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## SENECA AND NERO.

### II.

In 62, Burrus died, and Seneca knew that the newer and coarser favorites (*Tac. Ann.*, 14, 52) were incessantly intriguing against him, charging particularly against him the enormous wealth he had amassed, the magnificence of his parks and villas, and that he disapproved of Nero's appearing in musical monologs and in horse-racing. The emperor was old enough, they urged, to dispense with his preceptor. Seneca requested permission to retire from public affairs. The emperor accepted his resignation, but refused to take back to himself the wealth which he had bestowed upon him who had been foremost in his affections (*praecipuus caritate*).

But three years were left to the brilliant Corduban, years which he largely spent far from the madding crowd and from the insincerities of a courtier's life. More than half of Seneca's extant prose writings, inclusive of his enquiries into physical phenomena (*Quaestiones Naturales*), were composed by the retired minister of state in these three years. He resided often on his estate near Nomentum, not far from Rome, or on the Gulf of Naples.

He was now indeed an old man, and was bent on living what little span there might be largely in company with his better self, and cheered by the company of his second wife, Paulina, a lady sprung from the aristocracy of Rome. The greater and better part of these readings must deal with the thinker and moralist, and largely be made up from his own

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## “HOW OLD IS MAN?”

### THE NEANDERTHAL MAN.

Mr. Roosevelt discusses the Neanderthal man, next in line of “prehuman predecessors of ours,” with a wealth of detail which argues close acquaintanceship. He writes: “These Neanderthal men were squat, burly, thick-skulled savages, with brows projecting over cavernous eyes, knees permanently bent, and jaws almost chinless. Their brains were of good size, but the portions which represented the higher intellectual attainments were poorly developed. . . . They were a low race of men, distinctly human, but far nearer the beast than any existing race.” More detail is added regarding the fashioning of tools, their hunting-grounds, and cavern-life. Again we ask, What basis of fact underlies these confident assertions?

The Neanderthal skull was found in 1856 in the neighbor-

hood of Duesseldorf by Dr. Fuhlrott, of Elberfeld. When the skull and other parts of the skeleton were exhibited at a scientific meeting held at Bonn the same year, a wide divergence of opinion at once developed among the specialists. By some, doubts were expressed as to the human character of the remains. Others held that the remains indicate a person of much the same stature as a European of the present day, but with such an unusual thickness in some of them as betokened a being of very extraordinary strength. Dr. Meyer, of Bonn, regarded the skull as the remains of a Cossack killed in 1814! Other scientists agreed with him. Modern Science accepts the antiquity of the Neanderthal man, but the controversy has never ceased. Mr. Roosevelt admits that Darwin practically ignored this discovery, "though it was exactly the 'missing link' he hoped to find." The great Virchow declared the peculiarities of the bones to be the result of disease. Mr. Roosevelt chides Virchow for his "wrong-headed insistence, which delayed for a full generation the full understanding of its importance." However, when, following Osborne, Mr. Roosevelt terms the Neanderthal race "distinctly human," "human beings" (p. 125), he is not supported by Schwalbe, who in his standard work on the subject (*Der Neanderthalschaedel*, 1901) says that this species, though extremely ancient, is "distinctly not human" — "ist ausserhalb der Variationsbreite des Menschen,<sup>4)</sup> weil er eine groessere Anzahl von Merkmalen aufweist, die keine der ausgestorbenen oder jetzt lebenden Rassen des *Homo sapiens* besitzen. *Er ist eine besondere Art,*" a distinct, independent species. In the article "Mensch" in Meyer's *Konversationslexikon* the man of Neanderthal and Krapina (referred to hereafter) is called a type quite divergent from recent man — "ein Typus, der von dem rezenten Menschen durchaus abweicht." An authority on organic evolution, Professor Cope, thinks that the Neanderthal specimens are *specifically* different from *Homo sapiens*, because the Neanderthal skull "has a smaller brain-cavity, a retreating forehead, and also a retreating chin." He thinks the Pithecanthropus of Du Bois "may go with *Homo*

4) "Beyond the range of the variability of the human type."

*Neanderthalensis*, though its chin is not known." 5) Here it should be stated that an entire group of scientists believe, on the evidence of the Piltdown skull, that the prehistoric race from which we are descended never became so bestial as the possessors of the skulls found at Neanderthal, at Spy in Belgium, and La Chapelle-aux-Saints in France are believed to have been, and that the latter belonged to a branch of the race which gradually degenerated, until it finally became extinct, while the other and superior branch kept on improving until man as we know him gradually developed.

