

I.

UNRECORDED MICROLITHS FROM TENTSMUIR, DEESIDE,
AND CULBIN. BY A. D. LACAILLE, F.S.A., F.S.A.Scot.*Read February 5, 1944.*

For long Birkwood, Banchory, on the right bank of the Dee, stood out as the most northerly point in the distribution of microliths in the British Isles. Recently, however, it has been determined that small stone implements dressed in microlithic style occur even farther north. The following are the principal which have been noted: Some artifacts from Inchmarlo Cottage on the left bank of the Dee at Banchory¹; micro-burins from the Culbin Sands, Moray²; a few steeply trimmed tools from Freswick Bay, Caithness³; knives and points with battered backs from the Orkneys.⁴

The specimens from Inchmarlo Cottage and Culbin proclaim that the classic Tardenoisian method of dividing flakes was practised at both places. But there is as yet no evidence north of the Moray Firth that flakes were so treated, although the distinctive implements bear characteristic steep trimming.

TENTSMUIR SANDS, FIFE.

Sparse as it is, the distribution of microliths beyond the Dee emphasizes their absence from the North Sea basin between the valley of that river and the region south of Forth. Up to date the few microliths found in East Lothian,⁵ and near Westruther, Berwickshire,⁶ were the only links between the prolific Tweedside grounds and north-east Scotland.

Microliths from the Tentsmuir Sands, Fife, now help to bridge the gap. A few specimens from here are housed in the Dundee Public Museum, and an important group is preserved in the University Museum, St Andrews. The first lot, which I noticed several years ago, was seen to include forms characteristic enough to permit me to add Tentsmuir to maps⁷ showing the diffusion of microliths in Scotland. The other I identified in the summer of 1941 following Professor V. Gordon Childe's advice that I should examine the collection of stone implements in the care of Professor D. Waterston. I shall first describe this series, reserving to later pages

¹ *Proc. Soc. Ant. Scot.*, vol. lxx. (1935-36), pp. 420 and 434.

² *Ibid.*, vol. lxxvi. (1941-42), pp. 103 ff.

³ *Trans. Glas. Arch. Soc.*, vol. ix., pt. i. (1937), p. 63.

⁴ *Proc. Soc. Ant. Scot.*, vol. lxxix. (1934-35), pp. 251-62.

⁵ *Ibid.*, vol. lxi. (1926-27), p. 327.

⁶ *Proc. Berwickshire Nat. Club*, vol. xv. (1894-95), p. 168.

⁷ *E.g.* in *Trans. Glas. Arch. Soc.*, vol. ix., pt. i. (1937), p. 57; *Proc. Soc. Ant. Scot.*, vol. lxxv. (1940-41), p. 83.

comments on some specimens sent me recently by Mr Edwin D. Sturrock, Dundee.

Time has not altered the Tentsmuir implements (fig. 1, Nos. 1-19). They are manufactured in brownish and grey flint, except No. 17 which is of chalcedony. The good quality of the stone allowed of that delicate treatment which is well expressed in the products.

The series includes no tiny objects. Most of its components compare in size with the larger specimens produced at our principal microlithic sites. It comprises types rarely noticed in Scotland. Some of these testify to the survival and diffusion of certain ancient forms; others throw light on methods of manufacture. Common tool-types occur, but they deserve attention because of their workmanship. The artifacts make up an outstanding group of pure Mesolithic facies, and the first to be illustrated from a region which should provide much information on the early colonization of Scotland.

The Industry.—Blades struck from well-flaked cores were the mainstay of the Tentsmuir microlithic folk. Although I am unable to figure examples of cores, yet I have seen enough flint pebble-tools from Tentsmuir to give me reason to believe that the raw stone consisted of small nodules from a local boulder clay of the North Sea drifts. The untreated blades Nos. 1-3 are characteristic of the material that was worked up into implements.

