

The Human Toll of Science

The UNESCO journal, Impact of Science on Society, devoted its October–December issue to a discussion of science by nonscientists and, in an interview, Robert Graves, poet, novelist, and classicist, made this comment on one aspect of the scientist's life:

Interviewer: Let's talk more about science and human purposes. Do you feel, Mr. Graves, that a price is being paid for the material improvements that science and its offspring, technology, have brought to the human condition?

Graves: One bad effect lies in the very heart of science itself: I'm talking about scientists—or more particularly, scientists' wives. I've known a number of leading scientists and their wives, and regret having observed, as a generalization, that science takes a horrible toll of wives. There's more mental ill-health among the wives of scientists at the higher levels than anywhere else—which proves that something's wrong.

Interviewer: What form does this mental ill-health take?

Graves: A sense of frustration . . . because the husbands live in a world into which their women are not invited and which they feel is a dangerous world. The men live in an exclusive world in which things are viewed in a strange and different way. They cannot communicate with their wives about their work in the way open to most husbands. The wives are excluded and, like all women isolated or barred from a large part of their husbands' lives, endure a cruel sort of loneliness. . . . In a metamorphical sense, you might say they [scientists] are shooting at the moon and evading the human ties of earth.

cies to drop about \$8.2 million in basic research at the universities during fiscal year 1971. All the remainder of the \$57.9 million in research being dropped consists of projects that are being cut for budgetary reasons or because various agencies have adopted the "philosophy" of the Mansfield amendment even though they are not directly affected by it, subcommittee staff members say.

The subcommittee has also collected estimates which reveal a sharp decline in the number of new traineeships and fellowships awarded to graduate science students by nine major federal agencies. In fiscal year 1969 there were 6515 new awards; in fiscal year 1970 there were 6012; and for fiscal year 1971, the Nixon budget would support only 3069, a drop of almost 50 percent in just one year. The totals do not include Public Health Service training grants, for which no firm figures are available.

Within those total figures, the number of new fellows and trainees supported by NSF will drop by almost two-thirds, from 2772 in fiscal 1970 to 1000 in fiscal 1971; the number supported by the Office of Education will

drop by one-half, from 1653 to 825; and the number supported by the National Institutes of Mental Health will drop by two-thirds, from 416 to 133. NASA, which supported 420 individuals in fiscal 1969, will not support a single one in 1971; and the AEC, which supported 233 in fiscal 1969, will support only 160 in 1971. No up-to-date figures are available for NIH, which had already experienced a steep drop from 650 in fiscal 1969 to 100 in fiscal 1970.

Academic Woes

In an effort to further document the damage being done, the subcommittee held a special day of hearings to take testimony from four academic leaders. The testimony, not surprisingly, was anguished and full of dire predictions about the decline of American scientific eminence.

One theme that dominated the testimony was that budgetary stringencies and other factors are causing some of the very ablest students to abandon or shy away from science. Benjamin Lax, director of the National Magnet Lab at MIT, reported that "one of the most

brilliant" graduate students at MIT recently came into his office seeking advice because the student now "wants to leave physics and possibly go into humanities." Lax said the student was responding not only to the financial squeeze but also to the general "disenchantment" with science and the general "misconceptions" about the lack of relevance of scientific studies. "Even talented people like this do not feel in 4 years when they graduate they will have jobs or opportunity to make a significant contribution," Lax said. "It takes 4 or 5 years to get a degree . . . And now what is going to happen is youngsters like this one will change or will not go into the sciences. Five years from now we are going to have a shortage."

Ivan L. Bennett, Jr., director of the New York University Medical Center, told of similar feelings among students at the medical school he heads. Bennett said that NYU had pioneered a program that enables students to receive a combined M.D. and Ph.D. degree, and that the success of this program was reflected in the fact that NYU, over the past decade, has graduated the largest number of students who go on to become full-time faculty members in other medical schools. The program thus enables students to pursue careers in scientific research instead of medical practice. But Bennett said that about 6 months ago the present group of M.D.–Ph.D. candidates asked to meet with him for discussions. "There were several of these very gifted young men who were seriously considering dropping the Ph.D. part of the program," Bennett said. "The reason was not that they felt they could contribute to society by practicing medicine . . . It was simply because they looked about and saw the young members of our faculty finding increasing difficulty in obtaining support for their own scientific work, and wondered whether they were not preparing for careers that really would be obsolete by the time they were prepared to do this. It is a very serious problem."

A second theme of the testimony was that financial stringencies have largely crippled certain laboratories, including some with outstanding reputations and others of lesser rank. Lax asserted that the National Magnet Lab which he heads at MIT is currently being used at only one-eighth of its potential capability. He said the laboratory was forced to cut its operating time in half