SCIENCE NEWS

PITHECANTHROPUS ERECTUS

Science Service

AFTER thirty years denial to his fellow scientists from all nations, Dr. Eugene Dubois, discoverer of this "missing link" in human evolution, has accorded to the American School for Prehistoric Studies in Europe, under the direction of Dr. Aleš Hrdlička, of the Smithsonian Institution, the courtesy of the first opportunity to make a thorough examination of the original fossils. On their return to Amsterdam on July 16 after an inspection of the original bones at Dr. Dubois's home at Haarlem, the American scientists seemed convinced that this ape-man was more nearly human than formerly believed.

"The examination was in many respects a revelation," according to Dr. Hrdlička. "When Dr. Dubois publishes his detailed study, which he tells me he expects to do before the end of the year, *Pithecanthropus erectus* will assume an even weightier place in science than it has held up to now. None of the published illustrations or the casts now in various institutions is accurate. Especially is this true of the teeth and thigh bone. The new braincast is very close to human. The femur is without question human."

The remains consist of the now for the first time thoroughly cleansed skull-cap, the femur, three teeth, two molars and one premolar. Besides these, there is a piece of a strange primitive lower jaw, a later, but nevertheless still primitive, type of man found in lime deposits in a different part of the island from that of the other bones.

Dr. Hrdlička stated that the original relics are even more important than held hitherto. He predicted that though all controversial points may not be settled, the specimens will assume even a weightier place in science than they have had up to the present.

Dr. Dubois found these ape-man remains near Trinil in the island of Java in 1891, but since then has steadfastly refused to allow other scientists to examine the originals thoroughly, so that they have had to content themselves with the casts and illustrations which Dr. Hrdlička now declares to be inaccurate.

Dr. Dubois demonstrated personally and without reserve the precious specimens which have been withheld from other scientists for over a quarter of a century. The cordial invitation for the Americans to see the originals was transmitted through Dr. Arthur Smith-Woodward, of the British Museum of Natural History, and given to Dr. Hrdlička when he arrived in Europe last month.

Dr. Hrdlička wrote in a report of the Smithsonian Institution several years ago as follows: "On account of peculiar circumstances an attempt to describe first hand the important specimens of Pithecanthropus meets with serious difficulties. It would surely seem proper and desirable that specimens of such value to science should be freely accessible to well-qualified investigators and that accurate casts be made available to scientific institutions. Regrettably, however, all that has thus far been furnished to the scientific world is a cast of the skull cap, the commercial replicas of which yield measurements different from those reported taken of the original, and several not thoroughly satisfactory illustrations; no reproductions can be had of the femur and the teeth, and not only the study but even a view of the originals, which are still in the care of their discoverer, are denied to scientific men."

CALIFORNIA'S WATER POWER

Science Service

"CALIFORNIA'S mountain streams made possible last year the delivery of energy equivalent to a day's work by 4,300,000,000 people, or two and a half times the entire population of the world to-day," Robert Sibley, consulting engineer of this city, said in a report made to the American Society of Mechanical Engineers, in which he described present day water power developments in this state and predicted a still greater future. In making his estimate of the amount of power already harnessed by a network of six California power plants, he assumed that the daily work of a human being is equal to one kilowatt-hour of electric energy.

Explaining how this amount of water-power is obtained, he said: There are no great Niagaras in this empire west of the Rockies, hence the engineer has found it necessary to create artificial waterfalls. His general method is to go up into the mountain gorges, build a dam to store the water, convey this water through a ditch or tunnel, often ten to fifteen miles around the mountain side, at a gradient less than that prevailing in the main run of the stream, and thus create an artificial waterfall of 1,000, 1,500, and often even greater than 2,000 feet vertical drop. Through giant pipes these waters are dropped against water wheels often of record proportions, thereby developing electric power which in turn is transmitted to the farm, to the mine, to the home and to the various industries in the great cities of the West.

In discussing the present extent of water power utilization and future possibilities, Mr. Sibley called attention to the fact that California is a state of such proportions that if the northern boundary could be placed at the Woolworth Building in New York City, the southern boundary would be somewhere near Jacksonville, Florida, and he claimed that if the growth in population continues for the next 27 years at the rate maintained from 1910 to 1920, California will have a population in the generation immediately ahead of over 10,000,000 people.

EXPLORATION OF ANCIENT MEXICAN CIVILIZATION

Science Service

DURING the next ten years American archeologists will intensively study and excavate the ruins of the ancient Maya empires that flourished before the time of Colum-

bus in Yucatan, according to announcement made by the Carnegie Institution of Washington on August 13, when it made public an agreement with the Federal Government of Mexico giving it the privilege of enlarging the scope of the archeological work that it has begun in that region during the past decade.