However, the "bestial" character of the Neanderthal remains is by no means admitted on every hand. Near Liège, in Belgium, not more than seventy miles from the Neanderthal, the Engis skull was found. After careful measurements it was proved not to differ materially from skulls of modern Europeans. This fact should prevent us from making any assertions respecting the primitive character, in race or physical conformation, of these cave-dwellers. Indeed, Prof. Huxley, in a very careful and elaborate paper upon the Neanderthal and Engis skulls, places an average skull of a modern native of Australia about half-way between those of the Neanderthal and Engis caves. Yes, he says that, after going through a large collection of Australian skulls, he "found it possible to select from these crania two (connected by all sorts of intermediate gradations), the one of which should very nearly resemble the Engis skull, while the other would somewhat less closely approximate to the Neanderthal skull in size, form, and proportions." And yet, as regards blood, customs, or language, the natives of Southern and Western Australia are probably as pure as any race of savages in existence. In fact, it would,

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5) In other words, Mr. Cope, unquestionably a man competent to speak on matters concerning speculative science, believes that the Pithecanthropus and the Neanderthal man might well have been coeval. According to Mr. Roosevelt's authorities, they were separated by a chasm of at least 350,000 years, "conservatively figured." How may any one speak with such assurance as Mr. Roosevelt when leading theorizers are so far apart in their estimates? (See Cope, *The Primary Factors of Organic Evolution*, Open Court Publishing Co., 1896.)

no doubt, be possible to find in Europe or America among persons of abnormal underdevelopment, such as idiots, skulls of a formation which would match that of the Neanderthal.<sup>6)</sup> "The Engis skull, perhaps the oldest known, is," according to Prof. Huxley, "a fair average skull, which might have belonged to a philosopher, or might have contained the thoughtless brain of a savage." In this opinion Mr. Huxley is supported by one of the greatest anthropologists of his time, Daniel G. Brinton, who says concerning the cave-men of France and Belgium: "Neither in stature, cranial capacity, nor in muscular development did these earliest members of the species differ more from those now living than do these among themselves. We have no grounds for assigning to these earliest known men an inferior brain or a lower intelligence than is seen among various savage tribes still in existence."<sup>7)</sup>

Confusion has become worse confounded since Prof. Gorjanovic-Kramberger, of Agram, found the remains of ten prehistoric individuals in Krapina cave in Croatia, Austria. Professors Schwalbe and Klaatsch produced facts which "prove positively" that the Krapina skull is of a type much lower than the lowest human skull of to-day, and represents a creature separated from the man of to-day by a far greater difference than was the difference between him and the ape. Dr. Hagen writes: "Our organs of speech, particularly the tongue, are governed by a group of muscles which are fastened to a little double-pointed growth of bone on the inside of the chin. In the anthropoid ape, who lacks the power of articulate speech, we find a *groove* in that place instead of a growth of bone. That same groove we find in the man of Krapina." But there is still a difference of opinion concerning several very important points. The Belgian scientist Fraipont believed that the Krapina skeletons showed that this man could not walk upright, or at least did not walk upright habitually. Other scientists say that the study of the bones does not justify this

6) Keary, *The Dawn of History*, p. 8.

7) *Universal Encyclopaedia*, VII, p. 470.

opinion. The teeth of the skulls found at Krapina are of immense size, greater even than those of the ape, and in some respects differing from the dentation of modern man. These divergencies have convinced the scientists that, whatever the age of the Krapina specimens, *they do not constitute the "missing link" between the brutes and man.* "Their facial features were certainly animal-like, being even behind the ape in the absence of forehead and chin. The conclusion that this creature was not merely different from recent man in kind, but actually different in species, is unescapable."

#### HAS THE MISSING LINK BEEN FOUND?

In all this we note a truly formidable conflict of first-class authorities. Mr. Osborn, whom Mr. Roosevelt follows, pronounces the Neanderthal man "distinctly human," "human beings." Schwalbe, the greatest specialist in this field of research, says: "This species is distinctly outside the field of human variability; it is essentially a distinct species." In this, Schwalbe has the support of the professional evolutionist Cope. Yet Cope would have the Neanderthal man go with Pithecanthropus, whom Roosevelt makes 350,000 years ("conservatively figured") older than the Neanderthaler. Others hold that the latter is a degenerate type of man. Huxley says it resembles the skull of some Australians in size, form, and proportions, and in this he is supported by Brinton. Others again classify the Neanderthal remains with the Krapina specimens, which, however, differ in the immensely important factor of dentition from modern man, and must, by "inescapable conclusion," be regarded specimens of a creature radically different from recent man. How, in view of this clashing of opinions, can Mr. Roosevelt say that he is presenting a summary "of all that has been discovered and soundly determined"? He calls the Neanderthal man the "missing link." "Not our ancestor," "savages lower than any existing human type,"<sup>8)</sup> yet "exactly the missing link which

8) This in flat contradiction to the opinion of Huxley and Brinton, above quoted.

