market is not driven by the needs of supercomputers but by the sales of hand calculators, TV games, and automobile electronic ignition systems.

Perhaps a man who has been notably successful at computer building would like to move on to other challenges. "I've had those thoughts," says Cray, who considered switching to a career in physics before he started Cray Research. He reviewed the status of particle physics but found his mathematics "terribly inadequate" and the statistical nature of everything in modern physics "disconcerting." For a man used to keeping mental company with 2.5 million transistors that must read either 1 or 0 without the slightest imprecision, such a sentiment is understandable. Cray says that he would "probably agree with Einstein," who argued for years against the uncertainty that most physicists of the 1930's found inevitable in the theories of quantum mechanics. Cray eventually concluded that he probably could not cope with particle physics, so it was "back to the grind, start another computer company and eke out a living."

More than he likes, Cray has been traveling, talking, and selling in the past 2 years. Now enough Cray-1's have been sold that the computer is becoming visible, and the company is evolving to provide a stronger administrative arm. Cray himself is returning to his late-night work schedule, buying quadrille paper pads by the gross, and starting to design his next computer back at the Hallie Lab. He is cautious in talking about it, saying merely that he expects to keep up with the industry's past record and come out with a machine that will be a better performer in the early 1980's (a schedule that would keep up the industry's pace of every 5 years). Others say that the next project will actually be a line of computers, including sizes small enough that not-so-well-heeled customers such as the universities can start with Cray equipment and expand later. The outlines are not quite clear, but it is expected to be even more versatile than the Cray-1 and at least twice as fast.

—WILLIAM D. METZ

Corporate Spying Prompts New Look at Trade Secrecy

Washington policy-makers are beset by complaints from industry and public interest groups that, under different federal laws, either too much or too little information about the composition and safety of new drugs, pesticides, and other regulated products is being released to the public. Now, as the result of several new initiatives in Congress and by the Carter Administration, they are moving toward the establishment of a uniform policy on the release of data that businesses provide in order to comply with federal rules and regulations.

The release of such data, long claimed by industry to be trade secrets of potential use to business competitors, has been a subject of debate in the capital since the enactment of the Freedom of Information (FOI) act in 1965. Although congressional sponsors envisioned then that it would be used primarily by private citizens to obtain information about the activities and policies of government, the act also enables individuals to request access to the files kept by federal regulators on thousands of companies and their products.

In recent years, more and more corporations have become aware of this, and have used the act to gain access to government files on their business competitors. Last year, for example, between 66 and 80 percent of the FOI requests received by the Food and Drug Administration (FDA), the Environmental Protection Agency (EPA), and the Federal Trade Commission were from businesses, seeking information about businesses. Corporate requests under the FOI act have become so frequent, according to several agency spokesmen, that the act has become a major instrument of contemporary corporate intelligence-gathering.

Accordingly, a small but growing number of companies, convinced that things are getting out of hand, are beginning to speak out about what they consider to be widespread release of sensitive commercial and financial data not intended by sponsors of the act and not desired by the firms at the time they provided the information to the government.

Nearly the exact opposite tack has been taken by representatives of public interest groups, many of which endorse the viewpoint of Claire Nader that "trade secrecy is a tool for producers that has served to hide a range of ills until the harmful consequences burst forth in a torrent of human pain and misery." For years, such groups have been pressing the FDA and the EPA to release the raw scientific data on which publicly given summaries of drug and pesticide safety and effectiveness are based; the groups want access to the data so they may independently critique the findings of industry and regulatory agencies. Naturally, businesses welcome this further disclosure about as much as they would the creation of a new agency for regulation.

Early last year, public interest groups won a major round when an interagency task force, set up by the Office of Management and Budget, proposed amendments to a bill on pesticide registration that will require all data on pesticide safety to be released to the public (*Science*, 30 September 1977). Although the proposal has been passed by both houses of Congress, the bill is awaiting final consideration by a joint conference committee. Even if approved, however, the amendments would only add to the confusing melange of existing laws relating to the release of what businesses claim are trade secrets. (Technically, trade secrets are strictly controlled data on the composition or manufacturing process of a unique product.) According to Edward Gray, an assistant general counsel for the EPA, in a recent study of trade secrets the agency "found that, in addition to the Freedom of Information Act and the criminal code provisions, there are at least eight statutes under which EPA operates that contain various specific provisions on trade secrecy. The Clean Air Act alone, for instance, has at least four separate rules for handling different kinds of alleged trade secret information."

According to spokesmen for several

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industrial trade associations, confusion among business submitters of the information and among agency staff occasionally has led to the release of material presumed to be confidential. These instances have in turn prompted what is a relatively recent legal phenomenon: the reverse FOI suit. Although agencies report that no more than several dozen suits—which are brought by businesses to stop the release of information that affects them—have been filed, legal observers and agency officials consider them to be a major obstacle to efficient operation of the FOI act. Not only do the suits prevent a quick response to an FOI request, which is mandated by law, but they also tie up agency legal staff in a defense of the requester's right of access.

