

## NOTES ON EARLY SICKLES.

By F. C. J. SPURRELL.

In the early days of agriculture, the simplest mode of harvesting was doubtless to pull the plants up when ripe, the next was to break off the ears of corn by the aid of a sharp stone or a flint flake. Until lately the most primitive representative of the sickle, a knife, indeed, though specially adapted to the purpose, has been recognised among the crescent-shaped blades found in northern Europe. These blades have various outlines, some of them being crescents, cusps projecting forward to points, but in other districts varieties occur, some with cusps of unequal length, shape and direction, some nearly straight. The concave or "straight" edge is the most carefully worked, and usually denticulated. The convex edge or back is not so well finished as the other and is never denticulated. The ordinary place of holding them was by the middle of the back which doubtless was set in a wooden haft or socket. Each blade constituted a separate instrument, the length of which rarely exceeded six inches. The polish on both sides of the straight edge on so many of these blades is an evidence for their use as sickles; the nature of which is referred to further on. They are only found in certain countries, and not in Britain. The crescent-shaped blades were used *as knives* whatever handle they may have had, to cut the corn which had been gathered with the other hand. The short bronze blades of Europe, whether socketed or not, must have been used chiefly as *hooks*, as shewn by the position of the handle, to gather the corn with; for although the blades were often ground sharp (they were not denticulated) yet their shortness and shape precluded a sufficient length of sweep for cutting,

and the straw must rather have been bent and broken over the edge.

The crescentic blades in stone do not appear to have been the models on which the bronze hooks were afterwards designed.

In 1890 a new light was thrown on the history of sickles, by Mr. Flinders Petrie, who in excavating the town of Kahun, in Egypt, found a sickle having a compound stone armature. This implement has helped greatly to explain many things not hitherto understood. Its date is that of the twelfth dynasty.

This sickle, of which a figure is given (pl. I fig. 1), is of acacia wood, dark and hard; it was a single piece originally, and apparently grown in a forced curve with a view to the manufacture of the sickle. In early as in late times in Egypt such a preparation in the growth of branches of trees for future requirements was not uncommon; it consisted in most cases of small branches bent double to form hooks for suspension or small angle pieces for carpenters' work, this being a large example. The form at once recalls that of one side of the lower jaw or Maxilla of a ruminant, perhaps of the ox,<sup>1</sup> so much so that its parts may be best described in anatomical language. If a jaw were actually employed certain modifications would be adopted to increase its efficiency and comfort in using; thus, there being a difficulty in the grasp of the rather short and knobby condyle and coronoid process, they would be smoothed down and a longer and more handy piece of wood lashed on; then the distal end of the jaw being occupied by a blunt row of incisors, they would be supplanted by a long guiding stick placed in their sockets, and lastly the row of natural teeth not being very suitable for cutting corn stalks, they would have been drawn and their places supplied by a row of thin flint flakes carefully serrated. In the above mentioned sickle, all the improvements have been perfected and the whole smoothed up to a perfectly comfortable and efficient tool. The groove, which does not exceed half an inch in depth, answering to the sockets, was cut by metal chisels, copper

<sup>1</sup> The jaw of the horse might serve as well, still better the more elegant forms of various deer and antelope whose length-

ened "ramus" and fore part would be advantageous; that of the camel is clumsy.

PLATE I.

