

ENGINEERING

Spark Gap Guards Plane During Lightning Storms

➤ MANY COMMERCIAL airliners now are equipped with a gadget that protects the plane should it be hit by lightning while in flight. Usually metal planes are reasonably safe even if struck. Sometimes, however, lightning can damage radio equipment and start fires.

The protective device consists of a condenser, a spark gap cartridge and several steel strips. The condenser is wired into the radio antenna lead-in near the point where the lead-in comes into the airplane. To lightning, the condenser presents an open circuit, but it does not stop radio signals from coming into the plane.

The spark gap cartridge is connected to the antenna and to the plane's fuselage. When lightning strikes the antenna, the condenser stops it from running into the plane. The lightning then jumps the gap in the spark cartridge and discharges safely to the fuselage.

Reporting to the American Institute of Electrical Engineers meeting in Atlantic City, J. M. Bryant, University of Minnesota, and M. M. Newman and J. D. Robb, both of the Lightning and Transients Research Institute, Minneapolis, said valuable data have been gathered in the last two years by 50 of the devices placed on American Airlines craft.

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MEDICINE

Typhoid "Shots" May Lessen A-Bomb Harm

➤ ORDINARY TYPHOID and tetanus immunization "shots" may afford a great deal of protection against certain radiation effects of the A-bomb.

This is indicated in research at the University of California at Los Angeles Atomic Energy Project conducted by Dr. George V. Taplin, Camille Finnegan, Philip Noyes and Gerald Sprague.

Many radiation deaths are said to be the result of a temporary depression of the activity of certain defender cells in the body. These cells, known as "macrophages," are found in body tissues and form a mobile defense unit that combats invading bacteria. Radiation apparently tends to breach the defenses, and fatal infections occur.

It is known that "macrophage" number and activity are increased by several immunizing agents, including tetanus and typhoid shots. Thus such shots might offset the depressing effects of radiation on their activity and thereby reduce mortality.

The cells' activity was measured by the rate at which they remove prodigiosin, a red pigment formed by a bacillus, from the blood of rabbits. This seemed to be an accurate index of bacteria disposal by the "macrophage" system.

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"NAUTILUS" MODEL—A model of the first submarine to be powered by atomic energy, on display at the Museum of Science and Industry in Chicago, shows how a nuclear reactor will furnish power.

METEOROLOGY

Use 18 Salvaged Radars

➤ THE WEATHER Bureau has 18 tornado, hurricane and storm radar tracking stations which did not cost the taxpayers one cent.

If replaced now with new equipment, these 18 radar sets would cost a total of \$1,800,000.

Never able to get an appropriation from Congress for this vital tool in tracking and predicting the paths of tornadoes, hurricanes and other storms, the Weather Bureau begged several freight carloads of obsolete equipment from the Navy. It would have been thrown away otherwise.

One man in the Bureau's maintenance shop in Washington has been modifying this equipment practically in his spare time. Some modifications are needed so that the radar sets will track storms. The first set was put into operation in 1947. It has taken this man six years to get the other 17 into good weather-tracking condition and to install them. Latest station will be opened shortly in Little Rock, Ark.

Unfortunately, these obsolete radar sets can only track weather up to about 100 miles. Modern equipment, for which the Navy and Air Force can get appropriations, will track storms and see into the eye of a hurricane at ranges of up to 300 miles.

No appropriation has ever been granted for pay for the men who operate these sets. The regular weather observers at the 18 stations operate the sets and track the storms "in addition to their other duties," as the Army phrase goes.

Tornado, storm and line squall tracking stations are now at North Platte and Nor-

folk, Nebr.; Goodland, Dodge City, Wichita and Topeka, Kans.; Amarillo and Wichita Falls, Tex. Hurricane tracking radar sets are at Charleston, S. C.; Miami and Tampa, Fla.; Burrwood, La.; and Brownsville, Tex. A station which takes care of sudden storms in the New York City and New York harbor area has been installed there.

The Bureau gets free use of four more radar sets by cooperating with the University of Florida at Gainesville, with the Humble Oil Co. at Freeport, Tex., with the University of Chicago, and with the Civil Aeronautics Administration at the Washington National Airport.

The Bureau hopes to expand its radar coverage to Boston, Buffalo, N. Y., Detroit and St. Louis. Meteorologists generally think that every major city ought to have radar weather protection.

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ZOOLOGY

Chicken as Old as Human Centenarian

➤ ESMERALDA IS dead. The centenarian succumbed to cancer at her home in Cranbrook School, Bloomfield Hills, Mich.

In human terms, Esmeralda was only 12 years old; but to her fellow chickens, Esmeralda was an old lady indeed, with the equivalent of a 100-year human life span.

Up until a month before her death, the old matron had a 50% laying average.

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