have failed to meet the initial deadlines, such as those for the designing of treatment works and the letting of contracts, fixed by the abatement implementation schedules. But even FWPCA officials in Washington are not fully informed as to how well or badly the schedules are being observed, although reports on compliance are now being compiled by FWPCA's regional offices and submitted to headquarters. A box score available for the Great Lakes and upper Mississippi region, for example, shows that, while some cities and industries are meeting their deadlines, others are a year or more behind.

In September, Secretary of the Interior Walter J. Hickel, using for the first time the "180-day notice" procedure available to him under the Water Quality Act, directed FWPCA to hold early hearings on violations of water quality standards and abatement schedules by the City of Toledo and four steel companies polluting Lake Erie tributaries in Ohio. He declared that if these polluters failed to take steps within 180 days to clean up their effluents, they would be taken to court. A mining company charged with polluting the Spring River in Kansas and Oklahoma was named in a similar proceeding.

"This is just the beginning," the Secretary said at the time. "We intend to continue the identification of polluters all over the nation, followed by the enforcement of schedules for prompt cleanup." However, at this writing, no further 180-day notice proceedings have been initiated. A sense of caution may have been imparted when the proceeding against Toledo and the steel mills promply led to a shouting match between two good Republicans, namely, Secretary Hickel and Governor James Rhodes of Ohio.

Many delays in the construction of treatment facilities are said to be due not to recalcitrance but to difficulties in financing, delays in equipment deliveries, and shortages of skilled labor —problems which can arise in any large-scale construction program. And, of course, no improvement in water quality takes place until construction of a treatment facility is completed and the last switch is thrown. "We're doing the biggest plumbing job in the country," says Murray Stein, FWPCA's Assistant Commissioner for Enforcement. "Ask any housewife how long it takes to get her plumbing work done." Stein believes that most polluters are now making a good-faith effort to clean up.

In November, the U.S. General Accounting Office (GAO) reported that in numerous cases a city or town has improved its waste treatment facilities only to have this offset by increasing discharges of untreated or inadequately treated wastes by industries or other cities on the same watercourse. One objective of the Water Quality Act and the waste treatment grants program is to encourage the development of regional facilities but this goal has been elusive. The GAO accused FWPCA of following a "shotgun approach" in making construction grants. FWPCA Commissioner David D. Dominick says, however, that his agency lacks the authority to require grant recipients to provide facilities according to a regional or river-basin pollution abatement plan.

Given their complexity, problems of water pollution control are not easily understood apart from a discussion of specific situations. Illuminating examples probably can be found in many parts of the country, but the pollution problems besetting the Houston Ship Channel and Galveston Bay, being among the nation's worst, are worthy of a special analysis in a later issue of News and Comment. These problems will be discussed in the context of the larger problem of protecting the Galveston Bay system from the manifold threats arising from population growth and economic pressures.

As for the water pollution problem nationwide, the Nixon Administration may find it difficult to cope so long as inflationary pressures continue. At the moment, President Nixon appears to feel that he is in a dilemma, with his choice being between more inflation on the one hand and more pollution on the other.—LUTHER J. CARTER

"Book Bugging": A Possible Answer to Library Thefts?

With losses from book thefts mounting yearly, university and public libraries are installing theft-detection systems in an effort to keep a tighter rein on library collections.

The London *Times* reports that the new $8-million Birmingham, England, city library has plans to have every book in its collection "bugged," by 1971, with magnetized metal strips which will set off a bell or light when a thief tries to abscond with a book.

Libraries in the United States report losses ranging from $1000 to a half million dollars yearly. They, too, are seeking to minimize forays by installing theft-detection devices. The Yale University Medical Library and the Western Michigan University Library, for instance, are two of the perhaps half-dozen university libraries in the country that are known to be experimenting with "bugging" systems.

How do these "bugging" systems work? The detectors vary, but all operate on somewhat the same principle. A device—usually electronic, magnetic, or chemically sensitive—is hidden in the books and must be desensitized, removed, or screened by the librarian when the volume is checked out of the library. When a would-be thief attempts to remove a book unofficially, a light, buzzer, or screen signals the librarian.

Three library theft-detection systems are currently being marketed in the United States and are being used in public and university libraries. Users report that these systems slow down thefts, but none are described as foolproof against the clever pillagers. The American Library Association (ALA), which has done some research on these theft-detection systems, indicates that the detectors do not always work. One spokesman reports that some of the detection systems have been known to give false alarms triggered by umbrellas

Columbia Curbs Classified Research

The Columbia University Senate last week moved to disassociate the university from all classified research projects, whether financed by government or industry.