FIG. 1

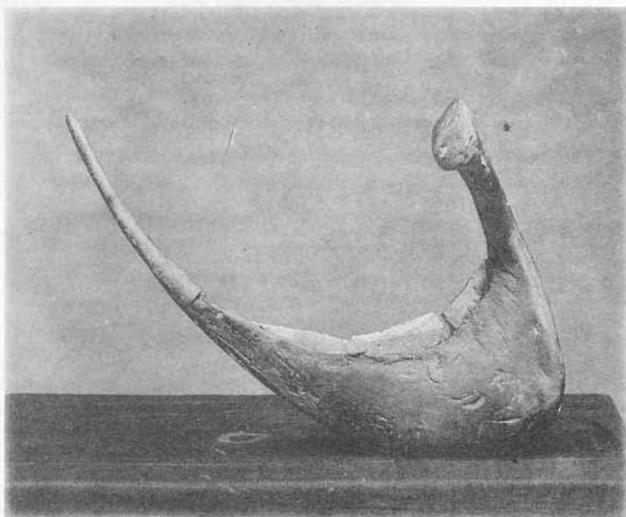
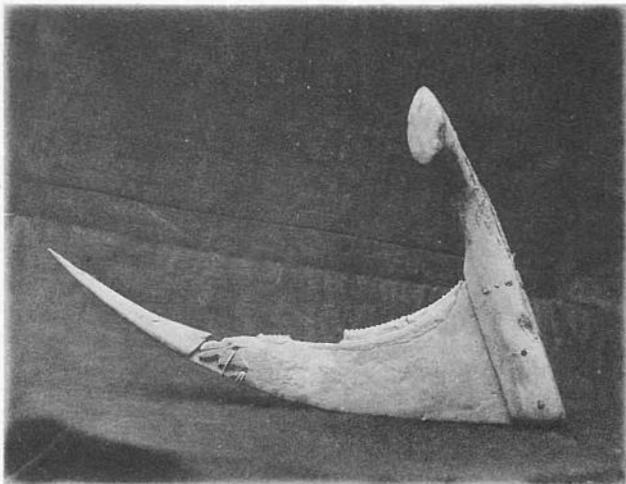


FIG. 2



SICKLES DISCOVERED BY MR. FLINDERS PETRIE, IN EGYPT.

FIG. 1, XIIITH DYNASTY ; FIG. 2, XVIIIITH DYNASTY.

being in general use at the time. The artificial teeth were set in this groove in a cement of clay, black Nile mud mixed with gum. The teeth are partly buried in this groove, the cement is smeared over the junction of the teeth and the jaw, overlapping the teeth about a quarter of an inch and leaving about the same distance projecting free. These measures are for the centre of the row; towards the point the proportions are reduced, at the near end they are increased. The tooth is a thin flint flake notched at the exposed edge.<sup>1</sup>

From the difficulty of getting single pieces of wood capable of being worked into the curves necessary for use, the sickles were usually made in three pieces, the body, the handle, and the point; of which divisions several separate ones have been found of the old date at Kahum, and elsewhere of later date. This mode of construction is well seen in the photograph of the second sickle (pl. I, fig. 2). By far the greater number must have been made on this model of early as well as late date. The second Kahum example is of the age of the eighteenth Dynasty and though the woodwork differs in no particular from those of the earlier compound kinds, there is apparently a slight difference in the mode of serration of the teeth. These compound ones have always the angle of the jaw sharp. In well built examples the joining of parts of the woodwork is made by wooden pegs set in carefully bored holes without the aid of glue. The frequency of breakage and mending is attested by signs of former work on all the many pieces which have been found. The guiding point most often became detached; in the first example it has been twice replaced, in the second both the handle and the point have been renewed.

The flakes from which these sickle teeth are formed, are simple thin ribands, flat on one side, with one or generally two ribs on the other. The ability to strike off these long and elegant flakes from the core preceeded the historic period in Egypt and certainly extended into Roman times, and good examples of all these ages present no distinctive features by which to determine the date. In all flakes from

<sup>1</sup>The implement when found had lost all but one flake, those which are shown on either side of it in the figure were placed there by Mr. Petrie to shew what

the full complement would look like. The cement shews distinctly the mode of setting.

Egypt of this character, however minute the point of origin or bulb of percussion, the signs of their having been *struck* off are evident from the crushed surface; and the marks of abortive "bulbs" shew the strokes to have been many. The art of flaking in this style was not possessed by all the community, so that good flakes which could be employed for sundry wants were stored and kept handy, as well for all the purposes in which a pocket knife is useful, as to replace flakes in sickles which had become detached or worn out.

