PUBLIC HEALTH

Government Regulations Protect Against Radiation

➤ THE ATOMIC Energy Commission has issued a regulation, effective February 28, 1957, establishing standards for the protection of atomic energy workers and the public against radiation hazards arising from all activities licensed by the Commission.

Standards are set up in the regulation for the handling of all radioactive materials subject to Commission licensing. Limits are prescribed governing exposure of workers to external radiation, concentrations of radioactive material which may be discharged into air or water, and disposal of radioactive wastes.

In general, the standards forbid any worker to be exposed to radiation averaging more than three-tenths of a roentgen per week. They limit to only ten percent of that "maximum permissible" figure the amount of radiation the public might receive in the vicinity of nuclear power plants or other licensed activities. The three-tenths limit is the standard set for workers in AEC plants.

Other provisions of the regulation include requirements for surveys of radiation hazards by licensees, monitoring of workers, caution signs, labels, and signals, storage of licensed material and instruction of workers on safe procedures for handling and using licensed materials.

Permissible limits agree substantially with the current recommendations of the National Committee on Radiation Protection in the National Bureau of Standards Handbook 52 "Maximum Permissible Amounts of Radioisotopes in the Human Body and Maximum Permissible Concentrations in Air and Water," and NBS Handbook 59 "Permissible Dose from External Sources of Ionizing Radiation."

Consideration is being given to appropriate amendments to deal with limiting cumulative exposure over a period of years. The standards are thought to provide an adequate margin of safety for exposed persons. They are, however, subject to change with the development of new knowledge, with significant increase in the average exposure of the whole population to radiation, and with further experience in administration of the regulatory program.

The regulation applies only to activities licensed by the AEC. It does not cover radiation sources such as X-ray and radium. One of the purposes of the regulation, however, is to assure that exposures to radiation from licensed material, when added to exposures from unlicensed radiation sources possessed by a licensee, such as X-ray and radium, do not exceed the permissible limits.

Science News Letter, February 16, 1957

MEDICINE

"Double Pin" Method Repairs Broken Shins

➤ BROKEN shin bones can be repaired with a "double pin" method that lets the patient start walking early, three New York surgeons told the American Academy of Orthopaedic Surgeons meeting in Chicago.

The new surgical method keeps the fracture from slipping after it is united. The pins are placed at the heel bone and at a point just below the knee. Then the leg is put in a cast.

This type of repair decreases the risk of bones and muscles wasting away due to prolonged inactivity, the surgeons said.

In over 800 patients "pinned," the average time in bed was only five days and the patient was walking on crutches within two weeks and out of the hospital within three.

Drs. Milton J. Wilson, Herbert G. Cohen and Jack Henry Mowrer of New York Medical College, New York, reported on the procedure.

Science News Letter, February 16, 1957

Questions

ASTROPHYSICS—According to Dr. Bostick's hypothesis, how are galaxies produced? p. 101.

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GENERAL SCIENCE—How many high school students took the Science Talent Test this year? p. 106.

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MEDICINE—What are the five drugs to be used on cancer patients who volunteer in the near future? p. 99.

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PHYSICS—What property, discovered almost 50 years ago, is utilized by the cryotron? p. 103.

What results will stem from the application of the "maser" principle? p. 102.

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PSYCHOLOGY—"Learning" in paramecia has been found to be due to what chemical effect? p. 102.

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PUBLIC HEALTH—By the new regulations, how much radiation may an atomic energy worker be exposed to per week? p. 110.

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ZOOLOGY—Is the rate of learning of the raccoon slower than that of a cat? p. 105.

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PHOTOGRAPHS: Cover, Massachusetts Institute of Technology; p. 99, Columbia University; p. 101, Stevens Institute of Technology; p. 103, Chemstrand Corporation; p. 112, Plastimayd Products Corporation.

TECHNOLOGY

Automation to Free Offices From Tedium

➤ AUTOMATION is a great step forward toward an economic society in which the system is subject to the will of man and not subject to the wild vagaries of unbridled economics, Prof. Donald P. Eckman of Case Institute of Technology declared at the Eighth Annual Research Day program at Case Institute in Cleveland, Ohio.

"To a control engineer, automation is the application of feedback devices for manipulating energy or information," Dr. Eckman said. "To an industrial engineer, automation is the use of automatic machines and materials handling equipment. To the industrial executive, automation is what he lacks in not keeping production up and costs down."

The greatest advances in mechanization today are being made in the office, he said. The use of automatic accounting devices will bring "a revolution in office procedures and free the women's world from the tedium of long columns of numbers."

"Payrolls, inventories, sales, materials receiving are but a few of the items that can be handled by complete machine accounting via the punch tape or card," Dr. Eckman said. "Fewer mistakes will be made, work will be done faster, and the machine is neither whistled at nor coffee'd at 10 and 3."

In addition to office applications, Dr. Eckman said automation is eliminating the tedious routine of engineering, so the scientist may be freed of much of the wearisome detail.

Science News Letter, February 16, 1957