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## CLACTONIAN FLINTS FROM RICKSON'S PIT, SWANSCOMBE

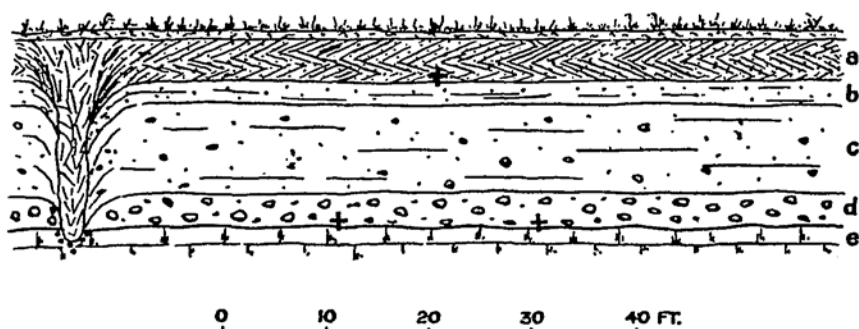
P.J. TESTER, F.S.A.

*No-one truly loves history who is not more exalted according to the greater age of the new things he finds. Though things are less observable as they are further away, yet their appeal is directly increased by such distance in a manner which all know though none can define it. . . . Nor of all the vulgar follies about us is any more despicable than that which regards the future with complacency, and finds nothing but imperfection in that innocent, creative, and wondering past which the antiquaries and geologists have revealed to us.*

(Hilaire Belloc, *The Old Road*)

By a curious anomaly, a particular class of antiquities which occur in Kent and have engaged the attention of scholars in the international field, have received only passing notice in the volumes of our county archaeological society. In north Kent, along the south bank of the Thames, are a number of sites where, from the later years of the last century to our own times, discoveries of the greatest importance have been made. The high-level terraces of the Thames between Dartford and Swanscombe have yielded evidence of early man known to prehistorians and anthropologists throughout the scientific world, but are hardly mentioned in the ninety-nine volumes of *Archaeologia Cantiana*. In the Barnfield pit at Swanscombe in 1935 and 1936, Alvan T. Marston found the earliest fossil remains of man so far discovered in Britain,<sup>1</sup> but in *Arch. Cant.*, xlviii (1936) it received only a note of eight lines at the back among 'Reports of Local Secretaries'. The present writer makes no excuse, therefore, for including in this hundredth volume an account of what are acknow-

<sup>1</sup> A.T. Marston, 'The Swanscombe Skull', *Journ. Roy. Anthropol. Inst.* lxxvii (1937), and lxxviii (1938), Report on the Swanscombe Skull by the R.A.I. Committee. Also K.P. Oakley, 'Swanscombe Man', *Proc. Geol. Ass. Lond.*, lxxiii (1952), pt. 4.



Section of 100-foot terrace gravel, Rickson's pit, Swanscombe.

- a. Current-bedded sand and gravel.
- b. Even-bedded ochreous sand.
- c. Shell-bed (*Theodoxus* and *Corbicula fluminalis* fauna).
- d. Bed of coarse gravel with cores and large flakes.
- e. Chalk.
- + Location of implements.

On the left side of the figure a solution pyramid is shown.

Fig. 1. Section recorded by Henry Dewey, F.G.S., in Rickson's pit, 1930. The surface as shown was approximately 100 ft. above Ordnance Datum. Implements from layer (a) were of Acheulian type, but the basal gravel (d) contained Clactonian cores and flakes exclusively. (Reproduced by courtesy of the Geological Society from its *Quarterly Journal*, lxxxviii (1932).)

ledged as the oldest certain works of man in this county<sup>2</sup> – the crude flint artifacts of the Clactonian culture found in the basal gravel of the '100-ft.' terrace of the Thames at Swanscombe. In doing so, information has been gathered from the published accounts of others working in the same field of prehistoric archaeology, in addition to conclusions drawn from my own direct experience of the material in its geological setting.

Rickson's pit is now destroyed, swallowed up in an extension of the enormous chalk quarry on the east side of the road (B259) between Galley Hill and the A2 (N.G.R. TQ 609743). It was one of the classic Palaeolithic sites of the Lower Thames area and was the subject of investigation by pioneer workers like Henry Dewey<sup>3</sup> and J.P.T. Burchell<sup>4</sup> in the early 1930s. A typical section recorded by Dewey

<sup>2</sup> The only possibly older artifacts in Britain are a number of handaxes from sites such as Farnham, Westbury and Kent's Cavern (Devon). Their significance is discussed in Dr. D.A. Roe's *The Lower and Middle Palaeolithic Periods in Britain* (1981), Chap. 4. Handaxes from Fordwich are now regarded as later than was once considered likely. See, A.M. Ashmore, in *Arch. Cant.*, xcvi (1980), 83–117.

