

## TECHNOLOGY

# Invention Calms Waves

A FRENCH inventor has devised a method for inducing the waves of the sea to calm themselves with their own energy. One purpose of the method is the smoothing of harbor waters.

The invention makes use of devices known as hydraulic resonators, which in effect turn the waves against each other. The principle involved is that the crest of one wave and the trough of another of equal magnitude occurring at the same time and place tend to cancel each other out.

The resonators take a variety of shapes and forms, and in general they work in this way:

Regard them simply as long boxes with open bottoms extending below the sea surface and closed tops (open in some types) above the highest wave crests. At a given level in the sea, the water pressure varies as waves move along on the surface above; it is higher beneath the crests. The open bottom of the resonator experiences the pressure changes. When the pressure is high the water level in the resonator rises, and when the pressure drops the water level follows suit.

Thus, in the resonator there are constant rises and drops in water level and pressure, which create waves that advance out against

the incoming ocean waves. The resonator may be adjusted to produce crests and troughs at frequencies necessary to damp out the ocean waves.

The natural frequency, or period, of the resonator depends on its geometrical shape and the level of the water in it. There are ways of changing the natural period, which is necessary if the ocean-wave frequency changes from day to day. For example, the air pressure in the pocket above the water in the resonator can be reduced or raised, causing a decrease or increase in period, respectively.

Two or more resonators may be employed in calming harbor waters. They may be placed at the ends of protective piers extending into the ocean. A type of open-top resonator may be used as a "water elevator." Its shape causes the water in it to crest far above its usual level, and the water spills over into a collecting basin.

The inventor, Jean Valembois, Becon-les-Bruyeres, France, received patent No. 2,886,951, which he assigned to Electricite de France, a national service in Paris. The patent was one of several recently issued by the U.S. Patent Office.

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**THOREAU'S SEED PLANTS**—Six portfolios of dried and mounted specimens collected by Henry David Thoreau, American philosopher and writer, have been given to the Harvard University Herbarium. Reed C. Rollins, director of the Gray Herbarium, studies a specimen.

## INVENTIONS

# Most-Wanted Inventions

A "BUCK ROGERS" rocket device that can be worn by man to shoot him across rugged land, or to double as a parachute in case of airplane trouble, was one of the 28 most-wanted developments named by the National Inventors Council in an appeal to the nation's inventors.

The Council said it also is seeking pressure-sensing devices, and techniques for converting inedible products of the earth into edible food using invisible microorganisms. The object is to figure out a way for military personnel and civilians to "live off the land" if necessary, such as in an atomic war.

The Council, composed of distinguished civilian scientists and engineers and the heads of research of the Army, Navy and Air Force, serves as a liaison between the civilian inventor and the military. Since 1940, it has been capitalizing on the brainpower of the American public to solve military technical problems.

The armed forces also want a way to keep bread from hardening, a better fungicide for clothing, insect repellents that can be "built into" clothing, ways to stabilize muddy soils, a reliable long life cathode tube, and other devices.

Currently, damaged submarine communications cables must be fished out of the sea for repairs. Consequently, a method is wanted that causes sea water to react with some kind of exposed chemicals in the dam-

aged cables to make this portion of the cable rise to the surface.

A mechanism to measure angle of flight and cause deceleration at hypersonic speeds in the fringe of the earth's atmosphere, a method of using a rocket to check wind speeds up to 100,000 feet above the earth, and a device to measure the height of large water waves are also sought.

Inventors having solutions to any of the 28 new problems listed in the Council's "Supplement to Technical Problems Affecting National Defense," should write up the idea and send it to the Council. The suggested solution will be evaluated and, if it appears promising, will be turned over to the proper military agency for further evaluation.

The Council also cancelled 66 problems which it had named earlier. Among them were: Transparent cockpit enclosures, high-voltage power supply and components, chemical for melting snow or ice, machinery for fabrication and method of welding titanium and smokeless rocket propellents.

A Council spokesman said the cancellations did not necessarily mean solutions had been provided by American inventors. The project to which the problem applied may have been cancelled, he said, or the problem may have grown obsolete through advanced technology.

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## ELECTRONICS

## New Device Improves Voice of "Speechless"

AN IMPROVED artificial "voice" that uses electronic parts is under development for persons who have lost their voices through surgical removal (laryngectomy) or paralysis of their vocal cords.

Three scientists from Bell Telephone Laboratories, New York, told the Acoustical Society of America meeting in Ottawa, Canada, that the man-made larynx was made possible by transistors and miniaturization.

Still in the experimental stage, the device allows the user to control the pitch of his artificial voice, thus giving his speech a natural sounding quality not previously obtainable. It can be used with a minimum of difficulty and training, and is especially effective when conversing over the telephone.

Underlying principle of the artificial larynx is a vibrating driver (transducer) held against the throat. Self-contained and cylindrically shaped, it measures slightly less than two inches in diameter and slightly more than three inches long. Included in the package is a modified telephone receiver serving as a throat vibrator, an efficient transistorized pulse generator with pitch control and a battery power supply.

To use the unit, the laryngectomized person presses the vibrator against his throat. Switching on the pulse generator with his finger, he transforms vibrations transmitted into his throat cavities into speech sounds as if he were speaking normally.

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