SCIENCE FROM AN EASY CHAIR

BY

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WITH EIGHTY-FOUR ILLUSTRATIONS

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made it to be only symbolic of a combination of qualities. Just as the Latins and mediæval people credulously accepted Greek symbolic monsters as real, and transmuted Greek heroes into Christian saints, so were the Greeks themselves deluded by strange carvings and blood-curdling legends which reached them at various dates from mysterious Asia into a belief in the actual existence of a variety of fantastic monsters. "The Greeks," says M. E. Pottier, a distinguished French writer on Greek mythology, "often copied Oriental representations without understanding them." The conventional dragon probably came from Indian sources through Persia to China, on the one hand, spreading eastwards, and to the Latins of the early Roman Empire, on the other hand, spreading westwards; but at what date exactly it is difficult to make out.

In mediæval, as well as in earlier times, marvellous beasts were brought into imaginary existence by the somewhat unscrupulous enterprise of an artist in giving pictorial expression to the actual words by which some traveller described a strange beast seen by him in a foreign land. Thus the "unicorn," which was really the rhinoceros, was seen by travellers in the earliest times, and was described as an animal like a horse, but with a single horn growing from its forehead. The heraldic draughtsman accordingly takes the spirally twisted narwhal's tusk, brought from the northern seas by adventurous mariners (the narwhal being called "the unicorn fish") as his unicorn's horn, and plants it on the forehead of a horse, and says, "Behold! the unicorn." Meanwhile the real "unicorn," the rhinoceros, became properly known as navigation and Eastern travel extended, and true unicorns' horns, the horns of the rhinoceros, richly carved and made into drinking cups, not at all like the narwhal's tusk, were brought to

Europe from India. One was sent to Charles II. by "the Great Sophy," and handed over to the Royal Society by the King for experiment. These horns were asserted to be the most powerful antidote or destroyer of poison, and a test for the presence of poison in drink. There was no truth whatever in the assertion, as the Royal Society at once showed. Yet they were valued at enormous prices, and pieces were sold for their weight in gold. A German traveller in the time of Queen Elizabeth saw one which was kept among the Queen's jewels at Windsor, and was valued, according to this writer, at £10,000.

Credulity, fancy, and hasty judgment are accountable for the belief in mythical and legendary monsters. Yet they have great interest for the scientific study of the growth of human thought and of the relationships of the races of mankind. They are often presented to us in beautiful stories, carvings, or pictures, having a child-like sincerity and a concealed symbolism which give to the wondrous creatures charm and human value.

not abundant previously. These herds probably were to some extent protected by the men, whilst the lion, bear, hyæna, mammoths, and rhinoceroses were diminishing in number, and were kept at a distance.

The next lower division of the Pleistocene is No. 2, the Middle Pleistocene or Last Glacial Age, or better,

