Water Pollution Bill

Both the Senate and House have passed bills that will double, to $100 million annually, federal grants to states and local communities for control of water pollution. A Senate-House conference this week was working out the minor differences between the bills, but the result was certain to be a measure costing somewhat more than the bill passed last year and vetoed by President Eisenhower, who said that the problem is "a uniquely local blight" which should be dealt with by state and local action.

The bill passed the House by 198 votes, with nearly half the Republicans joining 90 percent of the Democrats to pile up the 308-to-110 margin. The Senate version passed on a voice vote with little debate. The opposition did not ask for a roll call. As is common on such issues, local governments generally supported federal intervention on the grounds that on these predominantly urban problems the cities simply cannot get the help they need from the rural-dominated state legislatures.

Research in Materials

The Defense Department, through its Advanced Projects Research Agency (ARPA), has awarded $13.4 million in contracts to universities for basic research in materials, divided among Brown, Harvard, MIT, Chicago, and Stanford. The awards are the latest in a series reflecting a decision made last year at the White House level to strengthen the basic research needed to provide the specialized materials needed by the newer technologies. The atomic plane project, for example, floundered largely because of the inability to develop materials capable of withstanding the high temperatures and high intensity radiation to which the engine components would be exposed, and similar problems come up in connection with developing materials for space vehicles and new weapon systems.

Small Nuclear Generators

A 4½-pound atomic power unit is generating electricity in the Transit IV-A navigation satellite that was part of the three-satellite "economy package" recently launched by a single 50-ton Thor-Able rocket. Transit IV-A is the first of four operational prototypes of the Navy's satellite navigation system that will beam signals to airplanes, ships, and submarines on weather and location to aid navigation.

The small nuclear generator is supplying power to two of the four radio transmitters in the satellite. The generator contains a small amount of plutonium-238, a radioactive element with a 90-year half-life, capable of generating heat up to 1000°F. The heat is converted by very small thermoelectric rods into electrical energy. The output is 2.5 watts, and the estimated lifetime of the unit is 7 years. Approximately 7000 pounds of ordinary batteries and solar cells would be required to power the transmitters for the same period of time. The success of the unit overcomes a major problem resulting from the breakdown of conventional batteries in satellites.

The unit is one of a series of SNAP (System for Nuclear Auxiliary Power) devices under development by the Atomic Energy Commission to supply energy in space and on earth. The AEC has announced success in developing the first atomic-powered weather station to be installed in the arctic ice north of the Canadian border. The station will derive its power from a generator filled with strontium-90. The generator will power the unmanned weather station on the same heat-to-electrical energy conversion principle as that used in the Transit unit; its output is 5 watts. The station will be able to transmit data every 3 hours for two or more years without refueling.

News Briefs

A pilot plant to remove strontium-90 from milk is being tested by the government at the Agriculture Department's Research Center at Beltsville, Md. The process would be valuable in case of nuclear attack. The Atomic Energy Commission and the Department of Health, Education, and Welfare are cooperating in this research.

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There were three new appointments to the President's Science Advisory Committee last week: Edwin R. Gilliland, professor of chemical engineering at Massachusetts Institute of Technology; Franklin A. Long, professor of chemistry at Cornell University; and Colin M. MacLeod, of the New York Medical Center.

Announcements

The **Board of Microbiology** of the American Institute of Microbiology is accepting applications for certification in the fields of public health and medical laboratory bacteriology; public health and medical laboratory virology; public health and medical laboratory mycology; public health and medical laboratory immunology; and in the broader area of public health and medical laboratory microbiology. (American Board of Microbiology, 232 Burrill Hall, University of Illinois, Urbana)

The proceedings of a conference on the results of Commander Shepard's suborbital **space flight** have been published by the National Aeronautics and Space Administration in cooperation with the National Institutes of Health and the National Academy of Sciences. (Superintendent of Documents, U.S. Government Printing Office, Washington 25. Order No. 0-597504. $0.50)

An International Society of **Stereology** (the science of three-dimensional interpretation of flat images) has been formed for the exchange of ideas concerning applicable research methods in microanatomy, cytology, ultrastructure studies, metallurgy, geology, astronomy, and cosmology. Inquiries are invited concerning membership, or the activities of the society. (Hans Elias, Chicago Medical School, 710 S. Wolcott Ave., Chicago 12)

Weather Modification, *Second Annual Report, 1960,* describes projects sponsored by the National Science Foundation within this research area, as well as the work of other federal agencies and of state, local, and private groups. The foundation's weather modification program, administered through grants and contracts, expended $1.4 million during fiscal year 1960, an increase of $250,000 over the previous year. "The greatest deficiency in the field of weather modification," the report states, "is skilled manpower. However, for the first time, the United States has launched a sustained and concentrated attack on the problem and . . . has created new research opportunities . . . to attract . . . young scientists to work on the problem in our graduate school laboratories." (Superintendent of Documents, U.S. Government Printing Office, Washington 25. $0.15)