SCIENCE NEWS

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UNEMPLOYED MEN TO WORK ON PREHISTORIC REMAINS

A THOUSAND unemployed men will soon be disinterring secrets of aboriginal history in five different states. A new federal civil works project approved by Harry L. Hopkins, Federal Civil Works Administrator, thus provides unexpected opportunities for scientific excavation on a large scale.

All but one of the sites to be excavated are in the South—in Florida, Georgia, North Carolina and Tennessee. One is in California. These locations, selected by the Smithsonian Institution as important to an understanding of America's ancient history, have heretofore been considered projects too large to be undertaken by the institution. Those who will direct the work have been tentatively chosen.

Reconstruction of the lost story of what happened in Southeastern United States in the days before Columbus will be speeded by this new research in that section. Matthew W. Stirling, chief of the Bureau of American Ethnology, points out that not long ago the ancient story of the American Southwest was as confusing as that of the Southeast seems to-day. But now, through systematized research, the story of the Southwest is told in remarkable detail from a time before the Christian era down to the Spanish conquest.

One site in Florida, where 229 men will be put to work, consists of a system of prehistoric earthworks built by unknown Indians who lived in the Everglades before the Seminoles came there. These elaborate earthworks were discovered by Mr. Stirling only two years ago. So great was the pattern of earthen ridges that Mr. Stirling considered it amazing that no one had previously reported their existence. They are located near Okeechobee, about fifteen miles south of Indiantown, Palm Beach County. Mr. Stirling will supervise exploration at this important site and may also direct two other excavations in Florida, one near Artesia, in Brevard County, and the other near Bradentown, Manitee County. These two projects will employ 228 men.

In Georgia, Dr. Arthur Kelly, formerly of the University of Illinois, will direct the exploring of a large mound within the city limits of Macon. This site, believed to be an old Hitchiti village, will call for 205 excavators. In North Carolina, 104 men will explore a large mound near Murphy, Cherokee County. This is believed to be the old Cherokee village of Gausili visited by the Spanish explorer DeSoto.

In Tennessee, Dr. Frank H. H. Roberts, Jr., of the Smithsonian, will take charge of the excavation and restoration of Indian mounds in Shiloh National Military Park at Pittsburgh Landing. The identity of the Indians who built these mounds and the age to which they belong have never been discovered. The work will not disturb soldier burials. One hundred thirty men are to be employed.

California will have 208 men at work opening up the Yokut Indian mound near Taft in Kern County. Dr. William D. Strong, of the Smithsonian, is expected to direct the project. This is one of the key sites in California's prehistory, with a story extending indefinitely into the past.

LIFE ON THE PLANETS

LIFE is more likely to exist on Venus than on Mars, if it is to be found on any planet besides the earth. Life in anything like the form we know it would be quite impossible on any but the three planets mentioned. These inferences may be drawn from facts presented by Dr. Walter S. Adams, of the Mount Wilson Observatory, in a lecture before the Carnegie Institution of Washington.

Life as a physical thing is first of all conditioned by the atmosphere, and to support life a planet must have a friendly atmosphere. Mercury, the little planet nearest the sun, apparently has no atmosphere at all: it was too little to hold one by the attraction of gravity. Besides, on its sunward side Mercury is terrifically hot—hot enough to melt lead.

At the other extreme are the huge outer planets, Jupiter, Saturn, Neptune and Pluto. The larger of these have very thick atmospheres, perhaps thousands of miles deep, held by the attraction of their great mass. But they are so far from the sun that they are perpetually cold, far too cold for the support of life.

Mars has an atmosphere, but because the mass of the planet is only about one tenth that of the earth, this atmosphere is thin and meager. Few clouds are ever seen in it, though the existence of what seem to be polar snow caps would hint at the presence of some water. No free oxygen, indispensable to life, has been detected on Mars by spectrographic studies. Finally, the thinness of the atmosphere can do little to mitigate the contrast bebetween the heat of Martian noon and the freezing cold of Martian midnight. So if life exists there it must be of the most primitive and toughest type—possibly like the lichens of the earth.

Venus, blanketed in perpetual veils of clouds, may have oxygen below their level, though again the spectrographs have never proved its existence there. But with abundant water, and a rich atmosphere to modify the ardor of the sun, life may be possible.

The atmospheres of the planets are studied by analyzing the sunlight reflected from them with a spectrograph, and identifying the dark "absorption bands" characteristic of each element and chemical compound. Thus, such strange gases as methane and ammonia have been found in the atmospheres of the larger planets. Planetary temperatures are measured by focusing light from different parts of their surfaces, or from their entire areas, on extremely delicate electrical devices known as thermocouples.

BONES OF A BIRD-LIKE DINOSAUR

PALEONTOLOGISTS at the University of California have discovered the fossil remains of a bird-like dinosaur which inhabited the sand dunes of northern Arizona about 80,000,000 years ago. This animal belonged to

the Jurassic geologic period. It walked on its hind legs, and looked somewhat like a featherless ostrich.

