

### The Recently Discovered Gibraltar Skull.

AT the Oxford meeting of the British Association the first authoritative account of the discovery by Miss D. A. E. Garrod of a human skull associated with Mousterian implements at the Devil's Tower, Gibraltar, was given in a session of the Anthropological Section. The discovery was made on a site which first attracted the attention of the Abbé Breuil in 1917, who observed fragments of bone breccia in a cleft facing an old signal station known as the Devil's Tower. From this he obtained a few Mousterian implements and bones of a variety of animal species, including hyæna and panther, which are now extinct in Spain.

Miss Garrod, who undertook the excavation of the site at the suggestion of the Abbé Breuil, found that the cave contained a succession of seven deposits, which emerge from the mouth of the cave and spread fanwise in a succession of steps. All levels of the deposits contained a large number of animal bones, some broken and burnt by man, some evidently the relics of an animal's lair. As the cave faces north, it was probably occupied by man in summer only and by animals in the intervals of human occupation. The animal bones included deer, wild goat, boar, and rabbit in abundance, and, rarely, horse and ox. Resting on the raised beach which formed the seventh and lowest deposit was a carpal bone of an elephant. Implements of Mousterian type were found at all levels down to the fifth, those of the second level being definitely assignable to the upper Mousterian; but no implements of a later industry and no pottery were found.

The removal by dynamite of a large block of limestone in the hard travertine of the fourth level opened up a number of fissures and led to the discovery of a human frontal bone at a depth of 15 cm. from the surface of the deposit. The left parietal was discovered half a yard away, but, whereas the frontal bone had been loosened from its matrix, the parietal was firmly embedded in the travertine and had to be brought away in a mass of that material for reduction in the laboratory. As explained by Mr. L. H. Dudley Buxton, to whom that task was entrusted, the freeing of the interior from the mass of deposit with which it was filled proved a particularly difficult and tedious operation. Implements of quartzite and flint definitely of Mousterian type, but less well made than those of the overlying levels, were found near the skull. The fact that the skull and the implements were found embedded in the travertine in a manner allowing no possibility of disturbance places the Mousterian age of the skull beyond question.

The anatomical characters of the skull were described by Mr. L. H. Dudley Buxton. Owing to the fact that

the greater part of the month which had elapsed since the skull had been brought to England had been taken up by the task of freeing the fragile bone from the travertine in which it had been embedded, it was possible to put forward tentative conclusions only; but an attempt had been made to reconstruct the upper part of the skull. There is no doubt that the two fragments belong to the same skull. From various characters it would appear to be that of a very young person; but the exact age and the sex are difficult to determine. A comparison with the three skulls of Neanderthal man of immature age available—a skull of a child of five from La Ferrassie, the skeleton of a youth found at Le Moustier, and fragments of the skull of a child, perhaps of eight years of age, from La Quina—shows that it agrees with them in the characters in which they differ from those of modern skulls of corresponding age. The measurements, which, however, must at present be regarded as entirely provisional, indicate that the skull is broader in its proportions than would have been expected, nor are the eyebrow ridges and temporal fossæ developed in the manner distinctive of Neanderthal man. The most striking feature in the parietal bone is the fact that the parieto-squamous suture, which is more or less straight in the apes and the human infant and bowed in the adult man, in the Devil's Tower skull is most markedly bowed; but instead of a regular squamous suture, with a bevelled edge, the actual edge of the bone is only recessed very slightly—a condition which is to be attributed to age and not to race. On the provisional measurements which have been made the cranial index works out at 80, a high figure which further consideration may make it necessary to correct.

In view of the very tentative character of the conclusions put forward by Mr. Buxton, it would be premature to offer any comment. Opportunity to appreciate the bearing of the discovery will occur later when the skull has been examined more carefully and the results have been made public at a meeting to be held by the Royal Society. It may be pointed out, however, in the meantime, that its importance is two-fold. It affords some degree of corroboration of the Mousterian date of the Gibraltar skull discovered in 1848 not far from the Devil's Tower site—a corroboration much needed in view of the fact that the collection of implements made at the time of the earlier discovery has disappeared; and secondly, it adds another to the number of skulls of the Neanderthal race, and, what is most important, the specimen is of an age which will add much needed information to our knowledge of the process of growth in that interesting and peculiar variety of early man.

### Adhesives and Adhesive Action.<sup>1</sup>

IN reviewing the first report of the Adhesive Research Committee, the present writer had occasion to remark on the extreme persistence of the three main types of adhesives, which documentary evidence shows to have been quite familiar to craftsmen of the eleventh century. Believers in proverbial wisdom may incline to the opinion that this familiarity, continued through generations, has indeed bred the contempt with which the subject of adhesion—with or without adhesives—is generally treated in the literature of physics. In this respect the second report breaks entirely new ground in Appendix IV., entitled

"Adhesives and Adhesive Action," by Prof. J. W. McBain and Dr. D. G. Hopkins, in which the authors attempt, with a considerable measure of success, to develop rational theories of the mechanism of adhesive action.

The first important conclusion at which they arrive is that there are two fundamentally different types of joints: those between porous surfaces and those between smooth, non-porous ones. In the first type the penetration of the adhesive, while liquid, into the pores of the surfaces to be united is an essential part of the effect. This view is borne out strikingly, apart from much other evidence, by comparison of the strengths of glued joints, made between plain and stained specimens of the same woods; the latter are

<sup>1</sup> Second Report of the Adhesives Research Committee, Department of Scientific and Industrial Research. Pp. iii. + 128. (London: H. M. Stationery Office, 1926.) 3s. net.