

# FOSSIL MAN

BY PIERRE TEILHARD DE CHARDIN

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WITHIN half a century opinions on the antiquity of man have varied as rapidly and completely as the economic and social conditions in which we live. Only seventy years ago no one could be found to admit the existence of humankind prior to the few thousand years registered in written history, no one to understand the significance of the chipped stones which strew our soil, no one to observe the paintings which in Périgord and in Spain cover the walls of the caves. Today the museums and libraries are filled with collections and publications concerning prehistoric times; learned institutions and societies are founded for the investigation of fossil man. The most uninitiated and the most opposed to the new science find it altogether easy to believe that our ancestors lived with the mammoth and made their appearance on the earth at a date which Boucher de Perthes did not dare even to suggest.

No one was better qualified than M. Boule, professor of paleontology at the Paris Museum, to observe the aspects and establish the exact state of this important alteration of our perspective on bygone ages. Oriented by his researches, which have always drawn him to the study of fossil mammals, by a fortunate concurrence of circumstances which placed him at the very centre of the developments in the study of prehistoric

times and caused the most remarkable human fossils to pass through his hands, and by the necessity in which he found himself, as editor of the review, *L'Anthropologie*, to follow all the publications on fossil man which have appeared for thirty years, M. Boule is probably the one scientist in the world who possesses the largest acquaintance with the beginning of the human race. All those who know the seriousness of the problem of origins will be grateful to him for having set forth in an admirably clear and superbly gotten-up book, the essentials of his vision of the past.\*

*Hommes fossiles* will certainly captivate the great public. As the author desires, however, it will also please students and professional anthropologists, to whom it brings, together with selected bibliography, the principles of research and criticism which have been long in ripening, and a great systematization of facts, massive enough to discourage the beginner if there were no one to direct him. Among these students the specialists in philosophic and religious thought might well be numerous. From this time on, no one will be capable of legitimate speculation on the historical beginnings of our race, if he has not taken cognizance of a book where the results, definitive or provisory, of science are at length brought before him, not only with exceptional competence, but with a fine spirit of conciliation, and—in this I may render a personal tribute—with an absolute good faith.

\*Macellin Boule, *Les Hommes Fossiles. Elements de Paleontologie Humaine*. Paris, Masson, 1921. 40 francs.

After an historical sketch (rich in psychological lessons) telling how man has little by little become conscious of the remoteness of his origin, (chapter I) M. Boule's first care is to acquaint his reader with the stratigraphic methods which permit the establishment of a relative chronology in the Quaternary Period (utilization of marine oscillations, alluvial and glacial formations, and deposits in caves.) (Chapter II.) This explained, he sums up what we know of living and fossil apes and monkeys, the extraordinary antiquity of their zoological groups, and the anatomical characteristics by which they are differentiated from man. (Chapter III). A whole chapter is devoted to the study of the *Pithecanthropus* of Java, which is finally classed as a large gibbon with a skull larger than that of any other known ape. Chapter V, occupied with the discussion of the problem of coliths and the Tertiary Period, declares the absence of all indubitably human remains prior to the beginning of the Quaternary. It is only after having laid down these solid bases that the author approaches directly the description of fossil man.

The most ancient men known, date from the relatively warm period which preceded the last advance of the glaciers in Europe. The stone utensils of this pre-glacial man, cover almost all the earth; but the bony fragments of him which we have (the jaws of Mauer and of Taubach and the Piltdown skull) (Chapter VII) although highly suggestive, are miserably fragmentary. The true fossil man, in the present state of our knowledge, is the man of the last glacial period, the Mousterian, or Neanderthal man, the two finest known specimens of whom M. Boule has personally made known—that of

Chapelle-aux-Saints, and that of Ferrassie. This last is described for the first time in the work which we are here reviewing. The seventy pages devoted to the study of the Neanderthal man (Chapter VIII) are the fundamental part of the book. They should be read very attentively by whoever wishes to form a serious opinion on the subject of fossil man.

In the Neanderthal man we grasp, in a sense, the last fringe of true fossil humanity. Immediately after him, that is to say, after the height of the last glacial period, the study of prehistoric times begins to reach some men who, even though belonging to certain types represented today mainly by savages (the Grimaldi man, the Cro-Magnon man, and the Chancelade man) are already plainly true man, the *Homo sapiens* of the zoologists. As much by their artistic temperament as by the characteristics of their bones, the men of the age of the reindeer (Aurignacian, Salutrian, Magdalenian), (Chapter VIII) are to be placed on the verge of modern times.

In a highly original chapter (Chapter IX) M. Boule attempts to establish, across the confusion of neolithic times, a link between these last representatives of the paleolithic, and modern humanity. Three principal human groups divide the western world today: to the north that of *Homo nordicus*, large, blond, and with longish (dolichocephalic) skulls; to the south that of *Homo mediterraneus*, small, dark, and also with a longish skull; finally, between these two, pushing out like a wedge, that of the little dark men with round skulls (brachycephalic), *Homo alpinus*. To the gradual appearance of these three types in Europe, to their probable role in the building of the modern world, and

to their possible identification with the most celebrated peoples of ancient history, M. Boule devotes some pages, the more enticing because they serve as a tie between our own lives and a fossil past from which we might think ourselves wholly severed.

