REPORT AND COMMUNICATIONS.

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PRESENTED TO THE

Cambridge Antiquarian Society,

AT ITS THIRTY-EIGHTH ANNUAL GENERAL MEETING,

MAY 27, 1878,

WITH AN ABSTRACT OF THE PROCEEDINGS OF THE SOCIETY

1877—1878.

ALSO

Communications

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BEING No. 2 OF THE FOURTH VOLUME.

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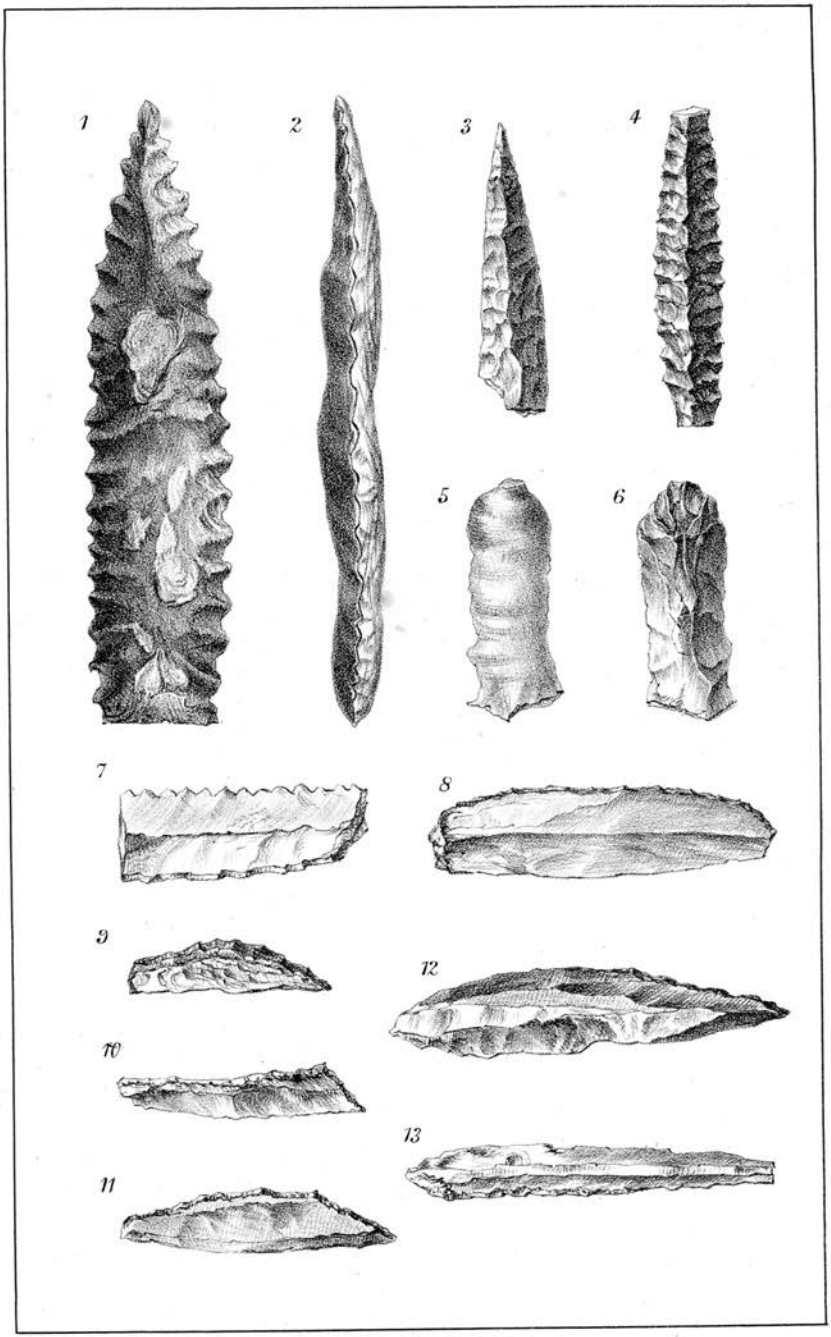
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VIII. On the Flint Implements found at Helwan near Cairo, by A. J. Jukes Browne, Esq., B.A., F.G.S. Communicated by Prof. Hughes.

