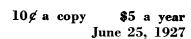


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EVOLUTION

Man's Age Now Set at Millions of Years



PROF. HENRY FAIRFIELD OSBORN, President of the American Museum of Natural History, in New York City, who holds that man is not descended from an ape-like ancestor. Dr. Osborn is the author of "Men of the Old Stone Age," and other works on the prehistory of man.

By Watson Davis

Whence and when came man? This question, particularly since the time of Darwin, has raised as much controversy and debate as the more un-Whither goeth settled question: man?

Tennessee anti-evolution laws and fundamentalists notwithstanding, scientists today are agreed that man is an animal, that he is a mammal, that this brain and his body are much like those of the rest of the animal world. The roots of man extend into a rich and arduous past and his family tree traced back far enough will show his close kinship to the apes, monkeys, and tree-shrews and other primates and his distant relationship to the rest of the animals. Evolution of man and the rest of the animate world is the most fundamental theory existent in biology today.

Upon such specific questions, however, such as whether man is a mere million or some twenty million years old, whether a primitive anthropoid, called Dryopithecus, was a great, great, ever so great grandfather or merely a distant cousin of the human race, or whether primitive man older than the Indians existed upon the American continent, scientists do dif-

The average person whose only acquaintanceship with gorillas and chimpanzees is through zoo cage bars or the antics of the circus monkeys has a quite understandable repugnance to these animals and is not particularly flattered to learn that they are man's nearest animal relatives. When these anthropoids are studied carefully, psychologists and physiologists find so many similarities between them and man that the conclusion can not help being drawn that tailless apes, including the gorilla and the chimpanzee, are more nearly related to modern man than they are to the tailed monkeys with whom they are usually classed by the ordinary person.

The latest evolution controversy within the ranks of science is between Prof. Henry Fairfield Osborn, president of the American Museum of Natural History and Dr. William King Gregory, of the same institution. Prof. Osborn is author of "Men of the Old Stone Age" and other authoritative books on ancient man and evolution, while Dr. Gregory is one of the leading American anatomists who has devoted himself to the study of man's evolution. Their scientific difference of opinion is marked by close friendly personal relations.

Science must abandon the theory

Index to Vol. XI Follows Page 402



DR. WILLIAM KING GREGORY, anatomist of the American Museum of Natural History, in New York City, who differs with Prof. Osborn. He believes that man and the apes sprang from the same stocks not earlier than about 7,000,000 years ago.

that man descended from an ancestor who was both ape and man. This is the contention of Prof. Osborn. And he believes that man is immensely older than science has hitherto believed. The prologue of the human drama occurred some 16,000,000 years ago in the period of the earth's history that geologists know as the Upper Oligocene. It was at this time that the Dawn Man sprang from a primitive primate stock, which branching in another direction gave rise to the ancestors of the anthropoid apes, the gorillas and chimpanzees of today. The opening act in human evolution, according to Os-born, occurred on the high plateaus and plains of northern Asia, where the dawn man, great, great grand-

(Just turn the page)

Age of Man	Dougan, L. M. 399 Douglas, Malcolm 400 Dachnowski, A. P. 402 Earth Will Support Eight Billions 401 Eclipse from Air, Will See 405 Fisher, Clyde 399	Humming-Birds 400 Huxley, Thomas Henry 405 Introduction to Biology, An. 405 Kinsey, Alfred C. 405 Lieske, Rudolph 402 Lipman, Jacob G. 401 Lodge, Oliver 405 Lutz, Frank E. 399	Peat, Versatility of 402 Penck, Albrecht 401 Russell, John 402 Science, The Seven Seals of 405 Science, The War on Modern 405 Science of Today 405 Seven Seals of Science, The 405 Shipley, Maynard 405 Soil Science Congress 401 Steel Trade, Bacteria Founded 402
Bacteria Founded Steel Trade 402 Bacteria Stimulated by Poison 402 Biology, An Introduction to 405 Bristol-Roach, B. Muriel 402	Floods Checked by Terraces. 401 Freundlich, Herbert 405 Fungi, Usefulness of 402 Greaves, J. E. 402 Greaves, William M. H. 405	Malthus Prophecy 401 Man's Age Millions of Years 397 Marconi Granted Patent for Wireless Telegraph 405 Merton, Gerald 405 Mineral Collections 400 Missing Links, Physiological 402	Stoklasa, Julius 402 Terraces to Check Floods 401 Trails, Nature 399 Tree Easy to Nick-Name 399 War on Modern Science, The 405
Carbon Dioxide in Soil Solution 402 Carr, William H. 399 Chemistry, New Conceptions in Colloidal 405	Gregory, William King 397 Hargreaves, F. J. 405 Hepburn, P. H. 405 Hobbies That Count 399	Nature Ramblings 400 Nature Trails 399 Osborn, Henry Fairfield 397	Wireless Telegraph, First Patent for 405 Witchell, William M. 405 Woods, A. F. 401 Science News-Letter, June 25, 1927

Man's Age Extended

(Continued from page 397)

daddy of the present day human races, lived on the ground and used tools skillfully and well. Prof. Osborn reads the apes out of the human family tree, an act that appeals sentimentally to many people. The apes under his theory become remote and distant cousins instead of fairly close relatives.

