughly insular character. The relative age of the schism can be approximately determined. Neither Grand Pressigny flint nor the Chassey decorative style has hitherto been identified in a 'neolithic' context in Great Britain. On the other hand, Leeds¹ has noted that such flint and the influence at least of Chassey pottery did reach southern England but only towards the end of the Early Bronze Age or in the subsequent period. The agreement of the little 'incense cups' of burnished brown ware, decorated with lozenges or zig-zag bands filled with punctuations, and the later Chassey ware (Pl. iii), particularly that collected at Er Lannic, is too close to be accidental. Leeds and Thomasset² have independently suggested a connection between some 'incense cups' and the *vases supports*. Finally the knobs on our south English 'grape cups' are most naturally derivable from those of Chassey and Er Lannic, to which they correspond morphologically—the grape cup from the dolmen of Mont Ubé, Jersey,³ provides an obvious link. Hence we must assume a survival of the Chassey culture somewhere near our coasts, sufficiently protracted to influence our Middle Bronze Age pottery. In other words, the phase of Breton culture illustrated by the late Chassey pottery of Er Lannic style and the quasi-synchronous culture of Fort Harrouard II must be contemporary with our Beaker-Food Vessel period. A continuance of the Breton megalithic culture during that phase might also have been deduced from the agreement between the decoration of Gavr'inis and that of New Grange or certain Scottish cist-covers, from the recent discovery in the ruined passage grave of Kerlagade, near Carnac, of a fayence bead like those from our Middle Bronze

¹ *Ant. J.*, vii, p. 458, n. 7; he has kindly informed me that the arrow-heads of Grande Pressigny flint from a Dorset barrow there cited belong to the Breton 'square-cut' type of the Bronze Age.

² *BSPF*, 1930, p. 274.

³ Kendrick, *Archaeology of Channel Islands*, p. 89.



SHERDS OF LATE CHASSEY STYLE FROM FORT HARROUARD II.
BY COURTESY OF L'ABBÉ PHILIPPE



VASE FROM NORTH COMPARTMENT OF THE LONG CIST AT
BEACHARRA, KINTYRE. CAMPBELTOWN MUSEUM

Age barrows,¹ and from the similarity between the gold sceptre-mounts from the same dolmen and a bone object of identical shape from Bush Barrow, Normanton, Wilts.²

The later Chassey pottery has accordingly failed to influence Windmill Hill decoration, not because the Chassey style had gone out of fashion on the Continent before Windmill Hill culture crossed the Channel, but because it is absolutely later than the Windmill Hill culture itself. But in Brittany Chassey pottery, including the rare examples of the earlier style, is so frequently associated in tombs with beakers that it must have reached Brittany while these vessels were still in fashion. The failure of beakers as well as Chassey ornament, to reach Britain with the Windmill Hill culture cannot therefore be explained by Kendrick's³ assumption that the bringers of our neolithic culture set out from Brittany, after the end of the beaker period there; for by that time the Chassey style was already in vogue, though it only reached England after the dissolution of the Windmill Hill culture. Hence any contact between neolithic Britain and Armorica must be prior to the beaker phase in the latter region. (Incidentally that rules out any influence of the SOM culture transmitted via Brittany on neolithic England, since on Kendrick's chronology that culture reached the peninsula only late in the beaker phase.)

The negative character of the relations between neolithic England and Fort Harrouard I must, in the same way, mean interruption of contact before the advent of the Chassey culture in Normandy. Similarly the absence from Britain of such distinctive Michelsberg types as baking-plates implies the isolation of Windmill Hill culture before they were evolved, or at least before they had reached the Channel. Considering Windmill Hill culture as a whole we are left only with a general agreement with the Western family as an undifferentiated continuum. We have no

¹ *Man*, xxix, 51.

³ *Axe Age*, p. 120.

² Noted by Aberg, *Studier öfve den yngre stenålder*, p. 68.

indication as to the precise point from which that culture reached us.

