ELECTRONICS

Magnetic Detector

Used during the war to locate Nazi U-boats, these detectors will now be used in locating oil, and for other geological surveys.

➤ AIRBORNE MAGNETIC detectors, that helped locate German submarines under water, will be found usable, it is expected, in locating oil in depths below the surfaces of the continental shelves surrounding America which were recently claimed by the President and put under federal jurisdiction.

These magnetic detectors were installed on the wing of an airplane or on the forward part of the belly of a blimp. They reacted to the magnetic metal in a submarine below. The magnetic reaction activated a needle on the instrument board, notifying the crew of the presence of an underwater boat. Then by circling and following the needle's directions, the pilot was able to determine the exact position of the enemy boat.

In geological work, these airborne magnetic detectors would be employed in much the same way as ground-based precision instruments are now used in making so-called magnetic geological surveys. In a recent magnetic survey of Florida by the U. S. Bureau of Mines results were obtained that indicated areas favorable for the occurrence of petroleum.

Essentially, a magnetic survey is a method of determining the contours of underlying granites and other formations —known to geophysicists as the "crystalline basement." A knowledge of the crystalline basement, particularly in areas covered by marine sediments, is of fundamental importance in oil exploratory work, according to Dr. R. R. Sayers, Director of the Bureau.

The invention and development of the wartime magnetic airborne detector has been officially a secret until information was released by Dr. George B. Pegram of Columbia University. Some of the development work was done by the university's Division of War Research, under a project of the U. S. Office of Scientific Research and Development.

Magnetic detectors were developed also by the Naval Ordnance Laboratory, and the Bell Telephone Laboratories; and by the Gulf Oil Corporation working independently and later under contract with the National Defense Research Committee. Gulf research laboratories began work on a "flying eye" in 1940, and made a successful flight test in 1941.

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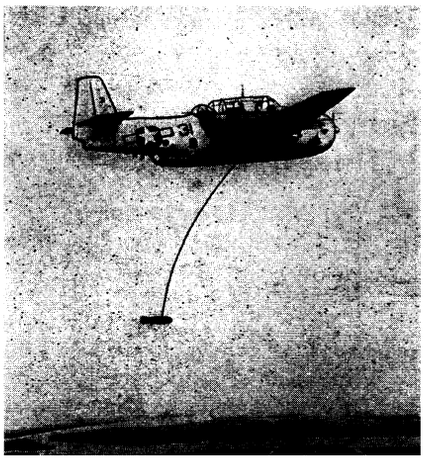

MAGIC EYE—Here we see the magnetic detector being flown from the wing of a plane as it will be used to locate oil below the surface of the continental shelves.

RADIO

"Hams" Reach New High In Radio Frequency

➤ RADIO communication in the ultra-high frequency field at 21,900 megacycles, a new record high for amateurs, has been completed by two "ham" operators.

Dr. A. Harry Sharbaugh, Jr., and Robert L. Watters, both scientists in the General Electric Research Laboratory, communicated across 800 feet, using the ultra-high frequency waves approaching the length of the longer light waves. Radio waves at such high frequency behave more like light waves than conventional radio waves, the operators reported.

First amateur invasion into the super-high frequencies of wartime radar was reported a few months ago at 5,300 megacycles when the Federal Communications Commission first assigned these bands to amateur radio operators.

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FOOD TECHNOLOGY

Thin-Sliced Potatoes Dried While Frozen

➤ CALIFORNIA may have sun-dried raisins and prunes; Alaska offers something new—and not under the sun, either, for it is done best in the long, frigid dark of the subarctic winter nights. It is a process for cold-drying potatoes, worked out by Dr. Basil M. Bensin, agronomist at the Alaska Agricultural Experiment Station.

Dr. Bensin's process consists in slicing raw potatoes very thin—from one-sixteenth to one-eighth inch—spreading the slices on a wire-netting frame, and setting them outdoors in the cold air for from 50 to 60 hours. They freeze immediately, but lose water even while they are frozen. It is not evaporation, strictly speaking; such loss of water from the frozen state is technically known as sublimation. In Dr. Bensin's experiments potato slices lost more than 60% of their water content. Their vitamin content remained unchanged, he states.

The potato slices darken on exposure to the air, as all potatoes do. This is a result of a simple enzyme reaction, and does not affect their food value. The original white color can be restored by bleaching with sulfur dioxide, a standard method long in use for bleaching dried fruits and vegetables.

Dr. Bensin believes his process can be applied also to other Alaska-grown vegetables, like carrots, beets and parsnips. The frost-dried products, compact and light-weight, should be useful additions to the food supplies of prospectors, miners, trappers and other men who have to watch the weight of their field rations.

A frozen-dehydration process has been used in the preparation of dried blood plasma and serums and in the crystallization of penicillin. A similar process has also been patented for the preparation of dehydrated foods without heating them, and is expected to be in commercial production within a few months. But these processes require elaborate and expensive refrigeration machinery, and often vacuum pumps as well. All Dr. Bensin needs is a sharp knife, some wire netting and wood—and the Alaska winter.

Science News Letter, June 15, 1946

Among the *deaths* during 1944 in the United States, there were 1,225 of persons reported to be 100 years old or over.