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THE ORIGIN OF MAN.

REMARKS THEREON

BY

PROFESSOR RUDOLPH VIRCHOW.

As President of a gathering of the German and Vienna Anthropological Societies, recently held in Vienna, Professor Virchow made the following remarks upon *the Anthropology of the last twenty years*; and, considering the many theories in regard to the origin of man that have been put forward, and the far-reaching and somewhat startling arguments that have been founded thereon, even during the past few years, an English translation* of the calm utterances of so impartial and careful an investigator will not be deemed out of place in this journal.

After alluding to the recent labours of Anthropologists in Germany and Austria, Professor Virchow referred to the importance attached by them to the question of nationality, and said:—

“ You all know that from the Anthropological point of view the question of nationality stands in the foreground: we must always start from existing data; for us things do not float in the air, as with the zoölogists who are concerned only with habitat, which has a second place with us; we Anthropologists begin with nationality; until we know a person's descent, from whom he is derived, and what is his origin, he is not a legitimate subject for investigation. The same is true in examining every human skull.

* From the *Correspondenz-Blatt der deutschen Gesellschaft für Anthropologie*.—ED.

For the instant, indeed, even an unknown skull may be an interesting object of enquiry, but from the point of view of scientific research it first receives importance when inserted in a local frame *τίς, πόθεν εἰς ἀνδρῶν*. This is the natural question not only with the ordinary man but also with the Anthropologist. If, for example, we start with craniology, it is exceedingly difficult to make discoverers understand, that what we lack is not skulls, but skulls of definite persons, and definite races. Only with the knowledge of the tribe or the person begins the Anthropological interest. A skull as such, is for us often tedious, even odious, and we either cannot use it at all or only very little. It begins in a manner to exist for us when it confesses its nationality, this is indubitable. But we must not forget that our ideas of nationality are attached primarily to existing relations. This loses its worth the further we go back, till gradually we reach those times, in which nationalities capable of proof are not known at all. Indeed, if we ascend to the prehistoric domain in the stricter sense, every idea of nationality ceases, the thing begins to be abstract. We must first construct a nationality; and finally names are sought for, which, however, are only designations for a certain period, in themselves without worth, and of which a later age will know nothing. When we hear of a race of Cannstatt or of a race of Cro-Magnon, it has the appearance of a profound wisdom; nevertheless, I hope that a time will come when men will no longer speak after this fashion. Even in the present it is often very hard to determine the nationality. To be sure we may succeed pretty well when we visit an island in the Pacific: there nationality is in full bloom, there the people are palpable, there every one knows that he is a national being, with whom one can reckon, and go to work, and it fares with us as with zoölogists, who, from a single animal skull, or at most from a few, can reconstruct an entire genus, at any rate even from a single skull demonstrate the craniology of an entire species. Yes, if we could every time in a single human skull read the history of the whole tribe, that would be agreeable and convenient; but unhappily we only too often fall into the region of variations, and these variations are not seldom so considerable that we lose all basis for the construction of nationalities. Then we turn for recreation to some place in the Pacific which is of more scientific than political interest; there we do indeed find the

analoga of the 'good' races of animals, namely, races grown up on a small scale, presenting definite peculiarities, in whom one can see at once what special characteristics they have. They really do possess a definite type of their own.

"Unhappily we can seldom do as much with continental tribes, least of all with those great aggregates, which we choose to call nations in a political sense. It would be the business of days to discuss the question of European nationalities.

"Here I would only observe how little we Anthropologists are entitled to place the point of view of narrow nationality in the foreground of our investigations. We know that every nationality that concerns us—among them the German as well as the Slavonic—is of a composite nature and that no one at present can say from what original tribe they have been developed." (After reviewing archæological progress in Austria and Germany, he continued):—

"I will not say that the present endeavour to fix the origin of the Aryan race in Germany or Belgium, as has been suggested, should be helped by assuming that the race of Cannstatt or of Neanderthal (a long-headed population) represents the central stock. At present we know nothing certain about that. I may perhaps remind you that lately the prehistoric character of that much discussed skull of Cannstatt has been made very doubtful, and that it certainly does not fit into the hoar antiquity to which our French neighbours assign it. This connection must be given up. The difference of view, to which I would call special attention, lies in this, that *archæologically we must ascribe greater importance to international intercommunication in ancient times than has hitherto been done.* In proportion as this conviction gains ground, a higher worth will be assigned to all links in the chain of evidence which shews that civilization has been transmitted in definite directions.

