

(3) It reaches even the highest centres, but simply touches them and does not enter them.

(4) It enters them, but fails to bring about that physical change in them that is the invariable concomitant of every conscious state.

The first of these explanations appears to me the least tenable of all. The last explanation, on the other hand, seems to be relatively the most probable. Indeed, on purely psychological grounds I am inclined to accept it as the final solution, but I must wait and seek an explanation on strictly physiological lines.

ABDUL MAJID.

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IN reply to your inquiry for information upon the question raised by Mr. Majid I beg to say that the view of the matter which is, I think, pretty generally accepted and which I have adopted and attempted to develop in several publications (more especially in a series of papers in *Mind*, vol. xv., "Physiological Factors of the Attention Process"), is that the central nervous system consists of series of sensor-motor arcs superimposed on one another to form strata of successively higher function from below upwards; that the synapses or cell-junctions of the higher level arcs offer higher resistance in the resting state than those of arcs of lower level; that the waking state is essentially one in which the generally diffused excitement of the whole system reduces these resistances of the higher levels to such degree that excitations from lower levels can penetrate them, such penetration being impossible in the quiescent state owing to the high degrees of resistance presented by the synapses of these higher levels.

Anæsthetic drugs (as I first suggested in *Mind* in 1898) seem to abolish consciousness through increasing the resistances of the synapses; and fatigue-products probably act on them in a similar manner, thus cooperating with diminution of external stimuli to the sense-organs in predisposing to or inducing normal sleep. I know of no evidence that points towards Mr. Abdul Majid's fourth type of explanation. His letter raises an interesting question, which is by no means settled, although the type of explanation I suggest is, I think, more or less tentatively accepted by a good many physiologists; and it would be of interest to elicit some expressions of opinion.

W. McDUGALL.

Oxford, August 7.

FOSSIL MAN.¹

IN the summer of 1908 the Abbés A. and J. Bouysonnie and L. Bardon, already distinguished for their researches into the Palæolithic industries in France, made an important discovery. At La Chapelle-aux-Saints, a little south of Brive, in the Department of Corrèze, they found buried in a grave of Mousterian age a human skeleton of Neandertal type, with the head more completely preserved than in any previously known example of its kind. An inquest was held on the spot by some of the best-known "prehistorians" in France, who unanimously confirmed the observations of the discoverers. The skeleton, which Messrs. Bouysonnie and Bardon have generously presented to the National Museum of Palæontology in Paris, was entrusted by a fortunate choice to the director, Prof. Boule, and the result of his

¹ "L'Homme Fossile de la Chapelle-aux-Saints." By Prof. M. Boule. Pp. 275+xvi plates. (Paris: Masson et Cie., 1913.) Price 50 francs.

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investigations is the beautiful monograph before us.

The first chapter is devoted to a history of the discovery. The skeleton was found lying in a hollow of the rocky limestone floor of the cave, and was covered by a magna of broken bones, worked flints, and yellow cave-earth, over which followed first a layer of clay and then of loose soil containing pebbles. Among the animals represented by the bones are the woolly rhinoceros, reindeer, bison, hyæna, marmot, and horse—a characteristic Pleistocene fauna. The implements are for the most part Mousterian points and racloirs; there are a few bouchers of Acheulean type, as well as some grattoirs which seem to presage the Aurignacian; but the assemblage as a whole is typical Mousterian.

The skeleton was orientated east and west, the head to the west. Above the head were the bones of a bison's foot (a metatarsal and some phalanges) still in connection—a proof that the deposits had not been disturbed, and suggestive of much else besides.

The skull (Fig. 1), of which a masterly analysis is given, is unusually perfect, and especially in



FIG. 1.—Skull of the man of La Chapelle-aux-Saints, with the nasal bones and the dentition restored ($\times \frac{1}{2}$).

those parts which are absent from the Gibraltar skull, so that it is possible to determine the position of such important points of reference as the basion, opisthion, and bregma. The base is unfortunately incomplete, and this is the more to be regretted as the base of the Gibraltar skull, which in some respects is better preserved, presents some peculiar features not yet perhaps fully explained. In general there is a strong resemblance between these two skulls, the most marked difference, apart from size, lying in the extreme prognathism of the skull from La Chapelle-aux-Saints. Prof. Boule suggests that the orthognathism of the Gibraltar skull may be due to distortion consequent on pressure, but in the absence of collateral evidence we should be more inclined to regard it as an individual variation.

The most important characters of the skull are as follows: it is very large, especially for a man whose stature did not exceed 1.6 metres, and its capacity, measured directly by Flower's method, is 1620 c.c. The capacity of the Neandertal skull