PHYSICS

New Rain Theory

Based on finding that water droplets which later form rain form on relatively large particles of salt. Size of salt particles corresponds with size of raindrops.

➤ STUDY of salt particles found in sea air has produced a new theory of how rain is formed which may well conflict with the theory propounded by the chief rain-maker, Dr. Irving Langmuir.

Alfred H. Woodcock, of the Woods Hole Oceanographic Institution, measured the number and size of salt particles nature uses in making rain to be found in marine air out at sea and as far as 100 miles inland. He found something which he believes has never been discovered before—that nature uses relatively large particles of salt around which to form water droplets which become rain.

Further, the number and size of the salt particles he took out of the air corresponded quite well with the number and size of drops in subsequent rain storms.

Weathermen and cloud physicists before this had believed that rain could only be formed in the presence of small particles—nuclei as they are called. The question then was, how could drops large enough to fall out of a cloud form from these tiny particles fast enough to produce the amount of rain which usually falls.

Dr. Langmuir explained this with his "chain reaction" theory. He said that water particles grew by colliding with other particles until they reached an unstable size. Then, they broke up into several drops, which in turn immediately began growing. Each of these then broke up into several drops and thus the chain reaction started.

Mr. Woodcock's studies led him to believe that, at least in warm air, this process is not necessary. If water droplets form around relatively large particles, he thinks, they become large enough fast enough to produce rain.

He checked his research on the size and distribution of salt particles with other studies made in Japan, Ottawa and Washington. The Japanese study showed the variation in salt content of the water with the intensity of rainfall. The Canadian and American studies showed the variations in the size of drops with the rain intensity. These studies fit with Mr. Woodcock's, made in Florida. And this fit led him to believe that his theory may have validity for rain made in air that is below freezing as well as the warm air in which he worked.

Dr. Langmuir's rain-making experiments are based on his "chain reaction" theory. He seeds a super-cooled cloud with artificial nuclei—enough, he says, to start a chain reaction.

Mr. Woodcock presented the results of his study in a paper before a national meeting of the American Meteorological Society in New York.

Science News Letter, February 24, 1951

A cord of good quality wood will supply as much *heat* as a ton of coal.

Very many uses have been found for the *silicones* in the five years since these products of research were announced; they are plastics based on organic matter and silica.

Hybrid corn, now generally grown in America's corn belt, is producing a 25% greater yield on less acreage than the types produced a decade or two ago.

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How rapidly can a star flash up and return to normal? p. 115.

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MEDICINE

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Photographs: Cover, Leo Litwin; p. 115, MIT; p. 117, USAF Air Materiel Command; p. 119, GE.

● RADIO

Saturday, March 3, 1951, 3:15-3:30 p.m., EST

"Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. Charles E. Odegaard, executive director, American Council of Learned Societies, will discuss "Consequences of Learning," speaking to winners of the Science Talent Search at the Statler Hotel, Washington, D. C.

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