ON SOME STONE IMPLEMENTS FROM SOUTH INDIA.

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The specimens described in this paper are included among a very large number of stone implements—nearly four hundred and fifty in number—collected during the various geological excursions of the Central College, Bangalore. That they are implements of human workmanship cannot be doubted because in the words of Prof. Sollas—"they speak for themselves; in the first place they possess a simple symmetrical form, and next it is produced by the harmonious union of a multitude of separate flakings, each the result of a directed blow. Chance is evidently excluded; there is evidence of design and since they bear a resemblance to some definite objects, its 'final cause' seems clearly indicated." *

Professor P. Sampat Iyengar in his paper "A Palæolithic Settlement and Factory in the Mysore State" read before the Geology Section of the Indian Science Congress, 1924, has described a number of these implements comparable to the Lower Palæolithic cultures of Europe, and inferred a Palæolithic settlement one mile south of Biligere in the Tiptur taluk, Mysore, from where the specimens were collected. In a subsequent paper entitled "On some hand-grasp designs in Palæoliths found in Mysore" communicated to the Indian Science Congress in 1925, he has drawn attention to some interesting designs for grasping the implements. All these implements are fashioned out of pieces of rock by means of chipping, the resultant flakes being only incidental and not serving any purpose.

In this paper it is proposed to describe some half a dozen implements which show a marked advance over those described by Prof. Sampat Iyengar in his papers referred to above. Four of these were collected from the Reddipalle village in the Cuddapah district and are made out of the Cuddapah quartzites. These appear to be fashioned out of the cores (bulbs of percussion) left behind after the

* Sollas: Ancient Hunters and Their Modern Representatives, p. 73.
necessary flakes were removed, and are designed for hand-grasp. In the early stages of the Palaeolithic era we find that pieces of rock are fashioned into the necessary implement by chipping or flaking. In the later stages flakes removed from rock pieces were utilized for making the weapons and tools, and the resulting cores or bulbs of percussion were generally not made use of. But early man must have realized that some of the cores could be conveniently converted into useful tools by further chipping and fashioning. The four implements from the Reddipalle area belong to this type and therefore may be assigned to an age probably later than the Lower Palaeolithic.

Of the remaining two, one was found in the Mysore State and the other in the Trichinopoly district. Both these are designed for use with hafts or handles and mark two new and interesting types which appear to belong to a culture later than the Acheulean.

Each description is accompanied by a photograph and sketches drawn to scale. Before going to the description of the Implements I must acknowledge my deep indebtedness to Professor Sampat Iyengar for allowing me to study his collection and giving helpful criticisms and suggestions.

The first of the implements to be described is numbered Z. 6/199 *(vide Plates I & I A, Figs. 1-4)* and forms a very singular and interesting type. It is made of a brownish looking quartzite and was found about a mile and a half to the north-east of the Reddipalle railway station in the Cuddapah district. It is triangular in shape with the three sides curved inwards and two of the angles truncated obliquely. The third angle is not truncated but is sharp and pointed. One surface is concave and devoid of all signs of fashioning. The other surface has a small triangle (sides: 1'4", 1'8" and 1'7") in the middle (original surface of the rock ?) with the edges placed parallel to the sides of the bigger triangle. The three corresponding angles of the two triangles are joined by straight lines, forming the three broad and elongated trapezium-like flaked faces of the tool. The three edges of the bigger triangle are covered by irregularly placed small chipped faces. The implement resembles a small pyramid whose solid angle is truncated half way, and rests like a sort of a tripod on any flat surface. This tool may have been used as an arrow-head (?) the utilization surface being the pointed solid angle; the other two angles are not sharp (because they are truncated) and these two ends were probably used for securing the arrow-head to a shaft. Or else the
pointed end may have served as a borer. The specimen measures 4'2", 3'5" and 3'8" along the sides of the triangle and about 1" in thickness and weighs 57/4 ounces. Other exactly similar specimens of this type (Z.6/178, 152, 148, 159 and 430) are found in widely separated regions such as Satyavedu, Alicoor Hills, and Kibbanhalli (Mysore).

