

"We must remember, in justice to the suspect, that he might possibly be a laboratory employe, a pharmacist or a farmer who has been handling fertilizer and therefore accumulated chemical deposits on his hands similar to those made by gunpowder gases and yet be utterly innocent of guilt."

The efficiency of the test depends, as in so many other fields of investigation, upon the proper interpretation of results, Mr. Gompert warned.

"We soon discovered that the gunpowder nitrates were deposited in very minute quantities over the back and upper part of the hand in a sort of 'peppered pattern,' he said.

A total of 234 tests of the method gave positive results in every case, Mr. Gompert claims.

The method is not in general use by police departments throughout the country, and, so far, other criminologists have not confirmed the results obtained in Los Angeles. If the method proves to be successful, even for the detection of murders planned so as to look like suicide, it will be of great service to crime detection officers.

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SEISMOLOGY

Radio Timing Aids Earthquake Study

RADIO time signals from a powerful central station enable seven seismological observatories in southern California to work as one, thus clocking very accurately the rate of travel of earthquake waves. This is one of the modern refinements in earthquake study now being conducted at the California Institute of Technology, at Pasadena, as described by Dr. Harry O. Wood of the Carnegie Institution of Washington, which cooperates in the research, along with the U. S. Coast and Geodetic Survey and other organizations.

California, being a land of many geologic "faults" or slip-lines in the rocks, is also a land of many earthquakes, most of them small, a few of them great. For this reason it has been selected as a favorable huge-scale laboratory for intensive seismological study.

Many of the seismographs used in this study are of a type designed especially for the recording of the less intense "local" quakes, as distinguished from the long-range instruments that catch the waves from "world-shakers" that occur in distant lands.

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ARCHAEOLOGY

Secrets of American History Sought to Aid Unemployed

Civil Works Funds Will Employ 1,000 Men at Five Sites; Recent Public Works Grants Aid Other Fields of Research

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.

The sites to be explored are selected by the Smithsonian Institution, and are important to an understanding of America's ancient history. Heretofore, they have been considered projects too large to be undertaken by the Institution.

Scientists who will direct the work have been tentatively selected.

Reconstructing 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 today. But today, 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.

Amazing Earthworks

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 two years ago by Mr. Stirling. So great was the pattern of earthen ridges that he declared it amazing that no one had previously reported their existence.

Mr. Stirling will supervise the exploration of this important site near Lake Okeechobee to see what may lie buried there. He may also supervise excavation at the other two sites where work is to be done in Florida, one in

Brevard County, the other in Manatee.

In Georgia, Dr. Arthur Kelly, formerly of the University of Illinois, will direct the project of exploring the contents of a large mound in the city limits of Macon. The 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, believed to be the old Cherokee village of Guasili visited by the Spanish explorer De Soto. William B. Colburn from the University Museums, Ann Arbor, Michigan, will direct this project.

In Tennessee, Dr. Frank H. H. Roberts, Jr., of the Smithsonian will take charge of a project to excavate and restore Indian mounds in Shiloh National Military Park. The identity of the Indians who built these prehistoric mounds, and the age to which they belonged, have never been discovered.

California, the fifth state chosen for the research, 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. The mound is one of the key sites in California's prehistory, with a story extending indefinitely back into the past.

Public Works Allotments

Among the Federal projects just approved by the Public Works Administration, five allotments indicate a recognition of the value of scientific research as part of the recovery program.

Two allotments were made to the National Planning Board. One of \$35,000 provides for a program to discover, correlate, and study the researches and surveys now being made throughout the country on such projects as natural resources, population distribution and trends, health problems, local planning, and any other field which has a direct bearing on national welfare.

A second allotment of \$250,000 to the National Planning Board is to stimulate the preparation of (*Turn Page*)

state, regional, local and city plans by sending technical advisers to visit the local communities.

The Bureau of Chemistry and Soils, U. S. Department of Agriculture, received \$70,000 for the construction of an industrial farm by-products laboratory at Ames, Iowa, where the state agricultural college and experiment station is located.

An experimental study of stream pollution in the upper Mississippi River is provided for by an allotment of \$15,000 to the U. S. Bureau of Fisheries. This Bureau also received \$127,300 for the survey and improvement of streams and lakes in various sections of the country and to provide a scientific basis for such operations.