The set figured in the first row shows a passage from the plain blade, No. 1, to the retouched symmetrical penknife form. No. 2 is injured by use on the right edge. Both long margins of No. 3, the left convex near the extremity and the right concave, bear traces of utilization. A well-defined implement is represented by No. 4, slightly worn on the left but steeply dressed down the upper part of the opposite side. In No. 5 is an even more shapely object and one unusually large of its kind. It is abruptly and delicately trimmed on the right edge, near the upper end. Its constricted base was achieved by very careful working on both sides.

The best represented form is the blade ending in a point produced by obliquely trimming the upper part of one edge, the left in the case of Nos. 6-9. In No. 10 the same side was retouched but at the lower end, which is actually slighter than the upper. On account of this, and because the bulb of percussion has been almost entirely removed by the secondary working, the specimen may justifiably be turned up and viewed as figured.

No. 11 is classed with all its foregoing retouched companions, but both its convex edges are blunted and it is fashioned in a thicker piece of flint. Micro-burin technique accounted for the division of the flake.

The row Nos. 12-15 is composed of implements dressed on the whole of one or more edges. The first (No. 12) is improvised in a waste spall. No. 13, brought to a point by oblique trimming, is also finely dressed along

UNRECORDED MICROLITHS FROM TENTSMUIR, ETC.

