

ASTROPHYSICS

Dust From Andean Eruptions Reducing Solar Radiation

DUST from the Andean volcanic eruptions of last April, drifting around in the upper atmosphere, is causing trouble for the Smithsonian solar observatory at Montezuma, in northern Chile, where daily observations are made of the sun's radiation. This information was given to Science Service by Dr. Charles G. Abbot, secretary of the Smithsonian Institution.

Established at Montezuma because its high desert atmosphere contained a minimum of dust and very little water vapor to interfere with the transmission

of solar radiation, this observatory has been virtually out of commission since the latter part of April, because the high clouds of dust prevent good recording by the radiation-measuring instruments.

The first visible sign of trouble, Dr. Abbot said, was the appearance of a "mackerel-sky" effect around the sun. This was not due to ordinary clouds, but to high-floating dust. There have also been fiery red sunsets, such as were seen in the northern hemisphere after the explosion of the Alaskan volcano

Katmai in 1912. The diminution of the radiation as measured by the instruments at Montezuma has not been constant, but there have been frequent recurrences of this falling-off in the amount of energy received.

Similar effects were observed by Dr. Abbot himself in Algeria after the Katmai eruption. At that time the noon-day radiation reaching the earth's surface was reduced by as much as twenty per cent.

Although the after-effects of the Andean eruptions have been marked in South America, they have not been detected, even in slight degree, north of the equator. Dr. Abbot does not expect that the dust clouds will cross the equator; and Prof. W. J. Humphreys of the U. S. Weather Bureau concurs in this opinion.

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PSYCHIATRY

Nerves and Sex Give Students Most Problems

NERVOUS breakdowns and sexual problems cause more college students to need psychiatric advice than other difficulties they encounter.

This is shown in a study of one thousand college student cases made in connection with the University of California psychiatric services by Dr. Sidney Kinnear Smith of Oakland, Calif.

Dr. Smith found that every year about the same proportion of students in college need such help, and that more freshmen and sophomores ask for advice than juniors and seniors. Sexual aspects of life appear to be given more consideration and speculation at the college age than at any other time. Sexual problems in their relation to the student's social life are of extreme importance, he said. Psychiatric treatment brought about the greatest degree of improvement in the sexual maladjustments, but there were marked improvements also in the other types. Of the total thousand cases, over half were improved by psychiatric treatment, Dr. Smith reported.

In treating the student, his personality is studied and if his problem arises from social maladjustments, the psychiatrist tries to fit the student into a social group in which he will be more comfortable. For cases of nervous breakdowns, Dr. Smith unhesitatingly recommends psychoanalytic treatment.

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PHYSIOLOGY

Use of Sugar Regulated by Adrenal Gland Secretion

THE CHIEF function of the vital adrenal glands is to regulate the body's use of sugar, Dr. S. W. Britton of the University of Virginia Medical School declared at the session of the Federation of American Societies for Experimental Biology in Philadelphia.

These glands secrete two very powerful hormones: the familiar adrenalin, and cortin, which is now saving the lives of patients suffering from the once fatal Addison's disease. The part of the gland that secretes cortin is necessary to life. Dr. Britton thinks that it is through its control of the sugar metabolism that the cortex exerts its vital influence.

A group of investigators who produced an extract of adrenal gland cortex, Drs. Frank A. Hartman, Katharine A. Brownell and Julia E. Lockwood of the University of Buffalo, reported experiments showing that their extract is necessary for the activity of various tissues of the body. This extract helps animals and men suffering from adrenal gland deficiency to resist fatigue, toxins, and cold, and gives the human patients an increased sense of well-being.

At the same session, Dr. C. H. Greene of the Mayo Clinic told of the use of the cortical hormone in the treatment of Addison's disease. He and Dr. L. G. Rountree have been making a

careful study of 32 patients who have been under treatment for two years.

The substance in liver effective in treating pernicious anemia is either absent from or present in low concentrations in the liver of the patient suffering from pernicious anemia, Drs. A. C. Ivy, O. Richter and M. S. Kim of Northwestern University Medical School reported. When liver extract is given to pernicious anemia patients, the patients' livers became saturated quite rapidly with the active substance, however.

The Northwestern University investigators were able to make these discoveries, which bear importantly on the cause of the disease, as the result of an unusual opportunity in which they had human liver extracts, from patients who had received varying amounts of ordinary liver extracts, to work with. Extract made from the liver of the pernicious anemia patient who had received 42 ounces of a potent liver extract was successful in treating other pernicious anemia patients.

In another study, the same investigators found evidence that the substances stimulating the glands of the stomach to secrete the digestive juices may be of the nature of hormones and also of secretion-stimulating substances called secretagogues.

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