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VETERINARY MEDICINE

May Conquer Disease By Giving It To Young Animals

DELIBERATELY exposing very young calves and colts to the bite of the tsetse fly, carrier of the devastating "nagana" disease of livestock, is suggested by Prof. Claus Schilling, director of the tropical division of the Robert Koch Institute of Berlin, as a means of bringing about immunity to later attacks.

Many years ago, Prof. Schilling called attention to the apparent immunity of the wild hoofed animals of Africa to this disease, which is one of the principal factors in preventing large-scale white settlement in the tsetse fly belt of that continent. He thought this might be due to the fact that the young, born where the flies could bite them very promptly, might contract mild cases which would result in the building up of a considerable degree of resistance.

It is difficult to carry on research on this disease in European laboratories, but recently Prof. Schilling has obtained results which appear to lend support to his earlier conclusions based on field work in Africa. Renewed research in the African fly belt has been made possible to him, states *Die Umschau*, and he is again beginning to test his theory under natural conditions.

Nagana disease is caused by a blood parasite which is quite similar to the causal organism of African sleeping sickness, an exceedingly serious human affliction much worse than the European sleeping sickness which recently broke out in several American cities.

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METEOROLOGY

Maybe Grandpa Was Right About Old-Time Winters

MAYBE GRANDPA was right after all, about winters being so much colder and longer when he was a boy. Recent statistical studies by J. B. Kincer of the U. S. Weather Bureau lend support to the claim that winters have been growing milder during the past fifty or sixty years. Spring and fall weather also has averaged warmer during the same time.

"When we examine the winter temperature data for Washington, for example," said Mr. Kincer, "it is found that for the last 21 winters 18 have been warmer than normal; that every one of the last 13 have been mild, and that the warmest winter of record, going back considerably more than a century, was that of 1931-32. This is in marked contrast with 'Grand-dad's day,' say, for the 19 winters from that of 1854-55 to 1872-73, fourteen of which were colder than normal, with 1855-56 the coldest in more than 100 years.

"The record for New Haven, Conn., may be cited as another example. Here every one of the last 10 winters has averaged warmer than normal; also, 18 of the last 21, and 33 of the last 45. This record, by the way, goes back to near the close of the Revolutionary War. Farther west, we pick up, at random, the St. Louis record, which shows 13 of the last 15 winters with above normal temperature. These are typical of others over the central and northern portions of the United States east of the Rocky Mountains."

Warmth in St. Paul

In St. Paul, Minn., Mr. Kincer continued, more than 75 per cent. of the fall seasons for the last 43 years have been relatively warm, in contrast to the 37-year period from 1840 to 1876, inclusive, during which only 9 were warmer than normal. In Washington, only 3 of the 25 falls since 1907 have had below normal temperature, while 15 of the last 17 months, up to and including September, 1933, have had plus departures from normal.

Mr. Kincer stated, however, that the abnormally warm weather experienced in general for a long time past does not

mean that cold periods have been entirely absent.

"On the contrary, the records indicate that occasional brief spells of abnormally cool, or extremely cold, weather are characteristic of prevailing high temperature trends," he said. "The cold winter of 1917-18 may be cited as an example, coming at a time when the long-time trend was running comparatively high and also the fact that the lowest official temperature of record for the United States—66 degrees below zero—occurred in Yellowstone National Park in February of the present year."

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PSYCHOLOGY

Accidents Likely After "Moderate Drinking"

BEVERAGE alcohol is shown by the latest medical research and examination methods to be a more important factor in traffic accidents than has heretofore been assumed. This is indicated by tests on accident victims carried to the Maria Hospital of Stockholm, Sweden, for treatment.

Of 113 men injured in traffic accidents, 50 of them, or 44 per cent., were found to have alcohol in their blood. This means that they had been drinking alcohol within a few hours before the accident occurred. Not all of them had been drinking heavily, however. In about one third, alcohol was found in concentrations of less than one part of alcohol to one thousand of blood; two thirds had more than one part per thousand.

Scientists believe this finding to indicate that symptoms leading to danger of traffic accidents are likely to occur in the very early stages of intoxication, that is after the drinking of what usually is called a "very moderate amount."

The study was conducted by Drs. J. Hindmarsh and P. Linde, every case being personally examined by them. Their report will be published in the forthcoming issue of *Acta Chirurgica Scandinavica*, Swedish scientific journal.

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