

## SCIENCE NEWS

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## PREHISTORIC MAN IN EAST AFRICA

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A DISCOVERY which may prove of the greatest importance in helping to solve the problems of the distribution and migration of early man in Africa is announced from Nairobi, Uganda.

L. S. Leakey, a member of the Cutler Expedition which is searching for the remains of dinosaurs in East Africa, has been specially detailed to investigate the archeology and early history of man in Uganda. He has now found a complete human skeleton at Nakuru buried in the flexed position, with knees drawn up to the chin, at a depth of twelve feet. With the skeleton were over a hundred stone implements described as "Mésolithic," being mostly lunates (crescent shaped) and backed points of obsidian with a few bone points. The depth at which the skeleton was found and the character of the stone implements found with it would seem to indicate a very great antiquity, though how old it is, it is not yet possible to say.

The skeleton is that of a six-foot man and is said to be "not negroid." The skull has a nose of medium width and the jaw is not thrust forward. In life this man, therefore, did not have the broad flat nose and the projecting jaw characteristic of the usual negro type.

This is not the first discovery relating to early man to be made in Uganda. Just before the war a skull was found which was thought to be of a very early age and indeed in the view of some scientists it was thought it might even go back as far as the Old Stone Age and possibly be contemporary with stone age men of Europe. Numerous discoveries of stone implements have also been made. Although it is not possible, owing to the difference in geological conditions, to say with certainty how these implements compare with those of the Paleolithic Europe in actual dating in terms of years, in type the large chipped implements of rougher and heavier form, belonging clearly to the earliest phases of the Stone Age in Uganda, are similar to those of the early stages of the European Paleolithic Age, and are to be compared with the early implements found in other parts of the world wherever evidences of the existence of the Stone Age have been found.

In connection with the present discovery, however, the most interesting implements which have been found are the series of pygmy implements discovered in Uganda by Mr. Wayland, the government geologist, which are of the same type as the lunates and backed points or small knives of stone found with the skeleton at Nakuru. The diminutive implements, most of them less than an inch long, are characteristically of a very definitely geometrical form, often triangular, and are very widely distributed all over the world. They have been found in India, the Sudan, North Africa, Australia, Central Asia, and of course, Great Britain and

most of the other countries of Europe, especially France. The culture to which they belong is called Azilian from a site in France, Mas d'Azil, a rock shelter in which they were first found. In date they belong to the transitional period between the Old and the New Stone Ages which, in Europe, falls perhaps somewhere between 9,000 and 7,000 B. C. It can not be said whether the Azilian implements found outside Europe are all as old as this; probably they are not. But it is possible that further research in East Africa may show that we have here in this discovery a branch of the Azilian race migrating south at a date not much later than that when this culture flourished in Europe. It is hoped and expected that the Kenya Government will assist Mr. Leakey with a money grant to carry on his researches for which further help is urgently needed.

## INCREASE IN THE NUMBER OF INDIANS

ACCORDING to Albert B. Reagan, expert on Indian affairs, who has lived among various tribes of the American aborigines for many years, there are at present 349,595 Indians in the United States, an increase of 16,585 or approximately 4.8 per cent. in ten years.

The Navajos of the Southwest, commonly thought of as the tribe most rapidly dying out, show themselves to be one of the most rapidly increasing. They numbered a little less than 9,000 in 1869, but now muster a roll of about 38,000. The Cherokees of North Carolina show the most rapid increase during recent years, swelling their numbers from 7,914 to 1912 to 11,969 in 1926, or more than 50 per cent. in less than fifteen years. Other tribes, especially in the west, are reported to be in flourishing condition, the largest number being naturally in Oklahoma, where the Five Civilized Tribes alone total over 100,000.

Mr. Reagan credits the medical and educational activities of the U. S. Government with most of the improvement in the status of the Indians. In 1882, he says, there was only one hospital among the Indians; in 1900 there were five, and in 1925, eighty-two. These gave treatment to approximately 28,000 Indians. On reservations besides the medical aid and attention given the Indians by the school and agency people, there also are now 40 field matrons, 135 nurses and 181 physicians, besides eye, nose, ear and throat specialists and seven traveling dentists.

In 1775, the Continental Congress expended \$500 for the schooling of the Indian youth at Dartmouth College, and the year closing we spent about \$6,000,000 in the instruction of 67,000 Indian children, where medical supervision is attended to with great care, both in caring for them and in teaching them the laws of health and sanitation. In addition, the government has introduced modern sanitation methods of living into the Indian homes.