Formerly these teeth were called indiscriminately *saws*, and in museums are so labelled now. Passalacqua (Cat: Rais.), and Pettigrew (Mummies, pl. iv.), claim such saws as amongst the implements employed in mummifying. This is altogether a mistake, as the saw or saws they speak of were merely included amongst the small objects belonging to the person buried, and were deposited with the mummy in a parcel containing a palette and other things. A similar collection of miscellaneous objects in a little bag was found by Mr. Petrie in a Kahun dwelling, also including flint flakes and sickle teeth, (Petrie, Kahun, p. 13). Sickle teeth are figured by Lepsius as saws (*Zeitschrift für Egypt: Sprache*, 1870), and by F. Mook (*Egypteen Vormetallische Zeit*, 1880), and Jukes-Browne (*Journal Anthrop Institute*, vol. vii.); also by E. Lartet, (*La mer Morte*), and others already mentioned.

Saws of stone are mostly of flint, other stones being less capable of yielding long thin flakes in a straight line, and possessing the requisite toughness, for these two are the essentials in a saw.

The efficiency of a saw is dependent on the depth to which it will cut. In the use of stone saws the difficulties were great, for the indented edge is much the thinnest part of every object presumed to be a saw which has yet been found, and in many cases the so-called saws could not have been employed in sawing, except for so minute a depth as scarcely justifies the use of the term. In Egypt none of these "saws" have been found fixed in handles for sawing. In the prehistoric lake dwellings of Europe notched flakes are common, and in some cases their uses as saws is obvious, a single rather short flake being set in a small piece of wood or bone for a handle. The mistaken

name of two-handed saws has been given to some objects of which further mention will be made.

The teeth are more or less regularly notched or serrated, occasionally some are found which can scarcely be said to be more than jagged. They vary in length from half an inch to four inches, the average being one inch and half. Some of the serrations are close together and very finely executed, others are nearly a quarter of an inch apart. The last flake in the angle was always modified in form, and was usually thicker and stronger than the others. Large numbers of these sickle teeth are found in Egypt, especially when excavations are made in the older agricultural districts. They differ very little in general form from the earliest known date up to Roman times, except that the latter ones are more clumsy in shape and trimming. Most of the teeth which are obtained in excavations, as well as those still in the sickles, are very much polished along the edge left free to cut with, and this bright line is usually distinctly marked at its lower edge up to which the cement extended.

The polish found on parts of the sickle teeth of flint is very characteristic, and has greatly puzzled some people. Chabas (*Etudes*, p. 348), even states as a fact which he observed, that when found flakes have no "patine," but that the brilliant "varnish" which some have is developed in museums (!), a complete mistake. The flint of Egypt is true flint, and in composition and physical characters is as much flint as that found in the chalk cliffs of England and France, although the similarly arranged layers in Egypt and Syria are of a later geological age. The smoothing given to flint by the motion of the ordinary desert sand of Egypt, which is of quartz has a very subdued lustre, for the grains being very hard, scratch rather than polish the soft flint. On the other hand, the polish of fine quartz sand on hard quartz pebbles is brilliant, for the reason that the hardness of the two is nearly equal. The polish of wind-blown sand is a limited lustre, which shades off insensibly into the worn parts.

I have made experiments with Egyptian as well as other flint regarding the acquisition of the polish. I found that the lengthened sawing of clean bone, wood wet or dry, or horn, did not produce it; nor has such a result been

recorded by any writer ; besides this, it is not to be discovered on the cutting edges of hatchets or adze blades of flint found in Egypt, whose use in fashioning wood is known, nor on knives, from whose various duties in preparing food we might expect some such result. But I did obtain the polish by the lengthened cutting of ripe straw with the type of flint flake under discussion. It therefore appears a safe thing to suppose that when, in any country, flakes of flint or worked implements having a bright polish and being otherwise suitable, are discovered that they were applied to some such use as the cutting of cereal stems. The polish will not be found on all sickle flakes, such as those that were new, or little used, or had lost it by weathering. The likeness of the polish to a varnish is good, for the slight ridges of the flaking are often equally well polished with the depressions ; it passes into the abrupt hollows between the denticulations, and is equally bright in all. The organic silica of grass stones is very fine. The latter easily break up and form an impalpable powder which, held by the elastic and soft straw, passes up and down into the irregularities of the stone surface as it goes along. This is impossible with hard wood and rigid bone.