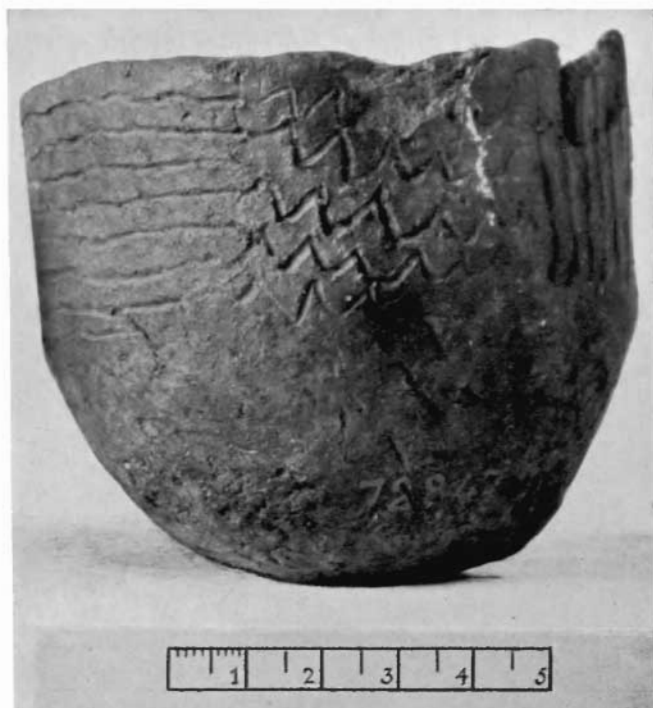
Nevertheless, really significant agreements, at least in ornament, subsist between the specialised West Scottish and Orkney groups within the Windmill Hill family and specific localised groups in Brittany. The motive of concentric arcs in panels executed in grooved technique on the vase from the segmented cist of Beacharra in Kintyre (Pl. iv) recurs, this time incised, on the pot from the dolmen of Conguel, Quiberon (Pl. v). That tomb, a sort of passage grave, one wall of which was formed by a natural rock-shelter, contained two layers of inhumation burials separated by a 'paving' of slabs.¹ Beakers accompanied the upper interments; the vase here figured lay below the slabs. From the same deposit came the vase shown in Pl. vi, A decorated round the neck with alternating panels of horizontal and vertical lines. The latter motive is illustrated, too, by sherds from the settlement at Crocollé, also in the Quiberon Peninsula. The motive and this time the technique recurs on a second vase from Beacharra (see below, p. 109, Fig. 12), and more exactly on an unpublished vase from a passage grave in North Uist.

The grooved technique employed on the first vase from Beacharra and on another vessel from the North Uist tomb was used in Brittany for the execution of curvilinear motives on the vase from Mané Hui, illustrated in Pl. vi, B, and recurs again on a bowl from the dolmen of Viala in the Department of Gard, South France.² A real connection must then be admitted between this group of West Scottish vessels and at least the Armorican Conguel group, localised perhaps in and around the Quiberon Peninsula. At the same time the peculiar form of the Beacharra pots does not, as far as I know, occur in Brittany, though an approximation to it is seen in a vase from the corbelled tombs of Fontenay-le-Marmion in Calvados³ and, more re-

¹ *Bul. Soc. Anthr. Paris*, 1892, pp. 38 ff.

² M.St. Germain.

³ Coutil, *Resumé des recherches préhistoriques*, Département du Calvados (Soc. Normande d'Etudes préhist.), p. 86.



VASE FROM CONQUEL, QUIBERON. ST. GERMAIN



A. VASE FROM CONQUEL. ST. GERMAIN



B. VASE FROM MANÉ HUI. ST. GERMAIN.

mote, at Camp de Chassey; in Portugal there are parallels from the *tholos* of Marcella (Algarve) and the 'dolmen' of Velada (Alemtejo) to be seen at Lisbon.

The well-known dishes from the chamber-tombs of Unstan and Taversoe Tuick in Orkney, and sherds from Eilean an Tighe, North Uist, show a band of alternately hatched triangles, executed by deep incisions or sometimes by stab and drag, below the rim. The same ornament is seen on sherds from the dolmen of Port Blanc, Quiberon, where again inhumation was practised, and from Kercado, Carnac.¹ The same motive in stab-and-drag technique is to be seen on the rim of a bowl from Fort Harrouard II. Plainly no very sweeping conclusions can be based on this motive which is common on British Peterborough ware, cinerary urns, and incense cups, and recurs in various regions and in different periods on the Continent.² It might, however, be used to re-enforce any conclusions based on the agreement between the Conguel-Beacharra groups.

This constitutes the only unambiguous link between the Windmill Hill culture and the Breton or any other specific Continental group. The thesis of Kendrick and Leeds that Windmill Hill pottery reached us immediately from Armorica and in company with the Long-Barrow-Chamber-Tomb complex must be judged in its light. It will imply a relatively early date within our neolithic for the West Scottish vases and the tombs that contain them. Since the complex is supposed to have reached us by sea along the Atlantic coasts, the sites are not geographically incompatible with such a relatively high dating. Again, good Continental parallels can be cited, though not in Brittany, to the West Scottish segmented cists, while the chambers covered by the long barrows of Wales, the Cotswolds and the Mendips are far removed from any Continental forms. The bearers of the neolithic culture might have been expected on their first landing to erect tombs conforming strictly to the plan author-

¹ Ms. Vannes and Carnac.

² Notably in corded ware, e.g., at Gross Umstadt, Wurt., Stampfuss,

Jungneol. Kulturen in Westdeutschland, fig. 3.

ised in their home land. As they gradually spread they might have elaborated novel types diverging progressively from the norm. To this extent the architecture of the assumed complex may be considered to have spread southward and eastward. Windmill Hill pottery might have accompanied it, undergoing progressive impoverishment on the way.