<sup>3</sup> *Q. Jl. Geol. Soc. Lond.* lxxxviii (1932), 44–8.

<sup>4</sup> *Antiq. Journ.*, xiv (1934), 163–6.

(Fig. 1) showed a bed of coarse gravel resting on chalk bedrock, above which was a shell-bed followed by over 6 ft. of water-bedded sand and gravel. From the surface to the chalk was approximately 20 ft. It is with the basal gravel and its contained artifacts that these present notes are concerned.

In 1952 the cement company, in preparation for the extension of their chalk workings, cleared the last remains of the overburden from the area of Rickson's pit. On top of the exposed chalk there were revealed surviving pockets of gravel which I had the opportunity to examine, and from these I obtained a representative collection of worked flints. As observed by other investigators, these artifacts from the lower gravel are all of Clactonian type, identical in general character with those from the basal gravel of the famous Barnfield pit, three-quarters of a mile to the west, and closely similar to the industry of the type-site, Clacton in Essex, where in 1908 the late Hazzledine Warren began collecting from the foreshore.<sup>5</sup> This was followed by a published study by the Abbé Breuil,<sup>6</sup> and excavations were undertaken in 1937 by Dr. K.P. Oakley and Mrs. M.D. Leakey.<sup>7</sup> More recent research has been carried out at Clacton by Messrs. R. Singer, J.J. Wymer, B.G. Gladfelter and R.G. Wolff.<sup>8</sup> At these sites, and also at Little Thurrock,<sup>9</sup> the industry represented consists of flakes and cores from which they were struck, some of the flakes bearing retouch and certain cores suggesting their use as choppers. There are no true handaxes in the Clactonian industry, leading many to suppose it to be work of an ethnic group distinct from the Acheulian handaxe makers whose implements occur in great numbers in the Barnfield Middle Gravel where Marston found the skull fragments.<sup>10</sup>

Clactonian flakes vary greatly in size and tend to be thick with a very obtuse angle between the striking-platform and the bulbar face marking the line of separation between flake and core. R.H. Chandler found the flaking-angle of a series from the Barnfield Lower Gravel to range from 90° to 140° with an average of 122°.<sup>11</sup> Generally, there was no obvious preparation of the striking-platform by re-touching as in the later Levalloisian industries. Scrapers are one of

<sup>5</sup> S.H. Warren, 'The Mesvinian Industry of Clacton-on-Sea', *Proc. Prehist. Soc. E. Anglia*, iii (1922), 597-602.

<sup>6</sup> H., Breuil, *Exposé de titres et bibliographie*, 21 (1929).

<sup>7</sup> *Proc. Prehist. Soc.*, 3:2 (1937), 217-60.

<sup>8</sup> *Proc. Prehist. Soc.*, xxxix (1973), 6-74.

<sup>9</sup> J.J. Wymer, *Proc. Geol. Ass. Lond.*, lxxviii (1957), 159-77.

<sup>10</sup> This view is opposed to that of Dr. M.Y. Ohel. See Appendix.

<sup>11</sup> *Proc. Prehist. Soc. E. Anglia*, vi (1928-9) pt. 2, 79-116.

the most readily recognisable tool-forms, and some may have been used for producing pointed wooden spears like the actual example of yew found by Warren almost miraculously preserved in the Clacton gravel.<sup>12</sup>

Warren was of the opinion that the cores were implements and formed, in fact, the main end-product of the industry, the flakes being largely waste material.<sup>13</sup> In my view this is an overstatement, though certain core-pieces certainly have the appearance of implements rather than mere discarded nuclei. Unretouched flakes, however irregular, would have provided unspecialised cutting and scraping tools, but certain traces of utilisation are difficult to identify on artifacts lying in gravel where natural disturbance by water action can produce edge-chipping deceptively similar to wear marks or intentional marginal retouch. The present consensus of opinion is that both flakes and at least some of the cores were utilised and represent the simple equipment to meet the needs of primitive hunters and food-gatherers who frequented the banks of the Thames in the Lower Palaeolithic period.

Clues to the nature of their environment are provided by faunal remains from the gravel at Swanscombe and include bones of the elephant, rhinoceros, hippopotamus, horse and deer, indicating a temperate climate and a fertile valley bordered by woodlands.<sup>14</sup>

Nothing is known from direct evidence as to the physical type of man responsible for the Clactonian culture, but certain inferences may be drawn from the fact that the artifacts have much in common with the flake and chopper-tool industries of south-east Asia and eastern Europe, associated in China, at Choukoutien, with remains of *Homo erectus*, in distinction from the widespread Acheulian handaxe culture originating in Africa and diffused into western Europe and India. At Bilzingsleben, near Erfurt in East Germany, excavations in travertine deposits between 1972 and 1977 discovered fragments of a human skull which one authority suggests represent a fairly advanced European subspecies of *Homo erectus*, but other opinion, however, favours the view that the skull belonged to an early form of *Homo sapiens*. Associated with the human remains were abundant artifacts bearing comparison with those of the Clactonian of south-east Britain,<sup>15</sup> though of a rather more advanced character.