The crescentic sickle blades of Scandinavia, and other parts of Europe, are mostly well polished on both sides of the straight edge, the polish passes into the depressions, and is the result, not of hard usage, but of long continued gentle wear. The polish sometimes seen on the convex edge is different in kind to the other, and spreads evenly over the whole surface.

The notching of the teeth of the sickles has two chief modifications. If a section across the length of a flake be made, it will be seen in one case that the line of apices of denticulations are in a straight line in the middle of the flake. In the other the denticulations are on one side of the flake, thus necessitating a kind of ridge being left on the other side (pl. II., fig. 13, 14). In the first kind the penetrating power of which a flake is capable is at its greatest, in the second it is definitely reduced ; as the effective height of the denticulations above the ridge seldom exceeds one tenth of an inch, that amount is the limit. The first kind is found on the first sickle, the second on the second

one, and may be a later as it certainly is a clumsier device. The first is the commonest at all times.

The teeth fell out in the act of using as well as wore out by smoothing down. These had to be replaced, nor could the sickle be used with a gap in the row. Sometimes the old teeth were merely reversed in the grove after serration, indeed in anticipation of such an accident, teeth have been inserted already serrated at both edges.

Occasionally natural flakes have been notched and used. They are interesting because in the first place such a makeshift implies that everybody could not make fresh ones, and secondly an ignorance that weathered flint had lost its virtue so to speak, and was incapable of standing the wear required. These natural flakes are produced by the exposure of flint pebbles to the action of the weather. They are often very thin and as far as appearance goes seem suitable for teeth. The natural flaking is produced very often in a vertical direction as the stone lies on the soil, partly by sand wear. Into grooves thus made grains of sand enter and by irregular contraction the mass splits up into a collection of thin flakes which may be grasped in the hand while still lying apposed. But this process has been a very long one, and the free access of moisture, frost and sun has changed the quality of the flint and left it spongy opaque and light in colour, mainly by the extraction of soluble silica.

There have been found occasionally in Egypt some very large flint flakes bearing the distinct signs of employment in sickles, such as careful serration, adaptation at the ends for fitting with others, the characteristic shape of the rear-most one, the brilliant polish, and occasionally the marks of still adherent gummy clay. But the depth at which they must have been inserted in the jaw precludes the supposition that they belonged to the light and elegant types of sickle we have been considering from Kahum. The thickness of the lower part of the flake is not mere clumsy work but intentional, as shewn by the trimming round the edges. It is difficult to believe that a groove could have been cut in the wood exceeding one inch in depth suitable for the reception of such as these without making the thickness of the blade too clumsy to be useful. It seems probable that these thick deep teeth were actually

inserted into the jaws of animals from which the real teeth had been extracted. The alveoli of a real jaw are very thin and the space occupied by the teeth wide and deep, this cavity would need to be filled firmly, and even if filled with clay and gummy material would alone not give sufficient support to narrow knife edged flakes, consequently the lower part of the flakes used for this purpose would be made thick and deep to fill in the space and prevent sagging. It is mentioned by Mr. Jukes-Browne that in examining the geological conditions near the springs at Helwan,<sup>1</sup> he came upon large quantities of flakes, plain and notched, and some were specially adapted to be the end flakes of the row of a sickle. Amongst the flakes he found a number of splinters of bone which he identified with the split teeth of the horse, and he specially records that no other bones but teeth were present on that occasion. He concluded that these teeth were purposely broken so that the splinters might be used in the serration of saws. But were it the case that the teeth of the animal were the object required, it seems that the jaws would have been left and the valuable teeth taken away for use. It was much more likely that the jaws were wanted, the teeth having been smashed, which is the only way to extract them when fresh, and discarded, that flint might be inserted in their place.

