

THE EVOLUTION OF ENGRAVING IN THE STONE AGE.

WE have at various times directed the attention of our readers to this interesting subject, but new discoveries are continually being made. M. Ed. Piette, whose name is so well known in connection with his investigation of the famous cave of Mas-d'Azil, has given in *l'Anthropologie* (xv., 1904, p. 129) a classification of the deposits formed in caves during the age of the reindeer; starting as a geologist, he was firmly impressed with the fact that stratigraphy is at the root of fruitful advance in prehistory, and this end he has kept steadily in view. He gives the following table of relative chronology of the epochs which form part of the age of the reindeer:—

Epochs of Lartet and Christy	Epochs of G. de Mortillet	Epochs of E. Piette
Madelaine and Laugerie-haute	Magdalénienne	Gourdanienne
Moustier	Solutréenne	Papalienne
	Moustérienne	Mostérienne

The following is his cultural sequence, in which the epoch of Moustier does not take part, "as at that time the fine arts were not yet born":—

Age or series	Epoch or stage	Layer
Glyptic	Of engraving (Gourdanienne)	Of engravings and harpoons of reindeer antler
		Of engravings without harpoons or with very few harpoons
	Of sculpture (Papalienne)	Of engravings with cut-out contours
		Of sculptures in low relief
		Of sculptures in the round

The sculptors in the round used their flint tools for many purposes, including carving, chiselling, scraping, engraving, and burnishing; they certainly sketched their statuettes before modelling them, and they polished them. The sculptors in low relief scraped and burnished. Their works were not child's play, but the product of a real artistic sense. They studied and drew heads, limbs, and feet (Fig. 1). The sculptors in the round figured the flayed animal and even the skeleton. When mammoth ivory became rare reindeer antlers were employed for carving, and this appears to have led the way to the next artistic developments.

Many of the figures in this copiously illustrated paper are from the layer of sculptures in low relief; it was in this layer that several pieces were found decorated with circles and bold spirals (Fig. 2). At first these designs were carved deeply, they gradually became less deep, until in the Gourdanienne epoch they were merely lines. M. Piette believes the spirals were symbolic, and suggests that they had reference to snakes. Plant forms were rarely drawn, and of the very numerous animals engraved by far the most frequent were those upon the flesh of which the men fed.

As the relief in the designs became less and less, the artist had to employ the graver. At the end of the Papalienne epoch the artists undertook to execute very low reliefs on plates of bone not more than two millimetres in thickness. They made silhouettes, modelling the contours on both sides; but the great difficulty of carving such thin objects soon led to its abandonment. They replaced this style by cutting out contours and engraving the surface. This technique was common in the region of the Pyrenees, but rare to the north of the Garonne; being a transitional form it did not last long, whereas sculptures in low relief persisted into later layers.

At first, following the traditions of the sculptor, the engraver represented isolated animals, but the artists of Laugerie-basse appear to have been the earliest to

design groups (Fig. 3). In the upper layers signs are engraved which M. Piette considers to be of the nature of inscriptions.

Thanks to the rigid stratigraphical method employed by M. Piette, he has been enabled to upset the

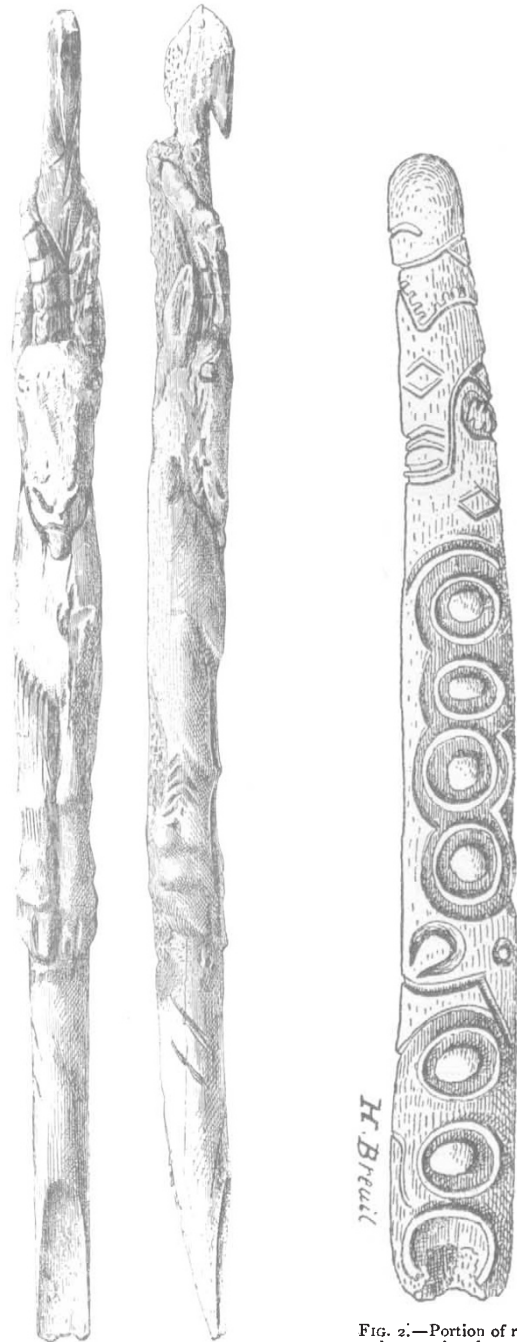


FIG. 1.—Bone Throwing-stick (Mas-d'Azil). Layer of sculptures in the round. Less than natural size.

FIG. 2.—Portion of reindeer antler decorated with circles and other signs (Lourdes). Layer of sculptures in low relief.

a priori argument that sculpture was a later form of pictorial art than engraving, and has established that the reverse is the case.

