

progress of the disease once they become phthisical. Dr. Samson suggests that in the interests of public health special regulations should be made for the control of the tuberculous prostitute; on this account the book should be read by medical officers of health.

Dr. EWALD's book on Abderhalden's reaction¹⁵ is a laborious attempt to establish the value and validity of this reaction, now much called in question, as a means of diagnosis; or, should its failure here be admitted, to prove that Abderhalden's work has at any rate enriched our theories of cellular activity. The volume is well written and full of detail, particularly with regard to the employment of the reaction in psychiatric practice.

The *Union Médicale du Canada*, which is a monthly medical journal, published in French at Montreal, has just celebrated its jubilee, having been founded in 1872; Dr. A. Lesage is the present editor-in-chief.

Before giving an order for a German book the intending purchaser should ascertain the price at which it can actually be supplied by the agent in this country.

¹⁵ Die Abderhaldensche Reaktion, mit Besonderer Berücksichtigung ihrer Ergebnisse in der Psychiatrie. Von Privatdozent Dr. G. Ewald. Berlin: S. Karger. 1920. (Sup. roy. 8vo, pp. 210. M. 24.)

THE RHODESIAN SKULL.

ADDRESS BY PROFESSOR G. ELLIOT SMITH, F.R.S.

THE ancient human skull recently discovered in northern Rhodesia, and now lodged in the Natural History Museum at South Kensington, was the subject of a remarkably interesting address by Professor G. ELLIOT SMITH, F.R.S., at the Royal Society of Medicine on January 26th, on the occasion of the President's reception.

Professor Elliot Smith, whose discourse was illustrated by lantern views and Mr. Frank Barlow's wonderfully perfect endocranial cast of the Rhodesian skull, said that hitherto anthropologists had been familiar with only three species of the genus *Homo*. All living members of the human family which were known were regarded as belonging to the species *Homo sapiens*, and only two distinct species had been regarded apart from this—namely, *Homo neanderthalensis* and *Homo heidelbergensis*. There were, however, two other more primitive members of the human family, represented by the *Eoanthropus*, or the Piltown skull, and the *Pithecanthropus*, or ape-man of Java, for the reception of which special genera had to be created. It was a very remarkable event to have one more of these species added to the genus *Homo*; moreover, this new discovery came from a continent—Africa—which hitherto had provided us with no species of man other than *Homo sapiens*.

The newly discovered skull from Rhodesia presented a number of new points for discussion. Although there was no doubt that the skull represented a distinct species, and that the face was more primitive than in any other known member of the human family, yet the remains presented every appearance of being recent. The teeth, for instance, were attacked by an extreme form of caries, hitherto regarded as a relatively recent ailment. It was true caries, not merely the opening of the pulp cavities, and in Egypt caries was practically unknown before the pyramid age. The third molar also presented a remarkable reduction in size compared with the other molars, and this had also been assumed by many people to be a relatively recent modification in man. Although the remains were commonly spoken of as fossil, the bones were not fossilized in the true sense of the term, but as their surface was coated with oxides of zinc and lead and other metals which had protected them from the influences of the soil, one could not draw any inference from the fact that they were not mineralized. The animal remains which were found in the same cave all represented modern species, which were still living in Africa. There was no geological evidence to give even the slightest clue to the period of this remarkable individual.

The skull was found in a kopje in Northern Rhodesia, more than 300 miles north of the Zambesi, and not very far from Lake Nyanza. The hillock was about 300 feet high, and was rich in ores of zinc, lead, and vanadium, and running through it from west almost due east was a long cave from the floor of which had been collected several thousands of tons of animal bones. It was obvious from an examination of these bones that many of them had been brought in by hyenas, but others

must have been handled by human beings, because there was evidence of the cracking of the bones to obtain the marrow. This process of accumulation must have taken an enormous number of years. It was not until the cave had been cleared out of animal bones that, at its extreme end, there were found the remains of two human beings, including the skull of one and a portion of the jaw of another, as well as other bones belonging to either. One of the chemists who was present at the discovery told him that an almost complete skeleton were there encased in a metallic mould of the surface of the body, but, unfortunately, the negro miners smashed up the encasement and destroyed many of the bones before they could be prevented. About fifteen years ago, when this cave was first opened, several investigators found in its floor a number of rough stone implements, so crude that one could scarcely affirm them to be artificial, were it not for the fact that the stone of which they were composed—quartzite—was not found within many miles of this spot.