Dr. Gregory, on the other hand, holds to the older and more generally accepted view that man and the apes had common ancestors as late in the earth's history as 5,000,-000 to 7,000,000 years ago. From anatomical studies of brain, teeth and bodily structure of living and fossil men, apes, and other primates, he concludes that the anthropoid apes as a whole are undoubtedly man's nearest known relatives and he lists the primates in order of their relationship to man as: Primitive man, gorrilla, chimpanzee, orang, gibbon, Old World monkey, New World monkey, Tarsius, lemur, pentailed tree-shrew. Moreover Dr. Gregory considers that the primitive anthropoid, Dryopithecus, whose fossil remains have been found in the Siwalik hills in India, is a joint ancestor of the apes and man, a sort of missing link between the two stocks.

Man's Age From Teeth

Fortunately teeth, which are more readily preserved through the ages than nearly any other part of the skeleton, give the most information about the ancestry of the individual. Prof. Gregory has found that the distinctive pattern of the ape-man ancestor, Dryopithecus, is preserved in the teeth of the primitive Piltdown man whose jaw was found in England. And reasoning statistically he finds that a period of some 800,000 generations of evolution can be allowed as the interval between the Dryopithecus and the

(Continued on page 403)

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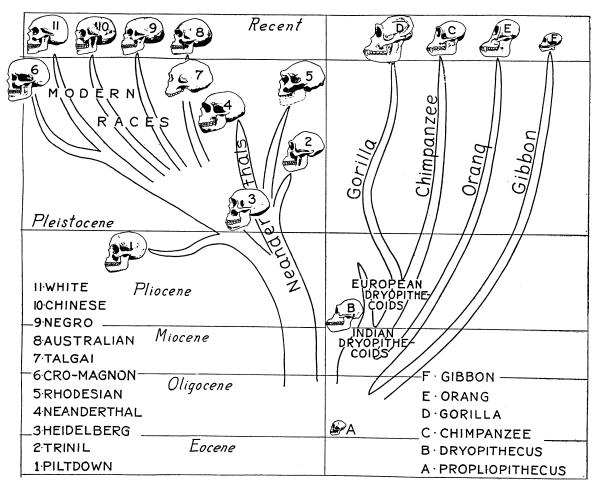
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THE FAMILY TREES of men and the apes according to Prof. Osborn. The Oligocene era in which he believes man had his roots ended some 19,000,000 years ago. Dr. Gregory, Prof. Osborn's associate, holds that man and the apes rose from the same stock only about 7,000,000 years ago, and he believes that Dryopithecus, assigned to the ape line by Prof. Osborn, was one of man's ancestors.

Man's Age Extended

(Continued from page 398)

Piltdown man, a time sufficient in his opinion for primitive man to assume the characteristics which distinguish him from the apes.

That Asia is the place to look for the ancestor of man is the belief of both Prof. Osborn and Dr. Gregory. There on the open plains of that continent, now the home of the vellow race and one of the most inaccessible parts of the globe, the Dawn Men lived and grew, and became men because of the hard life that they lived. Existence on the open plains was more hazardous and exciting than in the forests to the south, where the ape cousins of the dawn men were living a life of comparatively little exertion. The dawn men had to use their gray matter, and brains, like muscles, grow when used. The human race, still at its best in the temperate zones, has the hardships of the Asiatic plains to thank for its large heads, progressive actions and mental superiority to the best of the animal world.

Asia Early Home

So convinced have Prof. Osborn and other members of the American

Museum of Natural History been of the existence of the dawn men in Asia that the elaborate and ambitious expeditions into Asia's past that have been made under the leadership of Roy Chapman Andrews have been particularly instructed to be on the lookout for traces of the ancestors of modern man. And the American Museum scientists have not been unsuccessful, for they brought back flint implements and other cultural remains from different localities in Mongolia and China. These, however, are assigned to the Stone Age, a period in human evolution that is much more recent than the time of the dawn men.

But out of China, land of mystery, there have come dragon's bones. The yellow men use ground-up fossil bones as medicine. Over twenty years ago an eminent German paleontologist purchased in a Pekin drugstore a fossil tooth that he declared was probably that of an ancient man. That incident was recalled when last fall there came from Asia the news that Dr. J. G. Andersson of the Geological Survey of China and Dr. O. Zdansky of the University of Upsala had found evidences of the dawn man in Asia. Imbedded in geologic

deposits with the bones of various mammals they found two teeth which experts declare are essentially human. The strata of the earth in which these teeth were found are believed to have been laid down in the Upper Pliocene age some million to three million years ago. Before such antiquity, the ancient temples of China appear as new as the shacks of a boom town.

