



RADAR WARNING — From the round reflector in the window, a beam of short radio waves is aimed down the road. The approaching automobile sends back an echo that causes a warning bell to ring inside the guard house, calling the attention of the guard to the arrival of a visitor or intruder.

ELECTRONICS

Radar Warns Guard Of Nearby Persons

► RADAR CAN be made to spot human beings now as well as cars, airplanes and "flying saucers."

A radar-like device that will warn guards of approaching pedestrians, trucks and cars nearing the main entrance of General Electric's Research Laboratory has been installed to help maintain security at night and on week ends.

Persons can be detected walking toward the machine at 100 feet. An automobile reflects a tell-tale signal while still several hundred feet away. Big flat-walled trailer trucks ring the warning bell at an even greater distance.

Called an "electronic cop," the device works on the principles of the proximity fuse. It sends out a continuous radio signal that is reflected back by nearby objects. When the object is moving, the reflected signal goes in and out of phase with the transmitted signal, causing a bell to ring. If the object is not moving, the bell does not ring.

Developed by William C. White, C. Luther Andrews and Hiram S. Lasher, all of the G.E. Research Laboratory, the device sends out radio waves that are only five inches long and that behave much like light waves.

The scientists say the device's range can be extended by substituting a larger radio-wave reflector used to focus the radio beam. The present reflector is an 18-inch parabolic

• RADIO

Saturday, August 16, 1952, 3:15-3:30 p.m., EDT "Adventures in Science," with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Walter G. Vincenti, aeronautical research scientist of the Ames Aeronautical Laboratory, National Advisory Committee for Aeronautics, discusses "Research for Future Flying."

aluminum dish-like affair. With a larger reflector, automobiles could be picked up while still 600 feet away.

Science News Letter, August 9, 1952

METALLURGY

Plating Sticks to Oxide-Coated Metals

► METAL PLATING and solder stick better to oxide-coated metals and glass by improved methods using evaporation techniques revealed now by the Army Engineer Research and Development Laboratories. Excellent adhesion to the oxide coatings that form in ordinary temperatures on aluminum, chromium and titanium can now be made.

Some metals are difficult to electroplate or solder due to poor adhesion to their natural hard tenacious oxide coatings. Research was to find methods to secure adhesion to such metals by a process that includes their oxides. Evaporated films of most metals that form hard adherent oxide coatings can be caused to adhere tenaciously to their own and other oxides, scientists state.

Evaporated films of some metals such as gold, silver and copper, show poor adhesion to oxides. However, a metal of the latter group can be made to adhere to a metal of the former group, aluminum, chromium and titanium, by high vacuum techniques.

The vapors of the two metals are deposited at the same time in such a manner as to eliminate the oxide coating which hinders adhesion. Thus, to coat titanium with copper, titanium is first evaporated on the oxide-coated titanium. At the first evidence of titanium deposition, the evaporation of copper is begun. At the first copper deposit, the titanium source is turned off and the copper evaporation continued until no titanium shows through the surface. The resulting surface can be soldered to directly or can be built up by electroplating.

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Grass silage, in everyday farm language, is silage made from any of the green crops which might otherwise be dried and made into hay.

The biggest bats in the world, popularly called *flying foxes*, are found in the Old World tropics; they have about a five-foot wingspread.

Do You Know?

A new cooling device can change a blast of air at 600 degrees into *snow* within 2/10 of a second.

Hot, humid weather is conducive to a rapid life cycle of intestinal *parasites* of poultry.

Over 1,100 workers in *uranium* mines and mills of Colorado, Utah, New Mexico and Arizona show no evidences of health damage from radioactivity.

North America's most dangerous forest insect is the *spruce budworm*.

A gram of *gold* can be beaten into a leaf 0.0000033 inch thick that will cover six square feet.

Fresh strawberries are a good source of *vitamin C*.

Levulose, the sugar found in honey, is the sweetest of *sugars*; next in order are sucrose and dextrose.

Coffee is grown commercially in lands lying in a belt around the globe about 22 degrees north and south of the Equator.

About 55% of the United States' population is being served by 109 *TV stations* now on the air.

Americans get twice as much mileage out of their *shoes* today than they did 50 years ago, leather manufacturers say.

Oyster drills are worm-like creatures 1/15 to 3/4 of an inch long; the file of an oyster drill is a flexible ribbon about two inches long equipped with three rows of teeth capable of sawing into oyster shells.

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