

PHYSICS

Cosmic Rays and Ozone Layer Studied in New Flights

NEW studies of the stratosphere 12 to 20 miles above the surface of the earth are being made in Germany by the world-famous Prof. Erich Regener of the Physical Institute at Stuttgart. Small free-flight balloons are used in the investigations. They carry aloft automatic instruments in the manner proposed in the new research program of Dr. Arthur H. Compton of the University of Chicago.

Studies of cosmic ray intensities up to altitudes of 17.5 miles, Prof. Regener reports to *Nature*, indicate cosmic rays have the same specific ionizing power over the whole region investigated from the surface of the earth up to the greatest heights studied.

Other balloons bearing a quartz spectrograph were sent up to altitudes of 13, 12.5 and 19.5 miles. An examination of sunlight at these heights disclosed that at 13 miles 40 per cent. of the protective layer of ozone in the earth's atmosphere was then below the instrument. At 19.5 miles 70 per cent. of the ozone was below the instrument.

Ozone is atomic instead of molecular oxygen. It has a characteristic odor noticed when a quartz arc is operating and occasionally after a lightning bolt strikes near by. Because it strongly absorbs the ultraviolet rays of sunlight, ozone in the earth's atmosphere is often called a protective layer. Without ozone's presence sunlight would be so intense that plants, animals and people could not live on the earth as they do now.

Studies of the height of the ozone in the atmosphere were performed in col-

laboration with Dr. Victor H. Regener. The cosmic ray studies were made with Dr. Georg Pfozter.

Describing the results of the ozone studies, Prof. Regener declares, "These results are remarkable because they confirm recent calculations predicting that the height of the ozone layer is much lower than previously supposed."

Prof. Regener is a pioneer in the art of using small free-flight balloons to disclose conditions in the upper atmosphere. His high altitude studies of cosmic radiation have provided a large amount of data from which the nature of cosmic rays can be interpreted. His investigation of cosmic rays with instruments sunk far below the surface of Lake Constance, between South Germany and Switzerland, is also widely known. His stratosphere investigations have supplemented data obtained by similar research by Prof. Millikan, Prof. Auguste Piccard, and Dr. Arthur Compton.

Science News Letter, October 6, 1934

MEDICINE

Search For Something More Than Germ as TB Cause

SOMETHING in addition to the tuberculosis germ or bacillus is responsible for cases of tuberculosis. This was the consensus of opinion of tuberculosis experts who discussed the question at the meeting of the American Hospital Association. They did not, however, agree on what the additional causative factor may be.

The discussion was opened by Dr. C. H. Sprague of Broadlawns Polk County Public Hospital, Des Moines, Iowa.

Dr. Sprague pointed out and other physicians corroborated him that cases of tuberculosis have decreased unexpectedly during the period of economic depression. This led him and other tuberculosis workers to wonder whether the factors of good food, good homes, fresh air and cleanliness were of such importance in preventing tuberculosis as has been supposed. Examination of all children in order to detect possible cases of tuberculosis was universally accepted as a measure of prime importance in

HOW PLANTS FIGHT DROUGHT

an address by

Dr. Howard E. Pulling

Professor of Botany at
Wellesley College

Wednesday, Oct. 10, at 4:30 p. m., Eastern Standard Time, over Stations of the Columbia Broadcasting System. Each week a prominent scientist speaks over the Columbia System under the auspices of Science Service.

fighting the disease. According to some authorities, this examination should include school teachers, in order to rule out possible sources of infection from teacher to pupil.

The importance of recreation to keep up the tuberculous patient's morale and thus help him to fight the disease was emphasized by Dr. H. A. Pattison, of Livingston, N. Y. Dr. Pattison praised the work of the occupational therapist but declared that there should not be too much emphasis on craft work among tuberculous patients. Most of the patients because of their ailment are far below the normal in educational status, he points out, and therefore they should be given educational and intellectual amusement rather than craft work, in his opinion.

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BIOLOGY

Glass Model Shows How Rotifer Feeds

See Front Cover

MADE LARGE enough to see without the use of a microscope, exquisitely modeled in glass as transparent as its own body, a super-heroic-sized image of a rotifer, one of the common tiny water-worms, is shown as it feeds on the filament of a fresh-water alga, *Spirogyra*. The hungry tiny scrap of life punctures a cell, sucks it empty like a thieving weasel at an egg, and then moves on to repeat the operation on the next cell.

The model represented on the cover of this week's SCIENCE NEWS LETTER is in the American Museum of Natural History in New York City. It is the handiwork of the noted artist in glass, Herman O. Mueller.

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