ON A RECENT FINDING OF FLINT-IMPLEMENTS AT BEDFORD.

BY JAMES WYATT, F.G.S.

[Having knowledge of the important discovery of flint-implements in the Drift-gravel near Bedford by Mr. Wyatt, we requested that gentleman to furnish us with the details of the case, which he has kindly done, and which we have much pleasure in subjoining. Having ourselves seen the implements found, which are of the veritable fossil types, we shall append in a note to Mr. Wyatt's letter a figure of one of them, with some remarks of our own upon it.—
ED. GEOL.]

SIR,—I send you, as you request, an account of the discovery, by myself, of flint implements beneath thirteen feet six inches of undisturbed deposits, in drift-gravel, lying on Oolite limestone at Bedford. For several years past I have been a close observer of the Drift, fine sections of which in the neighbourhood of Bedford have been frequently displayed during the excavation for road material, and especially during the construction of the Leicester and Hitchin Railway. From the nature of these gravel beds, and from the number of bones and teeth of the extinct mammals which I have seen taken from them, I formed an opinion that they were the same kind of drift which had furnished the flint-implements at Amiens and Hoxne; and this opinion was greatly strengthened by an examination of the pits in the valley of the Somme last year. I have observed amongst the fossil remains from the lower gravel in Bedfordshire bones and teeth of *Elephas primigenius*, *E. antiquus*, *Equus fossilis*, *Bos primigenius*, *Cervus*, *Rhinoceros tichorinus*, and *Hippopotamus*. From the sand veins of the same drift I have taken the following land and fresh-water shells:—*Helix concinna*, *Velletia lacustris*, *Cyclas palustris*, *Limneus pereger*, *L. auricularis*, *Planorbis marginatus*, *Paludina impura*, *Valvata piscinalis*, &c. The curious little fossil sponges *Coscinopora globularis*, both whole and perforated, are frequently found there also, thus showing many points of similarity with the drift in France. After recently finding flint-implements at Reculver, I renewed my investigations in Bedfordshire, but for a long time without success. It may be added here that the pits do not all display the same complete stratification: they are very variable, and in several places the lowest gravel is not excavated on account of the water coming in; and, indeed, for road-material it is of no value, being principally sand. Such is the case at some of the pits at Kempston and Clapham: whilst those which have been worked at the centre of the latter parish, at Bletsoe, Radwell, Biddenham, Harrowden, and Bedford, have been excavated to the full depth of the

(Front View.)

FLINT IMPLEMENT FROM BEDFORD.

In the Collection of James Wyatt, Esq., F.G.S.

gravel, and in all cases have produced great quantities of fragments of bones, tusks and teeth. These latter pits have been constantly watched by me; and on the eighth of April last on visiting that at Biddenham, I found the men working in the direction where many bones had previously been found, and where a large portion of a tusk of *Elephas primigenius* had been taken out. I went into the pit

Section of Pleistocene Deposits at Biddenham, near Bedford.

and found in the veins of sandy clay which lie between the deposits of gravel several species of fresh-water shells, and in the loose gravel at the bottom I also observed pieces of a large bone. I then commenced a rigid examination of all the gravel which had been taken out of this part, and told the men to look closely at that which they might afterwards throw up. On the heap which had just been removed I found an oval flint-implement, and after further search, I discovered another implement of the pointed kind of the types found at Amiens. I caused the section to be preserved, and immediately communicated the particulars of the discovery to the President of the

Geological Society and other gentlemen interested in the matter; and on the 22nd of April, Sir Charles Lyell, Mr. Prestwich, and Mr. John Evans visited the pit with myself, and made an examination which was most satisfactory. This discovery furnishes many important points of evidence in this inquiry, and as it will probably be referred to not unfrequently hereafter, we append an engraving of the section of the locality. The locality where this discovery was made is in the valley of the Ouse, and is about a mile and a half north-west of Bedford. The gravel lies on the Oolitic limestone, and the pit surface is about fifty feet above the level of the river. The valley at this point is bounded by ridges of Boulder clay, which rise respectively ninety feet on the west and one hundred and thirty on the east. The drift comes in at the northern end of the county, by Sharnbrook, and extends southward through Bletsoe, Milton Ernest, Radwell, Clapham, Bromham, Biddenham, Bedford, Kempston and Elstow; and then goes eastwards through Harrowden, Cardington and Cople. The two flint-implements from Biddenham were exhibited before the Geological Society on the 8th ult., and are very fine specimens. The oval one is worked along the edges throughout, except about one inch of its length, and has a bright ochreous patina all over it of the same tint as the gravel in which it had been bedded. It is nearly six inches in length, and nearly four inches across, at the widest part. One side is smooth and glossy: the other is dull, and has incrustations of carbonate of lime: a certain proof that the implement laid flat in the gravel, and that this side was the upper surface receiving the filtrations from the beds above. The pointed "hache," which is constructed from a grey flint, is seven inches in length, massive at one end and worked off to a wedge-like point at the other, displaying a boldness of design equal to that shown in the finest specimens found at Amiens. It is stained with an ochreous tint, but not so deep in tone as that on the oval implement, and there are dark ferruginous stems along both surfaces. Another of these "haches" has been found near Bedford. Myself and Mr. Nall were returning from the examination of a gravel pit when the latter picked up from some railway-ballast a small one. This ballast had

SECTION ACROSS THE VALLEY OF THE OUSE AT BEDFORD.