The discovery of its remains was made by members of the party of Ansel F. Hall, chief forester of the U. S. National Park Service, who led an expedition into the Monument Valley of Arizona some months ago.

The find is considered to be of great value because it is unusual to discover fossil remains of these animals, owing to the fact that the delicate nature of their bones do not lend themselves to fossilization. Thus representatives of this species are very rare, and are highly prized by museums.

The fossil remains of this dinosaur are now the property of the museum of paleontology of the University of California. Dr. C. L. Camp, director of the museum, says that Robert H. Thomas, a student at the university, and a Navajo Indian, Max Littlesalt, are the discoverers of the animal.

"One evening," he explains, "the men visited the ruin of Keet Seel, one of the famous cliff dwellings of northern Arizona. They climbed an old Indian trail up a cliff which was about 600 feet high. Part of the trail consisted simply of hand holes in the rock. When the men were about 100 feet from the top, they came upon the dinosaur remains. These lay under a ledge protected from the rain. The skull had weathered away as well as part of the backbone and part of the limbs, but the rest of the skeleton was well preserved. From the position of the bones it is likely that death came upon the animal when it was crouched down like a setting hen. Its legs were doubled under it."

Dr. Camp says that dinosaurs of this early period are distantly related to the reptilian ancestors of birds. They walked in the manner of birds, and had beaks like birds. It is thought that they lived by sucking eggs laid by larger dinosaurs.

The discovery of this member of the dinosaur group is the first that has been made in Arizona. However, fossil remains of dinosaurs of the Cretaceous geologic period of 70,000,000 years ago have been found in this area on a number of occasions.

ENCEPHALITIS AND INFLUENZA

ENCEPHALITIS, sometimes known as "sleeping sickness," and recently epidemic in St. Louis, may actually be virus influenza of the brain and nervous system.

This new theory of the disease is suggested by Drs. Earl B. McKinley and Elizabeth Verder, of the George Washington University School of Medicine, in a report to the Society for Experimental Biology and Medicine. The report is announced in the Proceedings of the Society.

The suggestion that encephalitis is brain "flu" of virus origin is purely theoretical, Dr. McKinley emphasized. So far, there is no proof for it, although there seems to be considerable circumstantial evidence. The theory developed as the result of ten years' investigation and study of the disease.

Dr. McKinley pointed out that the name encephalitis simply means inflammation of the brain. So far, no one has discovered what causes the inflammation. His own research has shown definitely that it is not caused by bacteria or disease "germs." Both Dr. McKinley and other investigators believe that it is caused by a filterable virus, such as causes smallpox and measles. A filterable virus has recently been found to be the causative agent of the common cold and of influenza.

Dr. McKinley suggests that the same virus is the cause of both "flu" and encephalitis. The difference in the diseases is due to the fact that the virus attacks different parts of the body. In virus influenza, the nose, throat and lungs are attacked. A variety of influenza, known as gastrointestinal "flu," has been observed recently, in which the virus apparently attacks the stomach and other digestive organs, causing stomach and digestive upset with or without the other symptoms of influenza. When this same virus attacks the brain and nervous system, encephalitis or brain "flu" results, in Dr. McKinley's opinion.

Encephalitis first appeared after the influenza outbreak during the World War. It frequently follows an attack of influenza. In the St. Louis epidemic the patients suffered digestive upsets at the beginning of the encephalitis attack. These facts all support the new theory.

Physicians have long suspected a relation between influenza and encephalitis, but it was impossible to explain this relation so long as a bacillus instead of a virus was considered to be the cause of "flu." Now that both diseases are known to be caused by a virus, a relation between them may again be considered, and perhaps explained along the lines Dr. McKinley suggests.

ITEMS

YAKUTSK, in Siberia, was the nearest city to the epicenter of Monday's (December 4) earthquake, according to an announcement of the U. S. Coast and Geodetic Survey, made after studying data gathered telegraphically by Science Service from four observatories. The approximate location of the epicenter was given as in latitude 63 degrees north, longitude 135 degrees east. This point is somewhat to the northeast of the city of Yakutsk, and east of the Lena River. The earthquake was deep-seated, the slip occurring some miles beneath the surface; but the shock was not severe enough to cause material damage, the scientists estimated.

MAUNA LOA, Hawaii's loftiest active volcano, broke into eruption at its summit crater at 5:43 A. M., Hawaiian time (11:13 A. M., Eastern Standard Time) on Saturday, December 2. Apparently there are three lava fountains, under three towering fume columns. The fumes rise 4,000 feet above the mountain, which itself has an altitude of 14,000 feet. The northern fume column hangs over the center of the crater. Dr. T. A. Jaggar cables that he has started for the summit, with a party of scientists from Hawaii National Park. The Interisland Airways Company dispatched a plane for aerial observation of the eruption. There was an earthquake disturbance for an hour following the beginning of the outbreak, but afterwards the ground quieted. A watch is being kept on the flanks of the mountain for possible lava flows, but as yet we have no means of telling whether these will occur.