<sup>12</sup> *Q. Jl. Geol. Soc. Lond.*, lxxvii (1911), cxix. Also, K.P. Oakley *et al.*, 'A Reappraisal of the Clacton Spearpoint', *Proc. Prehist. Soc.*, xliii (1977), 13-30.

<sup>13</sup> *Proc. Geol. Ass.*, lxii (1951), 132.

<sup>14</sup> W.B.R. King, and K.P. Oakley, *Proc. Prehist. Soc.*, ii (1936), 56.

<sup>15</sup> J. Cook, *et al.*, 'A Review of the Chronology of the European Middle Pleistocene Hominid Record,' *Yearbook of Physical Anthropology*, 25: 19-65 (1982), 33 and 50.

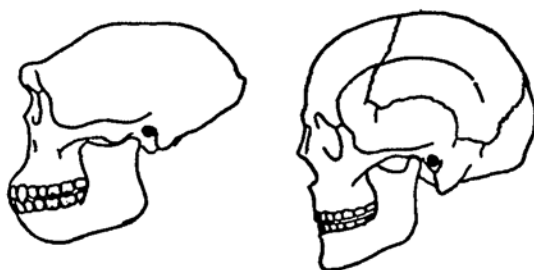


Fig. 2. Skull of *Homo erectus* (left) compared with that of modern man. Some evidence from the Far East and Central Europe suggests that the Clactonian culture may have been produced by a derivative of the former race. (Reproduced by courtesy of the British Museum (Natural History).)

On these grounds we might picture Clactonian man moving westward into the Thames valley, and generally into south-east Britain, at a time when it was connected with the Continent. This could have been at a period of low sea-level coinciding with one of the major glacial periods – possibly towards the end of the Mindel (or Anglian) glaciation. Evidently, he remained during some part of the following interglacial, generally believed to have been the Mindel/Riss (or Hoxnian). Evidence provided by deep-sea cores has now upset the established four-glaciation framework on which archaeologists have been used to constructing a chronological sequence for the Lower and Middle Palaeolithic.<sup>16</sup> The extended time-scale now suggested could imply that the first arrival of the bearers of the Clactonian culture may have been in the range of a quarter to a half million years ago.

Almost all that we can deduce about these earliest ‘Kentish men’ derives from a study of their primitive tools and the circumstantial evidence associated with them. We will therefore turn to a detailed consideration of a representative selection from Rickson’s pit, with speculation on how they were made and used.

#### METHOD OF MANUFACTURE

The raw material used in making the Swanscombe Clactonian artifacts was in nearly all cases flint derived from the Chalk, and shows signs of having been more or less rolled by incorporation in the

<sup>16</sup> The situation is summarised by Roe (*op. cit.*), 62–3.

fluviatile gravel of which it became a constituent. A comparison of the worked and unworked faces of the artifacts shows that rolling took place to some extent before the nodules were selected by the tool-makers. At Rickson's pit the lower gravel rested directly on a bench at about 80 ft. above Ordnance Datum,<sup>17</sup> cut into the Chalk by the river prior to the aggradation of the gravel, so that eroded flints would have been readily accessible locally. In the Barnfield pit, however, a bed of Thanet Sand intervenes between the Lower Gravel and the Chalk bedrock. There is no suggestion that the Clactonian flint workers obtained their material by digging into the Chalk, or otherwise than by utilising the flints made available by natural erosion on the river banks.

The workers began by striking off a primary flake so as to produce a flat platform upon which to deliver blows to detach other flakes. By turning over the nodule and using the newly created facets as a secondary platform, an irregular edge was formed, converting the flint into the semblance of a rough wavy-edged chopper. To what extent the production of these 'chopper-cores' was deliberately intended to provide core-implements, or whether they were the incidental result of flake-production, is difficult to determine. Certainly a few are convincing as implements, but the majority may well be no more than discarded nuclei.

Almost certainly the flaking was performed with a hammer-stone, like the battered quartzite pebble found in association by Chandler,<sup>18</sup> though some experimenters have suggested that the characteristic wide platform and high flaking-angle were due to the core having been struck against an anvil. My own experiments using this 'block-on-block' technique suggest that it is so clumsy and dangerous to the hands and face – as the detached flakes and splinters fly upwards – that it had little to commend it by comparison with the simple alternative of striking the core with a hammer-stone. If the core was held in one hand during the operation, rather than placed on the ground, it would account for the large unworked area often remaining and providing grounds for believing that it was deliberately left as a convenient hand-hold when using the core as a chopper.

