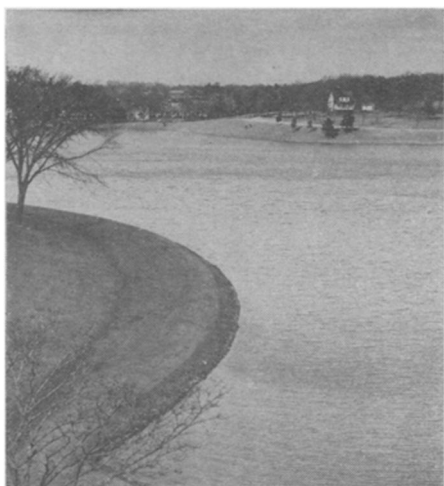


## Action needed



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."