The deposits of Helwan are sand, hardened in layers by the limestone deposited by the springs. Mr. Jukes-Browne says that the bits of teeth he found were much altered in constitution, and were friable, having lost the animal matter. F. Mook who has carefully described these deposits (*Vormettallische Zeit*) found similar flakes and numerous animal remains at several levels—the camel, zebra, hyæna, ostrich and the ass, with numerous flakes, "saws," &c. There are several of these springs, and the association of these remains points to their being the wells at which animals watered at night and were preyed on by hyænas. The presence of the worked flakes shews that occasionally men occupied the spot. Mook records no equine remains but zebra and ass. It is possible that the equine splinters found by Mr. Browne were of the latter kind; the teeth of which they closely resemble. The

<sup>1</sup> A. Jukes-Brown, *Journal Anthropol. Institute*, Vol. vii.

collection of animals here indicates an early period, before the generally supposed arrival of the horse in Egypt, at least as a domesticated beast, though it may have existed in prehistoric times.

The forms of sickles depicted as being in actual use vary considerably; the earliest examples, as those from Ghizeh, on a slab in the British Museum, (No. 994), very nearly resemble the older Kahun specimen. The knob is especially like, though the point is short. The extremely lengthened guiding rod is clearly a later invention. We find it represented in the twelfth dynasty, sometimes as bending at the tip away from the crescentic curve; this may have been the fancy of the artist, as it must have been difficult to construct and inconvenient to use. The artist, too, has represented a very peculiar handle, which apart from a strangeness of shape, is confused by the attempt to foreshorten; a like sickle held by another man in the left hand is apparently boggled by the artist altogether. One of these (pl. II., fig. 4), is from Beni Hassan, of the twelfth dynasty, kindly given me by Mr. P. E. Newberry, of the Egypt Exploration Fund. Another from the same tombs has nearly the shape of a simple crescent. The separate teeth are well seen in these examples. The serrations are not shewn. Rosellini and others have represented denticulations of great size, which appear to be exaggerations of their own in copying these scenes. There is no evidence to shew that large single pointed flints were set in Egyptian sickles.

The artistic representation by the Egyptians of the attitudes of the workmen, and the shapes and modes of using the implements in their hands is to be received with caution. The archaic conventionality of the subject was always a difficulty with a truthful artist. Even if he were practically acquainted with the use of agricultural tools, he would still be under the necessity to exhibit a sickle in such a manner as would give a full view of its broad side while exhibiting it in actual use. When the spectator stood before the corn and the reaper, the latter would present his back to view, and the sickle, if seen, would shew little more than a mere line. This, however, was not drawn so, it would have been too true to nature, for the diagrammatic or picture writing style required everything

to be shewn so that there could be no mistake as to what each line meant. This is one reason why the same sickle formed exclusively for one hand, the right, when put into the left hand of another man is so strangely depicted. Many reapers are painted reaping with the left hand from a simple desire to preserve a symmetry in the design. This frequent use of the left hand is not borne out by the pictures themselves, because they tried to draw what they did not see, and could not succeed; nor by the handles themselves that have been found, for in all cases, whether of the twelfth or eighteenth dynasties which I have seen, the handles are adapted to the right and cannot be used by the left hand. The views of the act of cutting downwards is also an outcome of the bad drawing, for I found in practice that such an act was a sad failure and produced disastrous results to the sickle.

In order to settle these difficulties, I made an exact and careful model of the first Kahun sickle, and used it in the field. I found it worked best when a handful of corn is grasped in the left hand just below the ear, bent a little backward, and swept with the length of the blade, with a slight twist at the end of the stroke. It also cuts well low down near the ground; but in either case the cutting motion must be towards the person and slightly upwards.

The sickle is employed for the hieroglyph *MA*. The earliest representations of which differ somewhat from the later ones, in the tomb of Rahotep at Medum of the early fourth Dynasty in which are the the oldest hieroglyphic forms known drawn large enough to examine for purposes of identification, the implement is portrayed in an obviously conventional form. The example I give (by the kindness of Mr. Petrie) is the most common kind.