[November 12, 1877.]

Very little has hitherto been written regarding the occurrence of flint implements in Egypt; notice has been taken of some found in the neighbourhood of Thebes by MM. Arcelin and Lenormant, and the existence of those at Helwan was first made known in 1872.

They were discovered by Dr W. Reil, the director of the sanatory establishment at that place, who notified the fact of their occurrence to the Ethnological Society of Berlin, and placed a collection of them in the Boulak Museum at Cairo. In a pamphlet, printed in 1874, Dr Reil describes the neighbourhood of Helwan, and mentions the flint flakes "which occur on the surface of the sand near the springs;" but he has not published any detailed account of them. I propose, therefore, to offer a few remarks upon those I was able to collect during a residence of six weeks at Helwan in the spring of this year, noting their character and mode of occurrence, and prefacing my observations by some description of the physical geography of the district in which they are found.

A reference to any good map of Egypt will show that the valley of the Nile terminates at Cairo; the barren limestone hills, between which the river has hitherto pursued its course,

open out suddenly at this point, and trend away to the eastward and westward, giving place to the wide-spreading fertile plain of the Delta.

The mountains which bound the eastern side of the valley are known by the name of the Arabian chain; they commence with the Mokattam hills, just above the citadel of Cairo, which present a bold cliff-like front running for some distance to the southward; a wide lateral valley then interrupts the line, which however is carried on by the Toura and Helwan ranges. These cliffs are separated from the cultivated alluvial plain by an intervening strip of barren sandy desert, some three or four miles wide, forming an irregular terrace, which has a general slope from the base of the hills to the water-line of "high Nile."

The elevation of this desert plain varies considerably, but appears to be greatest near Helwan, where the surface is estimated at being from 100 to 120 feet above the average level of the river. A shallow valley, called the Wady Karafich, may be taken as the northern limit of this higher portion of the plain, which is traversed by another, somewhat deeper, about three miles to the southward; within the space thus indicated some 11 or 12 thermal springs rise up to the surface, and the new village of Helwan is built at a spot where several of these occur near together, and drain into a third intermediate depression called the "valley of the Palm-trees."

These shallow waddies are the continuations of deep valleys or ravines which descend from the hills, and breaking through the cliff line above mentioned, open out on to the lower level. The form and sculpturing of these rugged valleys bear evidence that the action of rain is anything but unknown in Egypt; the surface indeed being entirely unprotected by any kind of vegetation, and the soluble limestone rock being thus exposed to the action of the atmosphere, every little rain-shower takes effect in loosening the beds and washing down the sand. More or less rain falls every winter, and occasionally, once perhaps in

two or three years, heavy rains occur, and torrents of water sweep down the valleys, carrying away the loosened blocks, and spreading the *débris* over the plain below. An examination of this plain shows that it is, to a great extent, formed by the accumulation of such transported materials; the thickness of these varies considerably at different places, but they are everywhere found to rest upon a platform of solid rock, which projects outwards from the foot of the cliffs. Quarries have long been worked in this underlying limestone scar both at Toura and Helwan, and the inequalities of its surface are seen to bear an evident relation to the present valley system, ridges of the rock sometimes rising to the surface between the waddies. Thus it seems evident that the Arabian chain has been cut back to its present position by the continued action of rain and running water operating upon the cliff-line originally produced by the current of the Nile, and that the *débris*-covered scar may be taken as a measure of this recession. It is difficult to ascertain the actual extent to which the plateau is underlaid by this rocky scar, as the transported materials have probably been pushed out beyond its limit, so as to encroach upon the alluvial deposit of the plain.