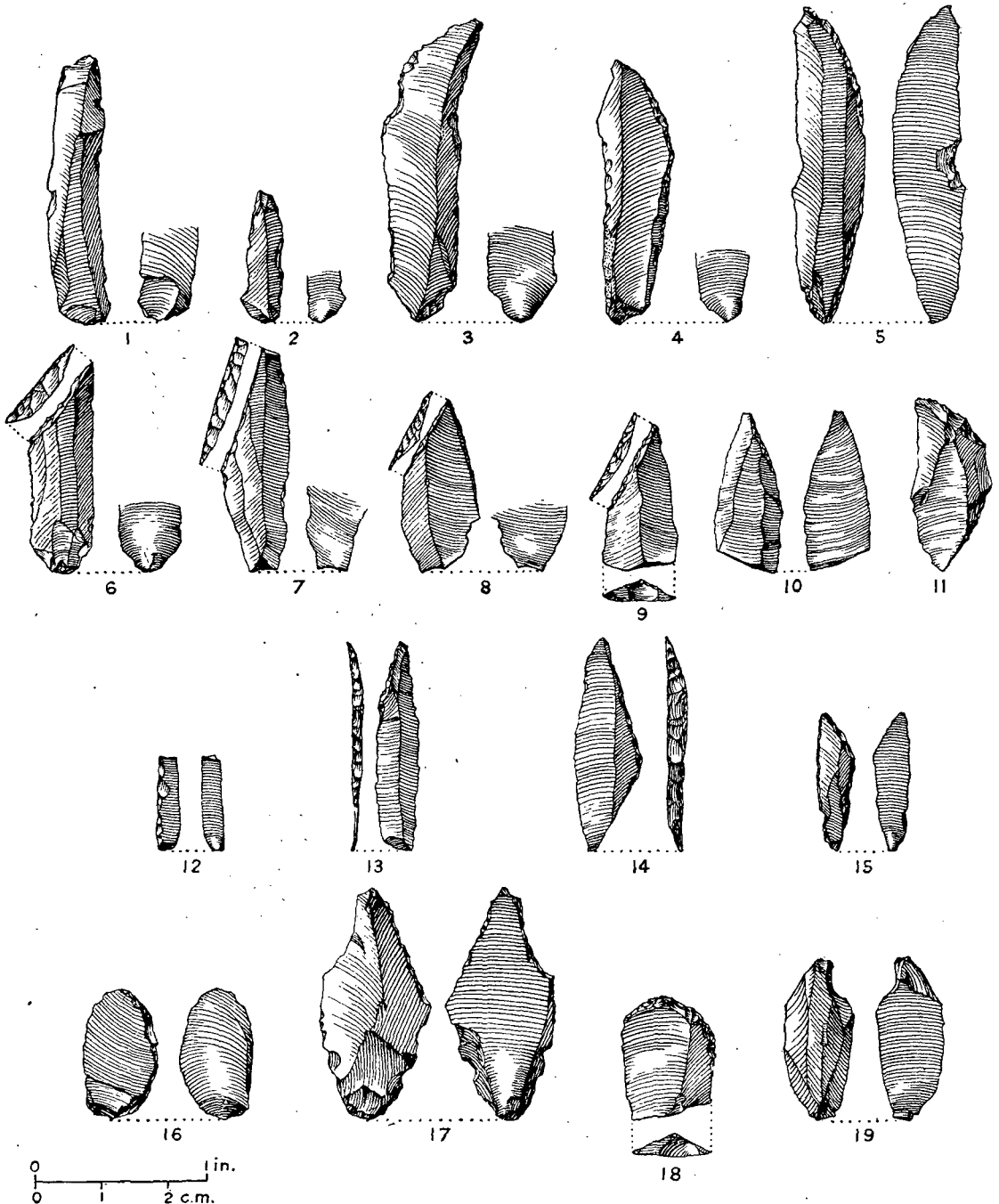


Fig. 1. Microlithic industry from Tentsmuir Sands.

the left almost down to its base. The secondary working involves more of the bulbar surface than of the edge proper.

From its appearance No. 14 might be regarded as a true geometric form. But it is in fact a point obliquely blunted at both ends made in a complete flake. Its companion, No. 15, also triangular but trimmed along all its edges, belongs to the same category. While retouch on No. 15 has hardly impaired the bulb of percussion, it has left but the scantiest vestiges of the swelling in No. 14.

The petaloid flake No. 16 was made to serve as a side-scraper by steeply dressing one of its convex edges. Similar retouch was applied to the upper part of the oblique right edge of the thickish flake No. 17. With inverse trimming along its opposite edge the treatment produced a sort of compound tool, not unlike the obliquely trimmed points. These two pieces may be compared with No. 18. The fine steep dressing upon this small scraper on the end of a truncated flake equals that of any other artifact figured here.

