Control of Toxic Substances: An Idea Whose Time Has Nearly Come

Working in a chemical laboratory is said to reduce your life expectancy by about 5 years according to some rough estimates. Despite the vast number of exotic chemicals that are dispersed each year in ever-increasing tonnages, the environment has not become quite that hazardous. But nor is it entirely without risk. Medical authorities seem to agree that between 60 and 90 percent of all cancers have an environmental cause. New instances are regularly discovered of yet another widely used but inadequately tested chemical or substance—mercury, asbestos, polychlorinated biphenyls, haloethers, vinyl chloride—that proves by some tragic accident to be harmful to life.

There is now a wide measure of agreement, in industry as well as elsewhere, that the right place to test chemicals is in the laboratory, not the environment. After a 5-year legislative stalemate, Congress may at last be about to reach agreement on a Toxic Substances Control Act under which chemicals would be screened and tested before coming to market. Versions proposed by House and Senate committees seem less far apart, at least, than in previous years. Environmentalists hope that the accumulating record of chemical accidents will foster a sentiment for action. Yet even if Congress gets together on a bill this session, industry lobbyists say they will push for a presidential veto if the law is not to their liking. The industry contends that a strict bill would cause plant closures and the loss of tens of thousands of jobs, a proposition which the White House may not wish to put to the test in an election year.

An ingenious speculation holds that the fall of the Roman Empire was occasioned not by barbarian hordes or loss of soil fertility or even moral decadence, but by simple lead poisoning. The modern citizen of an industrialized country is inadvertently exposed to an array of exotic chemicals, many of which may influence his physiology in degrees ranging from the subclinical to the mutagenic and cancerous. By 1968 the chemical industry was producing about 120 billion pounds of the 9000 synthetic chemicals in large-scale commercial use. Only a small proportion of these substances are exhaustively tested against the possible hazards contingent on wide dispersion in the environment. For instance, only 3000 of the 2 million known chemical compounds have been adequately tested for cancerous propensities, and 1000 of these have in fact shown some sign of being carcinogenic, according to Umberto Saffiotti, the National Cancer Institute's associate director for carcinogenesis.

It is not surprising, but inevitable, that certain of these chemicals should now turn out to be far from innocuous. It is unfortunate that some of the substances involved in recent accidents are as widely used as vinyl chloride, the 23rd leading chemical by weight of production, or as ubiquitous as asbestos, another carcinogen, which occurs in everything from aprons, blankets, cements, lagging, stove mats, twine, wallboard, and wicking to the drinking water of communities near the Lake Superior plant of the Reserve Mining Company. It is also unfortunate that many of the problem chemicals are insidious in ways that remain undiscovered until considerable damage has been done. Polychlorinated biphenyls, for example, were used for 40 years before being recognized as an enduring environmental poison, by which time an estimated 30,000 tons had been dispersed to the atmosphere above the United States, 60,000 tons had been lost in waters, and 300,000 tons had ended up in dumps. Carcinogens, because of their long latency in man, are another hazard which tends to be discovered late in the game. An example is that of asbestos workers at the former Pittsburgh Corning plant in Tyler, Texas. "We expect 350 of the 825 workers to die of cancer. That is a massacre, not only a tragedy. You are dealing with almost 50 percent of a particular work force and this particular situation is going to be repeated in many other places," says Anthony Mazzocchi, representative of the Oil, Chemical and Atomic Workers International Union. (A spokesman for Pittsburgh Corning said the company would not comment on Mazzocchi's figures because of litigation in process.)

Many chemicals are already to some extent controlled by the laws relating to pesticides, drugs, clean air, and water pollution. Many more are unleashed on the market with no more precautionary testing than that dictated by the manufacturer's resources and sense of responsibility. One of the first acts of the newly created Council on Environmental Quality was to recommend in 1971 that chemicals be tested for harmful qualities before being put into commercial production. Both House and Senate passed toxic substance control bills in 1972, the Senate's version stipulating a blanket premarket screening of all new chemicals, the House's requiring only selected substances to come under regulation. The sponsors of the House bill refused to compromise and the two chambers failed even to arrange a conference committee. The next Congress followed the same pattern in 1973, and the session again ended without an agreed bill. The bills now being engendered in House and Senate are closer in key areas; one lobbyist reckons a 75 percent chance that Congress will agree on legislation of some kind.