*Homo nordicus*, who must have come from Russia or Western Siberia, and spread the Aryan language, is the common stock from which have sprung the Celts, the Achaeans, the Scythians, and later, the hordes of almost all the barbarian peoples. To *Homo mediterraneus*, civilizer and inventor of metallurgy, one may assign the Egyptians, the Phoenicians, the Etruscans, and the Iberians; to *Homo alpinus*, the invader from Central Asia, (probably in historic times) the Sarmates, the Hittites and the Slavs. Tentative and often fragile identifications, and yet how useful to suggest and direct research!

After having studied fossil man in Europe, M. Boule, in the next-to-last chapter, sums up and makes clearer what we know on the same subject outside of Europe: very little, but enough to enable us to hope for much more. In America, no doubt, man appears to have neither his point of origin (nothing remains of the pre-humans of the pampas of Ameghino, *Prothomo*, *Diprotomo*), nor even,—as a result, perhaps of a blockade of the continent by glaciers from the North—so venerable an antiquity as elsewhere. But in all the other continents traces have been found (mainly tools and weapons) of men contemporary with animals which have since vanished. Rarer in Australia—a land cut off from the rest of the world since the Cretaceous, where man seems to have penetrated only at a relatively late date—these traces are numerous in India, and they cover

the African continent. Africa, and it will soon perhaps be necessary to add Eastern and Central Asia, when the enormous Quaternary deposits of China shall have been explored.—These are the great laboratories where humanity must have been formed. Europe, the centre of modern civilization, has never been, in ages past, anything but a byway where the great movements of life, born on the breadth of these continents, went to die.

The brief summary which precedes makes it possible to appreciate the rich documentation of M. Boule's book and the logical structure of what he writes. Since it is not possible for me to enumerate here all the conclusions, even the most important, at which it arrives, I wish at least to deduce from its reading certain results which seem to me of especial interest.

Before everything else, it is today scientifically demonstrated that there are human fossils—fossils by the very ancient age of their bones, which are found mingled with the remains of animals either long since emigrated or extinct; fossils by their anatomical characters, which distinguish them from all races of man now living. The best known among them, the Neanderthal man, has a face far less reduced than ours, a chin scarcely more formed than that of the man of Mauer, and a skull morphologically placed, in an extraordinarily exact way between those of *Pithecanthropus* and modern man. Although highly specialized in themselves, these characters are altogether remarkable for their fixity. As one would find in comparing the excellent photographs given by M. Boule, the seven or eight skulls of the Neanderthal type which we know, resemble one another in a striking way. These are the tokens which a naturalist cannot mistake.

*Homo neanderthalensis* chipped flint, made fire, perhaps buried the dead; he was therefore intelligent. But in the category of reasonable—that is to say, human—beings, he constitutes a zoological type quite distinct from other species. As M. Boule observes, his paleontological interest is greater than one would be led to think by a single examination of the rather late geological level where he is found. The Neanderthal man is himself archaic, a late survivor. He represents, indeed, in the glacial epoch, a witness to more ancient human strata.

The Neanderthal man does not seem to have left any posterity. He disappeared, replaced by more intelligent and more vigorous races which, no doubt, for a long time were developing parallel with him in some region of the globe unknown to us. He was 'relayed.' It is important to comprehend this mechanism of 'relays' (according to which the living groups which historically succeed one another, reproduce themselves less often than they are replaced laterally), first because it is one of the most general laws of life (a law which operates at every instant in the social development of modern humanity) and then because it makes it possible to comprehend at what degree, in the eyes of the paleontologists, biological evolution takes the form of a long and intricate process.

There was a time when one might expect to grasp easily the points of connection and separation by which zoological species had been derived from one another. Today, examining things a little closer, one sees that the morphological resemblances—mistaken for bifurcations in the line of descent—are often nothing but points of overlapping or of replacement.

The men of the age of the reindeer no more descended from Mousterian man, and he is no more directly connected with *Pithecanthropus*, than the Europeans established at the Cape or in Australia are sprung from the Bushmen and the Tasmanians. The group of human beings, like that of any animal group, reveals itself, upon analysis, to be of extreme complexity. Evolution is no more to be represented in a few simple strokes, for us than for other living things; but it resolves itself into innumerable lines which diverge at such length that they appear parallel. These lines are certainly bound together in some way (we are more and more sure of that) but so far down the scale that we are not able to see.