There are, nevertheless, grave difficulties in the way of the foregoing interpretation. The leaf-shaped arrow-head, the type universally and exclusively associated with Windmill Hill pottery from Sussex to Scotland and accordingly an integral trait in the Windmill Hill culture, can hardly be derived from Brittany. There the type is absolutely, as well as relatively, excessively rare¹; the statistics cited in foot-note 1, page 43, indicate Belgium or North Eastern France as the ancestral region for the type. Interrupted ditch camps again have so far only been identified on the eastern edge of the Western province.

Finally, the comb (Pl. viii) from Spiennes is clearly related to those from Windmill Hill and Abingdon, but has no parallel in Brittany. Hence, even if we admit that Windmill Hill pottery and collective tomb burial were introduced by colonists landing on our western coasts from Brittany or an adjacent region on the Atlantic, we could still posit an immigration from north-eastern Gaul bringing the arrow-heads and probably the camps. And the latter migrants must have spread to Arran and the Orkneys in time to meet the tomb-builders there.

A consideration of the pottery magnifies the difficulty. The concentric semicircle ornament, though known even in Portugal, is a common feature of Peterborough ware, where it has a good Baltic pedigree behind it, as we shall shortly see. May

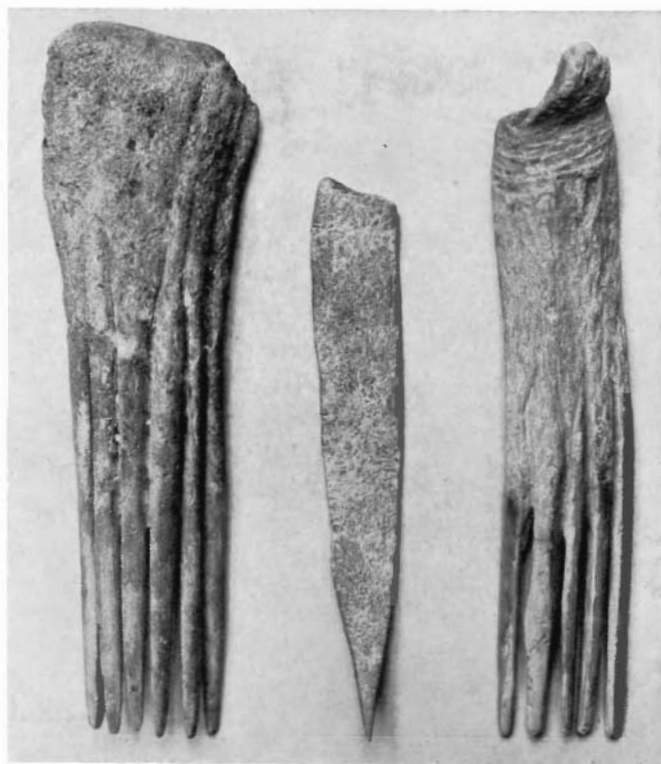
¹ In addition to the statistics given on p. 43 the following tombs may be regarded as instructive:—

	<i>Transverse</i>	<i>Tanged and barbed</i>	<i>Leaf-shaped</i>
Quelvezin, Carnac ..	1	7	1
Kerlagade, Carnac ..	0	4	1

The above include the only leaf-shaped arrow-heads I have noted from Breton tombs; the type is absolutely unknown in Guernsey, Kendrick, Channel Islands, p. 93.



VASE FROM CENTRAL COMPARTMENT, BEACHARRA.
CAMPBELTOWN MUSEUM



COMBS FROM SPIENNES. MUSEES DU CINQUANTENAIRE

not the ornament in Kintyre be due to Peterborough influence? Such pottery with typical semicircles is found as far west as Wigtonshire. Moreover, a vase from the segmented cist of Clachaig in Arran that belongs to the same special group as the Beacharra pots, is ornamented with panels of vertical and horizontal lines, executed with the whipped cord, another distinctively Baltic technique. Again, the fine-toothed comb impressions along the rim of the big bowl from Beacharra (below, p. 109, Fig. 12, 6) are technically more closely allied to those on Peterborough and Baltic wares than on normal Windmill Hill vases. But if Peterborough models were before the eyes of the Beacharra potters, their products cannot be ancestral to the South English Windmill Hill vases, which are pre-Peterborough. Again, the Beacharra-Conguel relation must be reversed, making Brittany the recipient and not the starting-point. Similarities between the curvilinear designs on the vases from Conguel and Mané Hui to those of Gavr'inis, suggest that the pots may not be quite so old as the stratigraphy of Conguel might lead us to imagine. Nor is it altogether impossible that the West Scottish segmented cists evolved locally from a degeneration of the passage grave and were even ancestral to the corresponding tombs of the Pyrenees. The alternating triangle motive of the Orkney group can be treated in the same way, since it too occurs on Peterborough ware from Astrop, Northants.