"I personally have greeted nothing with greater joy than the discovery of those great fields of graves, which have been opened under the direction of several inquirers, especially Messrs. De Marchesetti and Szombathy, in the most southern part of the Austrian Alps, on the coast and in Istria. Thereby a significant chain of new links has been inserted into the old system of transmissions. We shall soon have the gratification

of hearing original lectures on this subject. In this place, therefore, I would specially indicate the point—that these discoveries appear most valuable in one respect, that they represent international prehistoric intercourse (not migrations, that we cannot know), and show the ways which civilisation once followed. I believe they will also tend to awaken somewhat greater modesty and amiability in international intercourse, than is sometimes found where the feeling of nationality is over-excited. If the different tribes would learn more to recognise one another as independent fellow-workers at the great tasks of humanity, if all had the modesty to acknowledge the merits of neighbouring tribes also, much of the contention that moves the world would disappear.

“The revolution which has taken place in the department of Anthropological investigation is far greater than that in the department of Archæology.

“When we met in Innsbruck twenty years ago, just at the time when Darwinism had made its first victorious march through the world, my friend, Karl Vogt, who, with his usual vivacity, had thrown himself into the ranks of the combatants, had, by coming forward in person, secured a decided advantage for Darwin's views. It was then hoped that the idea of descent in its extreme form would be victorious, sharply defined and developed, not by Darwin, but by his followers. For it was not with Darwin, but the Darwinists, we had to do. There was general expectation that man's descent from the ape or from some other animal would be demonstrated. This was the claim set up, and posted in the van. Every one knew of it, was interested in it, spoke for or against it; it was held to be the greatest problem of Anthropology that waited solution. Here may I remind you that Natural Science, so far as it is Natural Science, can be concerned only with actual objects. A hypothesis may be discussed, but it only attains importance when actual proofs are brought forward in its favour, either through experiment or direct observation. This, at least in Anthropology, Darwinism has not, up to the present time, succeeded in doing. In vain have the links which should bind man with the ape been sought; not a single one is to be recorded. The so-called *Fore-Man*, the *Pro-anthropos*, which should represent this link, has never yet been found. No man of real learning professes that he has seen

him. For the Anthropologist, therefore, the Pro-anthropos is not an object of discussion founded on fact. Perhaps someone may have seen him in a dream, but when awake he will never be able to say that he has come across him. Even the *hope* of his future discovery has fallen far into the background, he is now scarcely spoken of, for we live not in a world of imagination or dreams, but in an actual world, and this has shown itself extremely unyielding. At the time that we were together in Innsbruck, it seemed as if in the storm it might be possible to prove the course of descent from the ape or some other animal to man. At present, to our pain be it said, *it is not even possible for us to show the descent of single races from each other.*

“It was not then known that it is no easy matter to prove that man is the brother of all other men, and yet men made efforts to teach how all the various races are connected together. Men were inclined, from among the human remains in ancient caves, such as the caves of the valley of the Maas, to select certain skulls and skeletons as normal types, and from these to reconstruct the primeval race. One party said:—‘this race was Mongoloid,’ indeed there were many who asserted this; others declared that primitive men were Australoid; and just as they happened to hold Mongolians or Australians to be the lowest in the scale of races, so, they held, must the first Europeans have appeared. We have not, however, yet found the original European; possibly, he may yet be found. At present we only know that among archaic men none have been found that stood nearer the ape than men of to-day. The ancients were thoroughly well-formed men; they bore no characteristic marks which we do not meet with in the present day among living peoples. There is not a single one of them of ever so degraded a constitution that we could say, *e.g.*, that he shows the lowest form of skull. Twenty years ago little was known of the forms of skulls of the lowest uncivilized tribes.* That was one reason why men judged somewhat over-hastily. On the other hand there were the boldest ideas of what the physical constitution of low races was. Men had no clear idea of the constitution of the Patagonians, Esquimaux, etc. At present there is hardly one entirely unknown race upon the earth.