The handle has only a slight widening, not a knob, the point is absent and the short end terminates squarely, and the row of teeth is peculiar: it commences by an abrupt projection a short distance from the tip as in a natural jaw, which could not have been desirable in reality, and does not leave off at the "angle" unlike the natural teeth, but passes upwards, which was needless in practice. The teeth are painted a brilliant white always, with black lines disposed in a particular manner. It appears clear that the side view of the teeth is given, and not a three-quarter or

other face view of the top. The white colour suggests that the earliest sickles which were taken as the model of the hieroglyph may have been toothed with pieces of thick bivalve shells or with white stone such as quartz or chalcedony worked into regular forms. The black lines are suggestive of thongs with which the teeth were bound on to the handle; the diagonal ones passing across the teeth, not being divisions between them, have apparently no other meaning. This mode of construction, of which nothing remains in Egypt, had its origin, may be, in another land where the compliant flint was not. This hieroglyph is painted green very persistently. The peculiar outline, and colour where found, is retained most carefully in all early empire inscriptions, although in contemporary early work as at Gizeh the outline of the sickle is of a much more practical shape. This archaic outline still continued in the twelfth Dynasty, although the harvesting sickle was differently and naturally drawn; and it reappeared continually later although the tendency was to lengthen the tip and compress vertically the whole figure. The earliest hieroglyph is a fully conventionalized outline, already further removed from the jaw form than that of the sickle actually in use at the same period of time. The change being so slight in twelve Dynasties affords room for a glimpse backwards still greater in length, before we can speculate on the time when the artists drew from the object itself (see pl. II., figs. 2, 3.)

In various parts of Syria serrated flakes have been found but the most interesting are those lately brought by Mr. Petrie from the remains of Lachish.<sup>1</sup> The various layers which he made out all yielded flint flakes which had been used. Some may have been saws and some were drags for stone work, but many serrated flakes with the characteristic polish were sickle teeth. In the early Amorite and Jewish layers more particularly some of the separate teeth found are very large and thick, being as much as half an inch thick, another of about 800 B.C. measures  $3\frac{1}{2}$  by  $1\frac{3}{4}$  inches. In all these cases the greater part of the flint was buried in the socket, but a narrow line of about a quarter of an inch remained above as shewn by the polish. This great thickness and depth of insertion as in the case of similar

<sup>1</sup> Tel el Hesi by Flinders Petrie, Palestine Exploration Fund.

ones from Egypt points to the substitution of false teeth for true in the actual jaws of beasts, whether ox, ass, or others. The well known poverty in metallic instruments of the Amorites and of the Jewish people even in later times is perhaps an explanation of this rudeness of construction, for they had not sharp thin chisels wherewith to cut the narrow deep groove in which to insert flakes in a wooden handle.

From Hissarlik Schliemann obtained sickle teeth, or single and double edged "saws," as he calls them, in all the five prehistoric settlements, they being most abundant in the earliest layers. He engraves several, and likens them to those figured by F. Mook, referred to above, which are sickle teeth also, and he mentions one or two as shewing evidence of having been set in a wooden handle.<sup>1</sup> They have been found in Assyria and Babylonia.

It would be inconvenient to enumerate the separate descriptions which have been published of such small finds in Europe, but two examples require special notice.

A portion of an instrument is figured by Jacob Heirli<sup>2</sup> from the lake-dwelling of Vinelz (Bienne). It is of wood tapering at one end and there truncated. At the other end the wood is cut in such a way as to be evidently a kind of splice, by which it was fastened to another piece of wood. At the lower edge is a small dovetail-shaped notch. Along the upper edge is a groove, and in it three small angular pieces of flint resembling fins. This object is a portion of a sickle. The tapering end once projected further as the gathering point, the other was spliced to the handle, which had probably some such form as would connect it with the jaw type. The two holes or depressions are not of the original design and may have been made for the fingers after it had become a mere wreck. It is a most interesting example of what was probably the idea from which the *falx asperis dentibus* of the mythologic poets came, and was the precursor of the indented bronze falx of Perseus.