Darwin hoped to find" (p. 125). How does this square with contemporary scientific opinion? No one can read Mr. Roosevelt's article and escape the impression that not only one, but many missing links have been found. There is an outline of development from the Pithecanthropus through Pilttdown and Neanderthal to the ancestors of *Homo sapiens*. Let us ask: What basis is there for the assumption that these missing links have been found, that the genealogy of man has been traced?

The unanimous opinion of evolutionistic science is that none of the remains found in so-called Tertiary deposits, in the Pliocene, or even in the Pleistocene strata of the Quaternary age, supply the missing link in the evolution of man from the brute. The fossil remains are either plainly related to the brute, as when the bony process in the lower jaw, which is necessary for the growth of a human tongue, is missing, or they are quite evidently the remains of men that differed in no essential from recent man, *Homo sapiens*. *The link that connects the two has not been found.* This is the verdict of science.

Dr. Beck says in *Der Naturmensch*, Vol. III, p. 53: "The presence of man in the Tertiary period is not sustained by the facts." Alfred Russell Wallace, cooriginator with Darwin of the "Darwinian theory," quotes Huxley as follows in his book *Darwinism*:<sup>9)</sup> "In conclusion I may say that the fossil-remains of man hitherto discovered do not seem to me to take us appreciably nearer to that lower pithecoïd form, by the modifications of which he has probably become what he is." "Certain California remains of Pliocene man," Wallace continues, "give no indication of a specially low form of man; and it remains an unsolved problem why no traces of the long line of man's ancestors, back to the remote period when he first branched off from the pithecoïd type, have yet been discovered." On another page Wallace again expresses his wonderment at the fact that there is a "complete absence of human or prehuman remains in all those deposits which have furnished in such rich abun-

9) 1889, p. 307.

dance the remains of other land-animals." (*Darwinism*, p. 309.) Wallace refers to the Pliocene period, the same age of which Mr. Roosevelt so confidently asserts that during this time "developed the primates, from which came the monkeys, the anthropoid apes, and finally the half-human predecessors of man himself." Where is the proof? The statement is unsupported by a shred of tangible evidence. Speaking of the oldest skulls, Wallace says: "What is still more extraordinary, the few remains yet known of prehistoric man do not indicate any material diminution in the size of the brain-case."<sup>10</sup> The latest finds substantiate this opinion. Mr. Roosevelt makes no reference to the human skeleton found in the African Pleistocene, the Oldoway man. This remarkable fossil was found in the Oldoway gulch in northern German East Africa, in 1913, by an expedition of the Geological Institute of the University of Berlin. The remains consist of a complete skeleton, which was found deeply imbedded in firm tufa. Unquestionably ancient as these remains are, — the bones are completely fossilized, — they have contained lamentably "few primitive characteristics," and hence have not been exploited in the interest of the evolutionary theory. A fragment of skull, a tooth, a thigh-bone, offer much more inviting fields to the evolutionist, since they permit his imagination to range without the restraint of fact. The Oldoway fossil, which is in every essential respect a normal human skeleton, possesses no special attractions for those who would represent man as a descendant of brutish ancestors.

Says Prof. Virchow<sup>11</sup>): "We seek in vain for the missing link. There exists a definite barrier separating man from the animal which has not yet been effaced — *heredity*, which transmits to children the faculties of the parents. We have never seen a monkey bring a man into the world, nor a man produce

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10) This, as has been shown by the cubic measurements quoted above, applies even to the Javan specimen of Dr. Dubois.

