

METEOROLOGY

Spot Tornado by Scream

Doppler radar proposed as method of making tornadoes issue their own warnings. Simplified model now being used to test whether principle will work.

► **THE VICIOUS WHIRLING TORNADO** will warn of its approach with a scream on a loudspeaker next year if plans of the U. S. Weather Bureau are successful.

The same technique, known as Doppler radar, might also be used to warn airplanes that another aircraft was heading for them. Present-day radars operate by sending out radar waves that bounce back from the target. The range and angular position pinpoint the target.

In Doppler radar, the targets, whether tornadoes, high-speed airplanes or turbulent air, are spotted by their relative speeds. Output of such a radar is in the audible range.

The Defense Department is believed to be working on Doppler radar for many secret applications. The Doppler effect is familiar in the apparent rising note of a train whistle as the train approaches, its lowering as the train recedes in the distance.

Scientists hope the twister's swirling funnel can be spotted by an especially built radar, a simplified model of which is now undergoing its first tests at Cornell Aeronautical Laboratory, Buffalo, N. Y. This Doppler radar, if it works, would probably be used as an auxiliary for existing radar sets now being operated routinely to locate tornadoes and other severe weather. (See SNL, Aug. 11, p. 86, and SNL, March 12, 1955, p. 170.)

It is possible, however, that the new radar sets now on order for the U. S. Weather Bureau could be adapted to use the Doppler effect through addition of electronic circuitry.

One aim is to try to discover the tornado before its swooping funnel, so lethal where it sweeps the ground, is formed. Its high winds, thought to whirl at speeds up to 300 miles per hour, would contrast with those of the surrounding air to produce the audible sound on Doppler radar. Moisture carried by the winds would reflect the radar waves.

After the tornado's funnel was formed, the dust and other material inside it would also reflect radar waves, it is expected. Scientists do not know for sure because no one has heard a twister on Doppler radar.

There would be no danger of confusing a tornado with airplanes, Dr. James Brantley of the Cornell laboratory told SCIENCE SERVICE. He said he hoped the new equipment would give a tornado's bearing within one degree, as well as its speed and direction of movement over the earth.

The two 30-inch antennas Dr. Brantley is using to test the theory, with an output of five watts, have scanned clouds and, when conditions are good, have shown tur-

bulent motion within the clouds. If the small radar sets work, then their design will be improved for an operational instrument that would be tested in the field.

Advance knowledge of the occurrence and probable path of tornadoes would save not only millions of dollars of property damage but also many lives.

Science News Letter, August 18, 1956

WILDLIFE

Freeways Provide Wildlife Reprieve

► **FREEWAYS**, in some instances, may provide a temporary reprieve for wildlife against encroaching civilization, reports Dr. Malcolm E. McDonald of Union College, Schenectady, N. Y., a visiting zoologist at the University of California at Los Angeles.

The Sandy Barrens, a unique wasteland of sand, scrub pine and bogs, created in glacial times and lying between Schenectady and Albany, N. Y., a short time ago teemed in wild life, ranging from deer to rare birds. Rare ferns also were found.

For some time, however, housing tracts from the two cities have been making considerable inroads on the primitive area. Wildlife is gradually disappearing in the wake of civilization.

The recently-completed New York Thoroughway passes through the heart of the Sandy Barrens parallel to and about two miles from New York Central track. Thus the Thoroughway with its limited access is a temporary barrier to extension of housing areas, particularly in the area between it and the railroad.

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SEROLOGY

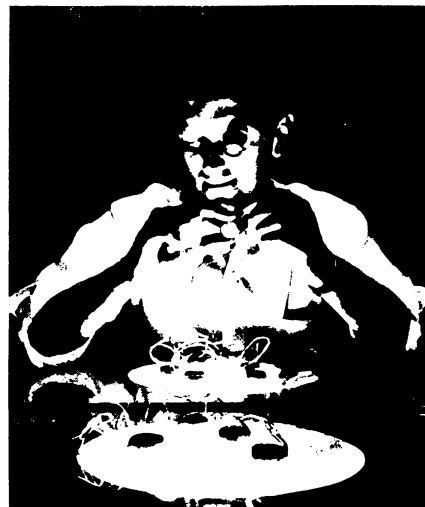
Use Fruit Flies to Assay Spider Antivenin

► **FRUIT FLIES** might be used instead of mice for assay of antivenins against the poisons of spiders and perhaps even snakes.

This method would be more efficient and reliable, suggest Dr. S. Wiener of the Commonwealth Serum Laboratories, Melbourne, and Dr. F. H. Drummond of the University of Melbourne.

Their suggestion is based on the discovery that the venom of the Australian red back spider causes paralysis of fruit flies when injected into the latter insects. Details of the fruit fly assay method are reported in *Nature* (Aug. 4).

Science News Letter, August 18, 1956



AUTOMATION AIDE—Skilled human fingers wire small, circular core units that serve as "nerve" cells for a new switch expected to stimulate assembly-line automation. Nicknamed "magnetic detective" by its developers, electronic engineers at Minneapolis-Honeywell's Doelcam Division, the new switch can monitor an assembly-line sequence of parts containing metal to confirm each piece and move it on, or shut down the assembly line if needed.

BIOCHEMISTRY

Create Potent Chemical Relative of Oxytocin

► **CREATION** in the laboratory of a new and powerful chemical with properties like those of the pituitary gland hormone oxytocin is announced by a team of scientists from the University of Geneva and Sandoz, Ltd., Basle, Switzerland, in *Nature* (Aug. 4).

Oxytocin itself was first synthesized by the American Nobel Prize winner, Dr. Vincent du Vigneaud of Cornell University Medical College, New York.

This pituitary gland hormone, both the natural and the synthetic, causes contractions of the uterus and release of milk from the mammary glands.

The new chemical is called valyl-oxytocin. Its effects on the uterus, on blood pressure and on the mammary glands, however, are different in different species, such as rats and cats, and on the uterus in the living animal compared with slices of uterus removed from an animal.

These findings, the scientists point out, suggest that synthetic compounds with properties like oxytocin should be put through a whole battery of tests to define their characteristics.

The scientists reporting on valyl-oxytocin are R. A. Boissonnas, St. Guttman, P.-A. Jaquenoud, J.-P. Waller, H. Konzett and B. Berde.

Science News Letter, August 18, 1956