

GEOPHYSICS

High-Transpiration Plants One Means to Abate Floods

Studies at U. S. Department of Agriculture's
Arlington Farm Yield New Data on Evaporation

TO ABATE floods, encourage vegetation with a high rate of transpiration, or water loss through its leaves, was one recommendation offered before the meeting of the American Geophysical Union in Washington by Dr. C. W. Thornthwaite and Benjamin Holzman of the U. S. Soil Conservation Service.

This recommendation is one of the practical applications of studies now being made of evaporation rates from soil and transpiration rates from plants, by scientists of the Soil Conservation Service. It has hitherto been impossible to obtain anything like a direct measurement of such escape of water into the air, but the new method, now in use for about a year, obtains usable data by measuring two factors (1) the air moisture above the area under examination, (2) the rate at which the turbulent air currents near the ground carry off this moisture.

Winter, in the region around Washington, is a time of soil-moisture storage, the studies showed. Evaporation losses to the air in June were five times as great as in January. Precipitation in winter, however, is nearly as great as in summer and in addition may be stored on the ground in the form of snow.

Science News Letter, May 4, 1940

Trigger for Earthquakes

THERE is a connection between the seasonal distribution of heavy earthquakes and the seasonal shifts in baro-

metric pressures, Prof. Herman Landsberg of Pennsylvania State College told the Geophysical Union. He traced two curves, for the decade 1921-1930, one showing seasonal changes in barometric pressure in Northern and Southern Hemispheres, the other the seasonal variation of heavy quakes. There was a remarkably close fit of peaks and valleys between the two curves.

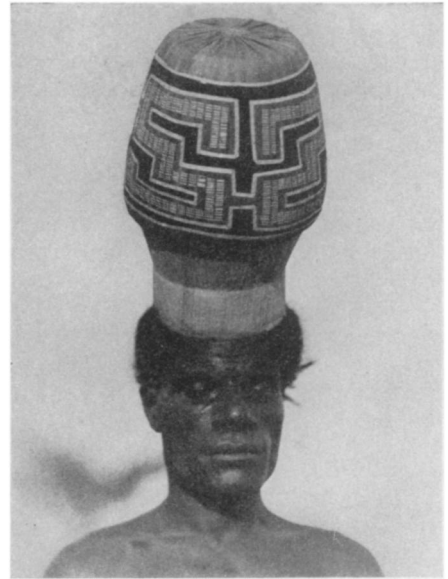
It has been known for some time that air masses are shifted to the south across the equator in the spring of the Northern Hemisphere, and in the opposite direction in the fall. The changes in loading of the earth's crust by the shift in weight of these "invisible mountains" are sufficient, Dr. Landsberg held, to have a trigger effect on earthquake forces already built up in the rocks and awaiting only a last straw of some kind to set them off.

Science News Letter, May 4, 1940

ANTHROPOLOGY

Death for Girl to See Boy Minus His Hat in Jungle Isle

ASOUTH SEA island tribe which requires its young men to wear basket-shaped hats from the time of puberty until marriage, and forbids girls to see the boys without their hats on pain of death, was reported by Dr. Douglas L. Oliver, Harvard anthropologist, returned from a two-year stay on tropical Bougainville, of the Solomon Islands.



LEST SHE DIE

Dr. Oliver obtained measurements of more than 2,000 native blacks in the jungle interior of Bougainville, anthropologically important as part of the mysterious ethnic "black spot" of Oceanic. The extremely dark peoples of Bougainville and a few nearby islands are surrounded by a people having very different physical characteristics, including lighter skins, and also an entirely different language base.

The largest series of physical measurements ever made in Melanesia, Dr. Oliver's data are expected to go far toward answering the question whether these Negro peoples are the descendants of the original inhabitants of Melanesia, going back thousands of years before the coming of the Austronesians, now found in the coastal districts.

For fifteen months Dr. Oliver and his wife lived in a grass hut in a village of the Siwai in the Bougainville jungle, thirty miles from the coastal mission station. As background for the intensive work here, the Olivers also traveled for four months through the 120-mile-long island, visiting each major division of the population of 50,000.

Near the Siwai villages, in the jungle, Dr. Oliver found stone monoliths, set up by human beings, hundreds, perhaps thousands of years ago, and so ancient that the ritual purpose has long since been forgotten. Natives believe they were set up by demons.