11) Quoted by Fairhurst, *Organic Evolution Considered*; Standard Press, 1913.



a monkey. All men having a Simian appearance are simply pathological variants. It was generally believed a few years ago that there existed a few human races which still remained in the primitive inferior condition of their organization. But all these races have been objects of minute investigation, and we know that they have an organization like ours, often, indeed, superior to that of the supposed higher races. Thus the Eskimo head and the head of the Terra del Fuegians belong to the perfected types." "All the researches undertaken with the aim of finding continuity in progressive development have been without result. There exists no proanthrope, no man-monkey, and the 'connecting link' remains a phantom." Dr. Berndt, of Berlin, says in a recent contribution to a scientific journal: "Since Dr. Dubois's *Pithecanthropus erectus*, once so far famed, must without question now be excluded from the direct genealogy of man, at least of European man, we must admit that there is *no link* which really bridges the chasm between the manlike animals (as, *e. g.*, the living chimpanzee and the fossil *Pliopithecus*, the *Dryopithecus*, and others) and even the most primitive men (as, *e. g.*, the Australian of to-day or the prognathous of the Ice age, the Neanderthal or Heidelberg man)." <sup>12)</sup> It had been suggested by some that in the *Dryopithecus Darwini*, referred to by Dr. Berndt, a fossil ancestor of man had been found. However, also this hope of the evolutionists has been dashed. The *Encyclopaedia Britannica* says <sup>13)</sup>: "It has been suggested that it is clearly related to man, but this idea is discountenanced by the great relative length of the muzzle and the small space for the tongue." Thus every new find, upon investigation, proves the truth of Virchow's words: "We must really acknowledge that there is a complete absence of any fossil type of a lower stage in the development of man. Nay,

12) *Naturwissenschaftliche Rundschau der Chemikerzeitung*, April, 1914. This very recent testimony is interesting also for its assigning of true human characteristics (with Huxley, Brinton, Wallace) to so-called Pleistocene remains, such as the Neanderthaler, whom Mr. Roosevelt classes with the half-beasts.

13) Vol. XXII, p. 336.

if we gather together all the fossil men hitherto found, and put them parallel with those of the present time, we can decidedly pronounce that there are among living men a much greater proportion of individuals which show a relatively inferior type than there are among the fossils known up to this time. . . . Every positive progress which we have made in the region of prehistoric anthropology has removed us farther from the demonstration of this theory." Not one of these loudly heralded missing links has stood the test of scientific investigation, but has either been recognized as undoubtedly Simian in character or has been ranged by competent anthropologists with some existing human type. There is so far not a scintilla of evidence for the evolution of man from the beast, of which Mr. Roosevelt so glibly speaks: "The evolution of man from a strong and cunning brute into a being having dominion," etc.

According to the view adopted by Mr. Roosevelt, the Neanderthal race died out, and "these savages, lower than any existing type, were supplanted by the tall, finely built Cro-Magnon race of hunters, who . . . belonged to the same species of man that we do—*Homo sapiens*." He believes that an interval of at least 25,000 years separated the immigration of the Cro-Magnon race from the appearance of the Neanderthal race. Once more we ask, What are the ascertained facts which underlie these definite assertions?

So much is true that in certain caves in France the remains of an earlier race of inhabitants have been found, mixed with bones of land-animals now extinct. Also, on the walls of these caves and on stones and bones these cave-dwellers engraved with no mean skill outline drawings of bisons, reindeer, mammoth, horses, and the like. Beyond these unquestioned facts we again move in a maze of contradictory opinion, of which the *National Geographic* article once more contains no hint. According to the article on Caves in the *Encyclopaedia Britannica*, the skeletons found in these French caves are not the remains of the artists whose work was found in the same chambers; yet, according to Mr. Roosevelt's article, just this

is the case. It was at one time supposed that these cave-men had well-developed animal characteristics. This idea is now given up, and instead of assigning to them an age of 100,000 years, as did Schmerling and many others, most anthropologists are satisfied with a period of 12,000 to 15,000 years, though some remains found in French caves were regarded as no more than 4,000 years old by Spring and Buckland. Indeed, drawings of human features have recently been found in the cave of La Colombiere, which in no wise resemble the traditional cave-man physiognomy. They are described as follows: "The head is large, the forehead round and prominent, rising slightly obliquely. The face is long, and is distinctly projected forward; the chin is prominent, the nose long and very thick." When the drawings of animals made by these cave-dwellers are pronounced intensely realistic by all who have seen them, are we not permitted to conclude that the features of human beings portrayed in these caverns come close to the general appearance of men in that remote age? Yet the features described by Messrs. Mayet and Pissot (1913) can be duplicated a thousand times on a walk down Broadway. There is not a trace of the animal in the drawings which they show in facsimile.

