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# Perplexing Changes in Our Science Community

Leaders of the scientific community have so often employed panic tactics to expand federal spending for research that skepticism now often greets their contentions that all is not well in the house of science.

Nevertheless, though present-day American science remains productive and rich by the standards of any other nation, it would be prudent to listen to what some of the sager, non-alarmist heads of the profession are saying. They are not proclaiming doom. Rather, they are expressing puzzlement and concern over a complex of changes now taking place in the innards of an enterprise on which we all depend for improvements in the treatment of disease, industrial and agricultural productivity, defense, energy sources and environmental purity. Thus we find Frank Press, the competent and calm White House science adviser, saying—in a mood of perplexity—that "Profound things are happening in the sociology of science that we won't understand for 10 years." What does he mean?

Press, in harmony with many of his colleagues in the federal science establishment, is not so much concerned about the availability of money for science—though that's a problem, too, given the fact that purchasing power for basic research has been on a plateau for a decade. What they are more concerned about are the long-term consequences of institutional changes that are squeezing a lot of youth, spring and vitality out of the conduct of research. For example:

• Throughout academe, a glut of tenured professors—hired in the boom days of the space era—is choking up

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cost and without the long-term job commitments that have traditionally characterized university employment. Candidates not deemed suitable for faculty appointments are hired for what is referred to as the "doctoral research staff." Relatively low in status, and without job security, these researchers rarely have an opportunity to develop their professional potential; they're hired hands, usually working on someone else's project.

• Undergraduate teaching posts—which have long provided an invisible subsidy for graduate training—are on the brink of a major decline as lower birthrates begin to show up in lower undergraduate enrollments.

• The scarcity economy in academic science has spawned a spirit of caution among young researchers anxious to make their mark. Department chairmen report that doctoral candidates are increasingly shunning longshot thesis projects in favor of safe and sure problems.

• Meanwhile, industry has generally reoriented its research priorities in favor of short-term payoffs, rather than long-term inquiries of a fundamental nature. There are exceptions, but, by and large, science is a shrinking enterprise on the American industrial scene, whereas in West Germany and Japan, it's coming up fast. And the American shift is occurring at a time when, in a number of fields, including agriculture and pharmaceuticals, it is widely held that basic scientific knowledge has been pretty well exploited and that new developments must await new scientific understandings.

These and other problems have inspired an assortment of diagnoses and prescriptions for American science. Among them are urgings for academe and industry to enter into collaboration on major scientific projects and for government to help break the tenure logjam by subsidizing early retirements of academic faculty.

At the moment, however, the institutional base of science is being reshaped by forces that are only dimly understood. No one, in fact, is certain that