The only and nearest resemblance to the type of implement described here is found in Evans' "Ancient Stone Implements of Great Britain" *, where he says: "A singular implement chipped out of flint, like three celts joined into one, so as to form a sort of trilibrach, is said to have been found in the Isle of Wight. It is shown in Fig. 25A, kindly lent by the Society of Antiquaries. In form it is of much the same character as some of the implements from Yucatan, and from Valdimir, Russia. It may be compared with some examples of strange forms from Honduras."† No mention is made of the use to which it might have been put. The points of difference between this and the one described in this paper are: — The sides of the triangular outline of the specimen from the Isle of Wight are very much curved inwards so that the three solid angles of the triangle stand out as three distinct limbs of a three-rayed star. The central triangle is very much smaller and there are no evidences of truncation in any of these angles. Further, numerous small chipped faces occupy the space between the sides of the inner and outer triangles and all the angles are blunt and not sharp.

The second of the implements to be described is numbered Z.6/198 (Plates II & II A, Figs. 1-4) and was picked up in a field by the roadside in the village of Reddipalle in the Cuddapah district. This is made of a fine grained brownish looking quartzite of Cuddapah age and is roughly triangular in shape with the three angles rounded. It weighs 3 ounces, and measures 2'/2" in length, 2'/" in width and 0'/6" in thickness. One side or edge of the triangle — the shortest — is straight and sharp and forms the "surface d’utilization," the "surface d’accommodation" is opposite this edge and forms one angle of the triangle which is rounded and blunt. A convenient hand-grasp is obtained by placing the thumb on the central (elongated) flaked surface and the next three fingers on the other flat surface. One surface of the specimen is almost flat or very slightly convex and constitutes the original surface of the rock, only in one corner there

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* Evans: Ancient Stone Implements of Great Britain, p. 77, Fig. 25 A.
† Ibid., p. 78.
are two small chipped faces. The other surface is decently chipped by three broad triangular faces longitudinally disposed. The central facet in conjunction with the hind flat surface gives rise to the sharp utilization edge or surface. Each of these three broad chipped faces are further covered near the edges by smaller faces which are quite irregular. In addition to the main cutting edge the other two edges are also sharp. The section from the middle point of the main utilization edge to the opposite solid angle is wedge- or V-shaped. This implement was probably used either as an end scraper (Grattoir), a chisel, a wedge, or chipping tool, and very likely in all the capacities.

This implement has a close resemblance to the distinctive type of tool in the Stellenbosch industries and called the Cleaver. It is triangular or axe-shaped in form with the working edge straight or slightly curved and more or less at right angles to the length of the tool, being formed by the intersection of two large flake scars slightly inclined to each other. These are of common occurrence in North Africa. The implement described resembles the one figured in Burkitt’s "South Africa's Past in Stone and Paint"* from Villiersdorp, C.P.—but this is slightly smaller in size.

Another implement to be described now is numbered Z. 6/187 and figured in Plates III & III A, Figs. 1-4. Just like the previous one this was also picked up from the same locality in a field near the village of Reddipalle, Cuddapah district. It is fashioned out of a fine grained banded quartzite of a greyish colour and is horse-shoe-shaped in form. The specimen measures 3'2" in length, 3'3" in width and 1'3" in thickness and weighs 8½ ounces. One surface is convex and almost devoid of flaking except for one broad flake-scar on one side and a few irregular smaller ones near the edges. The other surface is covered by six broad flaked faces—of these three big ones form with the convex side the three straight cutting or scraping edges of the horse-shoe, the flake opposite the curved end being the main "surface d’utilization" having a length of 3'3". The surface of accommodation is the curved part of the horse-shoe and is made up of two flaked faces which are almost flat and do not hurt the fingers while using the implement. Bounded peripherally by these five flaked faces and lying in the middle of the surface is a polygonal large concave chipped face. It is quite evident that the implement was intended for hand-grasp, and a sort of hand-grasp design can also be recognized. In the middle of the convex surface is a small