The vexed gestation period of the measure is not surprising for an act that attempts to bring a large, complex, and powerful sector of the chemical, mining, and manufacturing industry under government regulation, and companies concerned have somewhat naturally been putting up stout resistance. Another sticking point, perhaps reflecting a general distrust of government, is that neither the industry nor the environmentalists and unions are content with a general law allowing the administrator of the Environmental Protection Agency the discretion to deal with each problem as he thinks best. Both sides act as if they believed that the best way to ensure the administrator is even-handed is to nail down his hands in law and allow him no freedom of maneuver of which the other side might take advantage. Anita Johnson, for example, of the Public Citizen's Health Research Group, told the House Consumer Protection and Finance subcommittee that she favored a strict bill because it would "render EPA immune from the overwhelming anti-testing pressures industry can and does bring to bear. The corps of lobbyists, indentured scientists, the $100-an-hour Washington lawyers, the years of industry advocacy by the White House and key members of Congress may, under the [language of this bill], fail to stymie safety testing for the public."

Similarly the industry is kicking up a considerable fuss about the legislation even though it is generally in a company's own interest to test chemicals strictly and discover hazards before going into production. Part of the reason for the industry's resistance to the stricter versions of the legislation is the fear that "back pressure" from citizens' suits will compel the Environmental Protection Agency to demand more tests than are necessary. "The administrator could be pushed away from a reasonable, selective position," says George W. Ingle of the Manufacturing Chemists Association.

The Senate bill, sponsored by Democrat John Tunney of California, is the version the industry likes least. It would have manufacturers notify the Environmental Protection Agency annually of all chemicals being produced and of new chemicals 90 days before start of production. The maker would have to supply three salient pieces of information: the uses of the chemical, the estimated quantity to be manufactured for each such use, and any health and safety data the manufacturer had developed himself or could cull from the literature.

The Tunney bill, which has yet to be approved by the Senate Commerce Committee, gives the administrator wide powers for action on the basis of the information he receives. If he thinks that a chemical might present an "unreasonable risk to health or the environment," he can order the manufacturers to conduct whatever tests he deems necessary. If the tests show the risk indeed exists, the administrator can limit or ban the manufacture of a substance for all or some of its uses.

In the House, a proindustry and proenvironmentalist bill have been merged into a compromise but nevertheless stringent document by the Subcommittee on Consumer Protection and Finance. The bill will be considered by the parent Interstate and Foreign Commerce Committee, maybe as early as this month. According to the subcommittee majority counsel Janie Kinney, a tough fight is expected.

The present House bill shares two of the crucial features of the Senate bill, a requirement for premarket notification and authorization for the government to require testing. Both bills are generally opposed by the industry, although there is a wide spectrum of opinion. Rohm and Haas, a Philadelphia company which has recently lost some 25 workers to the potent lung carcinogen bis(chloromethyl) ether, supports the Senate bill. On the other hand Dow Chemical is opposed to the passage of any toxic substances bill. "If Dow produced a product we thought severely hazardous to people, we would stop producing it; we are that kind of a company," Dow general counsel James H. Hanes told the House subcommittee. Most producers of primary chemicals, however, as represented by the Manufacturing Chemists Association, accept the legislation in principle, including the cardinal feature that the onus should be on the manufacturer. "We accept the responsibility for adequately screening and testing products the company makes and sells," says Du Pont's research director Theodore L. Cairns.

A major concern in the chemical industry is that the administrator may mandate impossibly strict testing requirements. According to Du Pont, a full battery of toxicity tests can take more than 4 years and cost over $500,000 for just a single chemical. Chemicals that generate a few thousand dollars worth of sales annually could not be produced economically if they had to carry this kind of overhead. The position of the Environmental Protection Agency is that the administrator would obviously be able to go easier on a small volume chemical because it would probably be less widely distributed in the environment than one produced by the ton.

