SCIENCE NEWS

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MAN-LIKE FOSSIL REMAINS

EXTREMELY ancient fossil bones, which may be those of the Heidelberg race of man or of even earlier man-like creatures, have been found in the same region that yielded the famous Mauer jaw, the sole relic of this extinct human species so far accepted as authentic. The discoverer of the new fossils, Dr. Wilhelm Freudenberg, of Frankfort-am-Main, states in a communication to the British anthropologist, Sir Arthur Smith Woodward, that he has eighteen bone fragments of men or man-like apes, all collected in sand pits in the river deposits near Heidelberg.

One of the fossils, a shin-bone, is short, very heavy, and decidedly curved, resembling the corresponding bone in a gorilla. There is also the fragment of a thigh-bone with gorilline characteristics. A foot-bone shows some resemblance to that of a chimpanzee. Associated with other bones of undoubted apes and monkeys were several which Dr. Freudenberg states are more strongly human in their shape, and which he considers to be the remains of a forerunner of Neanderthal man.

Scientists in London are inclined to be somewhat conservative until all the evidence is in. *Nature* comments editorially: "Paleontologists and anthropologists will await with great interest Dr. Freudenberg's detailed description of his finds. Remains of monkeys of Pleistocene age are known from Norfolk, the Thames Valley, France and Germany, but no trace of the man-like apes has hitherto been discovered in Europe of later date than the lower Pliocene. If Dr. Freudenberg's results are confirmed, the search for the earliest ancestors of man in Europe is not so hopeless as it is commonly supposed to be."

A single tooth, declared by its finder to be human or at least human-like in character, has been dug up in China, in a geological formation of about the same age as the one in which the German fossils were discovered, Dr. Davidson Black, of Peking Union Medical College, reports. It was found by Dr. Birger Bohlin, a paleontologist attached to the Geological Survey of China, at the same site that last year yielded other fossils claimed to be human. Dr. Black states that the new find is a molar tooth from an individual in the same stage of development represented by that of an eight-year-old modern European child.

A DISAPPEARING ISLAND

FALCON ISLAND, in the Goro Sea, southwest of Apia, Western Samoa, and between the Fiji and Tongan Islands, is again above water after years of submergence. This is indicated by word received by Dr. Andrew Thomson, director of the Apia Observatory. Heralded by a slight earthquake on September 30, great columns of smoke were observed from Nukualofa in the Tongan Islands issuing from the sea on October 4. Three days later the site was visited by the British warship *Laburnum*, and a new island was found about 300 feet high at its central point and three miles in circumference.

Puffs of smoke shot up about every 20 minutes to a height of from 4,000 to 5,000 feet, the tops of the smoke columns being lost in the clouds. With each outburst ashes and cinders were thrown into the air, to fall back and build up the central cone. Late in the fall the island was reported to be erupting steam at intervals of about once a minute along its entire length.

"The island was discovered in 1865 by the British cruiser *H. M. S. Falcon*, when it was a low-lying reef," says Dr. Thomson. "In 1885 an eruption took place, which built up a cone, which in 1889, after four years' weathering, was found to be over 150 feet high. A slight volcanic outburst occurred in 1895. Since then the island, which was composed entirely of cinders and ashes, gradually slipped down into the sea.

"The area around the little South Sea Kingdom of Tonga is of great seismic activity. The earthquakes equal in intensity and frequency those of Japan. Some of the earthquakes are directly due to submarine volcanoes; others are caused by a readjustment of the earth's crust along a line of great ocean depths, which stretch from the Samoan Islands to New Zealand."

THE VIVARIUM IN PARIS

WHAT might be called an insect zoo has just opened in Paris where the public is turning its attention from the lions and tigers in the menageries to see the new vivarium in the Jardin des Plantes. Here it has the extraordinary experience of watching insects in their natural environments, each group shown in an indoor glass cage fitted up to seem like home to the inhabitants.

This somewhat unique accomplishment has not been so easy as it might seem. The insects come from various climates and their requirements are naturally vastly different. Thus a complicated heating system is necessary to simulate the African desert in one cage and a coolish temperature in the next. Heat, humidity and light have all formed tremendous problems solved by the ingenuity of Dr. Jeannel, director of the vivarium.

In some cases it has been necessary to fool the insects for the benefit of the public. In their desire to establish the closest possible contact with objects about them, the scorpions, if left to their own devices, would completely disappear from sight by burying themselves and leave the public to look at a seemingly empty cage. However, they seem very well satisfied to hide beneath plates of transparent glass through which they can easily be seen.

A pair of giant phasmas have shown that hens are not the only ones whose reproduction is affected by electric light. For two months they failed to reproduce, but the day an electric light was put in their cage they responded accordingly.