Mr. Roosevelt refers especially to the Cro-Magnon man, and supplies an illustration showing him in his cave in the act of drawing a bison on the wall. The Cro-Magnon man is described in the article as a race of hunters, "who in intelligence evidently ranked high." Yet competent investigators have held that the Neanderthal man and the Heidelberg man, which Mr. Roosevelt classes with the brute-links in the descent of man, were of the same race as the French cave-dwellers. In his lectures on Nature and the Bible Dr. J. W. Dawson, the well-known geologist and principal of McGill University, classes the Cro-Magnon, the Engis, and the Neanderthal skulls as "Palaeocosmic skulls." Of the Cro-Magnon cave remains he says: "The brain-case is very long, more so than in ordinary modern skulls, and this length is accompanied with a great

breadth, so that the brain was of greater size than in average modern man; and the frontal region was large and well developed. In this respect this most ancient skull fails utterly to vindicate the expectations of those who would regard prehistoric men as approaching the apes. . . . The celebrated Engis skull, believed to have belonged to a contemporary of the mammoth, is also *precisely of the same type*, though less massive than that of Cro-Magnon; and lastly, even the somewhat degraded Neanderthal skull, though inferior in frontal development, is referable to the same long-headed style of man, in so far as can be judged from the portion that remains. Let it be observed that these skulls are probably the oldest known in the world, and they are *all referable to one race of men.*"<sup>14)</sup> This opinion of Dawson, who was an expert craniologist, surely outweighs that of an amateur, who merely sums up the theories of one group of scientists, and passes them off on the public as "soundly determined" fact. Indeed Quatrefages, the great French anthropologist, believes that the Cro-Magnon people were of the same stock as the large-limbed and shapely Kabyles (Berbers) of modern Mauritania! Virchow says: "The old troglodytes, pile-villagers, and bog-people prove to be quite respectable society. They have heads so large that many living people would be only too happy to possess them."<sup>15)</sup> And Le Conte cites the French authority on cave-men, M. Lartet, concerning the skeletons found in the Aurignac cave to this effect: "This was formerly a family or tribal burial-place; in the cave, along with the bodies, were placed funeral gifts in the form of trinkets and food; the funeral feast was cooked and eaten on the level space in front of the cave; carnivorous beasts gnawed the bones left on the spot. It is evident that the Aurignac men *practised religious rites which indicated a belief in immortality.*"<sup>16)</sup>

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14) p. 171.

15) Quoted by Samuel Harris, *The Philosophical Basis of Theism*. Scribner's, 1892, p. 460.

16) *Elements of Geology*, p. 596.

## MAN AND THE PRIMATES.

It is evident that in answering the question, "How old is man?" Mr. Roosevelt has taken counsel with a naturalist who has adopted the most extreme opinions of modern scientists, and that he has represented much controverted subjects as if they were the assured results of science. It should be said, however, that in one point Mr. Roosevelt is in agreement with the consensus of modern theorizers on the antiquity of man: all hold that man is the product of an evolution extending over aeons of prehistoric time. We cannot leave this subject without briefly investigating the grounds upon which this assumption rests.

Mr. Roosevelt says: The mammals "developed along many different lines, including that of the primates, from which came the monkeys, and anthropoid apes, and finally the half-human predecessors of man himself." (p. 112.) Here again the distinguished writer adds to a doctrine generally held by scientists certain features which by no means reflect orthodox university belief of to-day. Let us concede that biologists are now nearly unanimous in the conclusion that there has been some kind of evolution; yet they are very doubtful as to its *rationale*, its causes, and the probable lines of phylogeny, or the "tree of life." No reputable scientist, be he geologist, palaeontologist, anthropologist, or biologist, would state the matter as Mr. Roosevelt states it, that "*from the primates came the monkeys, the anthropoid apes, and finally the half-human predecessors of man himself.*" True, Haeckel's *Natural History of Creation* contains a complete and circumstantial history of human ancestry in twenty-two stages of existence, from the unicellular Monera up to perfect Man. But Du Bois-Reymond many years ago declared Haeckel's genealogical tree (*Stammbaum*) to be "as authentic in the eyes of the trained naturalist as are the pedigrees of Homer's heroes in those of an historian." Thereby Du Bois-Reymond incurred the bitter and unappeasable wrath of Haeckel, yet there is no scientist to-day who does not, with Du Bois-

Reymond, as against Haeckel, reject the notion that animal forms as they are to-day can actually be traced through fossil ancestors to the original, simple cell.

