

storm's overall existence and behavior.

A second new experiment will be the seeding of lines of cumulus clouds themselves. Simple cloud lines also have the advantage of being present much more often than hurricanes.

A substantial fleet of aircraft are involved in Stormfury, and as many as a dozen may become involved simultaneously with a single hurricane. In the past, project planes have ranged from DC-4s to Super Constellations, from B-57 bombers to U-2 reconnaissance craft. All are on constant 48-hour alert during August and September, the peak

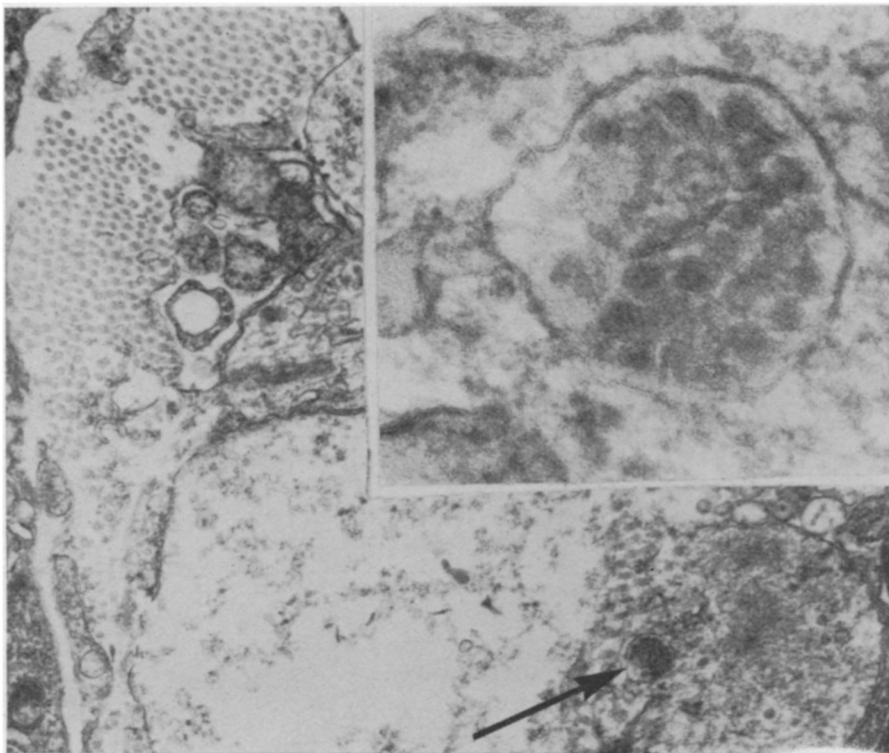
months of the hurricane season, and on through October 15.

The actual seeding will be done by Navy A-6 Intruder jets, which will begin their runs from an altitude of about 35,000 feet, 50 miles from the storm center, then ram through the eye.

Coordination of all the aircraft involved is so complicated that last week, the first order of business was a dry-run rehearsal, using one circling plane to represent a hurricane's eye. Late in the week, if available, a line of cumulus clouds was to be used to simulate a rain-band in a seeding test. ◇

BREAST CANCER

Virus in malignancies



Dr. W. F. Feller

Cluster (arrow and inset) of particles in breast cancer tissue may be virus.

Something that looks like a virus has been found in the milk and breast tissue of a suspiciously high proportion of women with breast cancer or a history of the disease.

Cancers caused by viruses have been found in animals—none has yet been proved in humans.

Like other investigators, Dr. William F. Feller of Georgetown University School of Medicine, and his collaborator, Dr. Harish C. Chopra of the Pfizer Co., are cautious in their claims. Writing in the June issue of the *JOURNAL OF THE NATIONAL CANCER INSTITUTE*, just published, they say the small particle they discovered shows more resemblance to a virus than to any other known structure.

Including some cases discovered after

the report was written, they identify the particle in 12 of 28 biopsies and in the milk of six of nine lactating women either with active disease or a history of breast cancer. Identical particles appeared in the milk of normal women, but the incidence of their appearance has been much higher in the milk of breast cancer patients.

"Although the virus-like entity . . . cannot be said definitely to represent a virus," they concede, it looks like one, and "its occurrence in clusters or aggregates ranging up to several hundred particles strongly suggest it is a virus."

Milk and tissue were studied under the electron microscope. Milk collections were made by an electric breast pump on the remaining breast after surgery. Biopsy specimens were ob-

tained from four District of Columbia hospitals.

The researchers emphasize that the presence of a virus in a human cancer does not in itself mean that it was the cause of the malignancy; the virus could be merely a passenger agent.

Assuming that the discovered particle is a passenger virus, however, it could be one that has some predilection for, or is more readily propagated within, malignant mammary cells, or those producing milk. In this case it might, as a secondary invader, have some influence on the course of breast cancer.

It would be important, therefore, the investigators reason, to continue attempts to further characterize it and determine its frequency of association with different biological types of breast cancer.

If the particle is a virus, it could be related to the cause of human cancer and thus make possible a potent weapon against the disease. Although no cancer-causing virus is now known to be as small, some of them are only slightly larger, and one, the polyoma virus, causes mammary gland cancer in mice.

PULSARS

Gravity wave search

Since pulsars were discovered last spring, theorists have regarded them as possible strong sources of gravitational radiation.

Such radiation (SN: 4/27, p. 408) would be an energy-carrying wave analogous to an electromagnetic wave. Gravity waves should be produced by massive bodies under acceleration just as electromagnetic waves are produced by charged bodies under acceleration. They should be detectable by the stresses and strains they set up in bodies they encounter.

Gravity waves strong enough to be detectable would require dense, massive bodies that produce strong gravitational fields. Most hypothetical pulsar models fit this prescription—dense stars undergoing physical pulsations, or revolving around each other, have been among the most popular suggestions.

There has been much talk about looking for gravity waves from pulsars; now the one man who may have seen gravity waves, Prof. Joseph Weber of the University of Maryland, proposes to try it.

Prof. Weber has been looking for gravity waves for a long time. He uses aluminum cylinders weighing about a ton and a half to look for radiation at a frequency of about 1,660 cycles, and a pair of these have been responding, he says, "to a common external excitation which may be gravitational radiation." Noted among his colleagues for