The nature of the materials composing the plateau varies from layers of fine mud to beds of coarse angular *débris;* thus, in Wady Karafich, the following succession was noted in descending order:

		Feet.
4.	Surface *débris* of sand and stones infiltrated with various salts	4
3.	Dark grey clay, with calcareous concretions	3
2.	Bed of sand, with basement layer composed of large flint pebbles, and fragments of silicified wood	1
1.	Yellow false-bedded sands, with large lenticular ironstone concretions	8
	Total	16

In the railway cutting beds of sand and clay are to be seen banked up against the ridge of limestone which rises up out of this valley. The wells and excavations at Helwan itself shewed a considerable depth of pure sand infiltrated with sulphur and other mineral matters.

The surface of the plateau is generally composed of loose sand or sand and stones, but in the neighbourhood of the springs these are often compacted together by the saline deposits from the thermal waters which here permeate the soil; and it is on these surfaces, which are generally worn into irregular ridges and hollows, that the flint flakes and tools are principally to be found.

They do not occur below the surface, except where they have been covered up by subsequent sand-drifts; this has often taken place in the immediate vicinity of the springs, where the blowing sand is arrested by the general dampness and growth of herbage, and the ground is always more or less raised in consequence.

In excavations in these sand-drifts flint implements have been met with at various depths, but none have ever been found in the beds of mud and sand which have been brought down by the streams, and are exposed in the cuttings and diggings by the side of the railway.

The normal position of the implements is therefore on the surface of the plain; but it is to be noticed that they chiefly occur on slopes overlooking the greater depressions, where the hardened ground may have existed as a surface for many hundreds, or perhaps thousands, of years; and there are at least five of these spots where the flakes and implements occur in such abundance as to suggest the idea that these are the actual localities where the work was carried on, the very manufactories, in fact, where the tools of the period were made. The probability of this is increased by the fact, that the form of the flakes and the nature of the instruments differ considerably at

each of the five places referred to. Thus, two lance-heads were found at the first of these localities and none anywhere else, saws also were especially abundant, and flakes were few. The fifth locality was characterised by the presence of long knife-like implements, while flakes were very abundant, rough, and comparatively large; at the intermediate places flakes were numerous but very small, and curious little short knives or scrapers were abundant at the third locality. The following is a list of the forms found, shewing their relative abundance.

	Loc. 1.	Loc. 2.	Loc. 3.	Loc. 4.	Loc. 5.
Lance-heads	two	.....	.....	.....	.....
Arrow-heads	one	.....	.....	one	.....
Triangular tool	one	.....	.....	.....	.....
Saws	many	few	one	.....	.....
Long scrapers	.....	one	.....	.....	many
Thick scrapers	.....	two	several	.....	.....
Short knives	.....	few	many	.....	.....
Worked flakes	.....	many	many	many	few
Large flakes	.....	.....	.....	few	many
Small flakes	few	many	many	many	few

It will be seen from the above table that no heavy weapons have been found at Helwan, and yet we cannot suppose that the manufacturers of such well-made saws, knives, and lance-heads, were entirely without such tools as hammers, adzes, &c. The circumstance is strange, but Mr Skertchly informs me, that parallel cases occur near Brandon in Suffolk, assemblages of small flakes and scrapers occurring at certain spots as if manufactured there, while there is an entire absence of celts and the larger kinds of instruments. He also states that there is a great resemblance in shape between the Egyptian and the small Suffolk implements. The former I will now proceed to describe.

The two lance-heads are good specimens of flint work, the whole surface being worked over, and the sides chipped out into

serrated edges; they are about three inches long, and the base is simply squared and thinned off for insertion in the handle. One of them is represented on the plate, figs. 1, 2; the other appears to have been left unfinished, or else some faultiness in the flint itself prevented the workman from fully developing the serrations on one side, which is only reduced to a wavy edge. At the same locality I picked up a portion of a curious pointed instrument, made apparently from a flake whose section was almost an equilateral triangle; one side of this has been left flat, while the other two have been worked up by a series of neat, even, and precise strokes, which only a skilled workman could produce; the point has unfortunately been broken off, see fig. 4.

