

## SPECIAL ARTICLES

## RECENT DISCOVERIES OF THE ANTIQUITY OF MAN

THIS paper is an abstract of two lines of research recently undertaken by the authors which will be published under the titles: "Old and New Standards of Pleistocene Division in Relation to the Prehistory of Man in Europe,"<sup>1</sup> "Pliocene (Tertiary) and Early Pleistocene (Quaternary) Mammalia of East Anglia, Great Britain, in Relation to the Appearance of Man."<sup>2</sup>

At the April, 1921, meeting of the National Academy, Dr. Osborn ventured the prediction that a large-brained type of man would be found in the Pliocene. He was not aware that such a discovery had actually been made in the Upper Pliocene Red Crag deposits near Ipswich, in the summer of 1921, because Mr. Moir's discovery of Red Crag and of sub-Red Crag man had not been accepted in England. It was not until an unmistakable human industrial level was found at Foxhall, near Ipswich, in the summer of 1921, that this locality was visited by the French archeologist, Breuil, who announced this important discovery at the Archeological Congress at Liège, in August, 1921. Dr. Osborn immediately planned to visit this locality and to make a careful survey and review of the animal life which surrounded Foxhall man. This review, fully set forth in both papers above named, shows that Foxhall man—capable of making ten or twelve different kinds of flint implements, of providing himself with clothing and of building a fire—sets an unmistakable Upper Pliocene date for the antiquity of man, in which he was surrounded by relatively primitive mastodons, rhinoceroses, saber-tooth tigers and two species of elephants, a fauna closely similar to the Upper Pliocene fauna of the valley of the Arno River, near Florence, Italy.

More recent than the Foxhall industry is

<sup>1</sup> This paper, presented in abstract by Dr. Reeds before the Geological Society of America, is now in press in the *Proceedings* of the society.

<sup>2</sup> This paper by Dr. Osborn will appear in full in the *Geological Magazine*, London, 1922.

that of Cromer on the coast of Norfolk, discovered during the summer of 1921. Cromer is also treated as of Upper Pliocene age by British archeologists, but it is unmistakably *Lower Pleistocene*; it belongs to First Interglacial time.

To establish this second point, Dr. Osborn enlisted the cooperation of Dr. Chester A. Reeds, beginning in the month of September, 1921, and undertook an exhaustive examination of the old and new standards of Pleistocene division in Europe, namely, of Geikie, Penck, Brückner and Leverett, ending with the recent work of Depéret and of De Geer. While these authorities do not agree as to causes or as to the duration of the Ice Age, a most important result of concurrent observation in England, France, Germany, Switzerland and North America is that there were certainly within the Ice Age four, and possibly five, distinct periods of glaciation, with at least four interglacial periods, all embraced within the Quaternary. British geologists and at least one French geologist, Marcellin Boule, include the First Glaciation within Tertiary time, but all the other authorities named above regard the First Glaciation as the opening of Quaternary time. The latter view is the one adopted by Osborn and Reeds and is clearly set forth in the synthetic diagram which summarizes our present knowledge of the geologic succession, of the industrial phases, and of the geologic appearance of human types. This table will be submitted to the coming International Congress of Geology at Brussels.

As a result of the researches summarized by the authors, we are now able to fix with considerable certainty the geologic level of the entire succession of human industries, namely, the Foxhallian, Cromerian, Chellean, Acheulean, Mousterian, Aurignacian, Solutrean, Magdalenian and Campignian. We are also able to fix with considerable exactitude the geologic age of the successive races of men, *i. e.*, Trinil, Piltdown, Heidelberg, Neanderthal and Cro-Magnon, which appear between Foxhallian and Magdalenian industrial times.

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