

CHEMISTRY

Radioactive Poisons

► **THE DANGER** of radioactive pollution of rivers and lakes is not a simple matter of calculating the amount of waste that can be diluted, the Chemical Institute of Canada was told in Montreal.

Deposition of the radioactive materials in river and lake beds and their concentration in fish and other animals eaten by man is a danger that could send the radiation dose higher than international limits, Dr. J. F. Guthrie, Atomic Energy of Canada, Ltd., Chalk River, warned.

Waters that afford the liveliest fishing and are most attractive to the eye are low energy systems, more free from wastes

that contain organic materials and minerals available to living creatures, Dr. C. E. Renn, Johns Hopkins University, Baltimore, reported at the meeting. Many species compete in less polluted waters, but as wastes are added the water quality becomes more varied and a larger population of more limited species develops.

Heating a stream, through discharge of industrial wastes into it, results in a substantial reduction of dissolved oxygen with increased biological activity such as growth of vegetation, Dr. Richard D. Hoak of the Mellon Institute, Pittsburgh, reported.

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PHYSIOLOGY

Animal Radiation Study

► **HOPE THAT MAN** can survive the dangers of radioactive fallout has been seen as a result of studies with rats.

Cesium-137, a comparatively little-studied fission product, was injected into rats after the animals were first irradiated with X-rays at the University of Cincinnati Medical Center, Dr. James G. Kereiakes told the First International Biophysics Congress in Stockholm. The aim is to determine the extent of distribution of radioactive cesium-137 in the body. Strontium-90 is a better-known fallout material that seeks the bone.

Simulating a fallout field where mammals might take in radioactive material internally by breathing, through the mouth or skin, and at the same time receive external radiation stress, Dr. Kereiakes irradiated his laboratory animals with X-rays and immediately injected the fallout material.

The animals were then studied for reten-

tion of cesium-137 and its distribution in their bodies. Control animals were given only cesium-137 injections.

The irradiated rats showed greater excretion of the cesium-137 than the control animals. Radiation exposure increases the amount of urine, the scientist explained, and this probably is related to the increased volume of excretion.

If these urinary losses of cesium-137 and the increased urinary volume are a related cause and effect, the possibility appears that cesium-137 can be flushed out of the contaminated animal. This hopeful possibility, Dr. Kereiakes said, will be studied further.

Collaborators on the research were Dr. David Ulmer of Harvard Medical College; Dr. A. T. Krebs of Fort Knox Army Medical Research Laboratory and Dr. T. D. Sterling, University of Cincinnati.

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PUBLIC SAFETY

Atom War Survivors

► **"NORMAL AND HAPPY LIVES"** are possible for the survivors of a thermonuclear attack, and the problems of national recovery from such an attack have been "grossly exaggerated," a military analyst and civil defense expert told the House military operations subcommittee.

Herman Kahn, consultant to the Rand Corporation, Santa Monica, Calif., said effective civil defense programs can be designed for the "less ferocious and less difficult" wars that he considers more likely than an "uncontrolled and all-out" war.

"Twenty million dead is better than 40 million dead," he said. "Let's save those who can be saved."

The subcommittee, headed by Rep. Chet Holifield (D.-Calif.), is weighing President Kennedy's \$207,000,000 request for an expanded civil defense program.

The proposal includes \$93,000,000 for a survey to identify and mark existing and

potential shelters in public buildings. Mr. Kahn called this "one of the most justified expenditures" and said it should have been done in the 1950's.

He deplored what he called "the widespread view that what causes war is thinking about it. An incredibly large number of people believe that if you build shelters, you will have to use them."

He said the idea that limited wars are no longer possible is "naive," and pointed out that an enemy who destroyed the maximum number of persons in a first attack would no longer have "hostages" to threaten if he did not get his way.

The so-called "doomsday" weapons, threatening the end of the world, "have not been built, and there is good reason to believe that they will not be in the near future."

Mr. Kahn said he believed there is logic in the statement that "I would rather have

everybody Red than everybody dead." The alternative to this attitude, he said, is to put the country "in a position where you can say you are willing to accept large casualties rather than surrender."

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PUBLIC HEALTH

Antipollution Bill Signed Into Law

► **A STRONG BILL** to fight water pollution has been signed into law by President Kennedy.

The bill will give stronger powers to the Federal Government in water pollution cases and increase Federal support for constructing waste treatment plants. It is a compromise version of two similar bills introduced in both the House and Senate.

The administration of the Federal water pollution control has been elevated to the office of the Secretary of Health, Education and Welfare, and would apply to all interstate and navigable waters. Enforcement procedures were previously limited to intra-coastal waterways, administered by the Surgeon General of the U. S. Public Health Service.

The bill also authorizes construction grants totaling \$570,000,000 through the 1966 fiscal year. During 1962, \$80,000,000 will be available, \$90,000,000 in 1963, with \$100,000,000 annually for the following three years.

Other features of the bill include constructing field laboratories and research facilities, and storing reservoir water to flush out streams when water levels are low.

According to the bill, Federal action on intrastate waterways can be taken only when requested by a state or by a city with state approval.

Survey scientists make a comprehensive survey before recommending a possible test site. The area is thoroughly mapped, noting the type of rock and its tendency to resist tremendous shock. The circulation of ground and surface water is carefully checked to see whether any possible radioactive contamination would be spread to other regions.

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GENERAL SCIENCE

Many Science Aids Available in All Fields

► **A NEW AID** to youngsters and adults interested in science is now available.

Called *Wonderful World of Science*, the paperback book describes thousands of science materials which can be obtained free or at very low cost. These include booklets, films, kits, games and experiments in every scientific field, which have been prepared by professional organizations, Government and industry.

The Science Service-Bantam Book publication tells how to obtain materials covering everything from astronomy to zoology. This 50¢ source book was edited by Shirley Moore and Judith Viorst, with illustrations by Don Trawin.

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