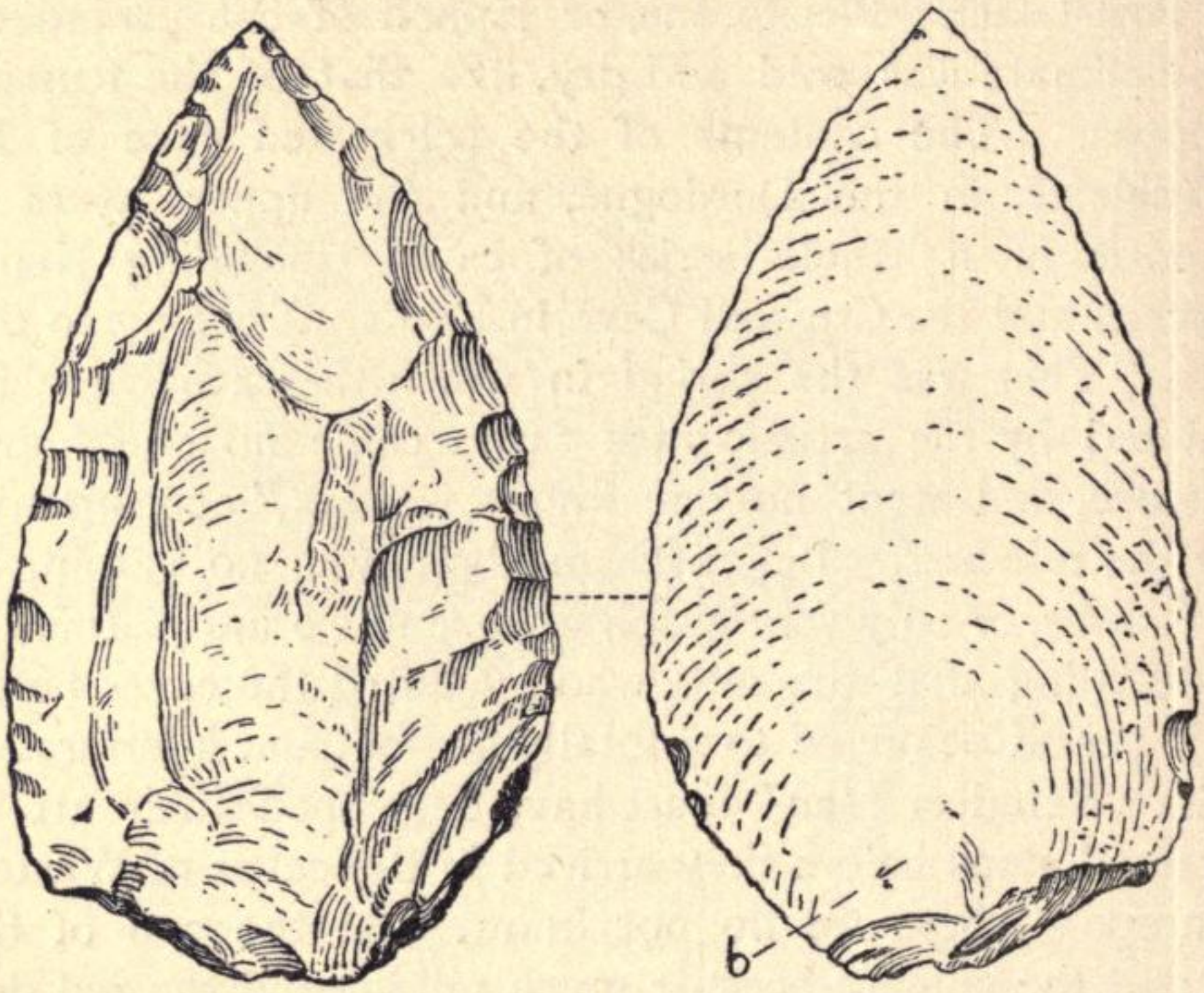

FIG. 72.—Back and front view of a flint implement of the Moustier type (period of the Neander Men or Middle Pliocene), half the size (linear) of the object. Observe the bulb of percussion at *b*, and the completion of one face by a single blow. Note also the fine edge and point of the weapon.

the **Epoch of the Mammoth.** The climate was cold and humid. For the third and last time great glaciers existed over the whole of Northern Europe, and only bits of the south of England and the central and southern parts of France were free from the ice-covering, and carried a rich vegetation. Deeper deposits in caves are of this age, and also much of the

river gravels of the lower terraces of English and French rivers. By the French it is often called the Moustierian period, because it is well seen in the rich deposits of the caves and plateau of Le Moustier, on the river Vezère (an affluent of the Dordogne), which contain bones of mammoth and rhinoceros, and flint implements of a special form (Fig. 72), but no carvings or artistic work. Hyænas made some of the caverns into their dens, and the cave-lion and the cave-bear were there too. The men of this period actually contested with these carnivors for the possession of the caves, and made great fires to keep out wild beasts, as well as to grill the meat on which they fed. They were of an inferior race to the Reindeer Men, and had not such command of the situation as their successors. We find their remains, their flint weapons, and in rare cases their own bones as well as the bones of the mammoth and hairy rhinoceros (on which they fed), and the bones of their competitors, the hyænas, bears, and lions, in the deeper deposits of some caves, underlying, and separated often by calcareous deposit from, the layers which belong to the subsequent and prosperous days of the Reindeer Men. Most striking is the fact that in the layers of deposit of this older age, there are no works of art nor any implements carved from bone or ivory. These earlier men, devoid of art and living at a low level of savagery, were the Neander Men. It is in this layer and under these conditions that the few broken skulls, agreeing in shape and character with that of the Neander Valley, have been found.

Lastly we come to division No. 3, the Lower Pleistocene, or **Epoch of the Hippopotamus.** The later climate of this age was mild. It came between two glacial periods, owing to the retreat of the glaciers, which had earlier increased in extent so as to produce the second Great Glacial period. The hippopotamus swam

in the Thames and Severn in those days, and left its bones and teeth in the older gravels of those and other European rivers, where we now find them. The big almond-shaped and leaf-shaped flint implements of the English (Fig. 73) and French gravels (Fig. 74) belong to this period. We have no knowledge whatever of the men who made them.[1] The mammoth was not there, but another species of elephant (*E. antiquus*) and a peculiar rhinoceros (*R. merckii*). The deepest and oldest deposits in some caves belong to this age, as well as the high-lying gravels of St. Acheuil, of many English river-valleys, and of Chelles on the Seine. This period is not represented by much deposit in caves, though some caves contain very deep-lying layers enclosing bones or teeth of the animals characterising this period.

Older than the Age of the Hippopotamus are deposits which are reckoned by geologists as "Pliocene"—no longer Pleistocene—and are called "Tertiary," not "Quaternary." The forest bed of Norfolk (regarded by Professor Marcelin Boule as of transitional character, as shown in the tabular view on p. 384 *bis*), the Norwich crag, the Suffolk red and coralline crag, and very extensive sandy deposits all over Europe belong to the Pliocene. The earliest or first great extension of glaciers occurred late in this period. The animals are very different from those of the Pleistocene; the great mastodon and the tapir are there, and the sabre-toothed tiger. Implements manufactured by man are found in the oldest Pleistocene, and there is no reason to doubt that we shall find his workmanship in the Pliocene, too, though it is not admitted that this has yet been done. It is a question still eagerly studied and debated as to whether the roughly chipped flints found in gravels on high downs in the south of England, and called

[1] See, however, farther on as to the lower jaw found at Heidelberg.