An alternative hypothesis is that the Western culture reached us very early in a generalised form, splitting off from the Continental continuum before the differentiation of the Chassey, Michelsberg, and other groups. Unless it reached us and Gaul directly by sea from Portugal, it must have overrun Britain in pre-megalithic times, and would have been overlaid here by the chamber-tomb complex coming from the west coasts only after its dispersal from Sussex to Orkney. For its immediate origin in this case the arrow-heads provide the best clue; they point to North-east Gaul, a region already selected by Peake.¹ The interrupted ditch

¹ *JRAI*, lviii, p. 30.

campes of Urmitz and Mayen, and the antler combs from Spiennes point in the same direction.

It seems to me likely that the use of the wide-toothed comb seen, for instance, at Abingdon, and very different from the Baltic comb-stamp, may have been derived from the Danubians of Belgium (Omaliens) ; for very similar comb patterns and the combs themselves have been found in Hesbaye.² I would not, indeed, like even now to abandon the hypothesis I advanced tentatively in the case of the Michelsberg and lake-dwelling cultures, that these were due to the adoption by mesolithic remnants of neolithic elements from the Danubians. Now that it has been proved that the Danubians reached not only the Province of Liège but also the Marne³ and probably even the Paris basin,⁴ this might perhaps be generalised to apply to the Western culture as a whole. Still Michelsberg, Chassey and Windmill Hill may after all be just parallel emanations of a culture transplanted from Almeria-Algarve to diverse points along the Atlantic coasts.

PETERBOROUGH WARE

The salient features of Peterborough ware suffice to connect it unambiguously with an extensive ceramic family to which the name Baltic might be attached, though it is found in "dwelling-places" throughout the North European forest zone from Jutland and Norway to the Urals and the Pontic steppes. Throughout the region we find large ovoid vessels, which, though generally deeper than the bowls of Mortlake type, bear an unmistakable resemblance thereto. In all cases the ware is exceedingly coarse, badly baked, and so relatively soft. The vessels were built up in successive rings, each fresh ring being forced down over the rim of the one below. Mr. Wyman Abbott tells me

¹ Musée arch. Liégeois, *Catalogue*, p. 79, fig. 54.

² Near Cläon-s-Marne, cited by Buttlar, 'Die Bandkeramik in ihrem nordwestlichsten Verbreitungsgebiet' (reprinted from *BRGK*, xix (1929)), p. 19.

³ The sherds from Villejuif, near

Paris, which I have seen at Saint Germain look very like the Belgian Omalian ; there is a perfectly typical perforated shoe-last celt from the Seine, near Paris, in the British Museum and a degenerate Danubian flask from Beloy-sur-Somme, *Rev. Arch.*, 1894, 2, p. 264.

that he has observed rather vague indications of the use of the same technique on some of the very friable sherds from Fengate, and it is clearly exemplified on a food-vessel from Aberlady, southern Scotland, that may be regarded as a descendant of the Peterborough vases.¹ As at Peterborough, handles, and even lugs, are absent from all the Baltic vases here considered, but their walls are so thick that the rims may become vehicles for decoration.

It is this decoration which is conclusive. It is normally arranged in bands around the 'neck' of the vase, but may cover the greater part of the exposed surface, preserving always its unbroken horizontal continuity. Of the various devices employed (summarised by Piggott, p. 115) the most significant for comparison, though not for the distinction of Peterborough from other British wares, are the imprints of twisted threads and cords. The most striking is the rare crescent-shaped maggot. But it turns out to be one of the simplest; for it can be produced by pressing into the soft clay a loop of twisted thread with the right thumb (the crescents are always concave towards the right). The same motive is observable on sherds from Danish dwelling-places² at Stormaen, near Silkeborg in Jutland, on Hesselö in the Kattegat and at Hammeren in Bornholm and from Swedish ones in the Göta valley, Schönen, Skane and Gastrikland (Pl. ix, B, c).³ But both in Denmark and Sweden the motive is exceedingly rare. On the other hand, it is very common in dwelling-places on the southern side of the great forest belt, particularly along the Dniepr valley from Chernigov to the Black Sea coasts.⁴ The Danish vases, though already possessed of distinct necks and shoulders, are assigned to the very beginning of the New Stone Age there, the period of transition between the mesolithic Ertebölle culture and that of the Dolmens; the South Russian sherds, though not accurately dateable, are at least typologically early within their class.

¹ *PSAS*, lxiv, p. 195; cf. Childe, *Skara Brae*, p. 128.

² Rosenberg, *Kulturstromungen in Europa zur Steinzeit*, p. 133.

³ The province immediately north of Uppland; the sherds are at Stockholm and unnoted by Rosenberg.

