

## ● RADIO

Saturday, March 15, 1952, 3:15-3:30 p.m. EST  
 "Adventures in Science," with Watson Davis,  
 director of Science Service, over Columbia Broad-  
 casting System.

Mr. J. J. Demuth, president of the American  
 Society of Tool Engineers and chief of the Tool,  
 Dye, Jig, and Fixtures section, National Production  
 Authority, on loan from Ehrhardt Tool and  
 Machine Co., St. Louis, discusses "The Know-How  
 of Production."

## TECHNOLOGY

### Concrete Durability Hurt By Penetration of Water

► CONCRETE WHICH is to be used in  
 structures situated in water must be  
 guarded against volume change and water  
 seepage, L. H. Tuthill of the Bureau of  
 Reclamation in Denver, Colo., reported to  
 delegates attending the American Concrete  
 Institute in Cincinnati.

Mr. Tuthill said controlling those two  
 things meant the concrete would be more  
 durable.

Byram W. Steele of Miami, Fla., formerly  
 a concrete specialist with the Corps of  
 Engineers, said concrete durability must be  
 thought of in terms of individual structures.

"In many cases the concrete is good  
 enough," he said. "To have spent more  
 time and money making better concrete  
 would have been economic waste."

However, he pointed out that concrete  
 often is not good enough when used in  
 structures situated in water. Within a few  
 years, many structures show serious signs  
 of deterioration because water finds its way  
 into, and through, the concrete in many  
 places.

Science News Letter, March 8, 1952

## METEOROLOGY

### March Will Be Wet In Most of Nation

► THE WEATHER will be colder than  
 usual in the month of March over the  
 western half of the nation, but about the  
 same as usual in the East. This is the pre-  
 diction of the U. S. Weather Bureau's Ex-  
 tended Forecast Section.

Exceptions to this prediction are the Gulf  
 of Mexico coastal regions and the Great  
 Lakes area. They can expect a warmer  
 March than usual.

Most of the nation will have a rainy or  
 snowy March, depending on the location.  
 However, the Pacific Northwest will have  
 less precipitation than usual, while the Great  
 Lakes and Middle Atlantic states and the  
 far Southwest can expect less than normal  
 precipitation.

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## CHEMISTRY

# Fresh Water from Ocean

Plastics in sheet or membrane form, combined with  
 electric power, now used to dissociate sodium chloride so  
 it can be removed from sea water.

► FRESH, DRINKABLE water from  
 brackish sea water is a realizable dream  
 for the near future through the use of ion  
 exchange films or membranes and the ap-  
 plication of differences in electrical po-  
 tentials.

Whether the costs of such operation can  
 be reduced to a level where the process  
 can be used to supplement existing water  
 supplies for cities is a matter for future  
 development.

Several organizations are working on  
 this problem, among them Rohm and Haas  
 Co. in Philadelphia, Ionics, Inc., of Cam-  
 bridge, Mass., Dow Chemical Co. at Mid-  
 land, Mich., and the University of Cali-  
 fornia at Los Angeles.

Already there are ion exchange resins  
 in granule form that can be used to desalt  
 water and perform dozens of other ex-  
 tractions of chemical substances from  
 liquids. But the quantities handled are  
 small and the costs high.

The new developments consist of use  
 of the plastics or resins in sheet or mem-  
 brane form, with electric power to aid the  
 process of dissociating the sodium chloride,  
 which is salt, in such a way that it can  
 be removed.

The federal Reclamation Service in  
 Washington has been urging Congress to  
 make \$25,000,000 available for develop-  
 mental desalting water research, and such  
 legislative request has been cut to \$2,000,-  
 000 in hearings held recently. If such ap-  
 propriations were made, experiments with  
 some of the ion exchange methods would  
 result.

The latent energy of salt, which is the  
 minimum of energy necessary to separate  
 its chemical components, is three kilowatt  
 hours per thousand gallons of sea water.  
 A possible figure of 10 to 20 cents per  
 thousand gallons was given by the Cam-  
 bridge group of Ionics division of the  
 American Research and Development Cor-  
 poration, closely associated with Harvard  
 and Massachusetts Institute of Technology  
 staff members. This is a reasonable figure  
 for the future with very cheap electrical  
 power available, yet it is a tenth of the  
 best possible costs worked out by the most  
 promising distillation methods.

Since even water from a river is not  
 obtained without cost, these possible costs  
 of desalted water bring the process to with-  
 in reach of the cost of reclamation and in-  
 dustrial water which often costs as much  
 as the estimated ion exchange water costs.

To obtain large output of water by the  
 ion exchange method might require an

excessive investment in equipment. The  
 slower the process the less electrical energy  
 is used, yet it may be advantageous to  
 waste electricity to reduce the number of  
 expensive units installed.

Details of the exact methods used are  
 being kept secret due to filing of patents.  
 The chemical nature of the resins used is  
 also unannounced. If the process seems  
 vital to defense activities, it may be kept  
 secret by government order.

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## TECHNOLOGY

### 57 Varieties of U. S. License Tags Are Problem

► IMPROVEMENT IN license-plate pro-  
 tection and illumination is blocked by a  
 frustrating combination of different license  
 lengths and different heights, the Auto-  
 mobile Manufacturers Association in De-  
 troit declares.

The association has counted a conglomera-  
 tion of 57 United States varieties plus nine  
 Canadian varieties, giving a total of 66  
 different sizes.

Until some standards have been set, li-  
 cense receptacles cannot be incorporated  
 into auto design as fenders have been in-  
 corporated.

At present, license sizes can fall within  
 certain specified limits, but no standard  
 license size is prescribed. That permits a  
 combination of the two dimensions in  
 many ways. As a result, they have been  
 combined "in almost every possible way  
 within the range permitted by the law of  
 mathematics."

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## ENGINEERING

### Reversed Washer Used In Air-Cooling System

► A REVERSED washer has been found  
 a practical air-conditioning unit where water  
 shortages make it desirable to consume as  
 little water as possible in cooling systems.

The reversed washer is merely a standard  
 air washer which, instead of cooling air,  
 cools water and discharges warm air.

A system using such a device has been  
 designed and installed in a six-story New  
 York bank building. It has enough capacity  
 to handle 400 tons of Freon. The system was  
 devised by the Guy B. Panero firm of  
 engineers.

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