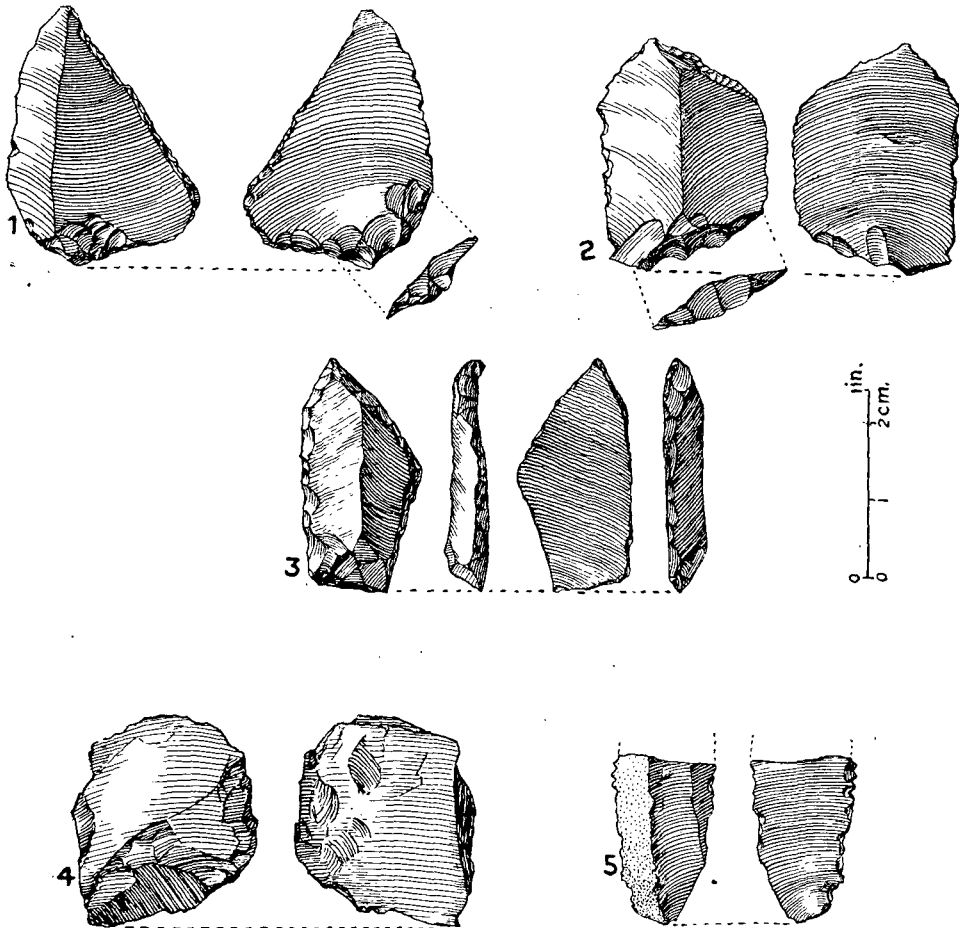
Some selected unaltered flints (fig. 2, Nos. 1-3) from Tentsmuir, found by the late Mr Alexr. Hutcheson, F.S.A.Scot., and now preserved by the Dundee Naturalists' Society, are noteworthy for their shapes. They are trimmed in the same way as the foregoing objects, with which they may presumably be ranged. No. 1 is an exceptionally wide flake-implement of dark material, its right edge obliquely and steeply dressed. On its nether face considerable wear of the long edges is seen, and also the bold retouch of the short margin next the bulb of percussion. The butt has also received attention. In the broad piece No. 2, grey flint, the short upper edge on the right bears fine dressing, and part of the bulbar swelling has been treated from underneath. The long edges of this example are injured by use. A third specimen, No. 3, fawn cherty flint, its obliquely blunted right edge meeting the opposite and equally abruptly dressed edge in a thick working point, may have served as a graver. Its lower end has been truncated and carefully retouched.

Technology.—Most of the retouched forms in the Tentsmuir microlithic industry are worked in complete (*i.e.* bulb-bearing) flakes. Thus, they are executed in the simple Upper Palæolithic tradition of abruptly dressed flake-tools.

In the implements made in complete flakes the bulb of percussion is low, probably because the parent flakes or blades were detached from the core by means of a hardwood or bone punch. That the flanks of such bulbs were very easily eliminated by the blunting process appears in fig. 1, Nos. 10 and 14, and fig. 2, No. 2.

Some objects show that specialized methods of preparing flakes were practised also. They throw additional light on our stone industries and help to place the Tentsmuir series. Thus, the perfect micro-burin, fig. 1,

No. 19, and the finished implement, fig. 1, No. 11, made in a section of flint obtained from a flake by micro-burin technique, prove that a method peculiar to Tardenoisian culture was adopted at Tentsmuir.



1-3. Tentsmuir,

4-5. Stannergate.

Fig. 2. Nos. 1-3. Abruptly retouched implements from Tentsmuir Sands. Nos. 4-5. Artifacts found stratified in early post-glacial raised beach, Stannergate.

Another way of dividing flakes is evidenced by the obliquely trimmed point, fig. 1, No. 9, and the end-scraper, fig. 1, No. 18. Both are executed in bulbless flakes which have faceted butts. The basal scars indicate that

these flakes were cut by a process believed to be cognate with micro-burin technique and very like that followed to-day in the English gun-flint industry.¹

Even in their original state the parent flakes of Nos. 9 and 18 were too short to be snapped across a predetermined line. Inquiries and experimentation, however, show that they must have been sliced by the method recaptured by M. Ed. Vignard, Paris.² His experiments were suggested by a study of truncated flakes of Levallois facies and waste from his second archaeological level at Sebil, Upper Egypt. These relics would show that the prehistoric knapper's aim was to reduce the thick butts of the flakes.