⁴ Rosenberg, *op. cit.*

The commoner motive of the straight maggot is really more advanced, in that it presupposes the use of a rigid core on which the thread was wound. Here, as on the Continent, the maggots are generally set obliquely and often grouped to form herring-bone bands. Though some sherds from southern Norway¹ and Blekinge may be decorated in this technique, it has not been certainly identified west of the Baltic. It indubitably occurs, however, on the oldest pottery from Finland² and more abundantly on that from the adjacent Russian province of Olonetz. Then it is very common southward right across the forest to the Black Sea, recurring repeatedly in company with crescent maggots in the dwelling-places along the Dniepr.³

Historically and technically related to the maggots are the impressions of twisted cords or threads encircling the vase or forming pendant semicircles. The last-named motive is particularly significant. It is not common in Britain, and on our vases is often executed with the finger-nails or with stabs-and-drags, but always in such a way as to imitate cord or thread impressions. In the latter technique the semicircle motive is found on sherds from kitchen-middens and dwelling-places in Denmark⁴ at Signalbacken near Aalborg and Stormaen in Jutland, and at Hammeren on Bornholm (Fig. 14) in company with the crescentic maggots and in the same very early context. It recurs beyond the Baltic in East Prussia⁵ and then again with maggot patterns in the dwelling-places along the Dniepr in South Russia.⁶

The whole series of cord and thread decoration, extending from the Black Sea coasts to the Baltic and eastern Britain, has been studied in detail by Rosenberg. He shows the logical necessity of a connection between all the groups, and the impracticability of a purely technological explanation—a cord wrapped

¹ Gjessing, *Rogalands Stenålder*, fig. 276, e-f (Klepp, Rogaland); other sherds from Naresto in Aust Agder at Oslo; cf. Pl. ix, B, b here.

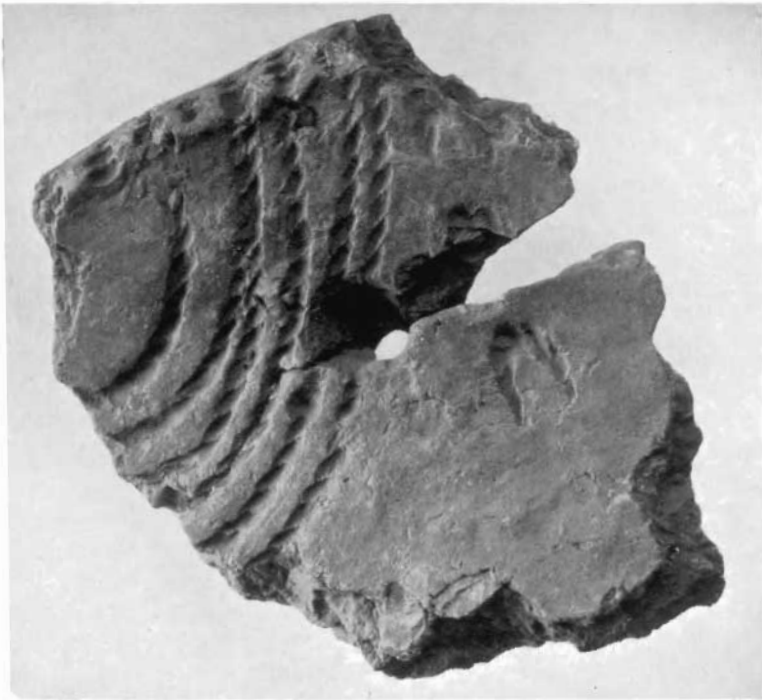
² *Acta Archaeologica*, i, p. 174, fig. 22.

³ Rosenberg, p. 47.

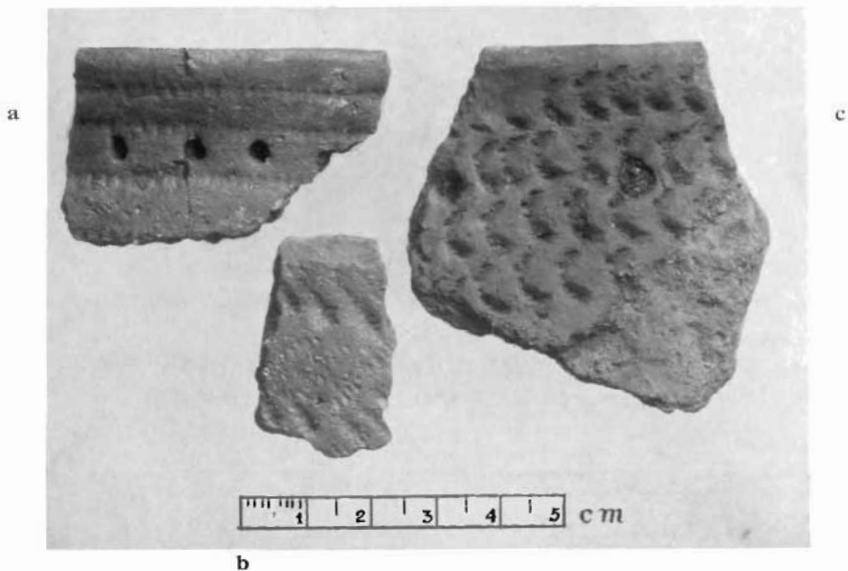
⁴ *ibid.*, pp. 137-38.

