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ANTHROPOLOGY

## Low-Browed Cave-Men Called Grandparents

By FRANK THONE

It may be, after all, that Neanderthal Man was our ancestor, and not merely a remote uncle who died long ago, leaving no descendants. It is quite possible that this ancient and primitive race, whose low-browed, heavy-jawed skulls have been found in many places in Europe, and lately also in Palestine, had a part in the evolution of the human race as we know it today.

So says Dr. Ales Hrdlicka, eminent anthropologist of the U. S. National Museum.

In a noteworthy address delivered a short time ago in London, where he received the Huxley Medal, the highest honor that his English fellow-scientists have in their gift, this noted American student of the Science of Man challenged the widely accepted view that the Neanderthal type was merely a side branch of the human race, which had its day of dominance in Europe but was suddenly and completely wiped out by newcomers of an entirely distinct human species with a totally different culture. In a painstaking survey of all the evidence so far in hand, he has been unable to find anything like clear proof that this race vanished as abruptly as is commonly assumed; and there are growing indications of transition between the culture of the last Neanderthals and the first men of the modern type, where the same cave was occupied for many generations and many layers of refuse, containing discarded weapons and utensils, were built up on the floor.

The Neanderthal race has been a subject of scientific dispute ever since the discovery of the first skeletal remains was announced. This was in 1857, and the find was made in the Neander Valley in Western Germany. The German word for "valley" is "thal"; Neanderthal man, therefore, is simply the Man of the Neander Valley. Like the ancestors of many



*WAS HE OUR ANCESTOR? Homo Neanderthalensis, the Neanderthal man, as restored from his skeletal remains. Dr. Hrdlicka says that he was one of our direct ancestors, not an uncle*

a later man of prominence, he got his name from the place where he lived, though he wasn't christened until long after he was dead. As a rule, anthropologists name prehistoric races after the places where they first find their remains and the tools and utensils they once used.

When the first skeleton, with its astonishing skull and bones, was found in a cave in the right cliff of the Neander Valley, it caused a furor. Some authorities of the time, among them Rudolf Virchow, the great anatomist and pathologist, re-

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fused to believe that the skull was normal. It was a freak of nature, they said; or the individual to whom it had belonged had either been diseased or congenitally deformed. Only Thomas Henry Huxley, friend and champion of Darwin, stood out against this hue and cry, upholding the right of this extinct man to his proper place in the sun.

Later discoveries proved Huxley to be in the right. Other skulls were discovered, a score or more of them. They all had the same primitive structure, but in different degrees. They were all found in the same group of strata, associated with instruments of certain types and with the bones of extinct animals of the latter third of the glacial period. These freakish skulls were all of the same geological age, but their period was one of long duration. One skull might conceivably have been a freak, but when there were twenty, all more or less alike, backed up with evidence that they all lived in the same stretch of geological time, it was plain that they represented a fair set of samples of the population of Europe and the adjacent territories at that particular period. So the Neanderthal Race became an established unit in anthropological science.

Now the pendulum swung toward the other end of its arc. Instead of trying to deny the existence of this extinct race, it was set up by many as a distinct species, entirely separate from modern man. Neanderthal man got his name translated into Latin: *Homo neanderthalensis*, as distinguished from modern man, or *Homo sapiens*. (The *sapiens* tacked to our own name means "wise"; it is conjectured that Linnaeus wrote that down with his tongue in his cheek.) This separate Neanderthal species, men said, branched out from the main family tree, and when the first wave of modern men invaded Eu-

rope, presumably from Asia, to which, as the least known, all human origins are habitually referred, they simply wiped out the whole inferior species and supplanted it. This is the most widely held view even today of the history of Europe some 100,000-50,000 years ago. It was a Great Old War that lasted possibly for centuries, but ended in the total extinction of one of the combatant species.

This is the view that Dr. Hrdlicka seriously challenged in his Huxley Memorial Lecture, and he cited a dozen European authorities, beginning with Huxley, holding out against the majority opinion.

