

Fresh Water from Sea Water by Solar Distillation

MARIA TELKES

Design of Practical Solar Stills

During World War II fresh water was desperately needed for life rafts. Weight and volume were at a premium and solar distillation—requiring no fuel—was considered as a possible solution of the water problem. In tropical regions, potable water sources are often not available, and these conditions prompted an investigation of the basic principles of solar distillation.

Inflatable, floating solar stills have been developed by the writer and others. Such devices are now standard equipment for life rafts. For land use, inclined plate-type solar stills have been used, occasionally, in the past, but their efficiency was very low. This paper presents the optimum construction principles, derived from calculations, for land use stills. Several designs have been tested experimentally for tropical and semitropical use and appear to offer a promising method for obtaining fresh water.

Solar stills can be built to produce 1 gallon of fresh water daily from a solar energy intercepting area of about 4 square feet, corresponding to an efficiency of 60 to 70% on clear days. Such stills can be constructed mostly of glass and plastics; metallic parts can be avoided. Cost estimates indicate that solar stills are very economical to build and operate, and they may solve the water problem in arid tropical regions, where natural potable water is not available.

FRESH WATER FROM SEA WATER BY SOLAR DISTILLATION

Maria Telkes.....
Massachusetts Institute of Technology, Cambridge, Mass.

Present Address
Research Division
College of Engineering
New York University
University Heights 53, N.Y.

I&EC—May 1953

1108