We may go a step further. The best authorities are no longer unanimous in classifying man biologically with the order of Primates.<sup>17)</sup> Science gives increasing weight to the opinion

17) Mr. Roosevelt seems to distinguish the anthropoid apes, the monkeys, and man from the Primates. He refers to "the Primates, *from which came the monkeys,*" etc. Now, "Primates" has in biological language always included monkeys, apes (*i. e.*, tailless monkeys), and man. Huxley divided the Primates into seven families, among them man being the first. Max Weber originated the classification: Anthropoid Primates, with suborders Simiæ (species: Man, apes, baboons, monkeys), and Prosimiæ (lemurs). Prof. Dorn, of Fort Wayne, informs us that neither Brehm's *Tierleben* nor the *Cambridge Natural History*, the greatest works on zoology in German and English, respectively, draw a distinction such as Mr. Roosevelt appears to draw, between Primates and the order which includes man and the apes, but use "Primate" as a class name for Lemuroidea and Anthropeidea (monkeys, apes, man). Mr. Roosevelt's employment of the term "Primates" is so very unusual that we took occasion to make inquiry by letter. Under date of May 8, Mr. Roosevelt replied as follows: —

"MY DEAR SIR, —

"That sentence seems to me to be clear. At any rate, what I meant was that one of the original mammalian lines was that of the Primates, which originally consisted of low lemuroid forms. From the original stem the monkeys broke off at some date when the anthropoid apes and the predecessors of man were still part of the same stem. Then this second stem divided, the anthropoid apes splitting from the branch which led to the half-human predecessors of man. In other words, I regard these half-human predecessors of man not as descendants from the anthropoid apes, but both as descended from remote ancestors, who had split off from the monkeys; all, of course, tracing back to the early Primates. Of course, the order of Primates includes all of them alike. If you turn to Professor Osborn's book, you will see the matter gone over in some detail.

"Sincerely yours,

"THEODORE ROOSEVELT."

This statement clears up the reference to Primates earlier than man and the monkey; these Primates "originally consisted of low lemuroid forms." This was the opinion held fifteen years ago. If anything has been definitely established since that time, it is the fact that the fossil remains once depended upon supply no evidence for this hypothesis. No direct line leading from man to extinct lemurs has been traced. See the opinions of Cope and Hubrecht hereafter quoted.

that man is not a member of the same order of creatures as the monkey and the ape. *Homo sapiens* is being differentiated from the order of Primates, even as the bat, which Linné classified as a Primate, was differentiated long ago. The differences which have greatly impressed all who have given the matter special consideration are (aside from the intellectual superiority of man) the peculiarities of the human walk and his unique dentition. Prof. Dana, the greatest palaeontologist our country has produced, says in the final edition of his *Manual of Geology*, p. 1017: "Man stands in the successional line of the Quadrumania, at the head of the Animal Kingdom. But he is not a Primate among Primates. The Quadrumania (apes) are Brute Mammals, as is manifested in their Carnivore-like canines and their powerful jaws; in their powerful muscular development; in their walking on all fours; and the adaptation thereto exhibited in the vertebrae, producing the convexity of the back; and also in other parts of the skeleton. Man, on the contrary, is not Quadrumanous.<sup>18)</sup> His limbs are of the primitive type so common in the Eocene. He is plantigrade," has neither hoofs nor claws to his five toes, but something between the two. "Moreover, in his teeth 'Man is thoroughly primitive, he having in fact the original quadrituberculate form of molar, with but little modification.' . . . All these low-grade characteristics and despecialized conditions of the structure evince that man does not pertain zoologically to the group called

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18) We have traveled a long way since Dr. Moscati taught that the upright walk of man is a cause of much inconvenience and disease, proving that he was misled by reason and imitation to deviate from the first animal arrangement. Thus, for example, if man had continued to walk on all fours, his intestines would not have come into their present "pendulous and half reversed condition," which is a cause of "deformities and numerous diseases." Again, "the heart, because it is compelled to hang free, elongates the blood-vessels to which it is attached, assumes an oblique position, since it is supported by the diaphragm, and slides with its end against the left side—a position wherein man differs from all other animals, and thereby receives an inevitable inclination to aneurism, palpitation, asthma, chest-dropsy, etc., etc." Thus it is proven that man is really by nature intended to be and originally undoubtedly was quadrupedal! (Quoted in *Kant and Spencer*, by Dr. Paul Carus, p. 44.)

Primates, either to the higher or lower end of the series. The divergence from the *Quadrumana* is manifestly great." These divergencies, says Dana, p. 1036, "are admitted proof that he has not descended from any existing type of Ape. In addition, Man's erect posture makes the gap a very broad one. The search for 'missing links' has been carried forward with deep interest during recent years. But although fossil skeletons have been found among remains of the Pleistocene Mammals in Europe and America, none show any departure from the erect posture, or have smaller 'brain cavity than occurs among existing races of men. . . . Since Man's structural relations are, in several respects, closest with the precursors of the *Quadrumana*," *i. e.*, with fossil specimens which are, geologically, "earlier" than the monkeys and apes, "his derivation from any known type of man-ape has been pronounced impossible." The reader will observe that this opinion of the dean of American palaeontologists flatly contradicts the primate or ape ancestorship which Mr. Roosevelt with such *insouciance* summarizes in the introduction to his paper.