⁵ *ibid.*, figs. 266, 270, 273.

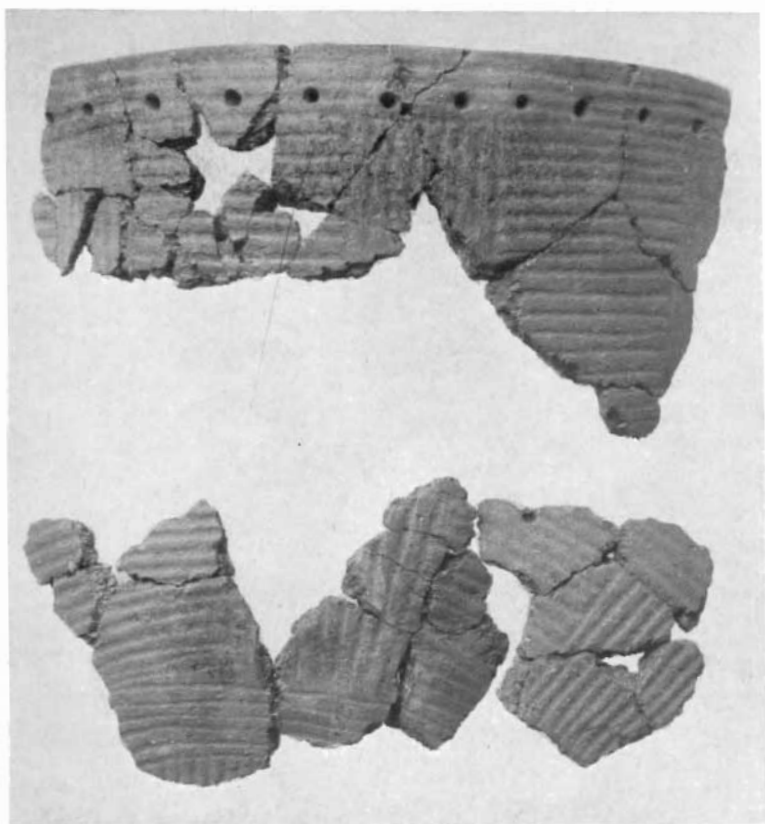
⁶ *ibid.*, p. 67.



A. SHERD FROM HAMMEREN, BORNHOLM. NATIONAL MUSEUM, COPENHAGEN



B. SHERDS FROM HEDNINGAHÄLLAN, HALSINGLAND (left) AND MARSTBO I VALBO, GASTRIKLAND (right). STATENS HISTORISKA MUSEUM, STOCKHOLM



VASE FROM SPERRINGS (STYLE I, 1). NATIONAL MUSEUM,
HELSINGFORS. $\frac{1}{3}$.

round the pot to give it stability while drying. Its rise can be explained, however, by the impression by the potter round the vase's neck of her own neck-band. This might consist of a plaited chain, the links of which would suggest the crescentic maggots. The imprint of such a chain was so clear on a sherd from Oussatova, Odessa that it was possible to reconstruct the actual necklet employed, and bands of twisted thread or cord are represented as worn round the necks of female figurines from the Tripolye culture. A more elaborate neck-band with tassels or loops hanging from it would inspire the semicircle motives. Rosenberg would accordingly seek the rise of the whole style in the Pontic region. There thread and cord ornament flourished to a degree unparalleled elsewhere, and though neither the relative nor absolute¹ age of the pottery can be determined with any confidence, the high antiquity of the Danish sherds that approximate most closely to his assumed prototypes and their relatively early position in the Baltic series to be discussed below lend plausibility to his typology.

In its northward wandering the original sense of the decoration would tend to be forgotten, other elements would be combined with it and new techniques employed to produce the old misunderstood effects. To the latter category belong comb-impressions. The imprint of a thick, chisel-edged stamp with close-set serrations along its edge as seen on some Peterborough vases, is scarcely distinguishable from that of a thread twisted round a rigid core. Such impressions, generally arranged in herring-bone bands, are found on sherds from dwelling-places in Bornholm and South Sweden. They are very common in Finland, particularly on the earliest pottery, where they are obviously designed to imitate the contemporary maggots.² They are freely used also in Olonetz and Central Russia, but as we go south the extent of their use seems inversely proportionate to that of twisted cords and threads. The distribution of this technique

¹ Cord-ornamented sherds, intrusive in Early Macedonian (*B.S.A.*, xxix, p. 133) and Early Helladic (Goldman, *Eutresis*, p. 123) sites

imply a date in the third millennium.

² Europaeus, *SMYA*, xxxvi, 1, p. 47; *Acta Archaeologica*, i, p. 178.

in space and also in time is therefore compatible with the view that the thick comb was a substitute for the stamp wrapped with twisted thread.