Several cages are devoted to exhibits of insect mimicry. There are the giant phasmas just mentioned which look like the green leaves they feed upon, and others which exactly resemble the straw-colored branches to which they are clinging. The observer must watch closely for some movement to tell which is which.

The vivarium is for the purpose of exhibiting all cold-blooded animals in their natural environments, but the insect exhibits are the most unusual part of the program.

MOUNTAIN SHEEP IN YELLOWSTONE PARK

M. P. DOYLING, a government engineer, describes an interesting battle of bighorn mountain sheep he saw a short time ago in Yellowstone National Park.

"Although they were not more than fifty feet from the edge of the road, they didn't pay the slightest attention to the car I was in, and I sat for about fifteen minutes, and witnessed a most unusual and interesting sight," he reports.

"There were two young rams fighting an old and somewhat heavier one. What surprised me most was their method of attack in which they were 'true gentlemen.' They would stand about twenty feet apart and both start at precisely the same time, coming together, always, directly head on. Only after one has seen the size of the horns on the little animals and knows the speed at which they travel can one imagine the terrible shock it must be to them, at each such encounter.

"I expected to see them butt each other in the sides and rear, but in every instance they waited for the other to get set and then always came head on. After each such encounter they would stroll around for a minute or two, sometimes even taking a few mouthfuls of grass, before going through exactly the same performance again. If one tried to lie down, as did happen several times, the other would be over immediately and bother him until he got up.

"In one encounter one of the rams was on higher ground than the other but, apparently, to counteract this condition the one on the low side reared up on his hind legs and came down just in time to hit the other square in the center between the horns. After a bit one of the young rams strayed away a couple hundred feet and, after pawing away the dirt on the side hill, became, for the time being, an interested spectator. The other young one kept at the old ram, however, and every minute or two they would have another encounter.

"I doubt very much if the old ram could stand this relay of encounters for a great period as he was panting heavily and blood was coming from his nose when I left the scene of action."

VITAMIN D

VITAMIN D, the radiation-generated something that prevents the development of the bone-disease, rickets, in children and young animals, has been traced to a new source by Dr. Walter A. MacNair, of the U. S. Bureau of Standards, and Dr. C. E. Bills, of Evansville, Ind.

Recent research has shown that vitamin D is produced when a substance known as ergosterol is subjected to the invisible ultra-violet rays. Not the whole range of the ultra-violet is thus able to generate the vitamin, but only certain zones or bands of wave-lengths. These wave-length bands are also able to prevent rickets in young animals when turned directly on them, instead of on the food which is later fed to them.

Ergosterol is a comparatively new substance, which is extracted from cholesterol, a material that has been known for a long time. It occurs associated with the fats in animal bodies. It was formerly thought that cholesterol was the seat of vitamin D activity, but after the art of extracting the ergosterol from it was perfected, the cholesterol seemed to be inert and unable to form the vitamin even when subjected to ultra-violet raying. The conclusion, therefore, was that ergosterol could form vitamin D, and that the cholesterol from which it had been extracted could not.

But now Dr. Bills has been able to obtain some degree of vitamin D activity from cholesterol, freed from ergosterol, and on examining the effects of the rays with a spectrograph Dr. MacNair has found that certain wave-lengths of ultra-violet light are absorbed by it. This may indicate that cholesterol after all has some capacity for forming vitamin D, although Dr. MacNair inclines to the opinion that it is more likely that it still contains as an impurity another substance as yet unextracted and unidentified, possibly of the same order as ergosterol.

LOSS OF APPETITE AND VITAMIN B

PROFESSOR J. C. DRUMMOND, vitamin specialist, and Dr. S. K. Kon, of University College, London, have found that there is a close relationship between the amount of vitamin B in the diet and the total amount of food taken. Pigeons fed a diet adequate in all respects except that it lacked vitamin B gradually lost all appetite for the meals presented to them. Another group of pigeons kept under observation as controls, fed as much food as they wanted along with an ample ration of vitamin B, grew healthily and retained normal appetite. A third group, fed only the amount of food that the first group actually ate plus a plentiful supply of the vitamin in question, showed loss of weight due to slight starvation.

From their results, Professor Drummond and Dr. Kon concluded that the loss of weight that is always associated with lack of vitamin B is simply caused by partial starvation; the pigeons lose their appetites and refuse to eat the deficient food, and hence lose weight.

Since vitamin B occurs in only minute quantities in different foods its presence becomes of increasing importance. Consequently an elaborate study of this question has been taken in hand at the chemical department of St. Thomas's Hospital Medical School, London, by Dr. R. H. A. Plimmer and his colleagues. They tested a number of cereals by feeding them to pigeons for a long period. They found that none of the cereals examined contained such a rich amount of vitamin B as dried yeast. Wheat, barley and rye contained more vitamin B than maize or oats. These investigators, like

Professor Drummond and Dr. Kon, found that young animals need more vitamin B than adults and that the first important symptom is loss of appetite, which leads to loss of weight.

