cut of 6 or 8 percent applied to the institute as a whole becomes a cut of 40 to 50 percent when borne almost exclusively by the new-research segment.

In an interview, Boekelheide said it was understandable that NIH should wish to honor its "moral commitments," but that congressmen and budget planners should realize that such an "amplification" of small budget cuts can seem from the campus all too much like a major retreat from the support of fundamental research. (Continuing grants also suffered harshly, if not equally, in 1970. NIH negotiated 10 to 15 percent cuts in most of its 7106 continuing grants, resulting in an additional $38.4 million saving and, as one NIH official put it, "untold disruption" of research.)

The NIH data revealed no sign of discrimination against chemistry; the fiscal crunch proved as blind and unremitting as Justice herself. But Academy committee members did feel that termination of the NIH predoctoral fellowship program last June worked an unfair hardship on chemistry, which each year claimed a 30-percent share (or about 2000) of the fellowships. These awards went competitively to individuals, unlike training grants that go to institutions which then select their students.

Chemistry's inordinate share of fellowships indicated the extent to which it had hitched its fortunes to the NIH. Researchers apply where the money is, of course, and NIH always had more than the next leading supporter of chemistry, the National Science Foundation (NSF). And not only were NIH grants larger, but they tended to run longer than those from NSF.

But there are a good many chemists who concede that much of the work supported by NIH, while at least remotely relevant to health, nevertheless really belonged under NSF. By that reasoning, chemistry has been something of a stepchild to NIH, and thus might conceivably become the least favorite in the midst of a recession.

Relevance Questioned

During the times of radical budget slicing last year, some institutes did in fact question whether applications for chemistry research grants assigned to them were relevant to their missions, according to Ronald Lamont-Havers, the NIH associate director for extramural research and training. "As soon as you start cutting off funds, everyone becomes concerned with relevance," he told *Science*. "It was pointed out that the act of accepting an application meant that it was relevant to health . . . we had to make sure that we were preserving a basic science base, that basic science was being funded even if it might not have immediate relevance to particular missions." Still, he said recently, NIH has been concerned since the early 1960's about an overlap with NSF. He notes delicately that when the budget squeeze began, "We were prepared to look at some of these overlap problems and we have toyed with the idea that more should be done by NSF. But we haven't made any move in that area."

The Academy's inquiry leaves unanswered the question of how much damage chemistry's financial plight last year actually inflicted on the conduct of basic research. Out of about 500 chemistry research applications approved for funding by the NIGMS, some 420 were turned down. But no attempt was made to learn how many of the losers found money from other sources, or on the other extreme, how many abandoned chemistry altogether. Nor is reliable quantitative information available on graduate and postdoctoral enrollment in university chemistry and biochemistry departments last fall, although an American Chemical Society survey now under way should yield that information sometime within the next few weeks.

Whatever its limitations, the Academy inquiry served at least to elucidate the emotional impact of "small" budget cuts, if not to measure its effect on the conduct of research.

"But there's no denying that 1970 was a very bad, traumatic year," Lamont-Havers says. The situation is improving now, and NSF sources estimate that federal support for chemistry research will climb this year to its 1968 level of $68 million. What's more, the President's 1972 budget contains $29.5 million for NSF chemistry projects, which, if Congress appropriates this sum and the Office of Management and Budget decides to spend it, will exceed NIH expenditures for chemistry for the first time in nearly a decade.

If the squeeze is easing, the lessons remain. "In this particular field," Lamont-Havers comments, "and in that particular year—1970—times were certainly hard. And it's a good indication of what might have happened across the board if budget cuts had continued."

—ROBERT GILLETTE

RECENT DEATHS

E. Lucy Braun, 82; professor emeritus of plant ecology, University of Cincinnati; 5 March.

Gilbert H. Cady, 88; retired head, coal section, Illinois State Geological Survey; 25 December.

Herbert B. Dorau, 73; former professor of economics, New York University; 17 January.

Ernest C. Evers, 54; professor of physical chemistry, University of Pennsylvania; 18 January.

Eugene M. K. Geiling, 79; former professor of pharmacology, Howard University; 12 January.

Raphael R. Goldenberg, 66; professor of surgery, College of Medicine and Dentistry of New Jersey at Newark; 17 December.

Morris M. Leighton, 83; retired chief, Illinois State Geological Survey; 7 January.

Elek J. Ludvigh II, 61; professor of ophthalmology, Wayne State University School of Medicine; 15 January.

Earl A. Martin, 80; professor emeritus of biology, Brooklyn College; 5 February.

Arnold T. Nordsieck, 60; head, physics department, General Research Corporation, California; 19 January.

Doris G. Phillips, 45; professor of economics, California State College, Fullerton; 14 January.

John W. Rice, 79; professor emeritus of bacteriology, Bucknell University; 29 January.

John Runnstrom, 82; cell biologist and member of the Swedish Medical Research Council; 22 January.

Carl L. Scheckel, 36; senior research scientist, pharmacology department, Hoffman-La Roche Inc.; 17 January.

Leonard Schiff, 55; retired head, physics department, Stanford University; 19 January.

Charles B. Tompkins, 58; professor of mathematics, University of California, Los Angeles; 11 January.

Frank L. Verwiebe, 72; former professor of physics, Montgomery College; 26 January.

John G. Woodruff, 72; retired professor of geology, Colgate University; 19 January.

Erratum: In Recent Deaths, 5 March 1971, page 882, the date of death for James B. Mead should read 14 December instead of 11 January.

Erratum: In the report "Lactate dehydrogenase isozymes: Further kinetic studies at high enzyme concentration" by Thomas Wuntsch, Raymond F. Chen, and Elliot S. Vesell [**169**, 480 (1970)], 14.0 m*M* NAD in line 2 of the heading of Table 1 should read 14.0 μM NAD.