Agassiz says, simply: "Man does not descend from the mammals which preceded him in the Tertiary age." Nor is this merely the view of an old-school geologist, but is the regnant opinion among scientists to-day. The structural differences between man and the modern ape are held to be absolutely insuperable. All "other" Primates have a tendency to the elongation of the canine teeth. All apes support themselves on the sides of the feet, and the bent knuckles of the hand.<sup>19)</sup> They are, as Dana says, not plantigrade. Geologically speaking, the characteristics of man's teeth and of his walk are "more ancient," less "developed," than the dentition and walk of the Primates. In addition, Mr. Tylor is constrained to say, in the *Encyclopaedia Britannica* (II, 110): "The differences between a gorilla's skull and man's are truly immense." He quotes Huxley: "On psychological grounds Huxley acknowledged an immeasurable and practically infinite diver-

19) *Encycl. Brit.*, II, 109.



gence, ending in the present enormous psychological gulf between ape and man."

Thus, aside from the great disparity between the intellect of man and of the ape, the laws of development which are generally applied in establishing degrees of relationship in the plan (or "tree") of life have been seen to militate against ranging man with any existing animal, and the idea that man has living ancestors among the apes and monkeys is definitely given up. And this is truly an amazing fact. Far from establishing a close relationship between man and the ape, scientific research has established the fact that there is not only among existing species, but *even in the fossil remains not a single specimen which can properly be called a link in the chain of man's descent.*<sup>20)</sup> So far as man is concerned, the development of which Mr. Roosevelt speaks, from "small warm-blooded beasts to the Primates," etc., is mere hypothesis. There is not only *one* missing link (*viz.*, the one between ape and man), but the entire genealogy of man is made up of missing links, in other words, is speculation pure and simple.

Reputable scientists, who should be carefully distinguished from irresponsible amateurs who have no ballast of *information* to keep them on an even keel, make no secret of this disheartening fact. Dr. Berndt, in the article from which we have already quoted, says: "Trees of life, apparently built for all ages, have fallen or have become mere *shrubs* of life (*Stammbuesche*), covered with a tangle of scientific doubt." "We are farther than ever removed from the answer to the question, Whence the vertebrates?" Animals once confidently termed "primitive" are now recognized as high in the scale of development. "And Max Weber, one of the best authorities on mammals, regards the anthropoid apes of to-day as a branch parallel to the human branch. Scholars like Cope, Adloeff, Klaatsch, prefer to push the origin of man back to the earliest Eocene, whence he *went his way from the very outset separate from the apes.*" This is a highly significant utterance. It

20) See quotations from Wallace, above, also Virchow.

means nothing more than this: there is not one recognizable link which unites man with the animal kingdom. All the intermediate forms between man and the original jelly-fish, which according to Haeckel and Vogt was his ancestor, have disappeared. For their existence we have nothing but the word of a rapidly diminishing number of scientists.

The truth is that the tree of life looks less and less like a tree, the farther research traces out in fossil remains the actual history of life. About 1890, Mr. Topinard still told us that the common origin of man and the anthropoid apes is to be found in an animal of the type of the Old World monkeys, while all monkeys in turn find a common root in a type like that of the lemurs. It became somewhat different when Prof. Cope suggested that advancing knowledge led to the belief that the Anthropomorpha (*i. e.*, man and the anthropoid apes) are not derived from the monkeys, but the two branches run back *independently* to find their first connection in the lemurs, the common ancestor of both; not, however, he added, in any existing type of lemur, but in extinct types of the Eocene period, that is to say, of the oldest geological period in which traces of animal life appear. This, again, is simply saying that there is no palaeontological evidence for a tree of life with connecting links between man and the brutes.

