

METEOROLOGY

# Rainmaking Project Stops

**"Project Cirrus" scheduled to close down July 1 after five-year investigation of artificial modification of clouds with view to military applications.**

► "PROJECT CIRRUS," the Defense Department's five-year research project in rainmaking and the artificial modification of clouds, will close down July 1, SCIENCE SERVICE has learned.

The Army Signal Corps' contract with the General Electric Company ends at that time and, by mutual agreement, it will not be renewed. Nor will another corporation be asked to take over the research work. Official announcement of the move will be made soon.

"Project Cirrus" began in 1947 as a result of the discovery in 1946 by Dr. Vincent Schaefer, young General Electric scientist, that the process of making raindrops in clouds could be artificially started if they were "seeded" with dry ice. Later, another G.E. scientist, Dr. Bernard Vonnegut found that silver iodide crystals, which resemble ice crystals in structure, could start off the process.

Dr. Irving Langmuir, Nobel prize winner and now retired as a top G.E. researcher, said that seeding clouds with extremely small amounts of silver iodide produced effects in the weather observable over half to two-thirds of the United States. This assertion has been disputed by most meteorologists, both inside and outside the U. S. Weather Bureau.

"Project Cirrus" worked under a steering committee headed by Dr. Michael J. Ference, of the Signal Corps Engineering Laboratories, Belmar, N. J. On the committee are representatives of the Air Force, the Office of Naval Research and G.E. After its formation, a representative of the U. S. Weather Bureau was informally asked to sit in.

The most recent statement made by the Defense Department on the work of "Proj-

ect Cirrus" was issued July 19, 1950. The statement said in part:

"The question 'Can you make it rain?' has received an answer in the affirmative in many experimental instances where atmospheric conditions were suitable, but the question of how much precipitation can be artificially induced or if the amount would be of any economic significance is yet to be determined."

However, Defense Department representatives in "Project Cirrus" stressed that they were not interested primarily in artificial rainmaking. Their interest was in the military, air and naval applications of cloud modification. One small example of such application would be the usefulness to a pilot to be able to cut a hole in a cloud covering the airport at which he is trying to land.

A member of the steering committee told SCIENCE SERVICE that he is confident research along the general lines covered in the project would go on in some form or other. But it is believed that project members think the particular job of "Project Cirrus" is completed.

Science News Letter, February 23, 1952

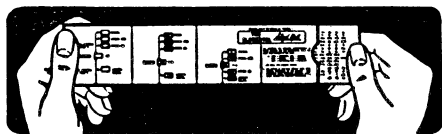
PLANT PHYSIOLOGY

## Leaf Analysis Tells Fertilizer Needs

► SCIENTISTS AT the University of California are trying to find a way to analyze the chemical content of leaves, and thus determine the amounts and kinds of fertilizer that plants need.

The study is important because both plants and soil differ widely in their chemical makeup.

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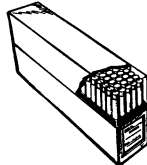
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For example, tomatoes growing on one kind of soil may be very different chemically from tomatoes growing on another kind of soil. Also, tomatoes and peas growing on the same kind of soil may be different in chemical content. Climate and cultivation practices affect plant growth and the amount of minerals taken up from the soil.

Although much work is still to be done before a leaf can be analyzed to tell for sure what fertilizer a plant needs, a start in this direction has been made.

Biochemists Clarence M. Johnson and Hideo Nishita have worked out a new test for sulfur in plant leaves and stems. This method, faster and more accurate than those used previously, can detect amounts of sulfur one-thousandth as small as older methods.

Mr. Johnson has modified older tests for nitrates in plants to make them faster and more reliable.

Much work needs to be done on the hundreds of kinds of crops and more than 1,000 kinds of soil to be found in California alone.

Science News Letter, February 23, 1952

Adult female house fly may lay eggs within 2 to 4 days after emergence.

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