One approach the industry is backing is that of "selective" screening, according to which the Environmental Protection Agency would have to draw up a list of categories of chemicals likely to be hazardous. A manufacturer would be obliged to notify the agency of a new chemical only if it were on the list. Environmentalists counter

Handler Defends Academy Elitism

The National Academy of Sciences (NAS), which devotes most of its time to advising the government, ought to be at least as open as officially designated federal advisory bodies or else get out of the business of advising the government. Furthermore, the government should take the initiative in forcing the Academy to open up. So says the former legal counsel to the Food and Drug Administration (FDA), Peter Barton Hutt, who offered his views about openness at a recent Academy forum entitled The Citizen and the Expert. Hutt set forth a four-point program to assure public access to NAS committees and urged the Academy to allow for public nomination (but not selection) of committee members. In an extemporaneous reply from the floor, NAS president Philip Handler rejected the notion of such public involvement, saying that the Academy is an "elitist organization," not a "participatory democracy," and that its strength lies in its very elitism.

Hutt, in formal remarks to the forum, addressed himself to ways the Academy could develop "open and proper procedure" for the conduct of its advisory business, saying that "procedure determines substance." He declared that the selection of advisory committee members should be a public procedure, with full conflict-of-interest type information about those who serve available for the asking. With respect to the operation of NAS committees, he called first for "adequate public notice of *every* meeting," which should be "not just in the NAS newsletter." Second, he said that there should be an opportunity for "anyone" to present views orally, not just in writing, at every meeting. He called this the "essence of democracy" and noted that experience at FDA proved that such a procedure does not get out of hand. Third, Hutt stated that "virtually all deliberations" of a committee, including any final vote on an issue, should be open, with the exception only of rare instances where openness would compromise national security, trade secrets, or individual privacy. "Secret sessions breed distrust," he said, adding, "If this has a chilling effect on those experts who don't want to participate in this way, then I say good riddance." And fourth, he urged that in addition to reporting study conclusions and recommendations, committees publish the information on which they are based. In other words, don't leave things out of the final, public report. Hutt justifies his call for the Academy to go public on the grounds that its reports and recommendations are an integral part of government policy-making.

Handler, who believes that during the past couple of years he has done a good deal to open the Academy to the public, and who contends that the Academy is not as central to decision-making as Hutt says, felt that Hutt had gone too far. Handler took special issue with his views about the process of selecting NAS committees.

"I am concerned particularly ... with what Mr. Hutt has brought here today," Handler declared. "He has left out of his discussion one notion, and that is that somehow there must be institutional responsibility. The system you describe, sir, is a great way to run the United States government ... but it is not for the National Academy of Sciences. ... We choose the members of our committees with extreme care. We have no sense of participatory democracy. This *is* an elitist organization, sir. We go to great care to elect the members of the Academy and we are guided by their experience, and their understanding and their insights. To have a democratic process by which the committee is then brought into being is to give away the only special asset we have in this building. ..."—B.J.C.

that it would be almost impossibly arduous for the agency to decide in advance which new chemicals should be screened and which shouldn't.

Another point of contention is the cost of the legislation. If the bills become law, "There is no doubt this would severely damage and possibly cripple America's chemical industry," Dow Chemical's health and environmental research director Etcyl H. Blair wrote in a recent article in the *New York Times*. Blair presumably had in mind a Dow study predicting that the Senate bill would cost industry about $2 billion a year. Dow's estimate exceeds all others by a considerable factor. A voluminous assessment commissioned by the Manufacturing Chemists Association puts the annual cost of the Senate bill at $360 to $1300 million, whereas the Environmental Protection Agency calculates that the law will cost the industry from $80 to $140 million a year. Called in to arbitrate between these conflicting estimates, Congress's General Accounting Office dismissed Dow's figures as "highly questionable" and ruled that half of the Manufacturing Chemists Association's estimate constituted an illegitimate cost. The GAO auditors supported the accounting principles followed by the Environmental Protection Agency but suggested their estimate should be raised to a cost range of $100 to $200 million a year.