For twenty years, since the beginning of the British mandate, headhunting has been outlawed in Bougainville, and now the natives rely on elaborate sorcery

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ceremonials to accomplish the death of enemies, Dr. Oliver said.

Dr. Oliver obtained many examples of the highest art of the Siwai, the decoration of long spears and arrows with designs woven with fern fibers dyed yellow and red.

Siwai language, extremely complex and difficult, took the anthropologist ten months to learn, aided by young men of the tribe who had learned Pidgin English on coastal plantations.

The Siwai are a farmer tribe, and pigs are an important basis of wealth and exchange, being nurtured with specially cooked food, Dr. Oliver said.

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largest. The perceived size diminishes when the head is kept fixed and only the eyes are elevated. It does not change when the head is tilted back so that the eyes are not moved with respect to the head."

It works out, the scientists said, that, if one could see the moon below the horizon while standing in an erect position, "it would appear about as much smaller, angle for angle, when compared with the horizon moon, as the moon in elevation seems smaller. The general rule is that objects at a great distance appear largest when the eyes are looking straight ahead with respect to the head, irrespective of the position of the observer's head and body."

Science News Letter, May 4, 1940

Eyes' Electricity Changes

THE ELECTRICAL potential of the human eye—a slight but readily detectable difference between the front and back of the eyeball—is less in dim light or darkness than in brighter light, Prof. Walter R. Miles of Yale University reported. He found an appreciable decline in eye potential after a moderately bright light had been turned off and his subjects left for five minutes in nearly total

darkness, with a further drop after another five minutes. When the light was turned back on, the eye potential rapidly rose again to its former level.

This change in eyeball potential may be of great use in future studies of the retina, the light-sensitive lining of the eye, Prof. Miles suggested. Hitherto, the only way to study effects of light changes has depended on reports of the visual sensation given by the subject under examination, which naturally introduced a considerable subjective element, and therefore possible error. By the new method it is now possible to obtain results that are entirely objective, and independent of the personal equation.

Science News Letter, May 4, 1940

May Make Antibodies

THE POSSIBILITY of eventually manufacturing synthetically in the laboratory for injection into ill patients the antibodies that fight disease germs was suggested in a paper by Dr. Linus Pauling of the California Institute of Technology.

On the basis of how simpler molecules are built, Dr. Pauling has worked out a theory of the structure and process of formation of antibodies. From this theory Dr. Pauling predicts that the synthesis of antibodies might be achieved by denaturing serum globulin, from the blood, and then removing the denaturing agent in the presence of an antigen or haptene. An antigen is a substance which can incite the formation of antibody. A haptene when injected can confer specific antigenic powers on proteins with which it combines.

Science News Letter, May 4, 1940

Light on Growth Processes

LARGE and mature plant cells which have been stimulated by injury to divide again throw much light on the processes of cell division, it was indicated in experiments reported by Prof. Edmund W. Sinnott and Dr. Robert Bloch of Columbia University.

Such cells are hundreds of times as large as the cells of ordinary embryonic tissue and the processes of division in them may therefore be observed on a greatly magnified scale. An important feature of this process, and one which has not been recognized before, is that the cytoplasm of the cell is distributed very early in the exact position which will later be occupied by the new wall. This fact is important for an understanding of plant development, for it

indicates that the entire living substance of the cell, and not the nucleus alone, determines the plane of cell division and thus the direction of growth.

Science News Letter, May 4, 1940

Prone Pressure Best

SAVING lives threatened by death from drowning or gas poisoning by the prone pressure method of resuscitation, familiar to Boy Scouts and other first-aiders, is the best or as good as the best method now known or that can ever be invented, Prof. Yandell Henderson, Yale University, declared.

Even when a man is unconscious and breathless, the breathing center in his brain still controls the tone and elasticity of the muscles of his chest, Prof. Henderson presented evidence to show. This tone of the chest muscles determines how much air is drawn into the lungs between compressions. The compressions cause only expirations.

The person giving artificial respiration cannot "by pulling, pushing, or poking the victim in some particular way," get more air into the lungs than the tonic elasticity of the chest draws in. The standard Schafer, or prone pressure method, is the most effective for the compressions. No method can do more.

Normal breathing is mainly controlled

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