The teeth are set in pitch, which is an arrangement required by the humid atmosphere of the lake country in which they were used. In Egypt mud with gum or

<sup>1</sup> Schliemann : *Ilios*, p. 583 ; also Troja, p. 174.

<sup>2</sup> *Mitt. der Ant. : Ges. in Zurich*, Bd. xxii ; Taf xvii, f 3.

gelatin was employed for this purpose. Pitch would have been as useless there as mud and gum among the lake dwellings. The implement is called by Heirli a double-handed saw. Were such the case the great heat generated by two-handed work would soon have softened the pitch; while the deep intervals would offer so much leverage as to be dislodged and broken at once in any attempt to saw the softest wood, not to speak of bone. I set some flakes in a piece of wood to resemble this and found it impossible to saw with it.

At Polada on Lago di Guarda, about one half of a wooden sickle was found, which has recently been figured by Dr. Munro.<sup>1</sup> It has four flakes notched along the upper edge set in a row in a groove by means of recent or fossil pitch. One end is pointed; it was once straight, but has been warped aside by pressure or irregular contraction, this is the gathering point. The other end is imperfect; there is no place for the hand to grasp it, but a step notch and arrangements for splicing it on to another piece, consisting of a kind of tenon with a hole in it for a rivet; in this nearly resembling the like specimen from Vinelz. In this case the teeth are very much like the Egyptian sickles. This part of a sickle with its row of flakes was unique, but it was accompanied by numerous examples of single notched flakes, and also by true saws inserted in handles.

This sickle is called a two-handed saw by Dr. Munro, but the objections to this are all similar to those in the Vinelz example, and its resemblance to the Egyptian sickle so far as it remains is very great.

Sickle flakes have been sparingly found in England, but unless brought from below the surface by excavation have not retained their polish. Canon W. Greenwell has found them in barrows, which in his opinion belong to the bronze age, extending to the latest part of that. No small collections have as yet been found which might be called sets, though on the surface earth which had been heaped over some barrows large numbers have been collected. Dr.

<sup>1</sup> Lake Dwellings of Europe, Fig. 67, No. 12. Dr. Munro has kindly permitted me to use his figure which is the only one published; and has supplied me

with a view from above. In my sketch on plate II, I have added a possible outline of the handle.

J. Evans mentions other instances, and has remarked on "the characteristic polish which is observable on a large proportion of these flint saws," as he calls them.

As yet no bronze sickles have been obtained from Egypt, but in paintings shewing metal forms the shape diverges from the wooden ones, becoming light and metallic in outline, and often with a longer handle—apparently the backs of some are strengthened by a wooden rib.

The primary idea of the *harpe* was that of a hook for snatching or gathering only, and when employed in harvesting was abandoned at the moment of detaching the ears of corn, or pulling up the straw. It is likely that a cutting edge was added very early. With this addition, among the Ægean races, and perhaps with others, it became the symbol of agriculture, and as such was placed by painters and poets in the hand of Chronos for purposes of symbolic mutilation. To Jupiter, Mercury and Perseus are given the harpe with which to perform wondrous acts. The harpe, as depicted in early Etruscan vases, &c., is a bronze implement, retaining marks of its origin, in the roughly toothed edge, from the stone sickles with ragged teeth like that of Vinelz already described, from a vase in the British Museum, No. E. 192 (pl. II., fig. 5). But the teeth in time were omitted. In the days of weakened faith it seems that this much curved harpe was considered as so clumsy an implement of combat and decapitation as to be impossible and ridiculous. So Athene is shewn transfixing Medusa with her spear, while Perseus stands calmly by, armed solely with the curved harpe to keep up the mythic proprieties, (Inghirami Mon. Etr. Tom. ii.; Tav. xxxviii). Later for similar subjects and for real slaughter in sacrifice, such as the Taurobolic, the harpe has a point added in a line with the handle. Afterwards it becomes a straight sword, the curved point of the harpe diminished to a slight projection at one side. Finally the harpe loses this obstruction and becomes a mere sword.