* *Naturvölker.* Dr. Leitner remarks:—“Literally ‘Nature’s races,’ as distinguished from peoples living in a state of civilization.”—ED.

There is still one single place in the world where there is a slight possibility of new discoveries—that is, in the Peninsula of Malacca. We have an energetic agent at work there. From certain statements, it seems that the natives there may, in some measure, correspond to the demands made for the lowest race. Elsewhere we know them all. Patagonians, Esquimaux, Bushmen, Veddas, Laplanders, Australian, Polynesian and Melanesian islanders, have gradually become known, and of many among them we really know more than of European peoples. If, for example, you compare some of these islanders with the Albanians, I may say that there has been far more investigation into the physical constitution of the Polynesian natives than into that of the several Albanian tribes. So then, all these uncivilized tribes, who stand so low in their intellectual development, have been gradually discovered to us. Of most of them we have seen good typical examples, even in Europe, of whose entire organism the most exact observations have been taken: not a few have died in Europe, and thus have been made the subjects of exact investigation. For instance, we possess more exact investigations of the brain of the Patagonian than of the brain of civilised Asiatic peoples. From all these investigations it is clear that among all uncivilised tribes there is not a single one that would stand so near, or at all nearer, to the ape than to us. But the following is the usual calculation by which the systematic naturalist describes the limit between species and genera. When he finds that the sum of the characteristics of the one equals the sum of that of the other, he draws a line by which both are separated from neighbouring species or genera. But if the sum of the characteristics are unequal, he separates them by a line, making them distinct species or genera. Such a line we always make in favour of the individuality of man. Each living race of men is still purely human; none has yet been found that can be affirmed as ape-like or half-ape-like. This is the great difference of our present experience.

“I will, however, remark, that among men also there is a set of phenomena which has been designated as ‘apish’ (*pithecoïd*). I myself have never been blind to the existence of certain formations, which could not be simply made intelligible as mere disturbances or obstructions in development. For example, to take a special case, the higher apes often display a peculiar

development of the skull, and that in the region of the temples. There, as in man, under the surface among the muscles different bones meet. From below, the great wing of the sphenoid bone with its upper edge is attached to the parietal bone (*os parietale*); the squamosal part of the temporal bone, on which the ear is seated, borders on this part posteriorly, and anteriorly the frontal bone. All four bones converge here in such a way, that the *os parietale* and the wing of the sphenoid bone, lying upon one another hold apart the temporal and frontal bones; they thrust themselves between, so that the latter cannot meet. But in the higher apes the temporal bone often throws out a long process forwards as far as the frontal bone, and thus separates the *os parietale* from the wing of the sphenoid bone. This is a characteristic and extremely striking distinction, which is of great importance, because, as a rule, nothing of the kind occurs in man. There are, however, individual men in whom this phenomenon, usual in the higher apes, is also found. If now we examine in large collections of skulls, and draw up statistics, the result is, that certain races shew this phenomenon oftener than others. So far as our knowledge extends, we are acquainted with three races in whom this occurs not very seldom. In the first place the Australian and the African, *i.e.*, black races; and then the yellow race in the Malay archipelago, especially dispersed over that chain of islands which connects New Guinea with Timor, and to which join on the Moluccas in the North, Australia in the South. I have lately discussed* a set of Alfuren† skulls from Tenimber, among which this peculiarity appeared in several instances. At the same time another peculiarity was found, which I will briefly mention: it is the enormous formation of the jaw, most prominent in the strongly projecting edges of the arch of the jaw and in the teeth. With this projection (*prognathy*) is generally connected a great curving of the nose inward, not seldom with a very extreme flattening, as though some one had sat upon it; the bones of the nose in some cases had

* *Verhandlungen der Berliner anthropologischen Gesellschaft*, 1889, p. 177.