In setting forth his own views, Dr. Hrdlicka was careful to emphasize the present incompleteness of the records which do not justify very positive and dogmatic expression on the part of any one, whatever side of the debate he may support.

"The problem of Neanderthal man, as it now exists, presents the following uncertainties," said Dr. Hrdlicka. "It is not yet known just where and when and how he began, and how far eventually he extended geographically; it is not yet definitely known just who he was and what were his phylogenetic relations to the man that succeeded him; and it is not known plainly just why and how he ended, and whether or not he left any progeny. Besides which there are still but more or less vague notions regarding the exact length of his period, his average physique, his variations and subraces, the reasons for his relatively large brain, his changes in evolutionary direction. And there are other uncertainties. It thus appears that, notwithstanding his already numerous collected remains, the Neanderthal man is still far from being satisfactorily known to us taxonomically, chronologically and anthropologically.

"This state of uncertainties, and

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## Neanderthaler Our Grandparent?

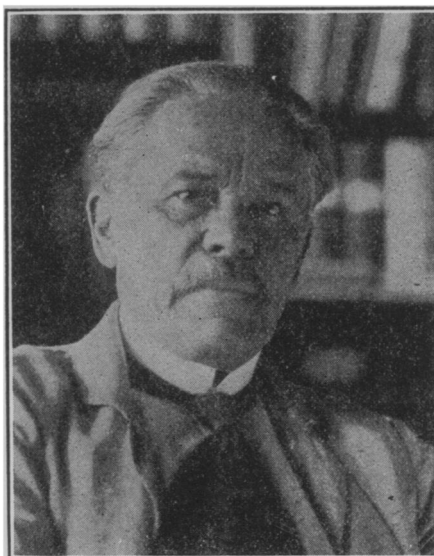
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of paralyzing notions concerning one of the main early phases of humanity, is a serious obstacle to further progress, and deserves all possible attention. Thus even if, without further material, it is possible to do little more than to bring perhaps into the subject a greater degree of order and comprehensiveness; to point out here and there facts that have not been sufficiently weighed; and to call attention to some of the inconsistencies in the prevalent assumptions."

For the purposes of his discussion, Dr. Hrdlicka identified Neanderthal man with the people and culture known to science as Mousterian. This name again is derived from a place, Le Moustier, in France, the scene of discovery of a Neanderthal skeleton associated with implements and bones of a clear-cut and definite type. For Dr. Hrdlicka Neanderthal man and Mousterian man mean the same thing; "Mousterian" is a little more convenient because the name has a single well-understood meaning, whereas there has been some tendency to associate the name "Neanderthal" with several different types of cultural relics. The Mousterian was the last of the subdivisions of "pre-modern" time. When it passed into the next period, the Aurignacian, the first of the modern-looking skeletons of the Cro-Magnon type appears.

It was on the line between the Mousterian and Aurignacian remains, and on the assumption that this line marks a sharp and abrupt division between two utterly alien races and cultures, that Dr. Hrdlicka trained his artillery of scientific criticism. He calls in as witnesses the bones of contemporaneous animals, the geological condition, the location of the dwellings and the remains found in them, the type of tools, the primitive drawings and sculpture found on the rock walls; and, finally, the skeletal remains of man himself.

"Mousterian man begins during the latter part of the last great interglacial and extends deep in the final glacial time, without perceptible direct relation to the fauna. His remains at Montieres, Villefranche, Ehringsdorf, the rock shelter Olha, some of the Mentone caves, and elsewhere, show still the remains of the ancient elephant, the Merck's rhinoceros, the large lion, and the panther. On the other hand, various arctic species come in as the cold advances during the Mousterian,



DR. ALES HRDLICKA, famous anthropologist of the U. S. National Museum, who says that we are descended from the Neanderthal race

without marking either its beginning or its end.

"There is, therefore, no definite line of faunal demarcation for the beginning and none for the end of the Mousterian period. Which, as will be seen later, are also facts of some importance.

