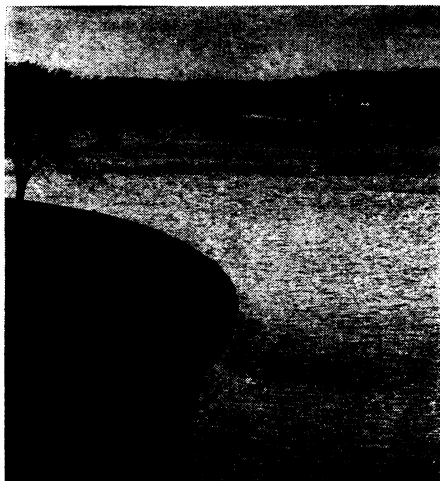


Action needed



Corps of Engineers

New emphasis on water supplies.

In recent years, sewage treatment has been given great national emphasis. Congress last year appropriated \$800 million for sewage treatment grants to municipalities and other local governments for the current fiscal year. President Nixon's environmental package, outlined in a message to Congress (SN: 2/14, p. 168), placed strong emphasis on it. Sen. Edmund S. Muskie (D-Me.), chairman of the Senate's air and water pollution subcommittee, wants \$2.5 billion a year spent on it.

Badly needed as such action is, there have recently been some indications that this may be putting the cart before the horse. While Americans have begun to perform the important task of cleaning up their effluents, they have often neglected to insure that citizens get clean water out of the tap.

The Department of Health, Education and Welfare's Bureau of Water Hygiene has prepared a report on the extent of the water supply problems, which bureau officials declare to be serious in many places.

Of the 3,563 water samples taken in the study, 979—nearly 30 percent—showed bacterial or chemical content exceeding BWH standards. Traces of pesticides and other organic chemicals were found in nearly all samples, and four-tenths of one percent of the samples showed arsenic levels in excess of BWH's recommended limit of 10 parts per billion.

Although there are national standards set by the bureau for interstate water supplies—which states, by and large, have adopted for intrastate supplies—because of budgetary limitations the quality of enforcement on state and local levels often is low. But the most serious problem, according to Gordon Robeck of Cincinnati, assistant director for BWH, is the low level of sophistica-

tion of water plant personnel, especially in the smaller systems.

Of the 969 water systems monitored in the study, for example, about nine percent showed evidence of bacterial contamination. "There is just no excuse for this," says Robeck; such a problem can easily be corrected. What is worse, however, is that sometimes local water officials make no effort to correct the situation even after BWH informs them of it.

The technology exists for removing many of the substances found. Precipitation techniques are effective for many trace elements. Activated carbon absorption techniques remove many organic chemicals. Chlorination and filtration are effective against bacteria, although chlorination causes its own—as yet little understood—problems through chemical combination of chlorine with organic compounds.

There are a few Federal grant and loan programs for water treatment facilities. The Agriculture Department's Farmers Home Administration will spend about \$122 million this year for water plants in rural areas or small towns. Smaller programs are operated by the Department of Housing and Urban Development and the Commerce Department's Economic Development Administration. But the expenditures for all of these programs put together do not begin to match amounts spent by the Federal Government for sewage treatment.

Also, of course, there is great need for further research. Although current technology provides the means for removing many of the contaminants, sometimes current methods are expensive, and cheaper ones must be found.

PATENTS

Agreeing on prior art

During the past four years, patent specialists in the United States and abroad have been working toward the goal of cutting the red tape involved in applying for a patent internationally. The idea of a streamlined process moved closer to reality last week in Washington when 53 nations unanimously adopted the Patent Cooperation Treaty (SN: 6/13, p. 575).

An obstacle that had to be overcome before the United States would sign the treaty was the fear that an inventor in one country could prevent an inventor in another from getting a patent on a device, chemical or process just by mentioning it in the initial filing document in his home country, even though it had not been fully worked out. This could come about if the unqualified invention were entered into the literature along with a legitimate invention. Although the

More sophisticated water analysis techniques are needed—and existing ones must be made available to the smaller systems—and the toxicology of many of the contaminants requires further research.

Merely to hire personnel on the state level to do a proper enforcement job would cost around \$15 million a year, Robeck estimates. With water treatment and distribution the nation's third largest industry (in terms of capital investment), costs of upgrading systems will undoubtedly be in the tens of billions of dollars.

But Dr. James E. Etzel, Purdue University environmental engineer, suggests that most of the increased expenditure should come in operating costs rather than capital investment.

"Till they get the level of training above that of the village idiot," he says, "we are going to have the kinds of problems listed in the report. What we're doing is entrusting a sophisticated process to a guy that doesn't have any competence beyond rote learning." Thus, he adds, increased costs would come largely from upgrading and increasing staffs—which he agrees must happen also on state enforcement levels.

The average United States cost of water now is about seven cents a ton. "delivered in the kitchen," Dr. Etzel says. Doubling this might solve the worst of the problems, he thinks. But to achieve this, there must be consumer acceptance.

There's no real reason this shouldn't be forthcoming, he says: "After all, we pay about \$280 a ton for milk and \$3 a ton for topsoil. Why should people view water as a nearly free commodity?" □

patent, when granted, would protect the true invention, the unqualified invention would become part of the public domain (prior art) even though it was unworkable. In this case, another inventor who could have made it workable might be blocked from getting a patent on it.

The United States objected to the treaty because it did not permit separation of the dates for prior art and for priority, which establishes an inventor's claim to his invention. Under the treaty, the prior art date and the priority date would have been the same: the initial filing date of the application abroad. The United States wanted to retain the right to decide what the effective prior art date was. The demand was met with a provision saying that a state "may declare that the filing outside . . . is not equated to an actual filing in that state for prior art purposes."



