

months—the mining, milling and processing of uranium ores into high grade concentrates, and the manufacture of radiation detection instruments. He also called attention to the participation of industry in key parts of the AEC-financed program: du Pont's survey of the chemistry of plutonium, aided by Blaw-Knox, Dow Chemical, General Electric, Kellogg, Monsanto, and Standard Oil Development; and Westinghouse's work in developing a reactor for driving ships. As for the wider dissemination of knowledge on atomic energy, Chairman Lilienthal stated that plans were being pushed toward this end. The broad clearance of industry technicians and executives presents many practical difficulties, he said, and requires further study as does the formation of a general industrial advisory committee on which industrial representation on functional committees might prove an adequate substitute. Mr. Lilienthal welcomed the suggestions for improving organization, but said that the Commission would continue to emphasize managerial decentralization as "a concrete demonstration of how large and far-flung enterprises can be organized for continuity in case an atomic attack should disrupt the headquarters organization."

A seminar on the disposal of radioactive wastes, attended by a number of the country's experts on waste disposal problems, was held in Washington last January. The seminar was sponsored by the Atomic Energy Commission, and is part of a continuing effort on the part of the Commission to maintain close liaison with public health and safety officials with respect to the national atomic energy program and to its effect upon community life.

The radioisotope training facilities at Oak Ridge are now open to a limited number of scientists who are citizens of the twenty-five nations so far qualified to receive radioisotopes under the AEC isotope export program. The first foreign participants in the training program, K. Aterman, of the department of anatomy of the University of Birmingham, England, and P. S. Krishnan, of Madras, India, attended an Institute course during the month of January.

NBS News

National Bureau of Standards scientists have made use of the invariable frequency of molecular spectrum lines to control the accuracy of a clock. The frequency of an oscillator-initiated microwave signal is fixed exactly at the frequency of the strongest (and most easily measurable) absorption line of ammonia gas. This provides a means of controlling the oscillator, which has been used to drive a clock with such unprecedented accuracy that, according to a recent Bureau announcement, it "promises to surpass by one or two orders of magnitude the accuracy of the present primary standard, the rotating earth."

To open up the new spectrum of radiofrequencies for application to practical electronic equipment as well as

for basic research in nuclear physics, the Bureau began in 1944 a comprehensive program on microwave measurement up to one hundred thousand megacycles or more. This work, under the direction of Harold Lyons, has resulted in extremely precise standards of frequency, power, attenuation, etc. A primary standard of frequency, accurate to one part in one hundred million, has been developed, based on a quartz crystal clock and a frequency multiplying system governed by the time observations of the U. S. Naval Observatory. Through its use the Bureau now provides a regular service of frequency measurement and calibration of frequency meters and voltage sources.

A Bureau study conducted by Abner Brenner and Eugenia Kellogg has resulted in the development of a magnetic method for determining thickness of composite copper-nickel coatings electrodeposited on steel. Attractive forces between the plated specimen and two permanent magnets of different strengths are measured in a modification of the Magne-gage, a Bureau-designed instrument. The values thus obtained are used, in conjunction with a set of previously determined calibration curves for each magnet, to obtain the total thickness of the coating and relative thicknesses of the copper and nickel layers. The new method avoids the necessity of destroying the plated article to provide a cross section for microscopic examination. Its accuracy is within about ten percent for composite coatings ranging from five millionths to three thousandths of an inch, and within fifteen percent for each component layer of the coating.

An improved electronic phase meter has been developed at the Bureau by E. F. Florman and A. Tait. Designed for a frequency range from one hundred to five thousand cycles per second, the new instrument will aid the study of factors limiting accuracy of low frequency radio navigation systems.

The Bureau also announces a method for immediately calibrating instruments which record rapidly changing voltages under special conditions. In making a continuous record of the electrical potential developed by a lightning stroke, for example, it may be essential to calibrate the recording instrument before the thunder arrives, since the air-wave shock might change the calibration.

New Australian Journal

A periodical called the Australian Journal of Scientific Research is now being published quarterly by the Australian Council of Scientific and Industrial Research, Melbourne, in collaboration with the Australian National Research Council. It is being issued in two parts, one dealing with the physical sciences and the other with biological sciences.

Awards

Research Corporation scientific awards, consisting of plaques and honoraria of \$2,500 each, have been received by Bruno Rossi, professor of physics at the Massachusetts