An annual cost of $200 million, to take the upper limit of the GAO estimate, could be a considerable burden, particularly if it should fall more heavily on producers of low volume chemicals, such as dyestuffs. On the other hand it is not exactly obvious how it could cripple an industry which, according to the Environmental Protection Agency, enjoyed sales of $72 billion in 1974, posttax profits of $5.5 billion, and spent $2 billion on research and development.

At a recent briefing on Capitol Hill to discuss the House bill, the requirement for premarket screening of chemicals came under criticism as an abandonment of the constitutional principle that people should be presumed innocent until found guilty. Cancer expert Umberto Saffiotti offered the counterargument that with chemicals, which have no such constitutional rights, it should be the other way around. Congress seems nearer than ever before to endorsing that principle in legislation that could become a keystone of environmental law.

—NICHOLAS WADE

Large Space Telescope: Astronomers Go into Orbit

There was bad news in the budget for astronomers who look to the National Aeronautics and Space Administration (NASA) to underwrite research on "frontier problems" in deep space. Funds for the planned Large Space Telescope (LST) were omitted from the fiscal year 1977 budget. The LST project, which is still in the "definition" stage, contemplates construction of a big optical telescope, which would be launched into orbit in the early 1980's. By operating beyond the earth's distorting atmosphere the LST would carry observational astronomy to new heights, literally and figuratively. Its enthusiastic proponents call the LST "the ultimate telescope."

The LST would be hoisted into orbit by the space shuttle, the partly reusable space vehicle that is scheduled to begin operation in 1980. There is some irony in this since the cost of building the shuttle has put a strain on NASA's inelastic budget and, indirectly at least, contributed to a delay on LST. And this is causing something of a backlash against the shuttle among the astronomers.

NASA officials have explained that heavy pressures on the budget generally have made it necessary to defer "new start" funds for the LST for 1 year. At a meeting of American and European astronomers at colonial Williamsburg on 29 January, NASA administrator James C. Fletcher said that he and his agency would do everything possible to see that funds to begin development and production work on the LST are in the budget next year.

The astronomers are not really mollified. Since news of the deferral became known, they have been complaining that NASA is ignoring the recommendations of outside experts it enlists for its advisory committees and that the agency has its priorities scrambled. The astronomers are upset not only by the hold on LST funds, but also by the cut in total funds going to space science in the new budget. President Ford's budget request for space sciences in the coming fiscal year is $429 million, down $67 million from the estimated $496 million being provided in the current fiscal year.

The astronomers' reaction has escalated beyond private fulminations. Some scientists are expressing their concern to congressmen and senators in letters and in person. Five members of the working group that advises NASA on the telescope, including Margaret Burbidge, currently president-elect of the American Astronomical Society, have written to Fletcher requesting an appointment to discuss the decision.

For some leading optical astronomers the action by NASA has exacerbated an old feeling that science plays second fiddle in the space program. Ever since the late 1950's, when manned space flight began to dominate NASA plans and budgets, some space scientists have questioned the emphasis on manned flight. But there appears to have been a tacit understanding between the research community and NASA that the scientists would restrain their criticism so long as NASA devoted a reasonable minimum of its budget to sustaining important research projects in the space science program.

In their letter to Fletcher the five astronomers wrote, "The immediate angry reaction of many scientists is that NASA has disregarded the recommendations of its outside scientific advisory groups, as well as the overwhelming support of the scientific community for an LST program that was ready to go now. We fear that scientific support for the entire shuttle program might be affected by the backlash from the omission of LST from the FY '77 budget. We want to work with you to see that this does not happen."

One of the signers of the letter, John H. Bahcall of the Institute for Advanced Study at Princeton, put it pithily when he said, "It looks from the outside as if NASA had used science to sell the shuttle and how has shoved science aside." Bahcall said that "we trust NASA," but want the agency to "make some gesture" of commitment to the LST.

While delaying the start on the LST, which was apparently excised in the late stages of negotiations with the Office of Management and Budget, NASA did gain approval for a new start on the so-called Solar Maximum Mission (SMM) to study the sun during the next peak of solar flare