"Geological information about the Mousterian period is not as precise or full as might be desirable; but it permits of several valuable conclusions.

"A survey of the better known Mousterian sites, from Germany and Belgium southward, shows that fully one-third of them were in the open, while of the remainder quite a few are found in and about shallow rock shelters that could not have afforded much protection. In Switzerland, moreover, the earlier Mousterian man lived in caverns at a high elevation (Wildkirchli, 4905 feet; Drachenberg, 8023 feet). All of which indicates that the climate during a considerable part of the Mousterian period was not severe enough to generally drive men into the caves, or even down from the mountains, thus pointing to interglacial rather than glacial conditions.

"The cultural remains of the Mousterian in the open stations as well as those in caves, denote both considerable age and long duration of the period. In the open the remains lie mostly in old gravels or sand, rarely in clay or loess, or in travertine rock laid down in old lake bottoms. There may be two or three cultural strata or horizons, indicating a repeated occupation of the same site after shorter or longer in-

tervals; though there have not been found so many occupational layers as in some of the caves.

"Neither paleontology nor geology explain the Neanderthal man; let us see what we may learn from archæology.

"The essential archæological questions are, how does Mousterian man differ in habits and arts from the man that preceded him, and from him that followed; and are the differences, or are they not, substantial enough to brand him as something apart from either his predecessors or his followers?

"The chief activities of man in nature relate to his housing, to the obtaining and preparing of food, and to the manufacture of his tools, utensils and weapons. Let us see briefly how the Neanderthal man compared in these respects with his forebears and his followers.

"There is a prevalent idea that the Neanderthal man was essentially a cave dweller, and this idea seems generally to carry with it a sense of inferiority. The records now available throw a different light on this matter. Analysis of 360 better-known paleolithic sites in Europe and the neighboring regions show some curious and important facts. Man begins seemingly as wholly a dweller in the open; but since the warm Chellean already he commences also to utilize the rock shelters and caverns, and then as the climate cools he gradually takes more and more to the caves. In these phenomena the Mousterian period shows nothing striking, nothing individual. It falls harmoniously into the curve of the progress of cave dwelling, to be followed equally harmoniously by the Aurignacian and the succeeding periods. Mousterian man occasions no disturbance in the human housing conditions of the time, and what is even more striking, no disturbance or change whatsoever is occasioned by the advent of the Aurignacian. The Aurignacian man follows in the footsteps of his predecessor without any interruption. Like the Neanderthaler, he builds, in the open, huts of perishable materials that leave no trace, and he utilizes the caves exactly as much and eventually even more than the Neanderthal man. He continues, in fact, on the same sites and in the same caves that the latter has used, without introducing any innovation. He also, like the Neanderthal man, leaves here and there a whole series of occupational strata, which testify to much the same habits of life. Yet

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the Aurignacian man is represented as as newcomer, of a different species from that of the Neanderthal, and mentally vastly superior.

"The Mousterian period is characterized by a definite phase of stone industry, but so are all the periods before and after it. It has no abrupt beginning. It uses flint where this can be had, as do all the other industries; where flint is absent or scarce, it employs quartzite and other stones. The use of bone begins in the Mousterian, to increase henceforward. The period shows three stages of evolution, the lower, middle and upper, as do also later on the Aurignacian and the Magdalenian periods. The implements range from crude to beautifully made; the technique is partly different from, but in general not inferior to, either the late Acheulean or the earlier Aurignacian. And there are indications that there was no sudden ending.

"On the whole, the Mousterian industry, though characteristic, does not give the evidence of something entirely new and strange, intercalated between the Acheulean and the Aurignacian, beginning abruptly by displacing the former and ending suddenly through displacement by the latter. There is in fact much at either end that appears to be, more or less, of transitional nature.

