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# A DISCOVERY OF ACHEULIAN IMPLEMENTS IN THE DEPOSITS OF THE DARTFORD HEATH TERRACE

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Some of the difficulties involved in considering the age of the Dartford Heath gravel in relation to other Pleistocene deposits of the Lower Thames area have been referred to in a previous volume of *Arch. Cant.* (LXIII, pp. 128-132). No purpose would be served by repeating what has already been published in these Proceedings and it will suffice to say here that there exists a conflict of opinion as to whether the Dartford Heath gravel is contemporary with the well-known implementiferous gravels at Swanscombe or earlier. Present evidence is of an uncertain and somewhat conflicting nature and it will therefore be appreciated that any new discovery likely to throw light on this problem will be of particular interest to those concerned in elucidating the geological succession of the Thames Valley deposits and determining the relative ages of the Stone Age industries they contain.

During 1952 deep excavations have been made on the eastern fringe of the Dartford Heath terrace in connection with the building of a new Technical College (N.G.I.535738). In the course of this work several Acheulian biface implements were discovered. The site lies on the brink of the Darent Valley, the chalk outcropping from beneath the terrace deposits on the slope eastward towards the river. Unfortunately the main exposures were obscured by the time my investigations were made, but I was able to view a typical section exposed in a recently dug " soak-away," and the clerk of the works, Mr. W. T. L. Scott, to whose kindness and able assistance I am greatly indebted, furnished me with photographs of the larger excavations with details of levels which have enabled me to compile the following account.

In the section examined the surface was approximately 97 O.D., beneath which about 1 ft. 6 in. of surface soil rested upon a varying thickness up to 2 ft. of solifluxion gravel channelling the beds below. These consisted of reddish fluviatile sand merging downwards into a greyish loam. The workmen reported that below this they encountered a shallow bed of coarse material which from their description was of similar character to the flinty gravel exposed in pits nearer the centre of the Heath. In the adjoining larger exposures the junction with the chalk was revealed at 87 O.D. In the " soak-away " section the thickness of the sand and loam bed was not less than 6 ft.

The implements were all obtained from the sand or loam, a fact confirmed by traces still adhering to their surfaces when presented for my inspection. The largest (Fig. 1, No. 1) was found at the depth of 6 ft. and is unpatinated and unabraded. The butt of another similar implement (not illustrated) was found at the same depth. Both the other specimens were stated to have come from a somewhat higher level.

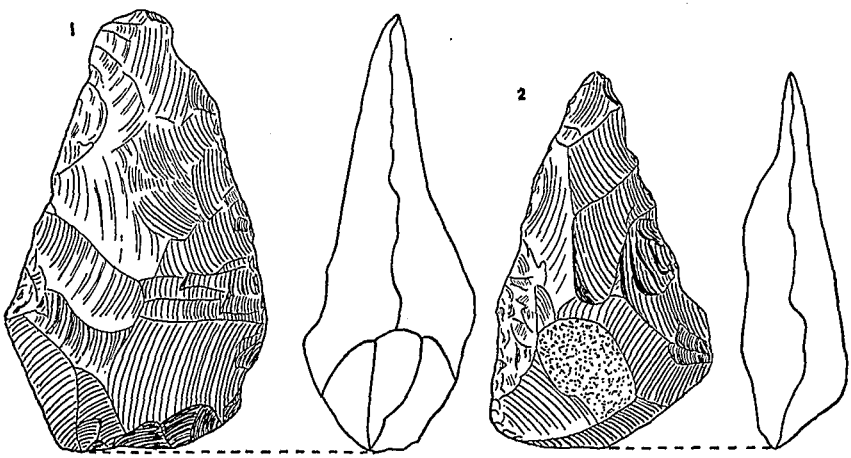


FIG. 1. Acheulian implements from Dartford Technical College site. (½)

All these implements are sufficiently well defined typologically to enable them to be used, for dating the deposits in which they lay, at least in relation to other sites in the general locality. It may therefore be stated at once that they belong to the same stage of the Acheulian culture as that abundantly represented in the Middle Barnfield (late Boyn Hill) gravel at Swanscombe. Pointed, pear-shaped bifaces of the type of Nos. 1 and 2 are the commonest form in the Middle Gravel of the Barnfield pit, while many examples of the ovate implements represented by No. 3 have come from the upper levels of Rickson's pit, south of Galley Hill.

This evidence constitutes proof that this portion of the Dartford Heath terrace is of Boyn Hill age. It is to be noted also that the levels, when compared with those at Swanscombe, fall well within the range observed in that locality.[1]

[1] King, W. B. R. and Oakley, K. P., 1936, "The Pleistocene Succession in the Lower Parts of the Thames Valley," *Proc. Preh. Soc.*, Vol. II, Part I, p. 59. It is there stated that the summit of the Swanscombe Middle Gravel is about 115 O.D. In "Report of the Swanscombe Committee," 1938, *J.R. Anthr. Inst.*, LXVIII, p. 23, the base of the Swanscombe terrace is noted as 75 O.D.