Commerce

Patent session: Unanimous approval.

An important feature of the treaty is that it extends the time period in which an applicant has to act after his initial filing. Previously, the period was 12 months, after which he could lose overseas rights. Now it would be 20 months. This means an inventor can take better aim at his markets; money has been lost because deadline pressure resulted in patents being applied for in the wrong country or not applied for in the right country.

By the treaty's terms, an inventor through one central filing in his home country can in effect file his initial application in any of the treaty countries he desires. The treaty provides for standardized forms to simplify the filing even more. Five centers in the United States, West Germany, the Soviet Union, Japan and The Hague—and possibly a sixth in Austria—will process the application and conduct an international search on it.

A second part of the treaty will enable an inventor to get an advisory opinion on whether his invention is really an invention after all: whether it is novel, nonobvious and has industrial applicability. This part is optional and is expected to be of great value to underdeveloped nations.

The treaty has been greeted favorably in the United States. "We would approve of the treaty," says Frank L. Neuhauser, president of the American Patent Law Association, speaking for that organization. "It is my understanding that the final draft of the treaty as negotiated is consistent with resolutions previously adopted by the American Patent Law Association."

He is seconded by Merel E. Scales, chairman of the patent trademark and copying law section of the American Bar Association: "As far as our organization is concerned the results that were obtained were very favorable."

Now the treaty goes back to the respective nations for hearings and ratification, a two-year process at least. □

BIOMEDICAL TESTS

Soyuz returns

The landing of the crew of Soyuz 9 last week in Kazakhstan, U.S.S.R., not only marked a first for space flight endurance—18 days—but probably contributed significantly to space medicine and physiology (SN: 6/20, p. 599). Commander Andrian G. Nikolayev and flight engineer Vitali Sevastyanov were reported a little thinner.

Some five days after their return, Tass, the Soviet news agency, reported that physicians were finding that the cosmonauts were having difficulty readjusting to earth's gravity.

The two men are reportedly now in a 10-day quarantine, during which time debriefing and analyses of medical tests will be performed. During the flight, measurements of the men's blood pressures, pulse and respiratory rates were taken before and after simulated exercises such as running and jumping. The only earlier problem was a report that they suffered eye muscle coordination problems after their first day in earth orbit.

In addition to tests of biological sensors, the crew did earth resources and weather experiments and checked out a radio navigation system which allowed ground stations to trace the orbit of Soyuz 9 to within a meter's accuracy. □

SCIENCE NEWSBRIEFS

Breaking the CERNjam

The council of CERN, the European international physics laboratory, has unanimously decided to go ahead with construction of a 300-billion-electron-volt (GeV) proton accelerator on a site adjacent to the present laboratory in Geneva (SN: 5/16, p. 478). The existing 30-GeV accelerator would be used as a part-time injector for the new machine. Any decision would be reserved for a few years on whether to use superconducting magnets to reach even higher energies, as was envisioned in a previously published proposal.

The council hopes that its present decision will not only end the squabble over where the new laboratory should be built, but will make it cheap enough so that all the present members of CERN will want to participate. □

AMA behind closed doors

The 119th annual convention of the American Medical Association convened in Chicago this week with members of the policy-making House of Delegates meeting behind guarded doors. Fearing disruption by young doctors and students, the delegates stationed police at the doors of the hall and, in an unusual action, excluded

the press from first-day proceedings. Among subjects that were hotly disputed during the week in sessions that preceded voting was the question of the AMA's stand on open abortion laws passed by state legislatures in New York, Alaska and Hawaii. Members will also debate a substantial increase in AMA dues—possibly from \$70 to \$150 per year—at a time when membership is declining. More complete coverage of the AMA meeting will be carried in SCIENCE NEWS next week. □

Hill-Burton vetoed

Legislation to extend for three years the Hill-Burton Act granting Federal funds for construction of medical facilities (SN: 4/19/69, p. 377) was vetoed this week by President Nixon. The President's central objection to the bill was that it called for spending \$350 million more in fiscal 1971 than the amount the Administration requested in its budget. Mr. Nixon said he would approve another bill if it were "financially responsible." He called on Congress to remove a provision providing for construction of new hospitals, saying the priority should be the one he originally established: the modernization of existing facilities. The present Hill-Burton Act expires June 30. □

Fermi award

Dr. Norris E. Bradbury, head of the Atomic Energy Commission's Los Alamos Scientific Laboratory since 1945, was named last week as the 1970 winner of the AEC's Enrico Fermi Award. A \$25,000 honorarium and gold medal will be presented to the 14th recipient on Aug. 29, when he retires from his post.

Dr. Bradbury was cited "for his inspiring leadership and direction of the Los Alamos Scientific Laboratory throughout a quarter of a century and for his great contributions to the national security and the peacetime applications of atomic energy." □

Lead tax

President Nixon's proposed bill to tax lead in gasoline (SN: 5/23, p. 504)—which he asked Congress to pass so as to go into effect July 1—will not pass by then, if ever.

Senate Majority Leader Mike Mansfield (D-Mont.) and House Majority Leader Carl Albert (D-Okla.) have both announced their opposition.

Says a Mansfield aide: "We must find a substitute for tetraethyl lead first, and the President apparently doesn't want to spend any money on this."

The \$4.25 a pound tax, which would add about 2.3 cents per gallon cost to gasoline, was aimed at reducing levels of lead in the environment. It would have brought in \$1.6 billion annually, the President predicted. □