COFFEE AS A BEVERAGE

COFFEE drinkers will welcome the tidings, announced by Professor Ralph H. Cheney, of the biology department of New York University, that coffee is not only harmless but beneficial.

"Evidence derived from my study of the effect of coffee on animals and man," Professor Cheney declared recently, "indicates that the properly prepared beverage is highly advantageous with respect to over 90 per cent. of normal individuals. Judging from the effect of aqueous solutions of caffeine or of the coffee beverage taken through the stomach in the 1.5 grain quantities such as exist in the average coffee cup, the reasonable use of coffee is a great blessing to man. To be sure, caffeine is a drug and its use can be abused, but acute injury, as far as the caffeine content is concerned, would necessitate the consumption of over 150 cups which is, of course, ridiculous.

"Psychological responses of amiability and a sense of well-being and good cheer are undeniable accompaniments of the coffee beverage and the physiological effects are also non-injurious and gratifying. Temporary relief from hunger and fatigue is a general result, and light headaches, due to other than gastric disturbances, are commonly alleviated. Coffee serves as a mild stimulant of the heart, brain and muscles, thereby accomplishing greater power and coordination in mental and physical endeavors.

"The outstanding fact to be heralded in favor of coffee is the absence of any after effect or subnormal, recuperation period. It does not seem to be habit-forming since satisfactory stimulation does not require continually enlarged quantities. No other beverage produces equal stimulation without deleterious after-effects. On this basis, it is safe to say that coffee, prepared by subjecting the ground bean to water just below the boiling-point for 5 minutes or even somewhat longer in most household percolators, is not injurious to adults in normal health who show no acute idiosyncrasy regarding caffeine or other substances in the beverage."

Coffee is an impressive example of a plant, Professor Cheney pointed out, whose economic importance has been raised to great heights by its successful planting in a locality entirely foreign to its natural distribution since it is indigenous to Africa and Asia and is raised principally in Brazil and Colombia. The United States is the largest consumer, coffee imports being exceeded only by sugar and raw silk.

ITEMS

THE cotton crop losses from the boll-weevil in 1927 were about 1,487,000 bales, according to estimates reported to the American Association by Dr. R. W. Leiby, of the North Carolina Department of Agriculture. Losses sustained by the states of Texas, Arkansas, Florida, Georgia, South Carolina, Mississippi, Louisiana and North Carolina amounted to $148,700,400, Dr. Leiby declared. "The unusual injuries caused by the weevil during 1927," the entomologist explained, "are attributed to a rapid multiplication of the weevils under favorable weather conditions, the climate during the summer in most sections of the cotton states having been only moderately warm and rather rainy."

THE corn borer has spread its domain in Canada over 95,650 square miles, according to L. S. McLaine and H. G. Crawford, entomologists of the Canadian Government. An outbreak was discovered at New Liskeard, Ontario, practically the northern limit of corn growing and 385 miles north of the original outbreak in southern Ontario. Infestation in Quebec is still less than one per cent., but has increased in Ontario. The pest has not yet been found in Nova Scotia or New Brunswick, it was stated. Control operations in Ontario were, on the whole, a success, but were seriously handicapped by a wet spring and fall.

FOWLS that have been rendered completely sexless are substantially identical, regardless of their original sex, Dr. Lincoln V. Domm, of the University of Chicago, reported at the meeting of the American Association. Hens, deprived of their characteristically feminine organs, develop rooster-like plumage, spurs and small combs, but never attempted to crow, the scientist stated. In general they resembled capons both in behavior and appearance except for their consistently smaller size.

HUGE mounds of snail shells are evidence that prehistoric men in North Africa depended chiefly on snails for food, according to Dr. George L. Collie, director of the Logan Museum of Beloit College, speaking to anthropologists at the meeting of the American Association. A shell mound 300 feet long and eight feet high has been excavated by an expedition from the Logan Museum. Among the snail shells and kitchen ashes of the dump piles are found some bones of animals and once in a while a human skeleton. Excavators also unearthed flint arrow points and scrapers and hammer stones lost or thrown away by Stone Age men and women thousands of years ago. Small bone tools with fine, delicate points are the most common of the bone implements in the shell mounds, and some archeologists believe that they were used as picks or forks to remove snails from their shells.

MANHATTAN'S smoke screen cuts out 42 per cent. of the morning sunlight. At noon the loss is 18 per cent. The figures for this indictment of the smoke nuisance in large cities have been compiled by experts of the U. S. Public Health Service. Loss of efficiency from decreased lighting is not the only result of excessive smoke in manufacturing centers. It also cuts out to a large extent the ultra-violet rays necessary for good health. The importance of getting rid of smoke is emphasized for the preservation of eyesight and health generally, as well as for the prevention of accidents. On foggy days the loss of light runs even higher than the figures quoted.