"The Aurignacian period does not appear to come in full fledged, as is sometimes taken for granted, but to develop locally, both in industry and art, from humbler beginnings. It may, moreover, be unjust to assume that the Mousterian man was devoid of art sense. He may not have left any designs in caves (though that is not perhaps absolutely certain), but the same is true of the Neolithic and many other early as well as later populations. That the Mousterians may not have been lacking in artistic sense is indicated by some of their beautiful implements from La Quina and other stations, by the decorated bone fragment from La Ferrassie, and possibly by the *pierres-figures*, and used chunks of manganese oxide, found occasionally in the Mousterian deposits."

Finally, Dr. Hrdlicka wants to know, where did this hypothetical invasion of a new and superior people come from?

"The sponsors of the notion that the Aurignacian man was a man of different and superior species to the man of the Mousterian period, conceive him for the most part, appar-

ently, as an invader who has come from somewhere outside of the Neanderthal area, overwhelmed completely the established less capable species, and annihilated or at least wholly replaced it, over all the great domain over which it once extended. These ideas, however, are never expressed very clearly and little thought is given to the incongruities they involve.

"They would imply, first of all, the invasion of Europe during the height of the last glacial invasion. This is not in harmony with the main laws of human and biological spread, namely: Movement in the direction of least resistance; and movement in the direction of better material prospects, which are first of all climate and food. In the entire history of Europe the movements of men have tended always toward a place in the sun and away from the cold.

"Such notions postulate, next, large numbers of the newcomers, to suffice for the vast task. But such large numbers would necessarily mean somewhere near a still larger mother population. And there is no trace, either in western Asia or northern Africa, the only regions from which such invasions at those times would have been practicable, of any such Aurignacian population.

"It is a very serious question whether in the paleolithic times, without a tamed animal, without stocks of non-perishable food, dependent wholly on hunting without lance or the bow and arrow, and in the imperfect social organization of that time, any larger armed invasion was feasible. A peaceful extension, on the other hand, would not lead to the annihilation or expulsion of the invaded population, and if small or gradual, would lead to an amalgamation with, rather than the extinction of, the native stock. A complete displacement by any agency is difficult to conceive, and there would remain the fate of the displaced people.

"It stands to reason that these great difficulties must be satisfactorily explained away before there can be a general intelligent acceptance of an Aurignacian invasion with Mousterian extinction."

When he comes to the most crucial point of all, the evidence presented by the human skulls and bones themselves, Dr. Hrdlicka is by no means convinced that this Neanderthal-Mousterian race lacked all links to connect it with the proud "modern" man who succeeded it. "Typical" skulls indeed show the high, near-gorilla like eyebrow

ridges, the heavy jaw with receding chin, the low-topped brain case, the primitive teeth and other features that mark it as definitely below the level of present-day men. But certain of the skulls, especially among the more recent well authenticated discoveries, depart from the strict orthodoxy of Neanderthal structure. In some the eyebrow ridges are less pronounced; some have bigger, higher and more modern brain cases than their fellows; the recently discovered Galilee skull, the even later second Gibraltar and the very recently discovered Weimar skull, have distinct marks of advance towards the cranial type of the man of today. These variations indicate, Dr. Hrdlicka states, a state of active evolution in this race, which therefore may well be regarded not as an old species ready for extinction, but as a *phase* or stage in the development of man, ready to give rise to another, the modern type. *Homo neanderthalensis* moves thereby back to the main stem of the human family tree, and becomes simply the Neanderthal phase in the evolution of *Homo sapiens*, which seems entirely more natural.

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Birds' bills sometimes become worn, as men's teeth do.

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The malaria mosquito is a dreaded enemy of the eastern rubber planter.

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The catch of king salmon in California has fallen off so that the future of this fish is threatened.

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A method of sheathing radium to prevent the rays from causing burns has been developed by Mme. Marie Curie.

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A new green food dye from coal-tar is to be officially approved as safe for eating purposes by the government.

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One-fourth of the rain that falls in the forest is caught by tree leaves and branches, and most of it never reaches the soil.

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The Age of Bronze was ushered in when ancient men learned to produce a hard serviceable metal by mixing tin with copper.

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A stone ball shot from a Roman catapult during the Roman siege of Jerusalem has been found there in excavating the third wall of the city.