The best arrow-head was found about half a mile south of the Hotel, and is a beautiful piece of workmanship; its length is about 2½ inches, and its breadth near the base about half an inch, so that it is of an elongately lanceolate form; the "tag-end" exhibits two small nicks for the purpose of binding it on to the shaft in the same way as some of the American arrow-heads were secured. The point of this specimen was broken off, but I found the upper half of another at the first locality; the latter is shown in fig. 3.

The saws are, perhaps, the most curious and interesting of the Helwan implements; these vary from two to four inches in length, and seem to have been fashioned in the following manner,—a good long flake of even width was taken, the bulb of percussion struck off, so that it might be of equal width throughout, and the ends squared and neatly sloped off. One side or edge was then nicked out into a series of teeth, wide or narrow according to pleasure, and even in some cases cut into a graduating series from large to small teeth. The instrument was then probably set in a wooden holder, like that figured by Sir John Lubbock in his *Prehistoric Times* (p. 126).

In many instances the teeth are much polished, and more

or less broken, as if by dint of hard service, while, in some of them, both sides are worked into serrations, one edge being more broken than the other, as if it had been used up and the other side had been chipped out, in order to refit the instrument for service. That shown in fig. 7 is a broken specimen, but the saw edge is well developed.

At the third locality, which was situate near a spring, on the slope of a knoll overlooking the cultivated plain, and about a mile and a half from the old village of Helwan, very small knife-like instruments occurred in special abundance; these vary in length from one to nearly two inches, but the greater number are about an inch and a quarter long. A few of them are almost semilunar in shape, and similar to those used as knives and skin-scrapers by the Esquimaux (see Sir J. Lubbock's *Prehistoric Times*, pl. I. fig. 3); in the rest, one end is left blunt, and the other brought sharply down to a point, which is generally very sharp. See figs. 9, 10, 11. These bear a greater resemblance to the flakes from Kent's Cavern, figured and described at p. 456—7 of Dr Evans' *Stone Implements of Great Britain*. They are all made on the same pattern, and one side is always blunted or worked up to form a back by numerous slightly oblique or nearly vertical chippings.

It is however a question whether this blunted edge is the result of wear or of intentional working in the first instance. Dr Evans thinks that such flakes were used as scrapers, and were set in wooden handles which protected the sharp edge, while the other side was gradually ground down by wear; others, looking to the sharp edge and pointed end, believe that they were intended for some kind of cutting work. This question I have discussed elsewhere[1], but it is interesting to note that there are three ways in which such an edge may be produced; (1) by pressing a hard piece of bone or stone against

[1] *Journ. Anthrop. Inst.*, Vol. VII. p. 396.

the flint and working it so as to break off small pieces from the edge; (2) by scraping the flake along some hard substance, and this may have been done either for the express purpose of forming a back to the flake, or for the purpose of cleaning the substance scraped; (3) by chipping or knapping the flake with a thin hammer in the way practised by gun-flint makers at the present day. This is done by placing the flint on a metal stake, so that the edge to be operated upon projects slightly beyond it, the hammer is then moved sharply up and down against the flint, causing numerous little particles to fly off from its under side, and thus producing a straight under-cut edge. Which of these methods was adopted by the Helwan manufacturers it is difficult to say, but on the whole it is more likely to have been one of the first two.

Several implements of another type also occurred, somewhat larger, from 1½ to 2 inches long, and much thicker, see fig. 8; these are rounded off at both ends and worked along the back, and in one case the cutting edge was straightened and sharpened in the manner just described.

Flakes were to be found at many places, the longest occurring at the fifth locality, about two miles south of Helwan, where they were scattered about in great profusion, together with many of the cores from which they were struck. Some of the longest and thinnest shewed the same minute chipping along a portion of one side, as if they might have been used for scrapers in the manner suggested by Dr Evans; see fig. 13. They are simply flakes rounded off at the bulb-end, and vary greatly in shape and length, instead of being all reduced to the same general type like the tools shown in figures 9, 10 and 11.

Elsewhere the flakes were mostly small, but many of them are neatly worked round at the bulb-end by means of numerous short flaking strokes, and are thus converted into scrapers or "smoothers," for the round even surface of this bulb might have

been used for the purpose of smoothing down any substance that had been roughened by scraping; see figs. 5 and 6, which show the back and front of one of these trimmed flakes.