Plainly allied to the foregoing are the imprints of thinner combs, or shell-edges used to produce the same band patterns on many Peterborough sherds. Such comb ornament recurs in southern Norway, Zealand, and southern Sweden,¹ in a late form in East Sweden, and then very abundantly in the 'Comb-Ware' of Finland, Latvia, and North and Central Russia. Shell-edge impressions at least are found with maggots and allied devices even in South Russia right down to the mouth of the Dniepr. Rosenberg considers that the shell-comb style of decoration became amalgamated with the thread-cord system in South Russia, and was transmitted northward up the Dniepr with, or in the wake of, the latter.

A few sherds from Fengate and Orton show shallow, flat-bottomed grooves, quite different from the round-bottomed grooves of Windmill Hill ware, and produced with some sort of chisel-edged implement. Precisely the same sort of grooves were employed to produce irregular patterns on some sherds from early dwelling-places in East Sweden (Säter II, corresponding to phase II in Finland). The same technique characterises much of the decoration of the earliest Sperrings pottery in Finland (Pl. x), assigned to Europaëus' phase I.² It recurs in Central and South Russia³ in conjunction with the techniques already discussed. According to Rosenberg the implement used was the trimmed edge of a *Cardium* shell.

An important clue to the affinities of Peterborough ware is provided by the rows of circular pits pressed in from the outside.⁴ Such pits or complete perforations, are very frequently combined with the decorative devices described above: with thread and cord decoration on Bornholm, in East Prussia, in Gastrikland, and then in South Russia; with comb-impressions in Zealand, in southern and eastern Sweden, in Finland, and throughout North and Central Russia.

¹ Rosenberg, figs. 295, 296.

² *ibid.*, figs. 290, 267.

³ *Acta Arch.*, i, p. 173.

⁴ At Glenluce with a shell-top as in Denmark!

Combined with comb or shell-edge impressions, rows of these pits form an integral part of the decoration in Zealand, Sweden, in Finland during phase II (Pl. xi) and in Central Russia, where they even appear as the sole ornament. On the other hand, on Bornholm (Pl. ix, A) the pits are introduced without any relevancy to the thread semicircles. Similarly in Gastrikland (Pl. ix, B, c) and South Russia they merely disturb the other decorative elements. In the earliest pottery of Finland's phase I again the pits are always executed after the remaining motives which they often disfigure. From these facts alone Europaeus and Rosenberg have inferred that the pits denote a distinct decorative tradition which was at first superimposed upon the thread-cord system (Europaeus' phase I) and only later (phase II in Finland) blended therewith.

But in the Baltic pit decoration is not confined to the round-bottomed vessels of the 'dwelling-place cultures'; it is nearly as common on the flat-bottomed vases of the megalith-builders in Denmark and South Sweden, though generally on domestic pots and accordingly rarely seen in the tombs.¹ Now the megalith complex being presumably Western in origin, the pit tradition here might be derived from that already noted on Michelsberg and Windmill Hill pottery. But it may have a very early ancestor common to both cultural provinces. A fragmentary wooden vessel from Maglemose, near Mullerup,² shows a row of holes just below the rim. This might be taken as the earliest expression of the tradition under discussion here. Now the mesolithic culture illustrated by Maglemose extended on the one hand to Belgium and eastern Britain, on the other far into Russia.³ So the hypothetical progenitor would have been available wherever the pit ornament later appeared⁴; the latter would be

¹ Forssander, 'Gropornerad Megalitikeramik' in K. Humanist. Vettenskapssamfundet i Lund, *Arsberättelse*, 1930-31, iv.

² Unpublished at Copenhagen; Dr. Nordman drew my attention to the importance of the fragment in this connection; one might also note the pits in the decoration of antler orna-

ments from Denmark, Sophus Müller, *Stenålders Kunst*, 30-39.

³ As explained in detail in *JRAI*, 1931, pp. 334, 345.

⁴ Note that sherds with a row of holes below the rim are found in an early horizon in the dunes of Holland, van Giffen, *Die Bauart der Einzelgräber*, pp. 160, 183.

a native element proper to the forest people of the North (whose descent from the mesolithic folk can be traced in detail in the case of the inhabitants of the 'dwelling-places') while the other styles, described above, came from the south-east.

Other elements in Peterborough ornament can also be traced in the Baltic area, though less typical or significant there: zones of finger-tip impressions on an archaic vase from Siretorp in Blekinge¹ or hollow-reed impressions from Uppland and Gotland.² Perhaps, indeed, the 'goat's foot' motive, appearing already in Denmark towards the close of the Ertebølle phase,³ results from the impression of a bird's leg-joint, and a similar bone very likely provided some of the various stamps employed early in Finland and Russia.