The procedure is described in detail by Vignard, who regards it as the forerunner of the full micro-burin technique evidenced in the later horizon at Sebil. The treatment indicated by the Egyptian and Scottish specimens consisted in placing the flake bulbar face upward with the required line of separation across a ridged anvil, and striking it centrally with a pointed hammer upon the spring of the bulb.

Just as micro-burins resulting from the division of flakes were discarded by the artisan, so were the fragments from the refining of flake-butts. Vignard's descriptions and figured examples of characteristic waste butt-ends from Sebil are answered by small scarred flake-fragments I have identified in the late Rev. Dr. Wm. Edgar's collection from Ballantrae, Ayrshire.

Cultural Affinities.—Unfortunately, it is not known in what conditions the Tentsmuir implements were discovered. But whether or not we are confronted with surface-finds, the aspect of the whole group is new to Scottish prehistory.

The absence of true geometric shapes, the preponderance of obliquely trimmed blades and the lack of diminutive microliths rank the Tentsmuir set with Mr Francis Buckley's non-geometric or "broad blade" industries of the Pennines.³ Around Huddersfield, Yorkshire, these comprise precisely the same forms, with the obliquely trimmed blade predominant as at Tentsmuir. In both regions the simple yet characteristically dressed end-scraper is found, and also the micro-burin and artifacts which can be connected with it. There is every reason to believe that the non-geometric industries of the Pennines are earlier than the geometric.⁴ Also, the former are manifestly related to the lower Zonhoven industry of Belgium, which antedates the final Tardenoisian of that country with its rich geometric element. The early Zonhoven industry closely resembles the more ancient Remouchamps industry,⁵ an immediate successor of the Magdalenian:

¹ *Antiquity*, 1937, pp. 201-7.

² *Compte Rendu*, Xème Congrès Préhistorique de France, 1931, pp. 66-106.

³ *A Microlithic Industry of the Pennine Chain. Related to the Tardenoisian of Belgium* (1924).

⁴ J. G. D. Clark, *The Mesolithic Age in Britain*, 1932, p. 24.

⁵ E. Rahir, *L'Habitat Tardenoisien des Grottes de Remouchamps* (1921).

Naturally, some forms common in Magdalenian industries persisted in the Tardenoisian. An example is the knife or point abruptly dressed along one edge, and sometimes provided with a sort of tang, the implement suggesting La Gravette and even earlier ancestry. At Remouchamps the obliquely trimmed point is well represented. There, too, occurs the end-scraper of Upper Palæolithic type with its minimal dressing.

Analogies exist in Britain where Upper Palæolithic culture developed along evolved Aurignacian lines as the Creswellian¹ after the peak of the New Drift glaciation (Würm II). It is well established by now that the origins of the earliest known Scottish culture lie mainly in the Creswellian.² Flourishing contemporaneously with the Magdalenian of France, the Creswellian of England, however, was only feebly reinforced by the Continental culture.

Some La Gravette forms prevalent in the English Aurignacian survived with obliquely trimmed points or blades in the Creswellian. Degenerate perhaps but still very similar, some of these implement forms also occur in early post-Upper Palæolithic levels in the Creswell Crag type-stations, north-east Derbyshire.³ Comparable knives or points and the obliquely trimmed point on the broad blade were produced farther north as the early Mesolithic culture spread. Beyond the Pennines they are well represented in the English non-geometric assemblages as far as Northumberland.⁴ Thence they extended up the Tweed valley and northward.

In Scotland penknife forms appear constantly in microlithic series. Obliquely trimmed points are rare, however, although a few occur in our early Mesolithic assemblages in the raised beach at Campbeltown.⁵ Examples have also been picked up in Tweedside and Deeside with later Tardenoisian types and a sprinkling of geometric shapes. At Tentsmuir, however, the old penknife form and the obliquely trimmed point predominate without any admixture of advanced ingredients.