Early iron sickles in the east were small, jaw-shaped, but not notched at the edge; those known being late, and formed after notching had been abandoned. There is one which is in the British Museum. It was obtained by Belzoni at Karnak. He was excavating for specimens to convey to Europe, and working in an avenue of

"Sphinxes," which he describes as moved, ruined and dilapidated. He says, "The iron sickle was found under the feet of one of the Sphinxes on its removal. I was present. One of the men took it up and gave it me. It was broken into three pieces." The situation was much confused, and Belzoni was clearly unable to understand the age of the Sphinx, or when the destruction which the avenue suffered had occurred. His chronology did not extend beyond Cambyses. Although Belzoni mentions the fact that the bits of sickle came from a corner of the Sphinx, he finds good reason to question the validity of the reasoning his belief prompts him to make, viz., that it was ancient Egyptian, and points out that no instruments of iron are to be found among the manufactures of the ancient Egyptians. (G. Belzoni, "Recent Discoveries," p. 163). This has been published by St. J. V. Day, in "Prehistoric use of Iron."

Two iron sickles from Nimroud in the British Museum much resemble the Egyptian one in condition, and somewhat in shape. All three seem to have been rivetted to handles. There is also in the British Museum a sickle made of burnt clay, which in shape is like one from Nimroud, and that from Egypt. It is thick on the outer edge and thin inside, where it has been chipped from one side to sharpen the edge, though not used. It is said by the catalogue to have been obtained by J. E. Taylor from Mugheir. Mr. Taylor (*Journal Royal Asiatic Society* xv, 411), describes some from Abu Sharein, and says of the shape, "it is precisely similar to the Quosau or iron sickle used by the cultivating Arabs of the Karun of the present day. They were found in tombs of comparatively late date, which had been excavated in early ruins. Mr. Taylor gives a drawing of one, which recalls somewhat the shape of some Egyptian flint-edged sickles, like one at Beni Hassan; it also shews what looks like the inserted teeth.

These sickles are all late, as shewn by the situations in which they were found, and belong to a time when iron was in general use in the East.

In Europe the earliest forms of sickles of iron are preserved in many collections, especially those from Lake dwellings, but are too numerous to mention here, especially as they have been largely illustrated. Their increase in

size and variation in form is easily traced. Many were serrated, perhaps, not so much from a survival of the stone age custom as to keep an effective edge on the very soft iron with which they were made. In Roman times in Helvetia the sickle is found sometimes much as we have it now, and its development in France into the two handed scythe is mentioned by Pliny.<sup>1</sup>

I am greatly indebted to Mr. Petrie for permission to photograph the sickles, and use them for this paper.

#### EXPLANATION OF PLATE II.

- Fig. 1. Sickle from a Harvest Scene. Ghizeh, fourth dynasty.  
 " 2. Hieroglyph from Beni Hassan, twelfth dynasty.  
 " 3. Hieroglyph from Tomb of Rahotep, fourth dynasty; Medum.  
 " 4. Sickle from a Harvest Scene, Beni Hassan, twelfth dynasty.  
 " 5. Harpe from a Vase from Capua, in Brit. Museum.  
 " 6. Harpe. Inghirami, Mon: Etr: i., 55.  
 " 7. Mitt: der Antiq: Geschell. Zurich Bd. xxii; pl. xviii; f. 3.  
 " 8. Upper view of fig. 9.  
 " 9. That part in outline is from Dr. Munro's Lake Dwellings. Pl. 67; No. 12. He gives the total length of original as 396 mm. The dotted part has been added by me as a mere indication of what might or could have been the original idea.  
 " 10. Forward. }  
 " 11. Middle. } teeth of Egyptian sickles.  
 " 12. Back }  
 " 13. & 14. Sections through denticulated teeth  
 " 15. & 16. Iron sickles from Nimroud, in British Museum.

<sup>1</sup> The long handle of the scythe, as represented in works of art, is probably mediæval in date, and the figure of Time,

as we have it, arose in the *cinque cento* period.