In a subsequent paper, entitled "Les Écritures de

l'Age glyptique" (tome xvi., 1905, p. 1), M. Piette claims to have discovered "inscriptions composed of characters forming a primitive writing," all of which are from the layer of sculptures in low relief, and consequently from the earlier glyptic epoch. The first specimen figured by the author is that reproduced here as Fig. 2. First of all one must point out that only one side of this rod of bone is figured, but before the design can be understood it will be necessary to know what the whole design looks like. The author says, "The circle with central prominence appears to be a simplification of the circle with radiating centre which evidently signifies the sun or solar god. The rays have been suppressed in order to write the sign more quickly"; he then briefly gives the distribution of

circles are figured by the author in juxtaposition, and the evidence seems to point to the conclusion that here, as in so many other instances from various parts of the world, the concentric circle or oval is a simplification of the spiral; if this be so, the theory that the concentric circles are degenerate rayed circles, i.e. suns, falls to the ground. The bold decoration on these bone objects in all probability had a meaning. Some of the designs may have been symbols; but, surely, it is somewhat far-fetched to describe them as hieroglyphs, and we cannot follow the author when he states (as he does in a letter to the editor), "According to me this inscription (Fig. 2) is the glorification of light."

M. Piette also directs attention to certain linear markings on bones from various sites of the reindeer age. These he boldly claims to be true linear scripts, and suggests that the writings of la Madeleine and Rochebertier were continued into the linear script of Abydos without undergoing much change.

Archæologists are deeply indebted to M. Piette for the thoroughness with which he has carried out his investigations, and we must not unfairly criticise him if that enthusiasm which has carried him through his labours sometimes runs away with his more dispassionate judgment. He is probably quite correct in believing that the decoration on the bone objects he has discovered has a meaning, but judging from our experience of the decorative art of existing primitive peoples it is extremely improbable that we shall ever be able to decipher its meaning or unravel its symbolism. More evidence is needed before we can pass judgment upon the supposed linear script. A. C. H.

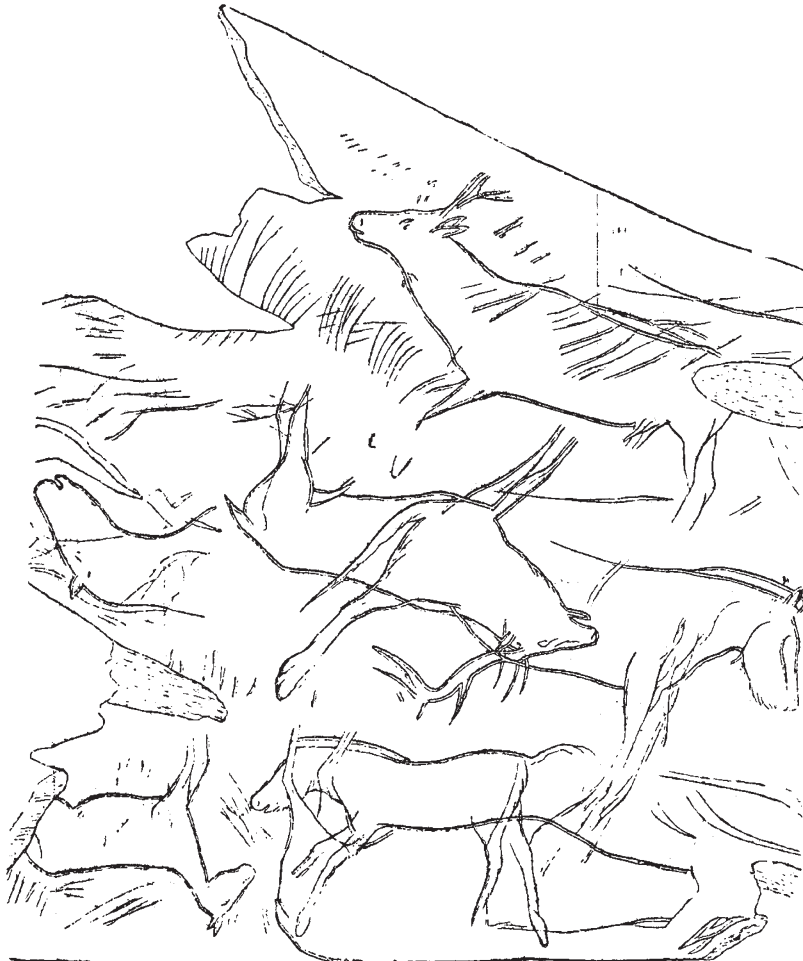


FIG. 3.—Engraving on bone (Lorhet). Layer of engravings without harpoons.

similar markings in prehistoric Europe and in Egypt. The lozenge is stated to be "certainly a symbol," and other signs are similarly believed to be symbols or hieroglyphs. "The spiral," for example, "has held a large place in primitive symbolism." This is possibly true, but spirals may mean many things in the art of existing backward peoples, and may be conventional symbols or more or less realistic representations; but it is extremely hazardous to make guesses as to what any given spiral may be intended to represent; the probability is that all such guesses will be incorrect, and the same remark applies to other elementary designs. Several spirals and concentric

Museum under the superintendence of Dr. Holland, of Pittsburg, who has charge of the original specimens on which the complete restoration is based. Although the gigantic four-footed dinosaurs constituting the group Sauropoda were first made known to the world on the evidence of detached bones and teeth described by Mantell (*Pelorosaurus*) and Owen (*Cardiodon* and *Ceteosaurus*), it has been reserved for American palæontologists, working in the rich Upper Jurassic beds of Wyoming and Colorado, to give to the world an adequate conception of the huge proportions and extraordinary form of these strange reptiles. Strangest of all is perhaps *Diplodocus* (so named on account of