The skull arrived in England in November last, the directors of the mine having presented it to the British Museum. The incrustations of zinc and lead were carefully removed by the museum authorities, and a remarkable face was revealed. The cranium was extremely low, the ridges of the brows were massive and about double the size of those of Neanderthal man, the orbits had a peculiar form, less rounded than in the ordinary skull, and a remarkable feature was the great distance which separated the nose from the alveolar process. The face altogether was extremely primitive. It bore a certain superficial resemblance to the famous Gibraltar skull in the museum of the Royal College of Surgeons of England, and further investigation had shown it to be more like this Gibraltar specimen than any other type which had been unearthed. As Gibraltar was on the threshold of Europe one would not be surprised to find a kinsman of this Neanderthal man in Africa, but the Rhodesian skull rather suggested a more ancestral type. It might be that the Rhodesian man was simply a survival of a primitive pre-Neanderthaloid race. Neanderthal man in Europe was associated with the mastodon, the woolly rhinoceros, and a whole series of animals now extinct in Europe, but some of these animals or near allies of them were still living in Africa, in the neighbourhood of Rhodesia, and it was just possible that a primitive type of man might have survived there also.

Professor Elliot Smith went on to draw attention to the enormous mass of bone in the Rhodesian specimen for providing attachment for the neck muscles. The head was not carried exactly vertically upon the vertebral column in spite of statements recently made to the contrary. In the outline of the forehead it resembled the Java skull. The teeth were very big, yet the canines did not project in the ape-like way found in the Piltown jaw. The palate was enormous. The fossil lower jaw from the Mauer sands near Heidelberg had hitherto been regarded as an exceptionally massive example of a human jaw, yet it was too short by 3 mm., and too narrow in about the same proportion to fit the Rhodesian skull. The nasal configuration was important. In the ape, and indeed in all mammals other than man, there was no clear line of division between the nose and the face. The nose simply was merged in the face to form a snout. In this skull there was also a gradual slope from the nose to the face, very much as in the gorilla; but, at the same time, there was an attempt to form a nasal spine, which one never found in the gorilla. It was probable that the Rhodesian man had a similar outspreading of the margins of the nose to that seen in the anthropoid ape, but there was also a nasal spine associated with a horizontal position of the septum, so that a definite tip to the nose was very likely formed. A face of this type might represent an intermediate condition between the apes and such broad-nosed types as the negro, the aboriginal Australian, and the Tasmanian.

Among the other remains of bones found in the Rhodesian cave was a tibia and a femur, as well as a sacrum. The tibia was perfectly straight and not curved, thus suggesting a more erect attitude than that of Neanderthal man. This had been taken as evidence that the Rhodesian man was a later type than the Neanderthal man of Europe. But if one based any argument on the tibia or femur one was met with the difficulty that the femur of the most primitive member of the human family, *Pithecanthropus*, was straighter than the Neanderthal femur. Moreover, the face of the Rhodesian was much more primitive than the face of the other. In any case the crucial evidence in determining the position of a member of the human family was the features of the brain.

¹ BRITISH MEDICAL JOURNAL, November 19th, 1921, p. 856.

Here the lecturer exhibited an endocranial cast of the Rhodesian skull, which Dr. Smith Woodward had kindly given him, and he referred to Mr. Barlow's technical achievement in making so excellent a mould under circumstances of exceptional difficulty. The endocranial capacity was 1,280 c.cm., slightly greater than that of the Piltdown skull, and much less than the Neanderthal. When controversy arose over the status of *Pithecanthropus* the Germans regarded the bones as those of a gigantic ape, English anatomists as a primitive type of the human family, and Dutch observers, as befitted their intermediate geographical position, as a kind of missing link, neither human nor simian. But the endocranial cast of *Pithecanthropus* was obviously human in type and left no possibility of doubt that the Javan fossil represented a member of the human family. The outstanding acquirement which differentiated the ape from the human being was that of speech, or the power of transmitting from one individual to another something more than the mere expression of emotion—of enabling one individual to acquire information and knowledge from another and so enhance his chances of survival. Thus the earliest types of human brain showed an expansion in the regions surrounding the auditory centre. In the Rhodesian brain, while one found the same imperfect condition of the frontal area as in the *Pithecanthropus* and *Eoanthropus*, there was also the same localized extension in the second temporal region, and the Rhodesian differed from the Piltdown in that this expansion spread to the inferior parietal region.

Generally speaking, the Rhodesian brain (when seen in profile) corresponded almost exactly with the Piltdown. The difference in size between the two casts was determined by the fact that the Rhodesian, having a very much broader base, was wider than the Piltdown, and therefore had a slightly larger capacity, but the evidence of the brain structure was quite conclusive that this individual of Rhodesia was very much more primitive than the Neanderthal race of Europe. This, of course, had no bearing on the relative ages, and it was possible that the primitive type of man survived in South Africa long after the Neanderthal type had perished from Europe. The fact that we had here a more primitive type of individual was borne out alike by the character of the face (which was much more ape-like than in the Neanderthal species) and the form of the brain. The particular regions of the brain which were obviously deficient were those areas which were the latest to attain their development in the human child—namely, the parietal area, the pre-frontal, and the inferior temporal, and of these the area most strikingly deficient was the inferior temporal. The first change which occurred in the transformation from the simian brain to the human was that which was associated with the power of articulate speech. The fundamental difference was in the territory concerned with auditory symbolism.