The typical high flaking-angle and wide striking-platform are indicative of an unsophisticated method of producing relatively large flakes from a core before the development of the more expert practice employed in later Levalloisian industries where the striking-platform was carefully prepared by retouching so as to bring it to an

<sup>17</sup> D.A., Roe, *op. cit.*, 67, fig. 3:2.

<sup>18</sup> *Proc. Prehist. Soc. E. Anglia*, vi (1928-9), 103 and 114.

approximate right-angle to the intended line of separation between flake and core,<sup>19</sup> e.g., as in the famous Baker's Hole 'tortoise-core' industry at Northfleet.<sup>20</sup> S. Hazzledine Warren favoured measuring the angle between the platform and the outer face of the flake,<sup>21</sup> but the use of the platform/bulbar-face angle, as used here in description, is now more widely accepted.

#### USES OF THE IMPLEMENTS

To the layman regarding a typical collection of Clactonian artifacts, the thought must occur as to Sir John Evans in respect of Benjamin Harrison's 'eoliths': '*Has the absolute uselessness of such flints as tools never struck you?*'<sup>22</sup> There is no possible doubt, however, that the Clactonian flakes are the work of man and that a high percentage of them were utilised. In this connection, recent work on microwear analysis throws light on how the flints were used and the nature of the various substances against which they were brought into contact. Friction of the edges against different materials is revealed to have produced distinctive wear-marks, but only in those instances where flint artifacts have lain undisturbed in loam, sand or similar deposits can this evidence be detected. Those from coarse gravel, like that in Rickson's pit, are abraded to some extent by naturally produced pressure against other stones so that traces of microwear due to utilisation are destroyed. Dr. L.H. Keeley has, however, studied a series of suitably preserved Clactonian artifacts from the area of the type-site and discovered that they bear clear evidence of having been used against wood by sawing, scraping, boring, chopping and planing. Hides of animals had apparently been cut and scraped, carcasses butchered and bone worked. Where the edges of the flakes had been retouched by secondary chipping, the purpose was often to make them easier to handle rather than to create a specialised working edge. Contrary to the opinion expressed by some authorities, Dr. Keeley's investigations suggest that Clactonian cores were only rarely used as tools.<sup>23</sup>

<sup>19</sup> Oakley and Leakey found a core among Clactonian flints at Jaywick Sands which they described as of Levalloisian type – a 'pseudo tortoise core'. *Proc. Prehist. Soc.* iii (1937), 228. Dewey recorded a core of Levalloisian facies from Rickson's pit in *Q. Jl. Geol. Soc. Lond.*, lxxxviii (1932), 46.

<sup>20</sup> R.A. Smith, *Archaeologia*, lxii (1911), 515–32.

<sup>21</sup> *Proc. Geol. Ass.*, lxii (1951), 120–5.

<sup>22</sup> E.R. Harrison, *Harrison of Ightham* (1928), 195.

<sup>23</sup> Summarised in Roe, *op. cit.*, 277.



