

● RADIO

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

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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 prediction of the U. S. Weather Bureau's Extended 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 application of differences in electrical potentials.

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 Cambridge, Mass., Dow Chemical Co. at Midland, Mich., and the University of California at Los Angeles.

Already there are ion exchange resins in granule form that can be used to desalt water and perform dozens of other extractions 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 membrane 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 developmental desalting water research, and such legislative request has been cut to \$2,000,000 in hearings held recently. If such appropriations 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 Cambridge group of Ionics division of the American Research and Development Corporation, 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 within reach of the cost of reclamation and industrial 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 protection and illumination is blocked by a frustrating combination of different license lengths and different heights, the Automobile Manufacturers Association in Detroit declares.

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

Until some standards have been set, license receptacles cannot be incorporated into auto design as fenders have been incorporated.

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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