† *Alfuren*, or *Haraforen*, a name given by the Dutch to the wild natives of the interior of Celebes and other islands.

grown together into a single bone, which elsewhere is scarcely found in man. These are forms peculiar to apes, especially to catarrhine apes. The catarrhine nose therefore is a kind of pithecoïd element (*Theromorphy*). This is found more frequently no doubt in certain places, and one might conceive that there perhaps there may have been nearer relations to the apes. Nor is it without importance, that of anthropoid apes, the gorilla and chimpanzee, have their home in Africa, the orang and the gibbon in the Indian archipelago.

“But if you ask further: may not the Australians and African negroes, may not the Malays and Alfuren, be themselves the missing links, which lead to the bridge between man and ape, no one can answer with an absolute No. Why should it not be possible? But from possibility to reality there is a very long step; even all else that constitutes an ape. For it is not merely the process of the temporal bone, the catarrhine nose and the prognathic jaw, that make an ape, but many other characters are necessary to constitute him. *First of all, we can demonstrate an ape from every strip of hide.* No anatomist, I suppose, has ever doubted the fact. Indeed, the distinctions between man and ape reach so far, that almost every fragment suffices for a diagnosis. Here much is wanting to the proof of descent. Hence if I keep in view the problems of the future, I would insist on the necessity, precisely within the regions above indicated, of far more searching investigations in respect to earlier development. As the first and most important requisite I would lay down investigations on a larger scale into *the prehistoric man of Australia.* In Indonesia especially many researches still need to be made. If *anthropologically trained physicians* reside there permanently and carry on investigations, there may perhaps be forthcoming essential and important evidence. But up to the present such evidence is wanting; if we would study the history of man, our evidence is limited to what is offered by the ancient graves, a couple of caverns, the lake dwellings and the present time.

“I must not, however, conceal from you that the investigations of all known burial-places and lake dwellings and caves have always revealed to us men of whom we need not be ashamed. We can recognize them as full brothers. Through the kindness and help of Swiss colleagues, it was possible for me to make a com-

parative investigation of almost all extant skulls from the Swiss lake dwellings; with the result that at the time of the lake dwellings we meet with distinctions between various tribes which probably followed one another on the scene. But among these tribes not a single one is found that would be outside the lines of the physical form of peoples of to-day.

“ At present we cannot say whether all races come from a single human pair or from many. That is not a subject of knowledge in the domain of Natural Science. We must, therefore, leave it to each one to decide that for himself. We make no objections to one who, on religious grounds, decides for a single human pair. We must acknowledge the possibility that all races and tribes, by change, may have come from one human pair; but it has not yet been demonstrated that negroes came from white ancestors, or that a white posterity came from negroid ancestors. That has never been seen. No object of actual observation shows such a change. Where a black race is found, there the naturalist assumes black ancestors; and where a white tribe appears, the natural presumption is that it always was white. Yet that is a presumption that cannot be directly proved. The proof is wanting that a people or a tribe can be so changed in its physical constitution.

“ We see this in Egypt. I thought that I could obtain some evidences of the change of the Egyptians in historic time by comparative investigation of the living with the remains and likenesses of the dead. I returned with the conviction that, so far as historical and prehistoric evidences reach, so far as man has been discovered, ancient Egypt and its neighbouring lands have not essentially changed their populations. If Menes really existed, he certainly saw negroes; for very ancient wall-pictures portray the negro and his unmistakable physical individuality. The real Egyptian people offer few *data*. The Egyptian of to-day possesses just the form of the ancient Egyptian. Unfortunately, Egyptian skulls and skeletons do not carry us back as far as desirable. As yet, no prehistoric skull has been found in Egypt. As yet, no one has ever seen a skull contemporaneous with the first three dynasties. Hence, there is no possibility of direct verification. Still, the verification with positive certainty does go quite far back, beyond 3,000 B.C.; that is, 5,000 years from the present. During this long time the only difference that has appeared is

that between the brachycephalic man of the old empire and the dolichocephalic and mesocephalic man of the new empire. At all events, the definite proof is given, that, from the beginning of the new empire (1,700 B.C.), no change of type worth mentioning has taken place. Thus the permanence of types is assured for at least 35 centuries.