* Burkitt: S. Africa's Past in Stone and Paint, p. 65, Fig. 7 (2).
depression which takes in the thumb and the three other fingers (excepting the small one) pass over the flat and blunt end and lie on the concave central flaked facet on the other surface. This way of holding the implement gives it a steady grip and a ready use for the sharp utilization edges. This was probably used as a scraper and skin-curer (horse-shoe type scraper). This resembles the modern French "Strike-a-light" which Evans has figured in his book where he says "the resemblance between these and some of the ancient scrapers is manifest".*

The next implement to be described is numbered Z. 6/206, and is figured in Plates IV & IV A, Figs. 1-4. This was also picked up from one of the fields near the village of Reddipalle, in Cuddapah district and is roughly rectangular in outline and is made of a fine grained dark grey ferruginous quartzite. The length is 3'6", the width is 2'4" and thickness is 1" and weighs 5 1/2 ounces. The length of the cutting and scraping edge is 3'9" (utilization surface). The opposite side is the "surface d’accommodation", and is not sharp, but flat and inclined. One surface is entirely made up of the original rock face which is slightly convex. The other surface presents four big flakings—three of them are small and rectangular and placed side by side near the accommodated end, the fourth is longitudinally disposed and forms the main scraping edge 3'9" in length. The middle one of the three small flaked faces is slightly concave or hollowed and nicely accommodates the thumb while the rest of the fingers pass over the flat and inclined accommodation end and rest on the convex and unflaked surface of the specimen. In this position a firm grip of the specimen is obtained and so may be considered to be a sort of a hand-grasp device. The cross section across the middle of the specimen is rhomboidal in outline. The implement is probably a type of side-scraper or Racloir and closely resembles the one figured in Sollas’ book "Ancient Hunters and their Modern Representatives",† and also another which is figured in Osborn’s "Men of the Old Stone Age".‡

The fifth implement is numbered Z. 6/306, and is figured in Plates, V, V A & V B, Figs. 1-4. This was picked up in a small nulla about a mile south of the village of Vilaungudy, in the Trichinopoly

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* Evans: Stone Implements of Great Britain, p. 314, Fig. 222.
† Sollas: Ancient Hunters, etc., p. 105, Fig. 42 (2).
‡ Osborn: Men of the Old Stone Age, p. 153, Fig. 76 (2, 2a).
district along with a number of other interesting specimens. It is fashioned out of a fine brownish yellow cherty material (of the Niniyur stage), crescent-shaped and weighing 7½ ounces. The length of the specimen is 4½", the width 2½" and the thickness 0'6". The length of the convex side of the crescent (which is the main surface of utilization) is 8½" in length and is thin and sharp. The opposite concave side is also sharp and the implement resembles the head of a kite in form. There is a straight ridge (length 1'5") opposite to the pointed end of the crescent. One surface of the specimen is slightly convex and unflaked, but the other surface has flaked faces which are long and curved and almost parallel to the concave side of the implement. The convex edge of the specimen is covered by a number of small flaked faces, which give rise to the sharp edge. A look at the implement makes it clear that it was not meant for use in the hand, because both the edges of the crescent are sharp and the short and straight edge at one end is not sufficient for hand-grasp. The presence of the short blunt ridge on the other hand is suggestive of its being meant to be used with a haft or handle. The only convenient and possible way of hafting the specimen seems to me to be by introducing the short ridge at the slit end of a haft and then by firmly securing it by leather strips (?) or weeds. If hafted in this way both the sharp edges of the implement may be made use of; in no other way can this be achieved. This implement was probably used as a sort of Chopper or axe and scraper combined. When hafted it becomes a splendid weapon of offence and was probably used as an axe in chase and fight. This weapon has a close resemblance to a Chellean scraper from St. Acheul figured in Sollas' "Ancient Hunters",* where it is supposed to be held in the hand for use and not hafted. The specimen described may also be held in a similar way but whether it is a convenient and safe hand-grasp is doubted.

