

has since been beaten by the Navy Douglas Skystreak travelling at 650.6 miles an hour.

The Navy plans to use both of these engines in future Panthers, and although not identical they will be interchange-

able. The plane will be the first jet fighter with a dual source of engines. This is to assure an uninterrupted engine supply and will tend to make lower production costs.

*Science News Letter, December 20, 1947*

#### METEOROLOGY

## Water Can Make Rain Fall

Common cumulus clouds of any temperature will precipitate in a "chain reaction rainfall" when sprinkled with water.

► WATER, of all things, can be used to make rain fall. This latest and ironic development in rain-making was reported in a communication to the National Academy of Sciences by Dr. Irving Langmuir, associate director of the General Electric Company's Research Laboratory.

He advanced the theory that a little water dispensed on the right kind of cloud at the right time under the right conditions would start what the scientist termed a "chain reaction rainfall." Water, instead of the dry-ice or silver iodide used in earlier experiments, would trigger rain from common cumulus clouds, a type of heaped up white cloud found over the South and Pacific coast regions throughout the year and over the Northeast commonly in the summer.

"Theoretically," Dr. Langmuir told fellow scientists, "a single drop of water, if dispensed in the right spot, would be sufficient to cause the chain reaction rainfall."

Unlike the dry-ice experiments, water could set off precipitation from cumulus clouds of any temperature. In order to produce rain with water on a cumulus cloud, the cloud must have a vertical, upward current of at least five miles per hour, contain fully-grown water droplets, a high water content and a thickness of several thousand feet.

Under the new theory, the falling water particles would grow as they fell through the cloud until they reached a critical size of about three-sixteenths of an inch. After that, the particles would shed smaller bits of water which would be carried back into the cloud until they grew big enough to fall.

Dr. Langmuir said he believes this type of rain-making has already been achieved. He developed the new theory from reports of unexplained rain in some of the dry-ice experiments. In some cases, he explained, ordinary ice

particles on the dry-ice probably melted to set off rain under conditions where dry-ice alone should not have produced any precipitation.

*Science News Letter, December 20, 1947*

#### ASTRONOMY

## Discover Huge New Comet From Ship in Pacific

► A HUGE comet streaking across the southern sky just after sunset, trailing a tail estimated to be 40,000,000 miles long or the length of the whole Big Dipper, was discovered Dec. 8 from a ship at sea in the Pacific.

Exact measurements of the position of the comet were hard to make because when discovered it was low in the sky and no bright stars were nearby.

The first magnitude object, bright as Halley's comet last seen in 1910, has not yet been named officially other than comet 1947n. Comets usually bear the name of the person or persons who first find them. This one was discovered by someone as yet unidentified. It may be known as "Comet Ship."

*Science News Letter, December 20, 1947*

#### CHEMISTRY

## Ammonium Sulfamate Made More Easily

► AMMONIUM sulfamate, one of the sensational weed-killing chemicals born of the wartime emergency, is manufactured in a more direct and economical way under a new procedure on which U. S. patent 2,426,420 has been issued to Ernest J. Tauch of Cleveland Heights, Ohio.

The method is an improvement on an earlier German process which was largely a failure. Theoretically, ammonium sulfamate should result directly when ammonia and sulfur trioxide are

mixed. In the German process this was attempted with both compounds in the gaseous state, but the reaction produced unwanted ammonium imidodisulfonate instead. By mixing an excess of liquid anhydrous ammonia with sulfur trioxide in either liquid or solid form, Mr. Tauch has been able to obtain the desired compound. Care must be taken, he states, to make the mixing rapid and thorough, and to get rid of the heat evolved in the reaction. Evaporation of the excess ammonia helps accomplish this.

Patent rights are assigned to E. I. du Pont de Nemours and Company, sole manufacturers of ammonium sulfamate, who market it under the trade-name "Ammate".

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