### ULTRA-VIOLET LIGHT FOR MOTHERS

If a baby develops rickets in spite of receiving his nourishment in the way traditionally supposed to be best for babies the anxious parents should not immediately put their young hopeful on a bottle. He can quite possibly be cured by having his mother treated with ultraviolet irradiations.

Although the great advantages of mother's milk are not questioned, Dr. Alfred A. Hess, of the Columbia University College of Physicians and Surgeons, has reported to the American Medical Association that from one third to one half of the breast fed babies met with in his experience in this climate have rickets. Working in collaboration with Mildred Weinstock and Elizabeth Sherman, Dr. Hess has conducted experiments that show that the antirachitic substances in human milk are greatly increased by irradiation of nursing mothers with ultraviolet rays. Though direct sunlight has been of great benefit in treating rickets, in this connection it has been found not to give as positive results as the quartz mercury vapor lamp, said Dr. Hess.

These experiments, he continued, suggest that irradiation of the mother while she nurses her baby will not only protect the baby from rickets, but will help keep up her own nutritional status. This is especially important because the excessive drain on the calcium and phosphorous content of the body often results in serious impairment of the teeth in young mothers. How effective and practical the method will be must be determined by further clinical experiments.

### HEART EXTRACT BEAT

A "HEART HORMONE," a physiologically powerful chemical compound secreted within the living heart and acting to keep it beating ceaselessly, has been discovered by Dr. Ludwig Haberlandt, of the University of Innsbruck. It is to be classed with the secretions of the ductless glands, such as the thyroid in the throat and the adrenals near the kidneys, which have far-reaching effects in the lives of men and animals, and some of which are now widely used in medicine.

Professor Haberlandt states that the existence of some such internal chemical stimulus to action had long been suspected, because frequently hearts removed from the bodies of animals kept on beating outside, which they would not have done had the stimulus been supplied by the nervous system alone. He found that extracts from a portion of the heart of the frog would act on the stilled heart removed from another frog, causing it to contract again. The extract was able to cause this reaction even in hearts that had been lying still in glass dishes for as much as three and one half days.

A similar extract from the hearts of dogs, having comparable effects, has been obtained in Brussels by Dr. J. Demoor, and is cited by Professor Haberlandt as proof that this "heart hormone," as he has named the compound, is of general occurrence among vertebrates and of physiological importance to warm-blooded animals.

The Austrian physiologist is of the opinion that his newly discovered hormone may come to have consider-

able importance in medicine, as a stimulant to weak hearts. He points out that an abundant supply is easily available in the hearts of animals killed for meat in the packing houses.

### BACTERIA STANDARD FOR ICE CREAM

SCIENCE is on the trail of the germs that lurk in the ice cream cone. The time is not far distant when neapolitan bricks and the backbone of a maple walnut sundae will have to be as free, comparatively, from bacteria as milk sold subject to the jurisdiction of city health departments.

Dr. F. W. Fabian, of the Agricultural Experiment Station of Michigan State College, after extensive investigations of ice cream plants, says that 100,000 bacteria colonies per gram is the legitimate maximum of bacteria that ice cream should contain. Ice cream from some of the plants inspected ran as high as 300,000,000 colonies per gram when subjected to bacterial analysis.

"It has been demonstrated that it is not only possible but practicable for large ice cream plants to produce consistently ice cream containing 100,000 or less bacteria per gram over a period of several years," he stated. "Plants that consistently produce a product with a high bacterial count are careless in some fundamental operation which could be easily remedied. With a standard such as this it will be possible to grade such plants and place them accordingly."

Such a standard, Dr. Fabian explained, would be of great aid to health officers, sanitary inspectors and doctors, and would at the same time give credit to the manufacturers who make an effort to produce clean and wholesome ice cream.

### CONTROL OF THE CORN BORER

THE European corn borer, were it human, would undoubtedly be suffering from a case of the big-head. Probably never before has an insect been mentioned in a presidential address as was the corn borer, when President Coolidge called attention to the menace of the European corn borer in his recent message to Congress, saying that it "warranted the federal government in extending cooperation" to fight its spread. And now the House has voted a special appropriation of \$10,000,000 to be used in a campaign to control the spread of the borer. This is quite aside from the \$685,000 asked in the regular agricultural bill for research and quarantine of the pest by the Bureau of Entomology.

Contrary to a wide-spread impression, this \$10,000,000 appropriation is not for the eradication of the borer. Government entomologists have no hope of such a thing as eradication. To eradicate the borer from the country it would be necessary to make of the infested area a desert, for the European corn borer attacks 225 different kinds of plants. Thus eradication is out of the question. The \$10,000,000 appropriation is for an experimental clean-up campaign to reduce the chances of the corn borer's spreading throughout the corn belt by reducing the number of borers present in the infested areas. Last year was the first year that

the corn borer did any real commercial damage in the United States, but the example of Canada, where the main corn belt is heavily infested and where 12,000 square miles suffered a complete loss of the crops last year, shows what the corn borer may do here in time unless steps are taken.