The Tentsmuir series can be no more accurately dated than our surface-found microlithic collections. Nevertheless, its facies is definitely earlier than that of these groups which are marked by their developed elements, and which include very few of the forms distinguishing the Tentsmuir range. However, some of the Deeside finds are suggestive, namely the untrimmed blades, micro-burins and related objects yielded by excavation in the low river terrace at Birkwood, Banchory.⁶ They compare with the basic materials from the Tentsmuir Sands.

¹ D. A. E. Garrod, *The Upper Palæolithic Age in Britain*, 1926, p. 194.

² *Proc. Soc. Ant. Scot.*, vol. lxxv. (1940-41), p. 89.

³ Summarized by Garrod, *op. cit.*, *supra*, pp. 122-56.

⁴ Summarized by Clark, *op. cit.*, *supra*, pp. 28-29.

⁵ *Proc. Soc. Ant. Scot.*, vol. lxxv. (1940-41), p. 70.

⁶ *Ibid.*, vol. lxx. (1935-36), pp. 423, 429-30, and fig. 3.

THE DISTRIBUTION OF MICROLITHS.

Researches will doubtless show that Tardenoisian strains passed from the east of Scotland into Clydesdale and so to the west by the long open Biggar Gap and/or by the Central Plain. Howbeit, early Tardenoisian elements reached Kintyre by the Early Atlantic climatic phase as the post-glacial sea was encroaching upon the land.¹ Hence, they could have spread in Scotland earlier than was formerly thought. But they could hardly have become widely distributed until the land had emerged after the maximum marine transgression in Late Atlantic times.

By the time the great estuaries had shrunk Tardenoisian culture was well developed. Its evolved types spread, either as absorbed elements of more advanced cultures, or fairly pure as the kit of small communities whose environment compelled their members to live as simple Mesolithic food-gatherers.

One cannot yet say if Tentsmuir was but a backwater reached late by traditions of early Tardenoisian culture or if it was the seat of early post-glacial industries. The second alternative does not seem untenable because traces of early occupation have been found in lower Firth of Tay localities. These indications consist of a kitchen-midden with flint artifacts from deposits of the raised beach (*Littorina*) near Dundee.²

In common with other Scottish littoral sandy tracts Tentsmuir has yielded relics testifying to long occupation.³ At or near several such sites Mesolithic forms occur, some stratified. As similar conditions are more than hinted in the Tay estuary, it is thought investigations at Tentsmuir should be rewarded. This seems the more probable when it is remembered that routes from the south to the Tay basin were not fraught with greater difficulties than those leading to the west and south-west.

It has been suggested that the Oban hybrid culture of Late Atlantic times, typically represented in caves and shell-mounds related to the so-called 25-foot (*Littorina*) raised beach, caused the Tardenoisian to be concentrated in Scotland south of the Firth of Forth.⁴ The writer, however, has not enough confidence to endorse this view because the wide field is as yet virtually unexplored. Nevertheless, the evidence available shows that microlithic developments in the south-west and west differ somewhat from those in the east. The study of these developments on the Atlantic side of

¹ *Proc. Soc. Ant. Scot.*, vol. lxxv. (1940-41), p. 70.

² *Ibid.*, vol. xiii. (1878-79), pp. 303-7; *ibid.*, vol. xx. (1885-86), pp. 166-69.

I have examined the flints found stratified inside the raised beach at Stannergate by Mr Allan Mathewson. Being atypical they are disappointing, although indicative of a real industry. One (fig. 2, No. 4) is a nodule evidently taken from a drift deposit, and struck probably to test the material. Its counterparts abound in the Mesolithic assemblages of Campbeltown. The other (fig. 2, No. 5), a broken corticed and apparently peat-stained flake, resembles the delicate Mesolithic examples of south-western Scotland and Northern Ireland.

³ *Proc. Soc. Ant. Scot.*, vol. xxxix. (1904-5), pp. 345-49.