The sixth and the last of the implements to be described in this paper is numbered Z. 6/441 (Plates VI, VI A & VI B, Figs. 1-4) and was found in a field half a mile from Ranganathpur village (close to the Kaveri river), on the way from Mysore to Bannur. Unlike the vast majority of the South Indian Palaeolithic implements which are made out of quartzite or chert, this is fashioned out of a white and greasy looking quartz reef, which is stained reddish brown due to iron oxides. In shape and outline the specimen shows a very close

* Sollas: *Ancient Hunters, etc.,* p. 164, Fig. 65 (1 and 2).
resemblance to the ox-head, without the horns. On either side where the ears ought to have been, there are two small ledge-like notches. The presence of these two notches is peculiar and interesting and may probably mark a new type of implement not described hitherto from South India (or anywhere else to my knowledge). The "surface d'accommodation" (Rutot)* or butt end is semicircular in outline, and as we approach the "surface d'utilization" (Rutot) the width of the specimen narrows gradually and finally passes into a small and straight cutting edge about three-quarters of an inch in length, instead of the usual pointed end. Both the surfaces are equally convex and are covered by a large number of small and irregularly chipped surfaces. The chipping on both surfaces is not uniform. The two sides of the implement which end in a straight edge are slightly undulating and sharp. If the two notches and the straight edge were absent then it would have transformed itself into an ordinary Coup de Poing or hammerstone. The fact that the semicircular accommodation end is sharp, as also the other edges of the implement, make it obvious that it was not intended for hand-grasp. The presence of the two notches on either side near the curved accommodation end are also suggestive of the implement being meant to be used with some sort of haft or handle. Since the two sides and the small straight side of the implement are sharp and constitute the "surface d'utilization", the semicircular portion presents itself as the one which goes with the haft. It seems probable that the hafting was done by taking a circular or cylindrical staff of wood, at one end of which a slit or hole was bored of the shape and size of the semicircular portion (slightly smaller), and then the semicircular end of the specimen may have been hammered tight into the slit. This type of hafting removes the necessity of tying the specimen to the haft by leather strips (?) or weeds, but with such a binding the implement will be more securely attached to the haft.

The dimensions of the implement are as follows:—length 3'7" (from notch to notch), the width is 2'8" and the thickness is 1'3". The specimen weighs nearly six ounces. The resemblance of the implement to a lance, and the fact that it was meant to be hafted, indicate that it might have been intended for an offensive weapon, either for fight or chase. The workmanship of the tool combined with the intention of hafting, indicate that this might probably belong to an age distinctly later than the Lower Palæolithic.

* Sollas: *Ancient Hunters, etc*, p. 81.
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PLATE, II Fig. 1
PLATE IV, FIG. 1
In addition to the implements described in this paper, a number of other interesting ones are being studied, an account of which is hoped to be published at an early date.

Summary.

The objects of this paper is to present a description of six new and interesting types of stone implements found in Southern India. The unity of design in specimens from widely separated regions and the evidence of form which is the result of the union of a multitude of separate flakings confirm the genuineness of the implements beyond any reasonable doubt. Even though it is not possible to assign a definite age to these implements, a fair idea of it may be gathered by comparing them with Continental types.

Four of the specimens described were collected from Reddipalle, in the Cuddapah district. These consist of (a) a triangular arrowhead weighing 5½ ozs.; (b) a Stellenbosch type of Cleaver and Graufoir weighing 3 ozs.; (c) a horse-shoe type Scraper of 8½ ozs., and (d) a rectangular side-scraper or Racleir weighing 5½ ozs. All these are evidently designed for hand-grasp and are made out of brownish looking Cuddapah quartzites. On a typological basis and also from the fact that these are fashioned out of the cores (bulbs of percussion) left behind after flaking, they may be assigned to an age probably much later than the Lower Palæolithic (Acheulean).

The other two implements are designed for hafting. The workmanship of the tools combined with the intention of hafting indicate that they might belong to the Middle Palæolithic (Mousterian) period. The first of these was found half a mile south of Vilaunguddy in the Trichinopoly district, and is fashioned out of a brownish cherty material weighing 7½ ozs. It is crescent-shaped and was probably used as a Chopper or axe and scraper combined. The second of the implements is from Ranganathpur village in the Mysore district. Unlike the majority of the South Indian implements this is fashioned out of a whitish and greasy looking quartz reef, stained reddish brown. For all appearances it resembles an ordinary Coup de Poing or hammerstone, excepting for the fact that it has got two distinct notches on either side of the semicircular end and is designed for hafting.