Thus almost all the flakes seem to have been utilized, and those that could not be converted into saws or knives were chipped up and evidently used in some way or other, while some of them are of such convenient shape, that they might almost be used as knives, or arrow-heads, without further working. One of these is shown at fig. 12.

In approaching the difficult problem of estimating the probable age of the flakes and implements above described, I may remark *in limine* that their occurrence on the surface does not preclude us from assigning them to a very remote date, as it would in most parts of this country, because the surface in Egypt has probably remained unchanged for a very long period of time.

Some flint weapons have recently been discovered in tombs of Ptolemaic age, but such cases seem to be rare, and those I saw in the Boulak Museum are different in type and more modern-looking than the Helwan flints. Others have been found on the soil in the neighbourhood of Thebes, and these are of a more antique and palæolithic appearance[1]. Judging, therefore, merely from their general characters and style of workmanship, I should think the Helwan implements might be considered as of intermediate age between the two assemblages above indicated.

M. Mariette Bey thus speaks of them in his Guide to the Boulak Museum: "The flints having been collected on the surface of the soil, there is no evidence to prove the date of their manufacture. They may have used flint as tips for their lances and arrows, or as knives for the incision of mummies, even at the most flourishing epoch of Egyptian civilization....Thus the

[1] Sir J. Lubbock, in *Journ. Anthrop. Inst.*, Vol. IV. p. 215.

implements may date from Pharaonic times, they may be of Greek age, and it is not even impossible that some of them may be as late as the Arabian era." I could not find, however, that the present race of Arabs knew anything about them; and the abundance of knife-like implements is somewhat in favour of the suggestion that they may have been used for the incision of mummies.

The Helwan sulphur springs have been favourite places of resort from a very remote period, and Sir Gardner Wilkinson seems to think they may have been known to the Ancient Egyptians. The locality is only four or five miles from the ruins of Thebes, and we know that the Egyptians used instruments of flint for many purposes. They practised the rite of circumcision, for which flint knives were employed at a very early date[1]. Arrows with flint tips of a peculiar form, but quite different to those found at Helwan, have been discovered in the tombs[2]. Broad-bladed knives also exist in many collections of Egyptian antiquities, which are supposed to have been used for the purpose of making the first incision in embalming the dead, according to the account given by Herodotus. Two of these knives are represented in Wilkinson's Ancient Egyptians[3], and the smaller of these bears great resemblance to the little knife-like instruments described above.

It is possible therefore that these flints belong to a period when the inhabitants of the Nile Valley had attained to an advanced stage of civilization, but metal being still a rare commodity in the country at so early a date, they may have carried the art of flint manufacture to the greater degree of perfection. It should however be stated that Sir J. Lubbock and others believe the Theban implements to be prehistoric even as regards Egyptian History.

[1] Exodus iv. 25, and Joshua v. 2.

[2] See Evans' *Stone Implements of Great Britain*, p. 329.

[3] *Popular Account of the Ancient Egyptians*, Vol. II. p. 164.

The discovery of flint implements is the more interesting in a land like Egypt, whose annals extend backwards over so long a period of years; and it is to be hoped that further investigations will be pursued at Helwan and elsewhere, and that evidence will be forthcoming which will enable us to fix more accurately the time when these flint manufactories were carried on.

EXPLANATION OF PLATE.

Figs. 1 and 2. Lance-head found by Mr George Walpole at the Wady Karafich, near Helwan, and now in the Museum of the Royal Irish Academy.

Fig. 3. Part of an arrow-head from the Wady Karafich, now placed in the Christy collection.

Fig. 4. Arrow-head (?) from the same locality, now in the Christy collection.

Figs. 5 and 6. Broken flake trimmed at the bulb-end, found near the Hotel at Helwan.

Fig. 7. A small saw from the Wady Karafich.