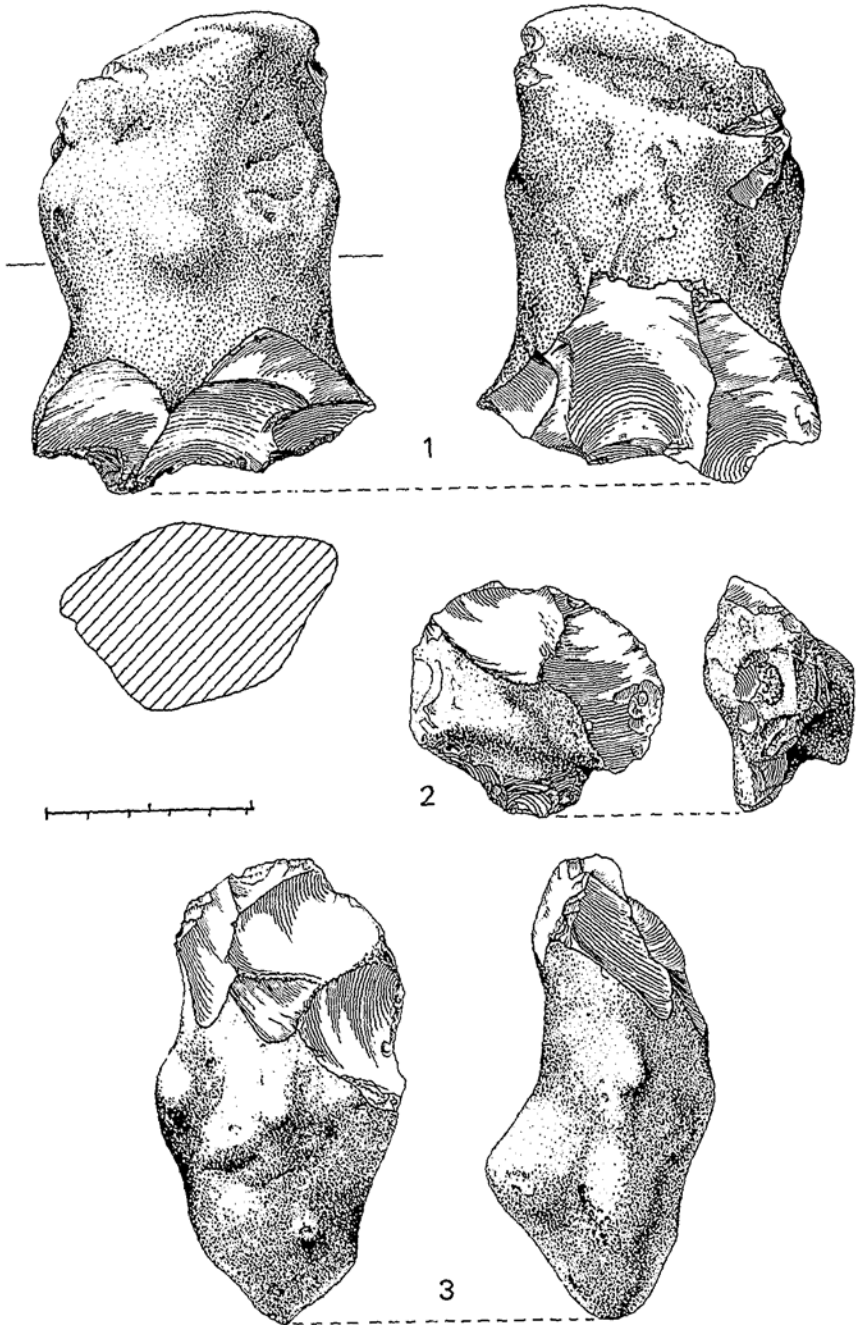


Fig. 3. Clactonian Flints from Rickson's Pit ( $\frac{1}{2}$ ). (Drawn by D.E. Gilbert.)

