PRE-PALÆOLITHIC MAN.

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In this paper I intend to discuss the evidence furnished by various chipped flints recently discovered as to whether man was present on this earth in ages long prior to those in which the ordinary leaf-shaped and ovate Palæolithic implements of the river gravels were made, and to briefly describe the nature and forms of the flints upon which this evidence is based.

There is no doubt that the difficulty of determining whether a flaked flint owes its form to human or natural agencies, has always been a very pressing one with students of pre-history, and although it appears that no discussions were ever held as to the "humanity" or otherwise of the Neolithic implements, yet we know that even the symmetrical and beautifully formed axes and arrow-heads of this period were once considered to have had a supernatural origin, and were described respectively as "Thunderbolts" and "Elf-arrows."*

The discussions, however, which were held regarding the human origin of the Palæolithic implements discovered by M. Boucher de Perthes in the valley gravels of the River Somme in France about the year 1841, are fortunately fully recorded, and can be read by anyone who wishes to do so.†

*Evans, Sir John. "Ancient Stone Implements of Great Britain." Second Edition, p.p. 56 and 362.

†Callard, Pattison, etc. "Antiquity of Man." Elliott Stock, 26 Paternoster Row, London, E.C.

In the present state of our knowledge of pre-history it seems somewhat strange that such obvious works of man as the Palæolithic implements should have been so strenuously denied, and remain unaccepted by the majority of archæologists for twenty-five years after their discovery. But possibly this non-acceptance had the effect of stimulating further researches, and in consequence of finally establishing the "humanity" of the river gravel implements beyond any doubt or cavil.

The most ancient of these Palæolithic implements, known as the Chelles type*, are those found in the oldest gravels of our river-valleys, and are looked upon by many pre-historians as representing the earliest efforts of man in flint flaking.

Thus the discovery of various kinds of flaked flints in deposits undoubtedly much more ancient than those containing the Chelles implements, and which are looked upon by many, including myself, as undoubted works of man, has initiated another period of unrest and disagreement in pre-historic archæology.

Though I propose to deal principally with those discoveries with which I personally have been associated, I do so only because I feel able to speak with some degree of certainty about them, and I have no wish to minimise in any way the splendid work done many years before I commenced my researches by men like Mr. Benjamin Harrison, of Ightham, in Kent, and other investigators, both in this country and on the continent of Europe.

The plateau of Suffolk, through which our present

*This designation has been given to these particular implements owing to their having been first discovered at Chelles-sur-Marne, a place about eight miles east of Paris.

rivers have eroded their channels, is composed near Ipswich of the following beds. I give them in descending order.

Chalky Boulder Clay.
Middle Glacial Sand and Gravel.
Red Crag.
London Clay.
Woolwich and Reading and Thanet Beds.
White Chalk.

And it is in and under the first three of these deposits that I have found the flint implements dealt with in this paper.

The Chalky Boulder Clay and Middle Glacial Gravel belong to the period known as the Pleistocene, while the Red Crag is generally referred to the preceding epoch, the Pliocene.

An examination of the accompanying diagram will at once show the relation of these implementiferous plateau deposits to those within the river valley itself, and laid down during its excavation, which contain the ordinary Chelles and St. Acheul Palæolithic implements. The various plateau beds shown in the diagram at one time extended continuously across the space now occupied by the river-valley.

Before proceeding to describe the flaked flints which have been found beneath the Pliocene Red Crag, and in the Early Pleistocene Middle Glacial Gravel, and Chalky Boulder Clay, I would like to draw attention to the Palæolithic implements of the Chelles type, which, as I have pointed out, are supposed by some to afford the earliest authentic evidence of man's presence on the earth. These specimens are either of the pointed leaf-shape form, or roughly oval, and exhibit a knowledge of flint flaking on the part of their makers, of such an order as to make it impossible

to believe that such a proficiency was attained without long periods of apprenticeship preceding it, when less advanced implements were made. I think I am not overstating the case when I say that no really unbiased person examining a series of typical Chelles implements and remembering that no particular stage of culture has ever been arrived at, at one leap, could do other than agree that these flaked flints mark but a stage in the slow process of cultural evolution, and therefore more rudimentary types must have preceded them. Thus those of us who hold this view have proceeded to examine deposits anterior in age to the beds containing the Chelles implements, and have found as we expected, a series of flaked flints leading up from the most primitive and simple types to others more advanced, and which are prophetic of those of the succeeding Chelles culture.