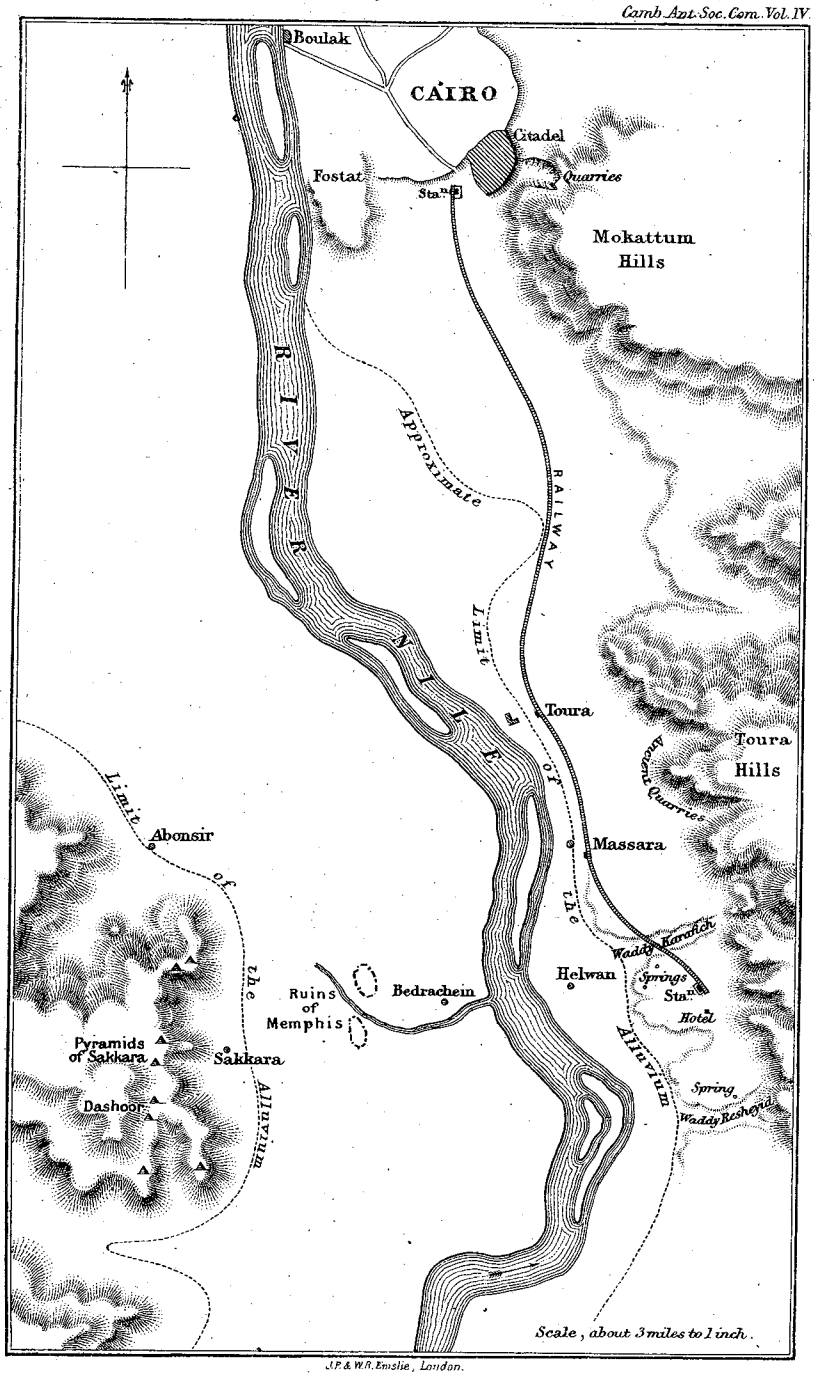
Fig. 8. One of the larger knives from locality No. 3.

Figs. 9, 10, 11. Varieties of the smaller sharp-pointed scrapers or knives, from locality No. 3, Helwan.

Fig. 12. A flake only slightly chipped near one end.

Fig. 13. One of the long narrow flakes from the Wady Reshayid, south of Helwan.

The originals of Figs. 5 to 13 are in the Museum of the Cambridge Antiquarian Society.



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