NATURAL RESOURCES

Desalted Water by 1966

Desalted water from the ocean and from reservoirs of brackish water will be widely used by 1966 if crash program is maintained, Vincent Marteka reports.

➤ DESALTED WATER from the ocean and other sources could be widely used as drinking water by 1966, a water expert predicted.

Large-scale salt water conversion plants will be dotting the United States coast and some inland areas within five to seven years if the present fast pace in desalting research is maintained, W. W. Rinne of the U. S. Department of Interior's Office of Saline Water told SCIENCE SERVICE.

The Government agency is directing a crash research and development program for wringing fresh water from salty oceans and brackish waters. It has built a demonstration plant in Freeport, Texas, that is producing 1,000,000 gallons of fresh water a day. Another 1,000,000-gallon-a-day demonstration plant will be operating in San Diego, Calif., by the end of the year, and others are scheduled to be built in various sections of the country.

Interested persons from parched areas of the U. S. are closely watching the program's progress to see if desalted water is the answer to their diminishing water supply. Current studies show that the high cost of salt water conversion could be whittled down to less than 50 cents per 1,000 gallons, or less than one-half its present cost. The cost of fresh water in most U. S. communities now ranges from 30 to 45 cents per 1,000 gallons.

Larger plants must be built to prove that such low costs can be obtained, Mr. Rinne said. The demonstration plants are too small to show the full economic potential of the different desalting methods used.

The freezing process has the greatest potential of all processes tested thus far in desalting the oceans, Mr. Rinne said. Another promising process uses the multi-stage flash evaporator being constructed in San Diego, Calif.

A major part of the developmental program is now slanted toward the freezing process, in which salt water is frozen and crystals of pure water are harvested. Although still in the pilot plant stage, freezing methods have the advantage of low energy requirements with little scaling and corrosion.

Residents of the Great Plains and other inland areas are more interested in processes to convert brackish, or less salty, water into drinkable water.

Huge reservoirs of brackish water left from ancient seas lie waiting underneath the dry earth of the Great Plains and in gently sloping sandy layers just beneath the Texas coastal plain.

Government scientists are now concentrating on a process, adapted for brackish water, that uses thin membranes and an electric current to separate the dissolved salts from the water. A plant using the process is now being built on the plains of South Dakota, 1,000 miles from the nearest ocean.

More research and funds are needed before all the problems of desalting the oceans and brackish waters are solved, Mr. Rinne stressed, but the five demonstration plants scheduled to be operating by late 1962 will help solve them.

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SEISMOLOGY

Seismic–Atomic Research

➤ UNITED STATES scientists will soon begin a world-wide assault on the problem of detecting underground atomic explosions when an existing global network of earthquake recording stations will be updated with new seismic instruments.

High-precision, standardized seismic instruments will be installed in 125 earthquake recording stations scattered throughout the world in an effort to find out how earthquake waves differ from shock waves of atomic explosions. U. S. scientists hope to be able to "fingerprint" earthquake waves into a characteristic profile on a seismogram to rule out any natural explanation in the event of a Russian nuclear explosion.

The program is conducted by the U. S. Coast and Geodetic Survey and is part of Project Vela-Uniform, the Defense Department's research program for detecting underground atomic blasts.

About 65 countries and islands throughout the world will be included in the earthquake network. Noticeably absent are the Russians, who told United States scientists they "already have a standardized network in Russia and Siberia that is adequate for our earthquake studies."

One of the most difficult problems facing nuclear detection experts is the inability to distinguish shock waves of an atomic explosion from those of an earthquake. Scientists hope the basic research data from the network will help separate the garbled waves, traveling through and along the surface of the earth, and pinpointing their exact nature.

All data obtained from the 125 stations will be channeled to an analysis center in Washington, D. C., where it will be available to scientists from all nations of the world.

The network itself is entirely inadequate for monitoring atomic explosions. It was primarily designed for accumulating data on the frequency, location and nature of earthquakes. More than 100 additional stations would have to be built to provide an adequate network for detecting atomic explosions.

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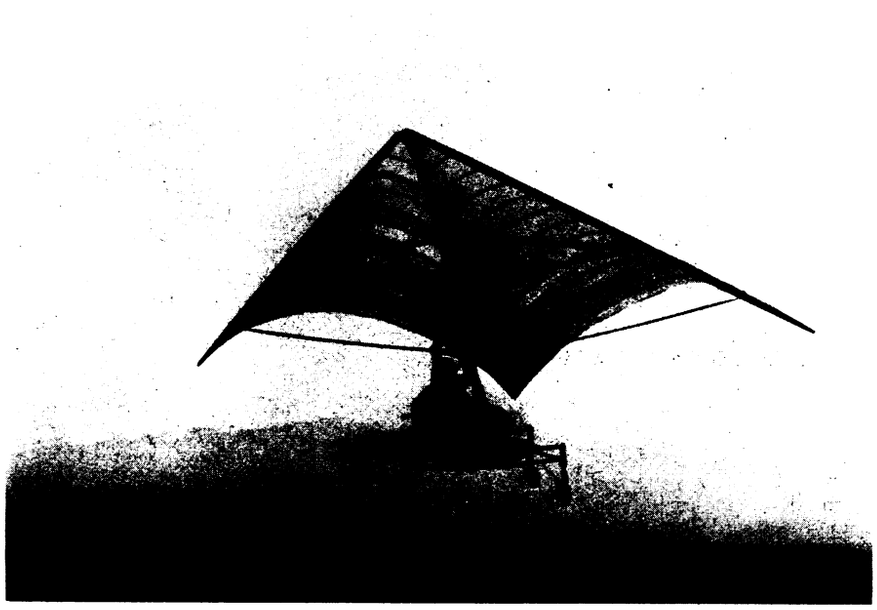

FLEX WING IN FLIGHT—A flight vehicle, the Flex wing, using plastic-coated nylon material instead of rigid metal surfaces for the wing, has passed its first test flights. The vehicle was built by Ryan Aeronautical Company, San Diego, Calif.