In giving a short description of these various pre-Palæolithic specimens I will first deal with those which are found lying upon the surface of the London Clay, and under the Pliocene Red Crag. The top of the London Clay was at one time a land surface inhabited by man, this land surface being afterwards slowly submerged and covered by the sands and shells of the Red Crag sea. The Sub-Crag implements* are distinguished by the boldness of their flaking and the general massiveness of their form, and the excavations which have been conducted during the last four years have now brought to light a complete "industry" from below this Pliocene deposit.

That is to say, a series of flaked flints have been discovered which can be classified into groups com-

*Lankester, Sir Ray. "On the discovery of a novel type of flint implements below the base of the Red Crag of Suffolk proving the existence of skilled workers of flint in the Pliocene Age." Phil. Trans., Series B, Vol. 202, p.p. 283-336. Moir, J. Reid. "The Flint Implements of Sub-Crag Man." Proc. Prehistoric Soc. of East Anglia, Vol. 1, part I., p.p. 17-43.

prising choppers, scrapers, pointed weapons for use in the hand, rubbers for dressing skins, hammer-stones and flakes—in fact, most of the usual implements (only differing in form and make) found in deposits of Palæolithic and later date. It is also of interest to note that Mr. W. G. Clarke, of Norwich, has found similar humanly flaked flints below the base of the Norwich Crag.*

The Norwich Crag is almost certainly later in date than that of Suffolk, and the implements from the two areas, though of the same *order*, exhibit a difference in their forms which is easily observable when a good series from each locality is examined.

The Middle Glacial Gravel, which in Suffolk overlies the Red Crag, has next to be considered. This Glacial deposit is supposed to be intermediate in age between the Contorted Drift of Cromer, and the Chalky Boulder Clay,† and from the flint implements of apparently varied ages which it contains I would infer it is in part composed of a land surface possibly broken up and redeposited by water resulting from the melting of an ice-sheet. The Middle Glacial implements† differ very markedly from those found below the Red Crag, being smaller and fashioned by more delicate blows.

I recognise at least four different types of implements in this gravel, which by their form, flaking, and mineral condition, I regard as having been made at different, and perhaps widely separated periods prior to the deposition of the bed in which they are now found. The oldest looking series approximates very closely to the specimens discovered by Mr. Benjamin

*Clarke, W. G. "Implements of Sub-Crag Man in Norfolk." Proc. Prehistoric Soc. of East Anglia, Vol. I., part 2, p.p. 160-168.

†Harmer, F. W. "The Glacial Deposits of Norfolk and Suffolk." Trans.: Norfolk and Norwich Naturalists' Soc. Vol. IX.

Harrison, in the plateau "drift" of Kent, while those I consider of later date show a greatly increased proficiency in the art of flint flaking.

Overlying the Middle Glacial Gravel is the Chalky Boulder Clay, a deposit laid down during the last great extension of the ice of the glacial period. In this clay I find another series of implements* which are altogether different from any of those already described, the majority being quite unweathered and unabraded, and some approaching in form the earliest Chelles-Palæolithic specimens.

