ARCHAEOLOGY

## Rescue of Mounds Begins In Tennessee Valley

WITH the arrival in Knoxville, Tenn., of Prof. W. S. Webb, of the University of Kentucky, active work in rescuing Indian remains in Norris and Wheeler Dam zones of the Tennessee Valley Authority has been started.

Prof. Webb will survey the region, in the effort to locate important Indian mounds and village sites. Road building and grading crews, and other construction workers, will assist him by reporting when steam shovels or spades turn up any bones, pottery or other remains that seem significant in America's ancient history. Material thus located will be left untouched until Prof. Webb can reach the site.

The data that Prof. Webb can salvage will be important contributions to American archaeology. So much of the land will be flooded or torn up by excavations, that this is considered the last chance to check up on the past history of this part of America.

Prof. Webb has been given leave from his university for a year. The CWA is financing Prof. Webb's salary. Responsibility for other expenses is assumed by the National Research Council.

*Science News Letter, January 20, 1934*

SOCIOLOGY

## Indian Lands May Be Returned to Tribes

WHAT action should be urged upon Congress for the benefit of American Indians was discussed at a conference in Washington.

The conference called together representatives of the Indian Rights Association, the National Association on Indian Affairs, the Indian Civil Rights Committee, the American Indian Defense Association, the General Federation of Women's Clubs, and other interested groups. Commissioner of Indian Affairs John Collier attended.

Commissioner Collier, who was formerly executive secretary of the American Indian Defense Association, and intensely eager to improve the Indians' lot, has already put into effect some of the reforms which his association advocates. But legislation is needed for basic changes.

Most vigorously advocated of all the proposed changes, probably, is an improvement in the Indian land law. The law of 1887, which allotted lands to individual Indians, has resulted in a net loss to the Indians of two-thirds of their land in less than 50 years. Whole tribes have become pauperized, Mr. Collier declares. A return to tribal ownership of land is the legislative solution now approved by the Indian Office.

Land, without money for buying seed, farm animals, and equipment, is not likely to set destitute Indians on their feet economically. Hence, a system of financial credit for the Indians is also being stressed.

Another piece of proposed legislation would permit incorporation of Indian tribes. The Indian Commissioner favors for the Indians self-government in the tribal pattern familiar to the Indians. Legally-recognized tribal councils are also recommended, to insure authority to the tribal officials.

*Science News Letter, January 20, 1934*

BACTERIOLOGY

## New Method Cuts Time Of Estimating Bacteria

A SHORT cut for estimating the number of living bacteria growing in a tube of artificial media has been developed by two government scientists, Drs. W. C. Frazier and A. J. Boyer of the U. S. Department of Agriculture.

The old method of doing this consisted of inoculating a bit of the culture in the tube onto a plate of solid growth medium and watching for the development of colonies of bacteria. This took from two to four days.

The new method, recently reported to the Society of American Bacteriologists, takes less than an hour. Its accuracy has been proved by checking with the old method.

It consists in smearing a measured amount of a proper dilution from the bacterial culture in the tube on a measured area of a glass slide. This is allowed to dry in the air and is then "fixed" by holding it over boiling water for five minutes. The slide is next placed in sterilized filtrate from a culture of *Streptococcus lactis* for half an hour at a fairly high temperature (70 degrees Centigrade), then stained and examined under the microscope. The treatment with the filtrate changes the way in which the dead bacteria react to certain stains and thus provides a means of estimating the numbers of living bacteria in the culture. (*See SNL, Dec.* 30, '33, *p.* 421)

*Science News Letter, January 20, 1934*

# IN SCIEN

SOCIOLOGY

## Ph.D. Helps Teachers Hold Jobs During Depression

WITH a Ph.D. degree and some experience, the prospective college teacher stands the best chance of getting a position and of keeping it when "retrenchment" programs go into force, Prof. James G. Umstattd, of the University of Minnesota, has found.

In a survey just completed Prof. Umstattd found that teaching appointments per institution had decreased from 10.7 in 1920-21 to 6.9 in 1931-32. Appointments in English have exceeded those in every other subject, with education ranking next. Subjects that suffered greatest decreases were agriculture, botany, home economics, engineering, and Romance languages. In the 184 colleges included in the survey no reductions had been made during the depression in deanships of women, registrars, the health service, accounting, astronomy, child welfare, nursing, or military science.

*Science News Letter, January 20, 1934*

PLANT PATHOLOGY

## Rigid "Wick" Carries Water To Potted Plants

A SIMPLE wick-like rod that can be depended on to keep your plants watered with a minimum of attention from yourself is described by Prof. B. E. Livingston of the Johns Hopkins University.

The "wick" consists of an exceedingly fine-grained artificial filtering material which resembles a very porous sandstone. One end extends upward a couple of inches through an opening in the bottom of the vessel containing the growing plant, the other is immersed in a reservoir of water. The wick carries water up into the pot, where the soil tends to settle firmly against its upper end, maintaining a good capillary contact. Plants can be kept growing indefinitely in this way, the only attention necessary being an occasional refilling of the reservoir.