⁴ Hallam L. Movius, jun., *The Irish Stone Age*, 1942, p. 193.

the great water-parting belongs properly to a wide survey of the Hiberno-Scottish province and its early post-glacial cultures. But it may be said now that, whereas in this region microliths seem rather to occur as products of comprehensive industries ranging from our early Mesolithic to Bronze Age, in the North Sea basin they appear usually in groups of fairly pure Tardenoisian facies. This suggests a slow infiltration of these cultural elements into the confined western province¹ by a few possible routes such as were afforded by cols and the Central Plain.

Our knowledge of Tardenoisian facies in the North Sea basin, amplified by the Tentsmuir artifacts, is added to by a few more specimens from this extensive region. How these compare with the objects already discussed appears from the drawings and the comments which follow.

INCHMARLO COTTAGE, BANCHORY.

Microliths of the same order as that so well represented on the right bank of the Dee around Birkwood, Banchory, occur also on the left bank of the river at Inchmarlo Cottage, upstream and two miles west of Birkwood. The examples figured (fig. 3, Nos. 1-4) are a selection of typical products found in scrapings from rabbit-burrows and banks above the Dee.² This set consists of a utilized blade, No. 1, such as would have been struck from a core like No. 2; a narrow blade, No. 3, blunted on the left edge; and No. 4, a characteristically dressed diminutive triangle.

These discoveries supplement Miss H. M. Leslie Paterson's finds opposite Birkwood and Miss M. Outram's near Inchmarlo Cottage.³ The occurrence of all these delicate flints in the Banchory area on both banks suggests that systematic inquiry will show that the Dee valley, particularly the lower reaches, is not less fruitful than Tweedside.

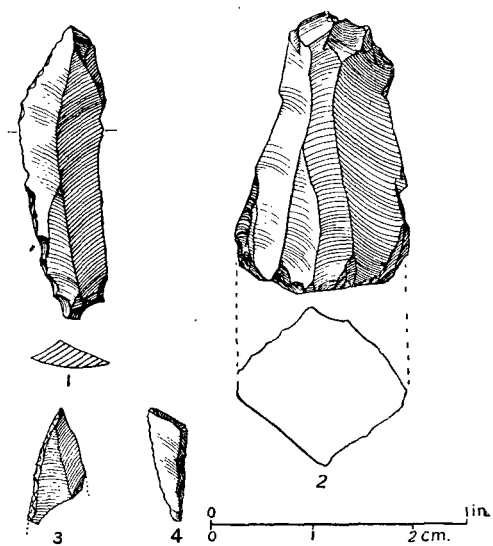


Fig. 3. Series representing a microlithic industry from Inchmarlo Cottage, Banchory.

CULBIN SANDS, MORAY.

A recent sorting of small lots of unclassified flints in the Lewis Abbott Collection, now owned by the Wellcome Historical Medical Museum, London, brought to light some interesting items. These increase the list

¹ Cf. Sir Cyril Fox, *The Personality of Britain*, 1933, p. 27.

² *Proc. Soc. Ant. Scot.*, vol. lxx. (1935-36), p. 434.

³ *Ibid.*, vol. lxx. (1935-36), p. 420.

of microliths from sandy sites beyond Banchory. They consist of documented specimens from the Culbin Sands which Abbott secured about the beginning of this century.

When the writer described the micro-burins from Culbin he stated ¹ that, although they were then the only pointers to microlithic industry from the

