

VOLCANOLOGY—METEOROLOGY

Recent Volcanic Eruptions May Affect World Weather

SOUTHERN South America may get a cold, wet season as a result of the recent volcanic eruptions in the Chilean Andes, if the experience of North America twenty years ago is any criterion.

In 1912, one of the greatest of Alaskan volcanoes, Katmai, literally blew its top off, hurling vast quantities of fine volcanic ash high into the air. This drifted in the upper atmosphere, the particles serving as nuclei for cloud particles. The result was that over huge stretches of territory in the United States proper the sun was hardly seen at all that summer.

The after-effects of the Katmai eruption were confined to the Northern Hemisphere, and disappeared within a year or so. But a generation earlier, in 1883, there was an eruption whose effects were noticed all over the world, and lasted for several years. This was the explosion of the East Indian volcano Krakatau, which destroyed over 36,000 lives. This eruption threw so much ash—estimated at 4.25 cubic miles—so high into the air that it drifted entirely round the earth, and is credited with causing the unusual red sunsets observed for several years after the eruption.

Whether the recent South American outbreak, which was considered of major magnitude, will have any such effects as these will depend largely on how high the volcanoes have cast their ash vomitings. If they have got any large quantity of ash above the level of the highest clouds, about ten miles up, it may drift indefinitely, cross the equator and make its effects felt in the Northern Hemisphere, said Prof. W. J. Humphreys of the U. S. Weather Bureau in response to a Science Service inquiry. At a somewhat lower elevation, the ash will still drift, but, caught in the Southern Hemisphere air circulation, it will not invade the supra-equatorial lands. And if the ejecta have not been cast above cloud level, Prof. Humphreys continued, they will be caught by condensing water and soon be washed entirely out of the air.

Although volcanologists themselves freely use the term "volcanic ash," they are careful to point out that it is not an accurate usage, if by "ash" one under-

stands material that has been exposed to fire. For there is no fire in a volcano, except such small incidental flames as are caused by the ignition of minor amounts of inflammable matter such as hydrogen and sulfur. The appearance of great flames above the volcano is caused by the reflection of the glowing lava on the clouds above; and the "ash" is simply lava that has been blown into fine froth and finally shattered into particles by the explosive action of the eruption.

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PUBLIC HEALTH

Restriction Urged On Use Of Poisonous Thallium

THE METAL thallium is apparently a dangerous poison. Therefore its use in human medicine and in wholesale poisoning activities against rodents and other lower forms of life should be restricted until more is known about its action and the habits of the animals against which it is used, warns Dr. Marcus Ward Lyon, Jr., of South Bend, Ind., in a note in *Science*. Similar warning against the use of thallium as a rat poison has recently been issued.

Numerous deaths have followed the

CHEMISTRY

New Copper Isotope Revealed By Magneto-Optic Method

A NEW kind of copper has been discovered by Prof. Edna R. Bishop of the Alabama Experiment Station, in a further application of the powerful magneto-optic method of analysis which was recently used in the discovery of the new chemical elements virginium and alabamine. Prof. Bishop was herself one of the discoverers of the new element alabamine.

The new copper is an isotope differing only in weight from the usual type of copper atoms. Isotopes of weights 65 and 63 had already been discovered

use of thallium as a depilatory for cosmetic purposes and in the treatment of ringworm of the scalp, Dr. Lyon points out. Several fatal cases of thallium poisoning have also been reported from the use of thallium-poisoned grain for the destruction of ground squirrels. Thallium is also poisonous to plant life.

"The amount of thallium distributed in poisoned grain for destroying rodents and other forms of life is quite appalling," declares Dr. Lyon.

He questions whether there is any likelihood of the thallium-treated grain being placed in the same situation year after year, such as might happen if old burrows are occupied by incoming ground-squirrels. In that case, he suggests there would be danger of causing patches of soil sterility.

Thallium was discovered by Sir William Crook in March, 1861. The new element was supposed to belong to the sulfur group until 1862 when Lamy of Lille isolated it, showed it to be a metal, and described its properties.

During his study of thallium, Lamy experienced weakness and pains in the legs which made him suspect it of being poisonous. He showed that this was the case by studying its effects on animals. It was later found useful in treating colitis and tuberculosis, and in this connection its depilatory effect was accidentally discovered when the patients' hair began falling out. Besides total loss of hair, thallium poisoning may produce such symptoms as weakness, leg pains, neuritis, mental disturbances, kidney involvements, excess salivation, heart palpitation, and visual disturbances.

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by Prof. F. W. Aston of Cambridge University, England. Analyses of copper salts from various sources and of different combining powers have all now shown a third isotope in the Allison apparatus. It is not yet possible to say what is the weight of the new kind of copper atom beyond the fact that it is less than 63.

This discovery fits the prediction by Prof. Harold C. Urey of Columbia University of a new copper isotope of weight 61.

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