The student-faculty-administration body agreed on a seven-point policy which has two major themes. First, the faculty may not take on classified contracts in which the university is involved directly or indirectly. This prohibition does not extend to individual consulting arrangements. Further, if a faculty member wishes to take a classified contract in which the university would be involved, he may petition a review board (elected by the Senate) and he may appeal the board's decision to the Senate's committee on external relations and research policy. Any exceptions must be publicly announced. All existing contracts must be modified or terminated within 1 year to comply with the new rules.

The policy's second major point is that outside contractors cannot tell the university how to conduct research projects. Contractors may not regulate the religious or political affiliations or the race of persons working on projects; nor can contractors veto publication of the results.

Currently, Columbia has five classified research projects. Two projects for the National Aeronautics and Space Administration involve development of instruments for measuring the moon's heat flow and its quakes. An Air Force project involving seismic waves is designed to enable identification of underground nuclear explosions. These three are conducted at Lamont-Doherty Geological Observatory in Palisades, New York. Two other projects, carried out at Columbia's Bermuda station, are for the Navy, and concern measurement of sound waves under water.

Classified research contracts now amount to three-quarters of a million dollars at Columbia; the total for all externally-funded research is $70 million.—NANCY GRUCHOW

or other metallic objects. Conversely, some detectors have been known to fail when books were actually being pilfered.

Librarians have found that apart from some technical difficulties with present detector systems, the biggest flaw is that the devices are so easily outwitted by students intent on beating the system. Librarians who have experimented with some of the desensitizing devices say that students who want books badly enough wrap them in laminated foil, with paper on the outside, and walk through screening areas undetected. At Western Michigan University, where a magnetic system has been in use since 1965, librarian Peter Spyers-Duran told *Science* that students have discovered that by placing books containing the permanently installed magnets or transistors "head to toe" and thus reversing the magnetic field, two books, instead of one, can be taken out undetected.

Librarians, while lamenting the fact that no James Bondian detector yet exists, are also complaining that the existing detection systems, often better than no system at all, are expensive. One ALA spokesman says that some manufacturers have been known to charge installation rates and rental fees that are just below the estimated losses resulting from book thefts. Opinions on this vary, just as the costs and needs for the services vary. Spyers-Duran estimates that his library loses about $16,000 a year through book thefts, even with a detection system. He says the annual cost of his library's detection system, including manpower, is at least $18,000. He figures the library's losses would be once again as great without the detector system, and estimates that most university librarians spend about 2 to 4 percent of their book budgets in replacing books that have been stolen. Stanley D. Truelson, Jr., librarian of the Yale Medical Library, declined to give figures on Yale's book losses or on the cost of its detection system, but did say that Yale finds the system it uses "less expensive than the salary of door guards."

For the most part, librarians who have used theft-detection systems criticize both the cost and the unreliability of the present detectors, but few question the need for detection systems to halt the increasing number of library book thefts. They worry particularly about losing rare books whose value cannot be measured in dollars and cents.

More and more, university and public libraries are placing books which were once in the closed stacks on open shelves in an effort to encourage people to read more, says Verner Klapp, former president of the Council on Library Resources, Inc. and former deputy director of the Library of Congress. As this happens, book losses may spiral, unless detection systems are improved, from the standpoint of reliability and cost, and more libraries begin to use them.—MARTI MUELLER

APPOINTMENTS

Jacqueline G. Wexler, former president, Webster College, to president, Hunter College, City University of New York. . . . **Harry Foreman**, associate dean, office of international programs, University of Minnesota, to director, Center for Population Studies at the university. . . . At the University of Texas Medical Branch at Galveston, **Stewart Wolf**, professor of medicine, psychiatry and behavioral sciences, and physiology, University of Oklahoma School of Medicine was appointed scientific director, Marine Biomedical Institute and **Edward N. Brandt, Jr.**, associate dean, University of Oklahoma School of Medicine, was appointed dean, Graduate School, Galveston. . . . **Donald G. Humphrey**, professor of biology, Oregon State University, to dean, division of natural sciences and mathematics, The Evergreen State College.

RECENT DEATHS

Alexander Goetz, 72; former associate professor of physics, California Institute of Technology; 12 January.

J. Wallace Joyce, 63; deputy director of international scientific and technological affairs, U.S. State Department; 6 January.

E. J. Lund, 85; director, Institute of Marine Science, University of Texas; 28 November.