In conclusion, Professor Elliot Smith said that here we had to deal with a skeleton all the evidence of the finding of which suggested that it was comparatively modern in time, but extremely primitive in type—in fact, more primitive than any remains of extinct man, with the exception of the "ape-man" of Java and the Piltdown skull of Sussex. It was a type which presented extraordinary deficiencies in those parts of the brain which we associated with the higher powers of intelligence and the more subtle and delicate discriminations. A difficulty had arisen in interpreting certain features which seemed more like those of modern than of Neanderthal man, but those who argued from this that the Rhodesian was later in type failed to take into consideration that the Neanderthal had lost a great many primitive features by specialization, although these features were still found in modern man. The anatomical evidence was complete that here we were dealing with an extremely primitive type of the human family, even though it might be proved to represent a people who had inhabited South Africa until comparatively recent times. It belonged to a stage in the evolution of man before the superior parietal, the frontal, and the temporal regions expanded into the condition in which we now found them, raising up the vault of the cranium into the domed form of modern man; and the evidence supplied by the face that this was an extremely primitive type was completely borne out by the form and proportions of the brain. He added that he was shortly bringing before the Royal Anthropological Institute a more exhaustive study of this subject.

We are indebted to Dr. John Hunter for the tracings of the four endocranial casts by which this report is illustrated.

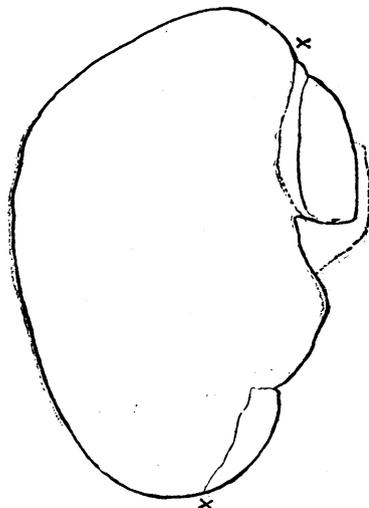


FIG. 4.—MODERN EUROPEAN. Tracing of profile view of endocranial cast of skull of modern European. One-third actual size. Cranial capacity, 1,370 c.cm. The crosses indicate the subcerebral plane.

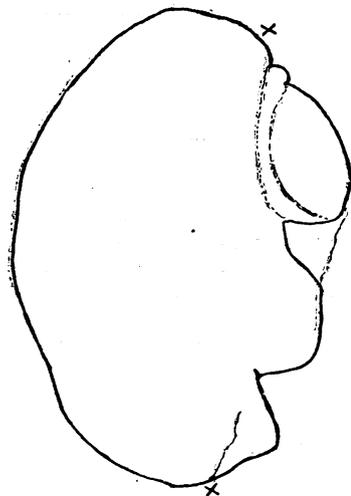


FIG. 3.—NEANDERTHAL. Tracing of profile view of endocranial cast of skull of Neanderthal. One-third actual size. Cranial capacity, 1,625 c.cm. The crosses indicate the level of the subcerebral plane.

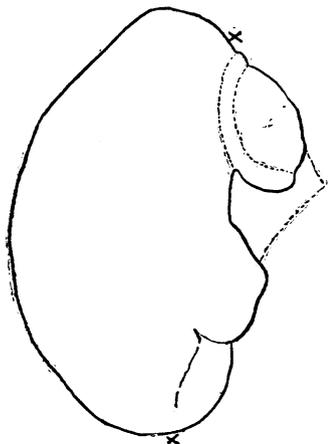


FIG. 2.—RHODESIAN MAN. Tracing of profile view of endocranial cast of skull of *Homo rhodesiensis*. One-third actual size. Cranial capacity, 1,280 c.cm. As before, the crosses indicate the subcerebral plane.

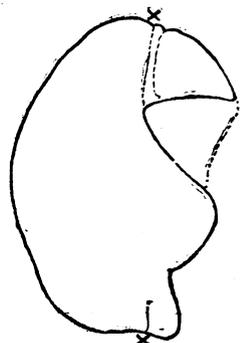


FIG. 1.—GORILLA. Tracing of profile view of endocranial cast of the largest gorilla skull in the Royal College of Surgeons of England. One-third actual size. Cranial capacity 500 c.cm. The crosses in this and succeeding diagrams indicate the subcerebral plane.