with a very wide, multidisciplinary sweep." Specifically, "He would oversee U.S. initiatives in U.N. conferences, be involved with issues ranging from energy and environment to problems of biological experimentation, social and economic conditions. Economics should not be treated as a separate box. . . . I would want someone who will be thoroughly frank with the President about the resourcefulness of the scientific community to deal with a particular problem."

• **Theodore Roszak**, author of *The Making of the Counterculture* and critic of science: As far as "immediate public policy" goes, Roszak is concerned that "disarmament is particularly a lost issue covered up by a lot of very fraudulent negotiations. I would like to see a sincere effort. I would include some undramatic forms of disarmament, like clamping down on the international arms trade. The other issue is the continuing and somewhat deceptive energy crisis. I want a real effort at conservation. We have a whole unexplored frontier of conservation and thrift. I'm worried about the development of nuclear power. It's being sold to us as a necessity when it probably is not. I have been appalled by the fraudulence surrounding everything we have said and done about energy. The whole environmental movement has been flattened under the urgency of the energy crisis. . . . I am not sure the adviser has to be someone who is a scientist per se. What about Dan Greenberg [the gadfly science journalist]—someone with a strong sense of conscience

Briefing

New Data Suggest Decline in Industry R & D

Rumors that U.S. industrial R & D is in serious trouble seem to be confirmed by new federal data just released. The amounts spent on research are not keeping pace with inflation, and those that are spent are going increasingly for "defensive R & D."

In the 1950's and 1960's, industry R & D spending rose by as much as 7.7 percent per year. This rise peaked in 1967; since then spending has risen by a mere 1.8 percent per year, and in constant dollars has declined markedly. The important indicator is corporate R & D expressed as a percentage of total sales. During the 1950's and 1960's, this fraction nationally stood at more than 2 percent; in 1975 it was 1.8 percent.

Beginning with calendar year 1975, companies must report their R & D spending to the Securities and Exchange Commission according to a new, common formula. In its 28 June issue, *Business Week* magazine has printed these figures for 730 companies, thus offering the first company by company profile of the nation's industrial R & D.

The survey shows that some sectors of American business—the intensely competitive semiconductor industry, for example—are investing in R & D at healthy rates of 8 and 12 percent of sales.

But in other sectors, such as drugs and chemicals, in which R & D spending is traditionally high, research executives say that an ever larger share of the money goes to "defensive R & D"—research to make existing products meet government health, safety, and environmental regulations—rather than to new products. A stunning example is Du Pont, the sixth largest R & D spender in the country, whose managers claim that two-thirds of its $336 million R & D budget is spent on "defensive" research. They add that that fraction soon will be three-quarters of the total.

The sums spent by America's industrial giants on research are large even in comparison with the federal research budget. General Motors, the national leader, spent $1.113 billion on R & D in 1975 (its executives claim that some 40 percent, or $450 million of this is "defensive" research to meet government standards). American Telephone & Telegraph's research program, which includes the noted Bell Laboratories, spent $613 million on research in 1975, more than the National Science Foundation's entire budget that year.

Some companies openly admit that they are no longer creating new products and materials but are buying them abroad instead. For example, the steel industry, which has traditionally been a low R & D spender, bought or licensed much new technology from the West German steel industry. But lack of innovation can take its toll. The steel companies are now frantically trying to develop a high-strength, low-alloy pipe that can withstand arctic conditions; for the initial Alaskan pipeline construction, imported pipe had to be used. Next to steel, the building, food, fuel, paper, and textile industries historically have invested the least in R & D.

The new SEC data, which will be available annually from now on, have two chief advantages. One is that the common definitions of R & D now used by all industries will enable hitherto impossible comparisons of R & D spending among industries. Secondly, for over a decade, the National Science Foundation has been gathering industrial R & D data on an anonymous basis. Its definitions are nearly identical to the SEC's—the new information can thus help to expand on NSF's findings. If American industrial research is in a major decline, at least we will all know more about it.—D.S.

Pasteur Picks Monod Successor

Paris. François Gros, a molecular biologist who worked with Jacob and Monod on the discovery of messenger RNA, has been named the new director of the financially troubled Pasteur Institute to succeed Jacques Monod, who died suddenly on 31 May.

Considered by many to be the logical successor for Monod, Gros has been affiliated with the institute on and off since 1945 and has been the head of the service of cellular biochemistry there since 1972. He is a respected scientist, even if not a Nobel prize winner, and is considered a better diplomat, and more approachable than Monod was. "We *tutoie* Gros, where we always *vousvoied* Monod," said an American working in the department of molecular biology.

By their appointment of a scientist and a Pastorian, the administrative board, which now has a considerable proportion of governmental representation, seemed to indicate that they are not trying to impose a high degree of governmental direction on the institute, at least not yet.

The Pasteur survived a financial crisis last year when the French government provided substantial funding (*Science*, 21 March 1975). However, Gros faces the task of negotiating adequate continuing financial support for the institute and he also must rebuild inadequate facilities on the Paris campus and deal with serious problems posed by the Pasteur's unprofitable commercial production facilities for vaccines and other biologicals outside Paris.—LYNN PAYER