*Science News Letter, January 20, 1934*

# CE FIELDS

METEOROLOGY

## Record "High" Caused Britain's Fine Weather

THE REMARKABLY fine weather which Britain enjoyed during 1933 was due to a record-breaking anticyclone which persistently remained on the Atlantic to the westward of Ireland. At short and more or less regular intervals "tongues of high pressure" spread out from this anticyclone and covered Britain and Western Europe.

This is the explanation of Dr. J. Glasspoole and W. L. Andrew, both of the Climatological Section of the British Meteorological Office. The abnormal summer of 1933 is an excellent illustration of the meteorological maxim that "the present state of the weather always tends to continue."

*Science News Letter, January 20, 1934*

ASTRONOMY

## Star Explosions Thought To Start Cosmic Rays

COSMIC rays originate when a star explodes into a super nova, according to a theory of Drs. F. Zwicky and W. Baade of Pasadena.

A nova is a star which suddenly flares up to many times its normal brightness. Such an event recently happened in the constellation Ophiuchus and has been much discussed. These novae ordinarily become about twenty thousand times as bright as our sun but occasionally they become enormously brighter and then they are termed super novae. Such a one appeared in Andromeda in 1885 and lasted about 25 days, giving off a hundred million times as much visible light as our sun.

A super nova, according to Dr. Zwicky, would give ten million times as much ultraviolet light as visible. That means it would give off as much energy in one second as our sun does in a hundred million years. With this tremendous supply it would not be surprising if a great deal of high energy radiation such as cosmic radiation were included.

This theory therefore indicates that the rays are intermittent since such super novae are rare. Dr. Zwicky estimates about one in a galaxy in a thousand years. This accounts for our failure to get any appreciable cosmic radiation from our own galaxy. It also explains other puzzles which other theories bring up. The main advantage is that the rays come mainly from extremely far distances—from stars beyond the powerful telescopes of the present time.

Dr. Zwicky went on to discuss the remains of such a nova after explosion. He pictured it as a star of neutrons with no ordinary matter. It would be so dense that a ball ten miles in radius would contain all the matter in the sun. The earth's mass would occupy less than a mile in radius. On such a small earth the force of gravity would be four thousand times as great as on our planet.

Scientists are not inclined to accept the theory until it shows its ability to withstand unfriendly criticism.

*Science News Letter, January 20, 1934*

NUTRITION

## Study Fails to Show Why Brain Workers Tire So Easily

CAREFUL study of the energy consumed by persons doing physical and mental work fails to explain why brain workers feel so very tired after prolonged mental effort, Dr. Francis G. Benedict and associates of the Nutrition Laboratory of the Carnegie Institution of Washington have just reported.

"In view of the sense of extreme, almost over-powering fatigue in both mind and body following intellectual activity, it is surprising that brain-work has such an insignificant effect upon the general level of vital activity," is one of the observations in the report.

Brain-workers, contrary to popular opinion, do not need fish or other phosphorus-rich food any more than any other workers, the study showed. In fact, the only extra energy needed for an hour's intense mental effort is contained in half a peanut, in about one-thirtieth of an ounce or sixteen grains of cane sugar, or in about one-eighth of an ounce of the edible part of a banana.

"A housemaid engaged in sweeping and dusting the study of a college professor would expend as much extra caloric energy in three minutes as the professor would expend in excess of his basic needs during an hour of intensive work at his books," Dr. Benedict stated.

*Science News Letter, January 20, 1934*

GENETICS

## Evolutionary Changes Induced By Heat

MUTATIONS, suddenly-appearing marked evolutionary changes, have been induced in the tiny fruit-flies that are favorite subjects for such experimentation by exposing them for short periods to high temperatures. At the meeting of the Genetics Society of America, Prof. Harold H. Plough and Philip T. Ives of Amherst College told of experiments they performed along this line, which confirmed earlier similar work done in Germany by the noted geneticist, Dr. Richard Goldschmidt. Before Dr. Goldschmidt's pioneer research in temperature, the only known way of forcing the slow hand of natural evolution was by means of the X-ray bombardment first used at the University of Texas by Prof. H. J. Muller.

The heat-treated insects used by Prof. Plough and Mr. Ives produced 44 recognizable mutations among the first five generations, as against only three mutations among the untreated "control" groups of flies; but since more heated insects were studied, the actual ratio of mutations was about five to one. Thus a possible mechanism for the production of mutations in nature is suggested, after which the sieve of natural selection can go to work.

*Science News Letter, January 20, 1934*

AGRICULTURE

## China Improves Crops To Avert Famines

CHINA, a country which has had 2,200 famines in 2,000 years, is safe-guarding the future by a project for the improvement and distribution of native grains. As a result of the project over a million and a half pounds of improved seeds have been distributed to Chinese farmers within the last five years.

Varieties of wheat yielding 50 per cent. more than Chinese strains used hitherto have been perfected and varieties of soybeans yielding 45 per cent. more than the best Chinese strains have also been made available. Corresponding increases in cotton, millet, barley, and corn have also resulted from the project, which has been carried on jointly for the past five years by the University of Nanking, the International Education Board and Cornell University.

*Science News Letter, January 20, 1934*