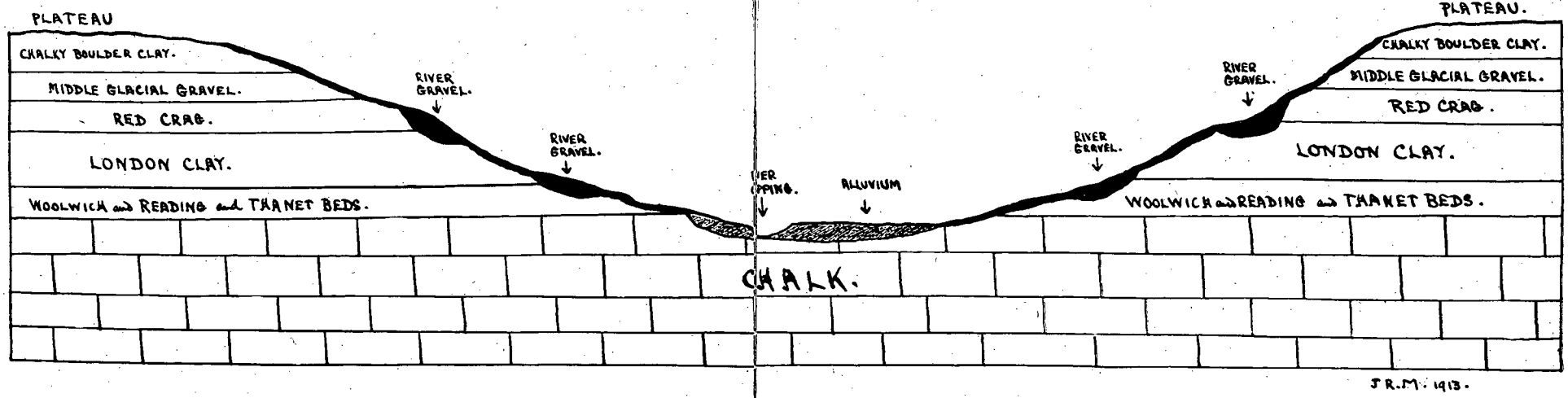
A reference to the diagram reproduced will show that after the deposition of the Chalky Boulder Clay the river valley began to be developed, and as it is in the earliest of the deposits of the river that the Chelles implements occur, it will be seen that the Chelles-like character of some of the Boulder Clay specimens is quite in accord with the view of a cultural evolution of flint implements.

Though this really completes my brief account of the pre-Palæolithic implements of Suffolk I am anxious to describe and to draw especial attention to a most peculiar and definite form which has been found to occur in all of the three plateau deposits which have been described. I refer to those which Sir Ray Lankester has designated as being of the "Rostro-carinate" or Eagle's beak type.†

These rostro-carinate specimens have all been

*Moir, J. Reid. "Flint implements of Man from the Middle Glacial Gravel and Chalky Boulder Clay of Suffolk." "Man," March, 1913, p.p. 36-37. Moir, J. Reid. "Flint implements of Man from the Middle Glacial Gravel and Chalky Boulder Clay of Suffolk." Proc. Prehis. Soc. of E. Anglia, Vol. I., part 3, p.p. 307-319.

†Lankester, Sir Ray. "On the discovery of a novel type of flint implements below the base of the Red Crag of Suffolk proving the existence of skilled workers of flint in the Pliocene Age." Phil. Trans., Series B, Vol. 202, p.p. 283-336.



Diagrammatic cross-section of the Gipping Valley, near Ipswich, shewing the relationship of the plateau deposits containing the Flint Implements described in this paper to the river gravels within the valley, and which contain the normal palæolithic specimens.

The plateau deposits at one time extended across the space now occupied by the river valley.

made upon a definite plan,* which consists in the formation of a flat ventral surface, a keel or carina, and a somewhat overhanging point, the point of the "beak."

They occur in the detritus-bed below the Red Crag and exhibit the large surfaces of fracture typical of that horizon. In the Middle Glacial gravel though the general form is the same, the flakes removed are smaller and there is a more finished appearance about the specimens. The point of the beak has often been "undercut" by most skilful flaking, giving the specimen an even closer resemblance to the beak of an accipitrine bird than is seen in the sub-crag specimens.

When the Chalky Boulder Clay implements are examined it is seen that the rostro-carinate specimens are very rare and badly formed, and are evidently being supplanted by the Chelles-like implements already mentioned.

In these three deposits then we see the gradual evolution, consummation, and disappearance of a complex type of flint implement, and we have also seen that during the period between the laying down of the sub-Red Crag detritus-bed and the Chalky Boulder Clay flints were undoubtedly flaked in at least six different ways. Thus it appears that we have in Suffolk evidence of a long pre-Palæolithic antiquity for the human race, and that the period of time which this antiquity represents may have been of greater duration than that embraced by the whole of the Palæolithic and Neolithic stages.

The various implements described in this paper are housed in the department of British and Mediæval Antiquities at the British Museum, Bloomsbury, and in the Museum at Ipswich, where they can be seen and handled by any prehistorians who wish to do so.

*Moir, J. Reid. "The making of a rostro-carinate flint implement." "Nature," Nov. 21st, 1912, p.p. 334.