CLACTONIAN FLINTS FROM SWANSCOMBE

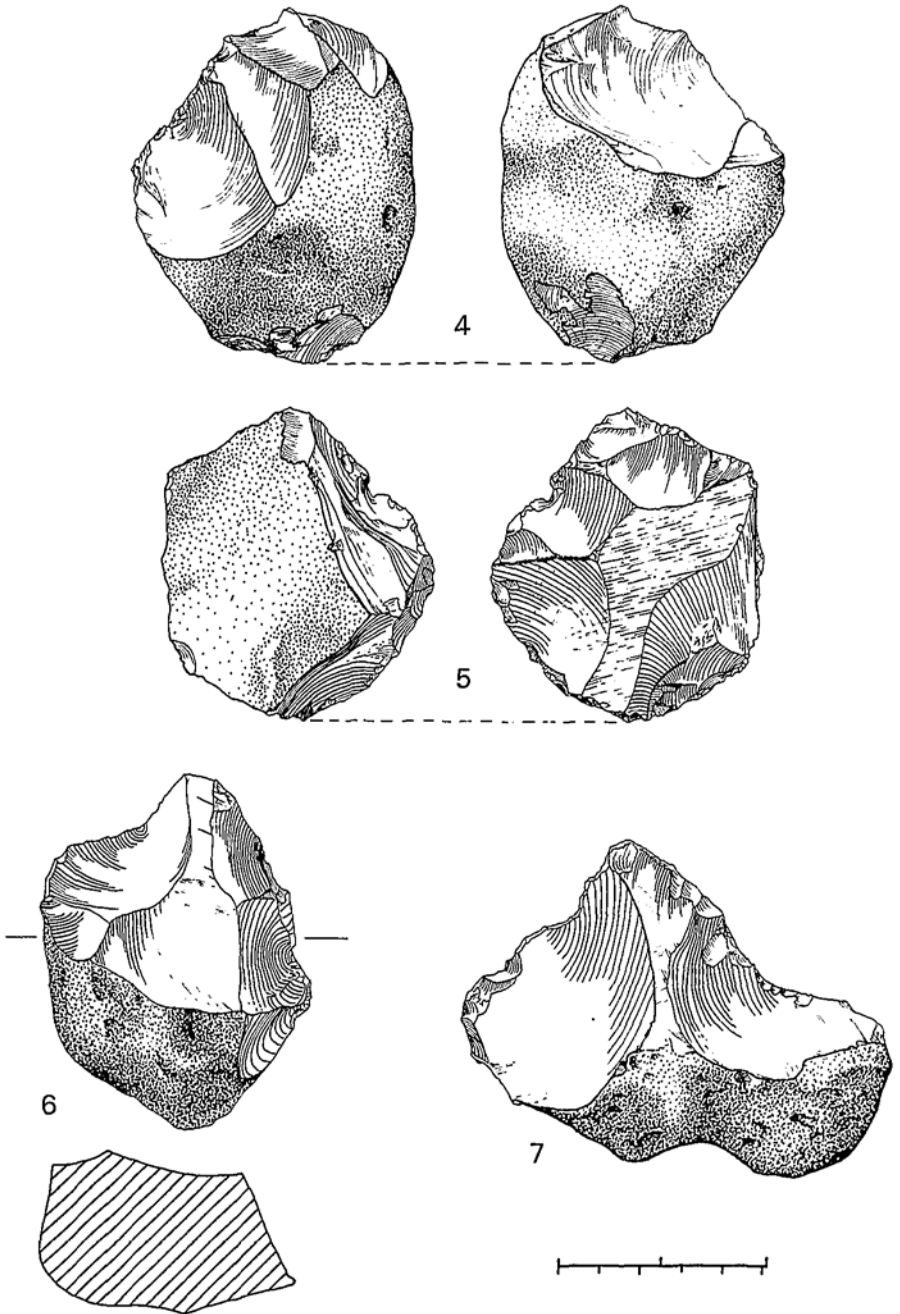


Fig. 4. Clactonian Flints from Rickson's Pit ( $\frac{1}{2}$ ). (Drawn by D.E. Gilbert.)

All this recent evidence is of the greatest value in helping to reconstruct the life-style of these early 'Clactonians' and reminds us that the flints are only the indissoluble residue of their material culture, the wood, leather and other perishable materials having long since vanished without trace except in very exceptional circumstances.

NOTES ON THE ILLUSTRATIONS (Figs. 3, 4 and 5)

It may be stated generally that the representative artifacts described below are all stained to some extent by contact with the ferruginous gravel in which they have lain. This coloration ranges from dull yellow to dark mahogany brown. Similarly, they display varying degrees of rolling, but this may indicate no more than that some have suffered a greater amount of disturbance in the gravel by water action than others. At one time it was believed that the heavily abraded flints from the Swanscombe Lower Gravel were derived from an earlier context,<sup>24</sup> and were accordingly distinguished as 'Clactonian I' while the 'contemporary' series were described as 'Clactonian II'. This separation, in my view, cannot be fully justified on either geological or typological grounds.

1. Flint nodule retaining cortex over most of its surface, except at one end where a few flakes were struck off on both sides to produce an irregular edge. The small extent of this working makes it improbable that the intention was solely to produce flakes for utilisation, but rather to convert the nodule into a chopping-tool, for which purpose its general shape and size were admirably suited.

2. A diminutive core or chopper. At Clacton similar examples have occurred and Warren suggested that they may have been made by or for children.<sup>25</sup> An alternative possibility is that some provided wedges for splitting wood.

3. An elongated flint sharpened at one end by flaking to produce a crude hand-pick. Like no. 1, it can hardly be regarded as simply a nucleus and it almost certainly served as an implement – possibly for digging.

4. A very typical Clactonian artifact of a form difficult to distinguish with certainty as either a core or a chopper. A large facet left by the removal of a primary flake occurs on one side (right) with smaller facets on the reverse. Though not so obviously an implement as nos. 1 and 3, it might well belong in that category.

<sup>24</sup> R.H. Chandler, *Proc. Prehist. Soc. E. Anglia*, vi, (1928–9).

<sup>25</sup> *Proc. Geol. Ass.*, lxii (1951), 113, no. 8 and p. 114.

