

TECHNOLOGY

Sea Water Freshening

Three methods for changing sea water to fresh water being investigated in California: a solar distiller, power plant and distiller, and triple effect distiller.

► A CONCERTED effort to develop practical large-scale means of turning sea water into fresh water is now under way at the University of California.

University engineers place their hopes of providing cheap water from the sea for arid regions on three methods of distillation now being tested.

One unit is a solar distiller designed by Dr. Maria Telkes of Massachusetts Institute of Technology for the California project. This distiller consists of glass plates inverted to form a roof over a black tray containing sea water.

When visible sunlight passes through the glass roof, solar radiation is absorbed by the black trays and is re-emitted as warming radiation. This infra-red radiation cannot pass back through the glass, and is trapped in the still, thus raising the water temperature.

As sea water evaporates, the vapor condenses when it strikes the roof of the still, cooled by air circulating around the apparatus. The distilled water droplets trickle down the sides of the glass roof, and are passed into wooden drain troughs. Minerals remain in the tray.

Five stills four feet wide and 50 feet long yield 100 gallons of water a day. With a new design, the engineers hope to increase the yield to 160 gallons a day.

A second still combines a power plant and a distiller, which the French, in West Africa, have been working with since the 1920's. Warmed sea water is put in a vacuum chamber to speed up evaporation. The resulting water vapor is passed into a condenser, where it is converted into water droplets by cool water circulating in the condenser jacket.

An effort is being made to design this distiller so that water vapor passing through a turbine on its way from evaporator to condenser would provide the power to operate the pumps. This would provide a self-operating still.

A third experimental unit, a triple-effect distiller using waste heat from a diesel engine, will be put into operation in the near future.

Everett D. Howe, associate dean of the college of engineering, says that at present none of the methods is economical. Improvements during the past year of research, however, have been encouraging.

Industry could benefit from the solution of the problems involved, by using heat, now wasted in cooling towers of industrial plants, to distill water.

Funds for the work have come from the California State Legislature and the Department of Interior.

Science News Letter, November 28, 1953

BIOCHEMISTRY

New Anti-Ameba Drug

► A NEW kind of drug that kills amebas is now ready for extensive trial in patients with amebic dysentery, or amebiasis, Drs. E. W. Dennis and D. A. Berberian of Sterling-Winthrop Research Institute, Rensselaer, N. Y., announced at the meeting of the American Society of Tropical Medicine and Hygiene in Louisville, Ky.

So far it has been tried in three patients, and in monkeys and hamsters. In all of these, it cleared the amebic infection in from two to five days.

The drug is known by its laboratory name, WIN 5047. Its chemical name is n-(2,4-dichlorobenzyl)-n-(2-hydroxyethyl) dichloroacetamide. It was synthesized at Sterling-Winthrop by Dr. A. R. Surrey and co-workers.

Unlike most of the commonly used drugs for amebic infection, WIN 5047 contains no arsenic or iodine, which are likely to cause reactions in sensitive persons. The new drug is highly specific, killing the amebas

but not affecting the bacteria normally found in the intestines.

Its safety is shown by the fact that monkeys were not harmed by taking it for three weeks in 13 times the dose, on a body weight basis, used to treat humans who would need only the much smaller dose for one week.

Science News Letter, November 28, 1953

NATURAL RESOURCES

2,000-Year-Old Cisterns Help Reclaim Desert

► CISTERNS 2,000 years old may be used by irrigation engineers to help reclaim the Negev desert area in Israel.

Dr. W. C. Lowdermilk, American soil scientist and adviser from the Food and Agricultural Organization of the United Nations to Israel, has said that technical experts can learn much from an irrigation

system set up by the Nabataeans in the Negev area 2,000 years ago.

The cisterns have capacities up to 75,000 cubic feet and were used in ancient times to catch and store water during storms and flash floods. The water was then doled out in the long dry season to irrigate crops. The experts now recommend that they be put to use again.

This tribe may have used mounds of flint rock fragments as dew mounds. The wind blowing between the flints would have deposited moisture on the stones, watering olive trees and vines planted in the mounds.

Science News Letter, November 28, 1953

BOTANY

Scientists Develop New Berry Plant

► A NEW fruit for eastern United States may be developed from a successful crossing of blackberries with red raspberries at the New York Agricultural Experiment Station in Geneva.

The loganberry, youngberry and several European berries that are very popular began with similar crosses, but cannot be grown successfully in the East. The cross is also important because eastern blackberries and red raspberries are harder and more disease resistant than their western relatives.

The new plant produces fruit characteristic of both parents, and it will be tested rigorously to determine its real merits and growth possibilities.

Crossing different species seldom produces fertile offspring. The scientists used 50 different crosses with more than 1,800 flowers to obtain the fertile hybrid plant.

They found that raspberry pollen applied to blackberry pistils fails to produce seedlings that will grow to maturity. Blackberry pollen on raspberry pistils, however, produced some vigorous seedlings which produced flowers and fruit.

Science News Letter, November 28, 1953



LIFE-SIZE BERRY—This picture shows a new, crossed berry in its actual size.