Further down the slope towards the Darent and slightly to the south, I observed 5 ft. of Coombe Rock, similar to that at Baker's Hole, overlying the chalk exposed in the sides of a small pit by the roadside (N.G.I.536736). This agrees with the Swanscombe sequence where the downcutting of the river after the aggradation of the Boyn Hill terrace deposits was closely followed by formation of Coombe Rock resulting from a return of glacial conditions. The solifluxion gravel overlying the implementiferous sands on the Technical College site may thus reasonably be correlated with the Upper Gravel in the Barnfield section.

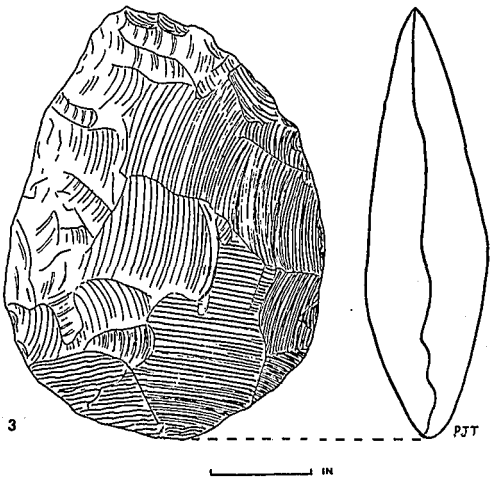


FIG. 2. Acheulian implement from Dartford Technical College site. (½)

One must not assume, however, that this evidence will satisfy all enquirers as to the age of the main mass of the Dartford Heath terrace, for a theory has been advanced that the terrace is composite and while some portions may be of Boyn Hill age other higher parts are earlier.[1] This theory certainly merits the closest consideration but would recommend itself more readily to our acceptance if convincing data were produced to show that parts of the terrace are physically separable from the rest.

We must not overlook the fact that two tributaries of the Thames, the Cray and the Darent, are closely associated with Dartford Heath. These streams have cut through the high-level gravel spread and separated smaller flanking areas from the main mass. These outliers are situated near Crayford church, and on the summit of East Hill, Dartford. It also seems certain that these tributary rivers, flowing

[1] Zeuner, F. E., *The Pleistocene Period*, London, 1945, p. 120 and footnote.

northward down the dip-slope of the North Downs provided much of the material of which the gravel is composed. The presence of southern erratics such as Lower Greensand chert, lydite, sandstone, grit, Kentish rag and flints from the Chalk confirms this view, while it is to be observed that northern material including Bunter quartzite, crinoidal chert, Rhaxella chert, tourmaline grit, sarsen, mica schist, vein quartz, pink granite and various other igneous rocks brought into the Thames valley by glacial agencies are more abundant in the northern part of the Heath where the action of the main river would have played a greater part in the formation of the terrace.[1] It is thus possible to visualize the formation of the gravel as a delta at the former confluence of the Cray and Darent with the Thames. Whether this fact has any bearing on the additional height of the Dartford Heath terrace is beyond the scope of the present enquiry, but in any case, the effects of the subsidiary streams on the fringes of the terrace facing towards their present valleys are to be looked for, and it is in just such a situation that the Middle Barnfield deposits occur on the Technical College site. Possibly we have here another secondary channel cut into the previously aggraded gravel terrace by the Darent, similar to the Wansunt channel on the western side of the Heath, where it is suggested the action of the Cray during the final stage of the Boyn Hill period is in evidence.[2] From the archæological data, however, it would appear that the loam filling the Wansunt channel was slightly later than that revealed on the Technical College site. In both cases the deposits must be earlier than the general down-cutting (Pre-Main Coombe Rock erosion stage) which marked the onset of the post-Boyn Hill glaciation, now commonly equated by most authorities with the Riss.

The implements are at present held by the Kent County Council, and I am grateful to Mr. J. H. Garnham Wright of the Buildings Department for assistance in my enquiries.

## Description of the Implements

Fig. 1, No. 1. Acheulian hand-axe of grey flint, unpatinated except for small areas of bluish-white indicative of incipient patination. The surface near the tip bears flat rippled flaking typical of the Acheulian " wood technique." Butt rather thick and coarsely worked. Found in reddish sand 6 ft. deep. Length 4·8 in.

[1] Dewey, H. and others, 1924, " Geology of the Country Around Dartford," *Mem. Geol. Surv.* (Sheet 271), pp. 94 and 96.

[2] Chandler, R. H., and Leach, A. L., *Proc. Geol. Assoc.*, Vol. XX, 1909, p. 122, and Vol. XXIII, 1912, p. 103. Also Smith, R. A. and Dewey, H., *Archæologia*, Vol. LXV, 1914, pp. 187-212.

Fig. 1, No. 2. Small pointed Acheulian biface of black flint, cherty towards tip. Unpatinated except for small patches of mottled white near butt and with faint ochreous staining. Slightly rolled. Length 3·8 in.

Fig. 2, No. 3. Acheulian ovate, finely worked on both faces and without the characteristic "twist." Patinated to a bluish-grey over most of its surface with no appreciable signs of rolling. Length 4·4 in.