4, sub-angular drift-gravel, with mammalian remains, freshwater shells, and flint implements.

a a, boulder clay; b b, Oxford clay; c c, middle oolite.

been taken out of the gravel pit in the adjoining field, excavated to a lower depth than usual. This specimen is figured in accompanying Plates III. and IV.

It was suggested in Mr. Prestwich's paper read before the Geological Society, that examinations should be made in other parts of the country where the Drift occurs; but our friends who undertake that duty must not be turned from their purpose by some few fruitless searches. I have constantly examined the drift in the vicinity of Bedford for several years before I succeeded in finding any specimen of the flint-implements. It is true that if the pleistocene drift can be determined in any district, there is a probability of these relics being found also; but these must be diligently worked for; and, as Mr. Prestwich has remarked, the motto of the workers should be "*Nil desperandum*."

NOTE ON THE SMALLER KIND OF LARGE FLINT-IMPLEMENTS, BY THE EDITOR.—THE specimen from Bedford, of which we figure both aspects in Pl. iii. and iv., is an example of the smaller kind of large flint-implements, generally regarded as spear-heads, or as hatchets; but without asserting them not to have been used for one or other of such purposes, we would point out that while the one side, or edge from *c* to *d*, is finely chipped out, the other is not so for its entire length: one portion, *a* to *b*, being either split off flat, as in the present example, or left unworked, presenting the natural surface of the flint, some portion of which will be seen also below the truncated part in our figures. If these instruments be held in the hand this flat part will fit against the palm, generally of the right hand, but some will be held easily only in the left. The suggestion we would make from this is Whether they may not have been used in the hand as flaying-knives to strip off the skins of the great beasts slain with the larger spears, or with flake-arrows?

We do not wish even to insist on this suggestion; but we are the rather actuated to make it, as very little effort seems as yet to have been made to compare the adaptation of these ancient weapons to the nature and character of the operations they were required to perform. To compare the fossil implements with those in use by the savage tribes of the present day, or with those found in human graves is right enough, but it is only one sort of comparison. The savage peoples of the present time have no such gigantic beasts as the mammoth and its now fossil congeners to contend with,—the African chase of the elephant, only, being the nearest approach—nor had those of the "grave" period; and it seems only right that we should therefore pass beyond the bounds of mere comparison in our study of their fossil implements, and endeavour to make out and understand the necessary modification of the weapons employed in the pursuit and slaughter of the great beasts, as well as in their own domestic operations, by that primitive race by whom these flint-

implements were manufactured and used. The very association of particular *kinds* of animals with the worked flints, and the manner of their association in deposits which are really undisturbed and have not been subjected to torrential action, should be the stepping-stones to the right path of inductive inference, and should be most carefully noted in all discoveries of this class of objects..

HUMAN REMAINS FOUND WITH THE BONES OF EXTINCT ANIMALS IN THE VALE OF BELVOIR.

DEAR SIR,—Having occasion to visit the vale of Belvoir, a few days since I met with a few facts which will, I think, be interesting to your readers, and I trust they will induce some of them to make an excursion to that lovely vale the heights of which are crowned with the magnificent castle of the Duke of Rutland.

Fossils in abundance may be obtained from the marlstone, lias, clays and gravels of the drift, &c. In the lias I have every reason to believe there is an abundance of coprolites, judging from what I saw at the residence of William Ingram, Esq., near the castle, an ardent geologist, who possesses an exceedingly good collection from the neighbourhood. In it he has a very interesting young Plesiosaurus. The specimen is not quite perfect, the neck being wanting. It seems evident that the farmers in this district are not aware of the fertilizing agent that exists immediately under the soil.

But the fact which I principally wish you to record is rather important just now, as it bears upon the *vexata quæstio* of the day—the age of the human family. Two hours ride from the castle will bring you to the valley of the Trent, near Newark. In this valley as most of your readers are aware, the Drift is largely developed, and abundance of fossils characteristic of that period may be found, such as mammalian bones of extinct species, &c.; and now I think it is probable the acmé of Mons. Perthes' dreams have been realized, for a part of the human frame has been found commingled with extinct animals. The arrow-head found entangled in the horns of the stag found by Mr. Pengelly at Brixham was vast in importance; it told us by inference that man must have existed along with the extinct animals of, mayhaps, the closing æons of the tertiary era. Some of us strove to look back through the vista of time, but the darkness seemed only intensified by that sudden spark cast athwart the gloom; but the flame of knowledge kindles more and more as the electric light of intelligence penetrates. In the second part of Goëthes Faust there occurs that wonderful scene, where, in the classical Walpurgis night, on the Pharsalian plains, the mocking