The first ancient city to be unearthed is Chichen Itza in Yucatan, and Dr. Sylvanus G. Morley, in charge of field work, is now at the site supervising a force of laborers clearing off the tropical bush from the group of structures that will be studied first.

While the work will be concentrated at the ruins of Chichen Itza during the next field season beginning in January, the archeologists will later excavate other forest-covered cities in Mexico. An arrangement already made with the government of Guatemala allows archeological work in that country as well.

Every phase of the Maya culture will be studied, Dr. John C. Merriam, president of the institution, said in making the announcement. The engineering, architectural and artistic construction of the ancient structures, as well as the order in which they were built, will be studied intensively, and in order to secure an understanding of the conditions under which the Maya lived, the scientists will study the location of their cities, the geologic formations of the country, the climate, the weather and the relation of plants and animals to the food, clothing, medicine and other material needs of those ancient people.

Expert anthropologists will compare the physique of the surviving remnants of the Maya and Aztec peoples with evidences from the ruins, and languages will also be studied to determine possible relationships between the present and the past. The testimony of the Spanish explorers who met and subdued the ancient Maya will also be used in reconstructing the life of these true Americans.

ALFALFA'S FUTURE THREATENED

Science Service

PROMPT and aggressive action to save America's alfalfa and other crops from tremendous damage from the eel-worm disease is urged in an appeal issued by the United States Department of Agriculture through its Bureau of Plant Industry. Agents throughout the country were warned to be on the lookout for the tiny crop criminal which annually causes immense losses in South Africa and from which damage in several states of this nation has already reached alarming proportions.

The eel-worm is an organism, which is scarcely a twentieth of an inch long when fully grown, but causes a disease which shortens the life of the crop by several years, makes frequent plowing and replanting necessary, and reduces the yield. Under favorable conditions, experiments indicate that the alfalfa eel-worm may injure red, white and alsike clovers, buckwheat, English peas, turnips and even potatoes, as well as alfalfa.

As many as 200 eggs may be laid by one eel-worm, the young being about a tenth the size of the adults. Under moist conditions these migrate or are carried by irrigation water or other means to new plants. They penetrate the tender parts of these plants and grow to maturity within the plant tissues, causing swellings and abnormal growths.

Finally the parasites become so numerous that they completely kill the plant. When this happens they leave it and go into the soil to attack other plants they may be able to reach. A poor stand of dwarf plants is frequently the result.

The presence of the alfalfa eel-worm disease was first noted in America in 1921, when it was discovered in a single field in eastern Oregon. Since then it has been found more widely distributed in that general locality than was at first thought. It has also been found in California and Colorado and it is considered possible that it may occur in other parts of the country. Efforts will be made by the Department of Agriculture to secure a complete survey of the entire country during the present growing season in order to discover all infestations and to eradicate the disease before it becomes too generally established.

ITEMS

Science Service

A STAR that is nearer to the sun than any other star visible to the naked eye, except Alpha Centauri, has been discovered at the Harvard College Observatory by examination of its spectrum recorded on photographic plates, according to an announcement by Dr. Harlow Shapley, the director. Its name is Epsilon Indi and it is some 42,000,000,000,000 miles away from the solar system. It takes light only about seven years to travel from this newly recognized neighbor to the earth. Incidentally, Epsilon is classified by the Harvard astronomers as a decided dwarf so far as stars go. Alpha Centauri is 4.3 light years away, while brilliant Sirius, now displaced as second nearest star, is 8.8 years away when light traveling 186,000 miles a second is taken as a yard-stick.

SEEDS yielding large amounts of chaulmoogric acid, which has proved efficacious in the treatment of leprosy, have recently been received by the U. S. Department of Agriculture from the forests of Sierra Leone, West Africa, and from Upper Chindwin, Northwest Burma. The African seeds are from the wild Gorli shrub. It is thought that owing to the nature of this plant it will produce the valuable seed in a shorter time than is required by the forest trees from which the present supply of chaulmoogra oil is obtained. The seeds received from Burma are those of the true chaulmoogra tree, which is native to that region. The Department of Agriculture has twice sent J. F. Rock, one of its agricultural explorers, to the native home of the chaulmoogra tree, and has secured through him considerable quantities of seed. Several thousand seedlings are now being grown in the government greenhouses at Bell, Md. These will be distributed as soon as they are large enough to withstand shipment.