CLACTONIAN FLINTS FROM SWANSCOMBE

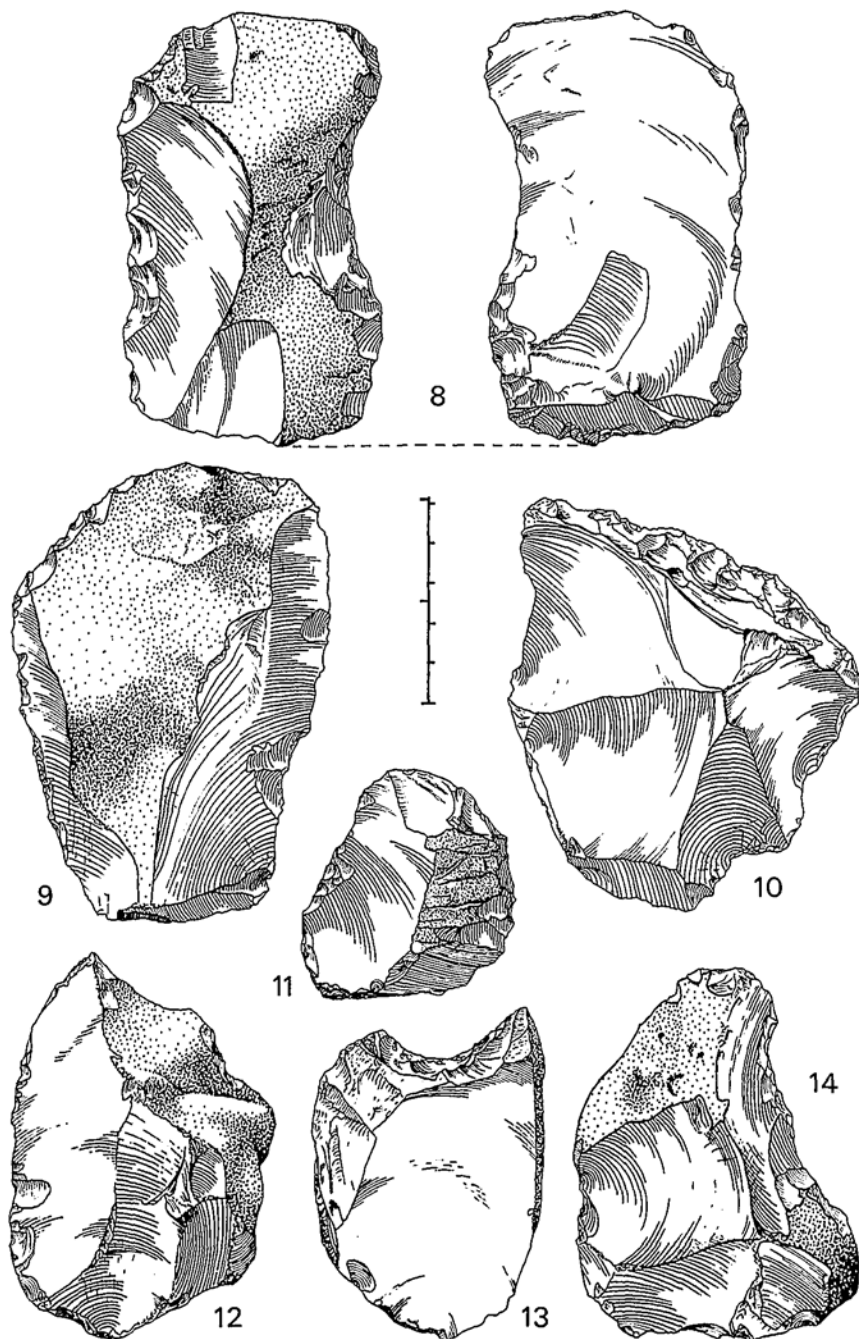


Fig. 5. Clactonian Flints from Rickson's Pit ( $\frac{1}{2}$ ). (Drawn by D.E. Gilbert.)

5. A roughly discoidal piece, shaped by blows directed round its edge on one side with much cortex remaining on the reverse. Warren found similar examples at Clacton and offered the opinion that they might have been missiles for throwing or use with a sling.<sup>26</sup>

6. Point, formed from a nodule worked mainly on one face, the reverse and rounded butt being largely covered by cortex.

7. Flake-point with apparent retouch on both edges. This extends to the striking-platform but was apparently done after the flake was removed from the core, the platform being beneath the side shown, top left. The rounded cortex-covered portion would have provided an excellent handle. The material is Bull-head flint from the junction of the Thanet Sand with the Chalk. Flaking-angle 135°.

8. A well formed flake suitable for use as a knife or side-chopper. The working edge is to the left, the right margin being steeply retouched, apparently to avoid injury to the fingers when in use. The underside (right) shows the typical Clactonian flat striking-platform with a semi-cone of percussion developed from the point of impact with the hammer-stone. Such pronounced semi-cones of percussion are very frequent on Clactonian flakes and indicate that a spherical striker was used rather than the edge of an anvil as in the suggested block-on-block technique. Flaking-angle 130°.

9. Flake, similar to the last, the cutting edge being to the right with some nibbling on the left which may be deliberate blunting. Flaking-angle 116°.

10. The retouch along the straighter edge (top right) of this flake was obviously to provide a specialised working edge, and the implement is similar to better-formed examples occurring in Acheulian contexts and interpreted as scrapers used for removing flesh from hides.<sup>27</sup> Flaking-angle 130°.