In September and November, the subcommittees on government information in the House and the Senate held several days of hearings to consider the possibility of legislative remedy for the problems created by reverse FOI suits, although no decisions have been made as yet.

Options Papers

Similarly, a toxic substances strategy committee spanning 15 federal agencies and cabinet departments has formed a subcommittee explicitly to develop a comprehensive federal strategy for the release of information claimed by companies as trade secret and competitive business data. According to Bob Nicholas, a member of the Council on Environmental Quality staff, which is coordinating the interagency effort at the direction of the White House, the subcommittee will be exploring ways to facilitate interagency exchange of trade secret information, the question of whether or not safety and efficacy data should routinely be released, and what may or may not be claimed as a confidential trade secret. "We'll be publishing options papers on these topics in February or March," Nicholas added.

One effect of the establishment of a comprehensive federal policy on trade secrets would be the diminution of what FDA Commissioner Donald Kennedy has identified as "a brisk cottage industry of organizations whose primary [task] it is to extract from busy government agencies information that they think may be useful or at least saleable to corporate clients." Perhaps the best known of these firms is F.O.I. Services, Inc., of Rockville, Maryland (*Science*, 4 July 1975), which initiates at the request of corporate clients between 5000 and 6000 FOI requests each year at the FDA alone—a quarter of the total received there—as well as others at the EPA and the Consumer Product Safety Commission.

About a third of the corporate clients of F.O.I. Services are interested only in knowing about requests by other parties for information about themselves. Uncertainty about the kind of information that the federal government will release, in other words, prompts the firms to monitor all requests relevant to their businesses. They do this on some occasions so that preventive steps, such as a reverse FOI suit, can be initiated, and at other times so that they can stay one jump ahead of private attorneys who are contemplating litigation, such as an adverse drug reaction suit. To meet the needs of these firms, F.O.I. Services offers subscriptions to logs of FOI requests kept by regulatory agencies, and, for a higher fee, a telephone alert service for quick notification on requests for information about the subscribing company. Ironically, the name that appears most frequently on the copy of the FOI log sold by F.O.I. Services is none other than F.O.I. Services; on one occasion, according to John Carey, the firm's manager, an employee of the firm called a major corporate client under the alert system to notify it that he had just requested some information on the firm under a contract to another corporation.

Discreet Spying

The reason F.O.I. Services is able to, in a sense, play ball on both sides of the street at the same time is that it offers complete confidentiality to any client who asks it to initiate a request. This is an important service to the vast majority of F.O.I. Services customers, who are interested mostly in information on other companies. F.O.I. Services automatically requests the safety, efficacy, pharmacology, labeling, and toxicology data on each new drug approved by the FDA, for example, because it knows the information will be of interest to numerous competing pharmaceutical companies. Carey is quick to point out that there is an exemption in the disclosure requirements of the FOI act for "trade secret and commercial or financial information obtained from a person and privileged or confidential," but the exact meaning of the exemption remains hotly contested in the courts by agencies, industry, and public interest groups. Business uncertainty about the meaning of the FOI act, as well as an interest in using it to get as much information as possible on competitive businesses, are what gives F.O.I. Services its clients.

—R. JEFFREY SMITH

RECENT DEATHS

Waldo C. Ault, 62; retired organic chemist, U.S. Department of Agriculture; 11 November.

Rollo C. Baker, 89; former professor of anatomy, Ohio State University; 24 October.

David P. Barr, 88; professor emeritus of medicine, Cornell University Medical College; 2 November.

Douglas C. Carroll, Jr., 62; associate professor of medicine, Johns Hopkins University; 17 October.

Renate W. Chasman, 45; physicist, Brookhaven National Laboratory; 17 October.

Paul Z. Frisch, 51; former chairman of psychology, Adelphi University; 20 September.

Laurence F. Graber, 90; professor emeritus of agriculture, University of Wisconsin; 25 October.

George C. Ham, 64; former chairman of psychiatry, University of North Carolina, Chapel Hill; 26 September.

Claude E. Heaton, 80; former professor of obstetrics-gynecology, New York University; 30 September.

Harry Helson, 78; former professor of psychology, Kansas State University; 13 October.

Ralph G. Hills, 75; assistant professor emeritus of medicine, Johns Hopkins University; 20 September.

Peter P. Klassen, 72; former chairman of sociology and anthropology, University of Illinois, Chicago Circle; 30 September.

Norman R. F. Maier, 76; professor emeritus of psychology, University of Michigan; 24 September.

Kenneth G. Merriam, 75; professor emeritus of mechanical engineering, Worcester Polytechnic Institute; 17 October.

Ovid Meyer, 76; former chairman of medicine, University of Wisconsin, Madison; 22 September.

William W. Pigman, 67; professor of biochemistry, New York Medical College; 30 September.

Harry L. Robinson, 53; chairman of pathology, New York University College of Dentistry; 23 September.

J. Clifton Samuels, 53; professor of electrical engineering, Howard University; 28 September.

Frederick K. Sparrow, 74; professor emeritus of botany, University of Michigan; 2 October.

William C. Taylor, 48; associate professor of environmental science, Howard University; 3 October.