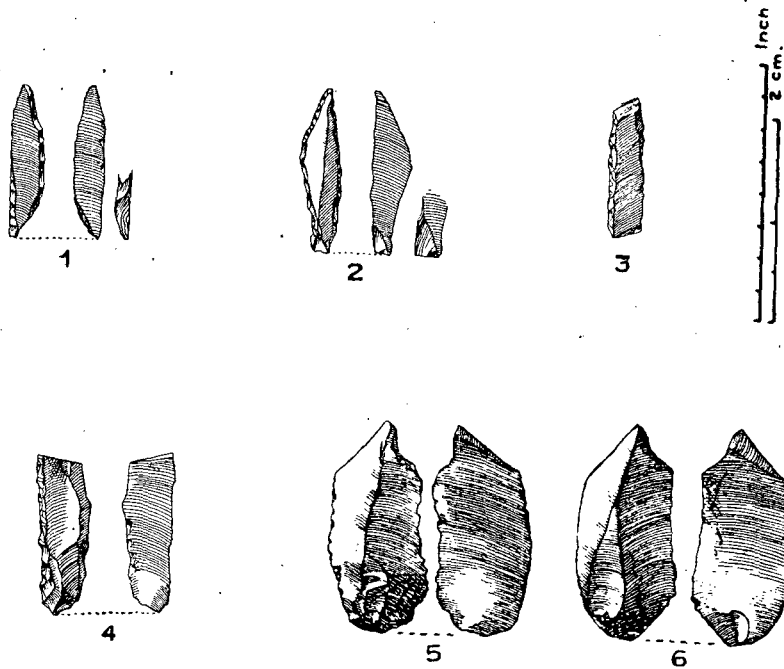


Fig. 4. Microlithic industry from Culbin Sands.

locality, they proved that Tardenoisian technique had been practised here. This fact is further upheld by the examples which can now be grouped with the micro-burins.

All the artifacts from the Culbin Sands are fashioned in the excellent flint of north-east Scotland. The retouched specimens, fig. 4, Nos. 1, 2, and 4, like the micro-burins, Nos. 5 and 6, are of light material, now slightly altered and sand-glazed. No. 3 is of red flint and unchanged.

The diminutive points, Nos. 1 and 2, are blunted down the right and left edges respectively and minutely trimmed on the opposite margin. Viewed from the angle of technology these objects are instructive. Both are executed in the upper ends of narrow blades cut by micro-burin technique. This is clearly proved by the small negative facet at their lower end. In No. 1 this scar is partly dressed down, but entirely spared in No. 2.

¹ *Proc. Soc. Ant. Scot.*, vol. lxxvi. (1941-42), p. 114, fn.

No. 3, though slightly injured at the ends, is recognizable as a steeply dressed rod. As one of the commonest microlithic forms, it can be paired with the similarly treated narrow thin blade, No. 4. This wants the tip but retains the bulb of percussion.

CONCLUSIONS.

The representative specimens from the left bank of the Dee near Inchmarlo Cottage obviously rank with the classic Birkwood collection. Although this assemblage, as we know, includes a few early Tardenoisian types, yet it is essentially one of well-developed forms. In this respect it resembles the Tweedside groups, its facies, like theirs, being purer and earlier than that of the Shewalton (Ayrshire) series.

Counterparts of the Culbin Sands microliths occur in the Deeside and Tweed valley collections. On the score of typology, therefore, it may be said that the Culbin industry is more advanced than that represented by the Tentsmuir "broad blade" products. It may be classed with the "narrow blade" industries of Great Britain, which include geometric shapes.

The writer's conviction that researches should furnish fresh evidence of Tardenoisian penetration in the North Sea basin north of the Firth of Forth is not solely on the artifacts reviewed above. It is founded also on a consideration of regional topography. This offered relatively easy land-routes to valley and coastal sites of the kind favoured by our microlith-users in Scotland south of Forth. Both banks of the Dee and the Culbin region possessed their respective attractions. Hence, it may be supposed that some comparable intermediate localities were occupied by these folk. This seems the more probable since sites beyond Culbin testify to the farther northward march of microlith manufacturers and Mesolithic culture.

When Mesolithic strains first appeared beyond the Forth estuary and what were their associations are questions which can only be answered by the investigation of sites likely to provide dating factors. Geology, supplemented by chance archæological finds, long ago indicated the lines researches should follow. Upon the foundations laid down by the pioneers, geologists and palæobotanists have gradually built up the background of our earliest known cultures, but with little aid from the archæologist. Still, the success attending methodical inquiry in our part of the Hiberno-Scottish Mesolithic cultural province points to what could assuredly be achieved by close collaboration in the almost untouched field of the North Sea basin, which offers unrivalled scope for the study of early post-glacial conditions.

ACKNOWLEDGMENTS.

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