11. Small flake with blunting on the curved side to the right. The unretouched left edge could have been used for cutting or scraping. Flaking-angle 118°.

12. Thick flake with one sharp edge (left) and the other covered with cortex. Flaking-angle 129°.

13. An obvious hollow-scraper such as could be used for producing the point of a wooden spear. Caution is necessary in identifying such tools, as concave notches can be caused on the edges of flakes by natural pressure against a pebble, but in this case the retouch in the

<sup>26</sup> *Ibid.*, 115 and 118.

<sup>27</sup> Cf. *Arch. Cant.*, lxiii (1950), 125, no. 7, and xci (1975), 34, nos. 13-17, all found in association with Late Middle Acheulian handaxes in the Bowman's Lodge pit, Datford Heath.

hollow is too even and pronounced to be other than human work. Flaking-angle  $112^{\circ}$ .

14. Thick flake, the striking-platform to the left, with steep blunting retouch on the opposite margin. The working edge was apparently at the bottom and it may have been used for planing wood. Flaking-angle  $120'$ .

#### ACKNOWLEDGMENTS

Permission for investigation on the site of Rickson's pit was given in 1952 by Associated Portland Cement Manufacturers Limited. I am grateful to Dr. Derek A. Roe of the Pitt Rivers Museum and Department of Ethnology and Prehistory, Oxford, for drawing my attention to Dr. Ohel's publication and also for references to the discoveries at Bilzingsleben. Permission for reproduction of Fig. 1 was given by the Geological Society, and for Fig. 2 by the British Museum (Natural History). Mr. D.E. Gilbert undertook the drawings of the flints in Figs. 3-5.

#### APPENDIX

##### Is the Clactonian an Independent Complex or an Integral Part of the Acheulian?

The generally accepted view among British prehistorians has been that the Clactonian represents a Palaeolithic culture distinct from the Acheulian and probably related to non-handaxe assemblages found in central and eastern Europe. In 1979, however, an important reappraisal of the subject was published by Dr. Milla Y. Ohel of the University of Haifa, in *Current Anthropology*, vol. 20. He brings together data based on research involving the study of collections of artifacts from classic Clactonian sites where material has been collected under both carefully controlled and other conditions. This he compares with the flake element in undoubted Acheulian contexts and draws the conclusion that the Clactonian cannot be defined conclusively on the basis of its generally accepted flake characteristics. Developing this theme with a formidable body of statistical and diagrammatic detail, he eventually draws the startling conclusion that the Clactonian is inseparable from the Acheulian and its occurrences represent no more than 'preparatory areas' where Acheulian knappers roughed-out handaxes which they took away to finish off elsewhere, leaving quantities of flakes and abandoned cores, some,

indeed, resembling discarded blocked-out handaxes – as Chandler noted as long ago as 1928.<sup>28</sup>

At the conclusion of Ohel's paper, there are appended a series of comments from a dozen international specialists in this field, including our own Desmond Collins, M.H. Newcomer, Derek Roe and John Wymer. The British authorities generally remain faithful to the older interpretation and adduce strong arguments in its defence. Why, for instance, if Acheulian handaxe-makers produced the Clactonian flakes and chopper-cores occurring in vast quantities throughout the widespread Swanscombe Lower Gravel, has no universally accepted example of a contemporary finished handaxe ever been recorded in association? A claim is made by Ohel that 'a beautiful handaxe' was obtained from the Lower Gravel during Dr. Waechter's excavation in the late 1960s, but it now appears that the information on the label is not in agreement with the excavator's field-notes!

For my own part, on the evidence so far available, I still incline to the view that the Clactonian is – to use Ohel's own former definition, which he has now abandoned – 'an indigenous technological entity distinct from the Acheulian but episodic both temporally and spatially'. This applies to those instances where the Clactonian occurs in isolation, unassociated with handaxes. On the other hand, I have observed that Clactonian-type artifacts do occur in some contexts in association with Acheulian handaxes and flake-tools trimmed by the Acheulian technique. In my researches at Bowman's Lodge in particular I have observed this fact and drawn attention to it in illustrated notes on the industry in *Arch. Cant.*, lxiii (1950) and xci (1975). In those circumstances I see no justification for separating the Clactonoid element culturally from the Late Middle Acheulian constituent evidenced by the finely made handaxes.

The claim, however, that the non-handaxe assemblages of earlier date – as in the Swanscombe Lower Gravel and at Clacton – were produced by people normally making and using handaxes cannot, in my opinion, be maintained on present evidence.

<sup>28</sup> *Proc. Prehist. Soc. E. Anglia*, vi, (1928–9), 102 and fig. 20.