Assisted by students from the laboratory, Dr. Roberts excavated the village ruins, finding new evidence of the evolution of architecture in prehistoric Indian settlements.

When Southwestern Indians first made homes, they dug pit houses for themselves and roofed them with poles and brush. Around the houses were storage bins for winter food supplies. Dr. Roberts finds that the storage bins in time were enlarged into dwellings and there were even row houses in the old settlements. The underground pit house became the village kiva, or church. Down to today, Pueblo kivas where ceremonies are held are still built underground.

The evidence shows that these architectural changes took place in about 200 years for the different type structures are there and charred pieces of timber from the ruins tell the dates, in terms of tree rings, when the buildings were in use. The dates cover a period from 700 A.D. to 950 A.D.

Science News Letter, October 14, 1933

PUBLIC HEALTH

Scientists Took First Chance With Encephalitis

BEFORE trying to give encephalitis or "sleeping sickness" to convicts by the bite of presumably infected mosquitoes, officers of the U. S. Public Health Service tried to experiment on themselves, as is the custom among medical scientists.

Dr. J. P. Leake, in charge of the federal health service's encephalitis investigations at St. Louis, Dr. L. L. Williams, Jr., and Dr. Bruce Mayne all took their chance of getting this serious disease by letting mosquitoes feed on patients and then on themselves. None of them has contracted the disease as a result. This may be because, in the course of their work with the patients, they have already acquired immunity.

The next step was to repeat the experiment with ten convicts, volunteers from the Mississippi Penitentiary, who will win their freedom if they survive the experiment.

In calling on Mississippi authorities for convict volunteers, the federal health authorities followed a precedent set in 1916 when a similar experiment with Mississippi convicts Dr. Joseph Goldberger of the U. S. Public Service was able to prove that pellagra is due to deficient diet and that it can be corrected.

Science News Letter, October 14, 1933

METEOROLOGY

Microclimatology, Science That Studies "Working" Weather

Temperature, Evaporation Rates and Other Environmental Factors Measured Close to People, Animals and Plants

WEATHER Bureau records are notoriously inadequate pictures of conditions which human beings, cats and dogs, cabbages and cornstalks are up against. Official thermometers are always perched well above ground, in structures that provide a maximum of shade and ventilation, and a considerable degree of shelter from direct wind, snow and rain. Hence, no matter how ideal their readings are from the viewpoint of pure atmospheric physics, they are of much less human interest than are those of the humbler unofficial instruments that share our common lot down in the sweltering street, or out on the blizzard-stung prairie.

Great Difference in Short Distance

Some scientists, especially ecologists, who study the intimate details of the social life of plants and animals in nature, have taken cognizance of this, and are using a kind of meteorology of their own. They read the weather factors where these are actually operative on living things; at the level of the grasses in the field, among the leaves of trees and bushes in the forest, and where man and his suffering fellow-creatures must breathe and sweat in the streets and crowded inside spaces of great cities.

This new and closely applied climate study has been given the name "microclimatology" by one of its pioneers, a German scholar. It is the climatology of little spaces.

Significant differences in this extremely localized weather can be found in amazingly short distances. One European student of the subject found greater differences in temperature between ground level and six feet above it, among the trees of a forest, than was shown on official records of "general" temperatures between cities on the coast and hundreds of miles inland.

Microclimatology takes account, also, of factors other than temperature, such as relative humidity, air movement, and their close companion, evaporation rate. Differences in these will be as marked as they are in temperature, over distances as little. Instrumental determinations of the evaporation rate from free water surfaces show three or four times as great evaporation in midsummer sun as in the shade a few feet distant. Determinations of wind velocity in a sheltered pocket behind trees or a wall show contrasts as striking, when compared with the record as obtained above the trees or roof-tops.

Of course, everyone who has ever kept a tree between himself and the sun in summer, or a wall between the wind and himself in winter, has been a kind of rule-of-thumb microclimatologist. But the active students of the new science want exact and quantitative data rather than loose and qualitative guesses. They want such information not only because it is more scientific but because it is more practical. For on the study of microclimatology, both indoors and out, will depend a great deal of the success in human comfort as well as the cost in cash, of the great new branch of engineering which is just arising—the practice of air-conditioning.

Science News Letter, October 14, 1933

ENTOMOLOGY

1933 Bad Grasshopper Year, Entomologists Report

GRASSHOPPER depredations in the United States during the past summer were the worst for many years, Dr. W. H. Larrimer of the Bureau of Entomology, U. S. Department of Agriculture, reports. Although the early hatching from their eggs in the soil was slowed down by wet, cold spring weather, subsequent heat and drought operated to the advantage of the 'hoppers, the damage they caused in late summer more than made up for their delayed start. Even into early October they were reported as still going strong in the northern Plains States. (*Turn Page*)