To be used this spring the money named in the special appropriation must be available by February first. This means that not only must the senate pass the bill and the president sign it, but the infested states must pass necessary regulatory legislation giving state and federal officials the authority to take action where the farmers refuse to adopt the prescribed method of treating the crop.

The plan is that the government shall bear the expense of any farm clean-up measures additional to ones followed by the farmer under normal circumstances. In other words, the government would pay for the extra labor and expense involved in the special operations necessary in infested areas. The government does not propose to stand financially for injuries to corn or other farm crops.

### RADIO AND SUNSPOTS

RECEPTION of radio broadcast programs on fairly long waves generally gets worse as spots on the sun increase, but with short waves, of about 34 meters length, it gets better, Greenleaf W. Pickard told the Institute of Radio Engineers at their session here. Advantage has been taken of this phenomenon in the new transatlantic radio phone service, because the voice is sent from New York to London simultaneously on long and short waves, so that as transmission with the long waves gets worse, the short wave transmission improves.

Mr. Pickard has been studying the relations between activity of the sun, as indicated by the presence of sunspots, magnetic storms on the earth, and radio reception. He began the study in March, 1926, and has continued it to the present, measuring chiefly the reception from station WBBM of Chicago, which operates on a wave length of 226 meters. There is a very close correlation shown between the magnetic character of the days, as determined at the Cheltenham, Md., magnetic observatory of the U. S. Coast and Geodetic Survey, and the radio reception at the time. When the monthly averages are taken, there is no obvious relation between the sunspots and magnetism of radio reception, said Mr. Pickard, but when weekly averages are used "an increase of solar activity is paralleled by an increase in magnetic disturbance and a decrease in reception."

"It is perhaps unlikely that any high correlation between reception and weather elements will be found," he continued. "Solar disturbances and magnetic storms are world-wide events whereas weather is rather a local matter. Analysis of weather elements over the whole earth indicate that there are areas of positive correlation with sunspots, and also areas of negative correlation. Although I have not yet collected and analyzed reception data from any such collection of receiving

points as would fairly represent the earth as a whole, I have found that a bad night for reception in Newton Centre is in general a bad night anywhere in the United States. And I have also found that European reception of distant broadcast stations agrees remarkably well with my measurements of WBBM. I find that in general, reception is most affected when a spot or group of spots is near the center of the solar disk, that is, when they most nearly face the earth, although there are exceptions.

### ITEMS

CITIES throughout all sections of the country infested with white ants should follow the lead of Honolulu and several others and modify their building codes to include proper protection from these wood-destroying insects. A plea to this effect was made by Dr. Thomas E. Snyder, of the U. S. Bureau of Entomology, at a recent meeting of the American Association of Economic Entomologists. In order to save the public from large expenditures of money, this is absolutely necessary. Honolulu yearly has paid out a million dollars to restore buildings invaded by white ants whose ravages are invariably costly wherever they occur. Insulation of all untreated woodwork from contact with the ground will protect buildings against subterranean white ants. Against the non-subterranean species the interior woodwork and furniture must be treated with chemical preservatives.

DEVIL'S LAKE, famous scenic region in North Dakota, has now attained a new distinction: it marks the center of the North American continent. The Map Information Office of the U. S. Board of Surveys and Maps has finished a new determination of the geographic center of North America, as accurate as can be obtained from the most recent maps. This estimate places the spot at 48 degrees 10 minutes north latitude and 100 degrees 10 minutes west longitude. This is a few miles to the west of Devil's Lake, but the lake is the nearest prominent feature on the map, and so becomes a natural center monument.

FEEBLY crawling in a small tank at the O'Rourke Zoological Institute in Balboa Park are fifty tiny crawfish which may be the only members of a rare species alive anywhere. The crustaceans were hatched from eggs laid by a specimen brought by Mrs. George Waring from Spook Canyon near Escondido, California, which excited the curiosity of naturalists as being a new and rare variety. Several days later the canyon was swept by a brush fire which dried up pools and mud. The crawfish are believed to have been exterminated. Preserved specimens are held by the Natural History museum and the Smithsonian Institution of Washington, but those at the Zoological Institute are the only ones known to be alive. The adult specimens were large and red and at first believed to be sea lobsters. Extreme precautions will be taken to preserve the hatch of fifty or more, and if animal life is found to be exterminated in Spook Canyon, the waters there may be restocked. The new species has not been named.