“There is nothing improbable in assuming a certain influence of climate and occupation. *In this there is no difference between the severest orthodox and Darwinists of purest water.* Their thesis is the same. The one goes back to the first man, the others go beyond the first man to the nearest pair of beasts. That is the only difference. Both assume the transformation of the original man into various races. But the one cannot scientifically prove its thesis for man, nor can the others prove their thesis for the ape. If you ask me, Were the first men white or black? I must say, I do not know. We have no proof for such a decision: there is no place in the world where this has been made clear. That, for instance, in France in the time of the Troglodytes, pure negroes with curly hair existed, and that from these came white, straight-haired men, is not provable. Besides, I cannot discover how and where that could have taken place. The most ancient objects display great diversity. It sounds very plausible to say that the North makes men blond. But in America, where similar relations obtain, it has not made men blond. Not only the old Germans, but also the Finns, of Mongolian origin are fair; how they have become blond while the other Mongols remain black or very dark, is a question we cannot answer. It should not be forgotten that the linguistic elements stand in no correlation with the external physical appearances. On the contrary, they are to each other like the frontal process,* which may come out strongly as the only characteristic, without its following that all other characteristics correspond to this peculiar one. So one cannot say that behind a clear skin the same arrangement of the internal organs is always found. There may be great differences.

“On this point I have, from the first appearance of Darwinism, endeavoured to modify the teaching of heredity. I recognize

* *Stirnfortsatz.* Frontal prominence.

heredity, but I have always insisted and do now insist that, *with man, all heredity is partial. A general heredity in the zoological sense, where all characteristics are preserved from generation to generation, is not to be found among men.* If botanists have begun on the basis of local variations to make subordinate divisions, to fix individual sub-species within the same species, variations with inherited characteristics, nothing is easier than out of these sub-species to make new species. But this circumstance, that within the same species many individual variations occur, and that within the same species some peculiarities are transmitted as inherited, only proves that *the same individual may inherit various heredities.* Thus it is known that one may inherit peculiarities from father and from mother, and so unite in himself a *double heredity*; he may show peculiarities that correspond to the characteristics of his grandfather or grandmother, whilst he shows other characteristics that belonged to his parents. *In the same individual there is united a sum of partial inheritances, which are limited to smaller or greater parts.* There may be many such portions, but that all portions agree cannot be proved. Only with twins does it sometimes occur that, except by the most careful observation, they cannot be distinguished. When they are distinguished, it must be by special marks." (After referring to one or two examples of heredity, Professor Virchow continued):—

"We do not know certainly how far the sphere of heredity reaches. By reason of this uncertainty the matter of human relations is very largely complicated. That, for instance, human development may be influenced by climate and other circumstances of life, is probable, although at present no cogent reasons prove that existing men were able to change themselves wholly. We know of no fact that proves with certainty that the local climate could change any men to that form of man native there.

"Thus far have we retreated in our knowledge. You will say, That is strange! in the last twenty years you have gone back, you know less than the people of twenty years ago! I agree that, in fact, we know less, but it is our pride that we have so far clarified our knowledge that we know what we really know. Twenty years ago men did not know so much; they only 'believed they knew.' We have now made this pretended knowledge the subject of scientific test. Natural Science has taken possession of its domain,

and we can now say—Much that was formerly set forth is no more allowable; it has continued in faith, but to Science it does not belong.”

*** To the Reverend Professor J. E. B. Mayor, M.A., of Cambridge, special thanks are due for his generous and valuable aid in regard to the foregoing translation.—THE EDITOR.