In Europe remains of ancient man have been found with considerable frequency. Whole and perfectly preserved skeletons of Neanderthal men have been unearthed at various localities. In the caves of southern France and Spain there have been found the earthly remains of the artistic Cro-Magnons, that skillful race that most anthropologists believe to have been in direct ancestral line of modern man. Long before these early men there must have lived in England some sort of human race, for among Pliocene strata along the coast of Sussex there are found worked flints considered to be of human manufacture.

To the Old World, therefore, the birthplace of man has been assigned. The most generally accepted location

(Just turn the page)

Man's Age Extended

(Continued from page 403)

of the human cradle is in Asia, from whence man roamed to Europe, Africa, and the various island of the East.

For the New World anthropologists have in the past held out little assurance of man any older than the Indians, who some twenty-five thousand years ago came from Asia; and yet there have been reported from various localities in America discoveries which may bring America into the picture of man's past.

Is it possible, then, that the dawn men of Asia, hardened to adventure and eager for new experiences, crossed to America as their Indian successors did many thousands of years later? In Oklahoma Texas, New Mexico and Florida there have appeared during the past few years other evidences that primitive man lived in America at a vastly earlier time than is believed by most scientific men. Two scientists of the Colorado Museum of Natural History, J. D. Figgins and Harold J. Cook, have obtained from three localities arrowheads in close association with extinct animals. At one place along the Lone Wolf Creek near the town of Colorado, Texas,



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Department of Natural Science 10-14 West 25th Street New York City, N. Y. flood waters exposed the bones of extinct species of bison, and as this nearly complete skeleton was being unearthed, three arrowheads, totally unlike like those of any known collection, were found beneath it.

In a sand and gravel pit at Frederick, Okla., primitive grinding instruments as well as arrowheads were found in strata of such antiquity that they are assigned to the Great Ice Age when prehistoric elephants and mastodons roamed the land. Real estate booms have not been the only product of Florida in past years, for from the drainage ditches of realtors at Melbourne and Vero on the east coast of central Florida, a Smithsonian Institution expedition unearthed a skull and stone arrowheads in close association with the bones and teeth of mammoths, mastodons and other prehistoric animals. Such recent discoveries recall less authenticated and earlier reports of evidences of ancient man in America. The charcoal evidence of a prehistoric fire was unearthed several years ago beneath a mastodon in New York state and an arrowhead was reported discovered in close association with an extinct bison in Kansas. Thus, it may be that America as well as Asia and Europe will play its part in the pushing back through millions of years the antiquity of man.

Earth's Age Greater

While the new discoveries of human and pro-human teeth and artifacts have been instrumental in increasing man's antiquity, the great expansion in geological ideas of the earth's antiquity have played their part. A few years ago the entire age of the earth was reckoned at less than a hundred million years. The most widely accepted estimates of the earth's age were based on the rate at which the great river systems of the world are carrying the silt and soil of the land that they drain and laying it down as deposits along the shores of the continents. The geologists assumed that the sedimentary rocks of the earth's crust formed in the same way were laid down at the same rate as those those now in the making. But then, new investigations and discoveries indicated that rocks today are being formed much faster than they were in ancient

The astronomers, too, demanded a longer time for the age of the earth since such a short life as one hundred million years did not fit in with the facts of the rest of the universe. So the radioactive minerals

containing uranium, thorium and radium were hit upon as time clocks of the earth. Scientists found that no matter how the radioactive minerals were treated, no matter how they were compressed, or heated, or cooled, they went on disintegrating at precisely the same rate. They assumed that they had been disintegrating at the same rate so long as the earth has existed. And then, cleverly, by measuring the quantities of the disintegration products of these radioactive minerals in the crust of the earth they arrived at an estimate of the age of the various rocks of the earth. The late Prof. Joseph Barrell of Yale, using his radium chronometer, estimated that the oldest Precambrian rocks, the original crust of the earth, were molten 1,400,000,000 years ago. The Tertiary period, that interval in the earth's history that immediately precedes the time in which we live, was assigned a scant three million years in the earlier estimates of the earth's age, whereas Professor Barrell set down its duration as about sixty million years.

The human race therefore has grown more venerable due to these increases in the estimates of the age of the earth. But the new discoveries in Asia, Europe and America will also undoubtedly play their part in making us realize what an ancient institution the human race is.

Contemplating the lowly estate from which the human race has risen and the vast expanses of time during its evolution, modern man from his pinnacle overlooking the rest of the animal kingdom may hopefully predict the future.

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