The truly amazing fact that the various forms of life appear not more, but less related, the farther the evidence is being looked into, is admitted in every up-to-date text-book of palaeontology or geology. Dana says in his great work, in a discussion of the development of life on the globe: "The lines of succession seldom connect the grander divisions of classes or tribes. . . . Instead of lines from Amphibians to Reptiles, and thence to Birds or to Mammals, all three groups, Reptiles, Birds, and Mammals, were probably derived directly from the Amphibians." (*Manual of Geology*, p. 1031.) Hence anthropologists were for decades much divided on the question whether the different races of men have had a common or a separate origin. Dr. S. G. Morton thought he could point out twenty-

two centers in which the human race originated. The majority now believe that man originated in some *one* locality, and from a single pair. The origin of this pair, however, is shrouded in Cimmerian night. Only so much is pretty well agreed that no animal now living supplied the species from which modern man has "developed." As we have noted, a feeble attempt has been made to trace man through a side-line of the Primates, through the monkeys called lemurs, *Lemuridae*. These are a species of woolly-haired monkeys, about the size of a cat, with long, bushy tails and foxlike faces. They do not distantly resemble a human being, but have several structural similarities in common with man. An Eocene fossil has been found, the earliest known four-handed creature, called *Anaptomorphus homunculus*. The Neo-Lamarekian E. D. Cope traced the pedigree of man through the anthropoid apes to this minute animal, which he regarded as a lemur. (An illustration in Dana's *Manual*, p. 906, shows the skull of this creature to have been *one inch* in diameter.) But this identification is now pretty well relinquished by the evolutionists. Only five years ago Professor A. A. W. Hubrecht, of Utrecht University, "conclusively" showed that *Anaptomorphus* belongs not to the lemurs, but to a line of its own approaching the Anthropoid apes, and sharply separated from the Lemurs.<sup>21)</sup> This again

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21) *The Descent of the Primates*. Scribner's, 1897. Prof. Hubrecht suggests that it may not be unwise to assume as the ancestor of man and the anthropoids an early Eocene Primate, differing from the apes, whose descent must be traced back *independently of the ancestors of the modern apes* to the amphibian father of all. It has been pertinently said that this "tree of life" "will soon begin to look amazingly like a plantation of canes, each growing independently from a common soil" (*The Presbyterian and Reformed Review*, 1898, p. 782), in other words, will resemble very closely the tree of life suggested by Genesis, chapter I. Prof. Hubrecht says: "The genera known to us very rarely converge toward known predecessors as we go backward in geological time," *i. e.*, there is no *evidence* of development according to the lines of the evolutionary theory; "their respective genealogies run much more parallel to each other, the point of meeting being thus continually transported backward toward yet older geological strata." (*The Descent of the Primates*, pp. 39. 40.) Viewing this endeavor of the evolutionists to lay down new

signifies that whilst the Eocene Anaptomorphus, to quote Mr. Cope, "strongly suggests a line of descent leading to man, the gap is much wider than men used to regard it, and the intermediate links are still missing." Such retrogression in the claims of "assured results" should make all amateurs careful. All dogmatic assertion — and in this Mr. Roosevelt's article abounds — is out of place where the leaders in scientific research are admittedly at sea. The caution uttered by Charles Darwin in his *Origin of Species* is still in place; he says that in our present state of knowledge it seems to him "about as rash to dogmatize on the succession of organic-forms throughout the world as it would be for a naturalist to land for five minutes on some barren point in Australia, and then to discuss the number and range of its productions."

Anthropological research has produced no FACTS that are at variance with Genesis, chapter one. Concerning the Neanderthaler, the Cro-Magnon man, etc., Dr. Dawson has said: "Geological evidence resolves itself into a calculation of the rate of erosion of river valleys, of deposition of gravel and cave-earth, and of formation of stalagmite crusts, all of which are so variable and uncertain that, though it may be said that an impression of great antiquity beyond the time of received history has been left on the minds of geologists, no absolute antiquity has been proved; and while some, on such evidence, would stretch the antiquity of man to even half a million years, the oldest of these remains may, after all, not exceed our traditional six thousand."<sup>22</sup> "These skeletons . . . tell us that primitive man had the same high cerebral organization which he possesses now, and we may infer the same high intellectual and moral nature, fitting him for communication with God and headship over the lower world."<sup>23</sup>)

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hypothetical lines of descent here, there, and everywhere, rather than to ask seriously whether any such really exist in nature, one is tempted to suspect that, if writers of this kind did not put "evolution" into their premises, they would hardly find so much in their conclusions.

22) *Nature and the Bible*, p. 160.

23) *Ibid.*, p. 175.

Similarly Figuier held that "we know of no archaeological find [stone hatchets, etc.] that could not be pronounced only five thousand years old as well as fifty thousand." Scientific research has not yet produced any evidence to controvert the maxim of the great Linné: "*Species tot sunt, quot diversas formas ab initio produxit Infinitum Ens.*"

TH. GRAEBNER.

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