It should here be recalled that the closest parallels to English designs belong to early phases in the Baltic. The curvilinear motives and crescentic maggots from Danish sites are almost mesolithic, and in any case pre-Dolmen⁴; in Finland the best analogies belong to phase I, 1, which is contemporary with the later Danish Dolmens or earlier Passage Graves; only the rows of pits need belong to phase II, equated with the early-middle Passage Grave phase, still definitely pre-beaker. The striking similarities existing between Peterborough ornament and that of various districts, particularly Bornholm on the one hand and Finland on the other, beyond the North Sea may be rendered slightly less incomprehensible if the history of the region in Mesolithic times be briefly considered.

During the Boreal phase of climatologists the great North European forest was occupied by little communities of hunters and fishers, scattered widely along the banks of lagoons and waterways, but sufficiently interconnected as a result of their seasonal wanderings to form a loose cultural continuum. This continuum is represented by the various cognate mesolithic cultures called after type-sites, Mullerup (Maglemose), Duvensee, Kunda, etc. They may be grouped together

¹ *Real.*, ix, pl. 20, a.

² Montelius, *Minnen från vår Forn-tid*, 700, 713.

³ Sophus Müller, *op. cit.*, 42.

⁴ At least according to Rosenberg, p. 148.



VASE FROM HANKASALMI (STYLE II, I). NATIONAL MUSEUM,
HELSINGFORS. $\frac{1}{4}$

under the title of the Forest Culture.¹ On the west this culture certainly embraced eastern Britain, while to the south it was presumably coterminous with the forest which abuts on the steppe and black earth belts of South Russia. The Baltic dwelling-place cultures of the later Stone Age may be regarded as its direct descendants. But the latter have not only adjusted themselves to the new environment created by intervening geological and climatic changes (the Littorina transgression and the consequent substitution of an Atlantic for a more Continental régime), they have also adopted new cultural elements, notably pottery. Now on the southern edge of the forest dwelt more civilised folk, amongst whom, as already noted, thread and cord ornamented pottery flourished as nowhere else. Rosenberg has established the high probability that the decoration of Baltic pottery was derived from this quarter, and the same is presumably true of the potter's craft itself.

But the transmission reached the Baltic by different routes at different times, and in varying degrees. Pottery percolated through the dense forest of Central Russia to Finland relatively late; the original meaning of the decoration had been quite forgotten and its technique greatly modified; no such cultural traits as domestic animals accompanied it. This looks like a case of cultural borrowing from tribe to tribe, involving progressive degradation of the transmitted culture. Farther south, where the sand-dunes of Galicia help to link the steppe and black-earth belts to the Vistula, a less efficient filter was interposed between South Russia and the Baltic, elements of civilisation were transmitted quicker and more abundantly; the Ertebölle pottery of Denmark is absolutely older than any in Finland, being geologically equated with the Suomusjärvi culture there, to which pottery was unknown²; it presents the original neck-band ornament in a still recognisable form; and at Strandgaard, on the south-east coast of Zealand, such pottery has recently been

¹ As explained in detail in my paper 'The Forest Culture of the North European Stone Age.' *JRAI*, 1931, pp. 325 ff.

² *Acta Arch.*, i, p. 171; cf. *Dawn*, p. 217.

found in the foundations of a rectangular house, itself paralleled in South Russia, associated on the one hand with implements of pure Ertebölle types, on the other with bones of apparently domesticated cattle.¹

Components from both currents seem to have reached Britain. In Peterborough ornament we have the neck-band style and thread cord technique in a form only slightly more decadent than in Bornholm, as well as distorted translations thereof such as are illustrated by the earlier Finnish 'comb-ware.' At the moment we can point to no strictly parallel combination east of the North Sea the direct transplantation whereof to our shores might account for the Peterborough culture. Perhaps, then, despite obvious difficulties, we must assume a maintenance of the early contacts with the opposite coasts long enough to allow the contributions of both cultural streams to reach our eastern shores there to be recombined in an original way.² The sites where Peterborough ware is found most pure—the edges of streams and marshes like Fengate and Mortlake or sandy strands like Glenluce—are strikingly similar to those always selected by the old forest folk. A perforated antler haft (of a different type to those current in the Western culture of north-eastern Gaul) from a long barrow at Seamer, in north-east Yorkshire, illustrates perhaps the prolonged survival of the Forest Culture tradition in eastern England.

At the same time, the possibility must be borne in mind that along the North Sea coasts between Holland and Schlesvig, which have continued to sink since Littorina times, the early cord-thread decoration might have survived to blend with the comb system. Thus a hybrid, such as we seem to have at Peterborough, might have arisen precisely on the strand from whose hinterland the Beaker-folk came.

Our account of the connections of Peterborough ware is therefore as vague as that of Windmill Hill class. In each case further researches in our own country may be expected to clarify the problem as much as fresh discoveries in Scandinavia and Gaul.

¹ *Acta Arch.*, ü, p. 365.

² p. 120 below.