Nothing gives this impression of 'distance' better than the following fact, upon which M. Boule rightly insists. Dating from the higher Pleistocene (end of the last glacial epoch) or from a period at least as remote, we find three races of man in Europe (Grimaldi, Cro-Magnon, Chancelade) and, outside of Europe, we also possess three series of human remains: certain skulls from the pampas (Argentina), the Talgai skull (Australia), and the Boskop skull (Transvaal). Well, the man of Grimaldi is a negroid; the man of Cro-Magnon represents a type which seems to persist in Western Europe in our days; the Chancelade man resembles an Eskimo. The skulls of the pampas, of Talgai, of Boskop, on their side, have respectively the characteristics of the American Indians, of the Australians, and of the Africans; that is, they possess already the human type peculiar to the continent where they are found. This shows us that from the paleolithic (even from the lifetime of the Neanderthal man, perhaps)

there were already the white, black and yellow races, occupying in general, the places where we see them today. It is not merely the human zoological type, it is humanity itself, which is prehistoric. From the time when we begin to be able to distinguish its traits, we find it fixed in its fundamental distribution. If the mere location of our kind is already so ancient, how far shall we have to go to find the temporal and spatial centre of its radiation! The disconcerting complexity and antiquity of the movement from which we issued—this, according to M. Boule, is the great lesson of the study of prehistoric times. These perspectives, so beset with obscurity, may seem deceptive or insignificant to those who open *Les Hommes fossiles* only to look naively for the date of man's appearance or his precise genealogy. For all that, these perspectives are by their correspondence with the results to which any study of matter or life leads us, the most worthy of emphasis. Every day, it is true, man becomes less easy for science to explain. But this difficulty is due to the very fact which we are beginning to understand best.

To create a pre-history, as all now see, it is not possible to confine our study to a few tribes; the investigation of humanity's past is joined to an effort at a far greater visual adjustment, which should restore the true perspective, the true relief of the geologic past as a whole. Whoever seeks the material sources of humanity encounters the general current of life.

By its history, our race is a whole, it is one body with the world which carries it.

This latest pronouncement of human paleontology is the last word of what it knows and what it does not know.

It ought to satisfy all those who, whether from the intellectual inclinations or religious convictions, require unity in the world about them.

In order to express the force of this unity, M. Boule employs, here and there in his remarkable chapter on his conclusions, some expressions which, such as they are, could not enter into Christian thought and which will as a result hinder his book from going, without interpretation, into the hands of all.

May the philosophers and theologians who encounter these debatable phrases not be willing to let themselves be impressed by the words, but seek to transpose into orthodox language scientific teaching, the general outlines of which, still under a heavy veil of conjecture and hypothesis, appear to conform to reality.

The letter of the Bible shows us the Creator fashioning the body of man from earth. Conscientious observation of the world tends to make us understand today that by that 'earth' must be understood a substance slowly elaborated by the totality of things,—in the sense that man, we should say, has been evolved not exactly of a little shapeless matter, but by a prolonged effort of the whole 'Earth.' In spite of the serious difficulties which still keep us from reconciling them with certain more commonly received accounts of the creation, these views, familiar to Gregory of Nyssa and to Saint Augustine, need not disturb us. Little by little, without our yet being able, to say exactly in what terms, but without our losing a particle of what has been given or revealed or definitely demonstrated, the conflict between science and dogma on the burning question of human origins will be reconciled.

# RUSSIAN PEASANT STORIES

BY DR. A. VON LOWISOFF MENAR

*[The following stories, taken down from the lips of their reciter, are said to be typical of those which circulated orally over large parts of Russia.]*

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A PEASANT, a gypsy, a Jew, and a German, agreed to travel through the world together in order to acquire knowledge. So they set forth. Night overtook them in a forest. There in its depths they discovered a hut. They said: 'We'll go in and beg our lodging for the night.' They entered the hut where they found the *Baba-Yaga* (the evil witch of Russian fairy lore) sitting on a bench, her eyes starting out of her head with terror. 'What do you wish here, my strange fellows?' 'Ah, little grandmother, let us spend the night under your roof.' 'So far as I am concerned, but bear in mind that the deluge is due tonight.' 'Be that as it may, we must stop here,' said the peasant, 'for there is no other place to be found.'

Thereupon, the peasant lay down to sleep on the bench, the Jew on the table, the gypsy crawled above the stove, but the German suspended a big trough by a rope under the table, and lay down in it, thinking that if the flood came, he would cut the rope and float away.

The peasant, who was hungry, got a piece of meat out of his haversack, and was quietly eating it. The Jew noticed that the peasant was eating meat, and asked a piece for himself. The peasant gave him some saying, 'The meat is raw. If you want to eat it, go to the gypsy.

He smokes a pipe, and you can broil it over the pipe.' The Jew licked his lips and said to the peasant: 'Ay, that will be a delicious roast.'

After a time, the peasant said to the Jew: 'Have you broiled your meat?' 'Yes, indeed!' 'But did you put out the fire?' 'Why, no!' Thereupon the Jew seized a pail of water and threw it over the gypsy. The latter began to howl in terror: 'Ay, ay, the flood!' The German heard him, and cut the rope by which his trough was suspended, and tumbling to the floor, broke nearly every bone in his body. You see from this story what a shrewd fellow a German is.

## II.

A Russian and a Tartar were riding together across the country. It so happened that they had to spend the night in the open. They cooked a dish of gruel and debated who should watch the horses. The Russian's horse was light gray and poor. The Tartar's horse was black and a splendid animal. The night was very dark. So the Russian said to the Tartar: 'I do not need to watch my horse. Every time I wake up, I can see it anywhere; but you would not dare to sleep because you will have to keep an eye on your black horse.' However, the Tartar had no desire to keep watch, so he