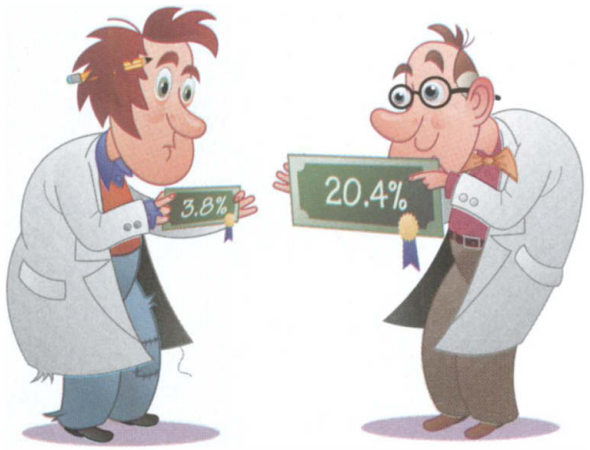
Getting Older

There is disturbing news about the demography of science in the United States. Recent news from the National Institutes of Health (NIH) about the distribution of research grant awards [*Science* **298**, 40 (2002)] is sobering indeed, and surprising even to people in the trade. Exactly 20 years ago, 22% of all awards went to scientists age 35 and under. In each year since then, the proportion of awards going to that group has slipped, and last year it reached 3.8%, which may be pretty close to rock bottom. In this same interval, the oldest group (56 and over, my favorite) climbed from 9% to 20.4%.

Well, what's going on? We seniors are sometimes comforted by being told "you're not getting older; you're getting better!" Can that really be the case here? I'd love to believe it, but . . . Or perhaps it could be yet another example of the trend once thoughtfully explored by demographer Samuel Preston: Observing all federal expenditures, he demonstrated how, during the 1970s and 1980s, program changes accounted for a significant transfer of welfare from younger Americans to older Americans. Is it happening in science too? Or possibly it's a lot simpler; maybe fewer new Ph.D.'s are being produced, leaving a skimpy cohort at 35 and under.



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Alas, none of these explanations really works. Fortunately, there are more persuasive ones. The news that the average age of NIH grantees is climbing should be no surprise to anyone who has been following the science employment market lately. Although we are producing just as many Ph.D.'s as we were a decade or two earlier, it takes longer to earn a doctoral degree. The national average for life sciences, for example, is 7 years, up from 5.8 in the palmy years of the late 1960s. Postdoctoral appointments used to last a year; now two or three is a more usual stay in what has become a holding pool for young talent. Thus, by the time these young researchers become independent and grant-eligible (if indeed they ever do), they are apt to be well into their 30s (the average age of a new Ph.D. appointee to U.S. medical school faculties is now 39, up from 35 in 1982). Much of the graying, then, is simply demographic, due to shifts in the age scientists are when they first become eligible for awards.

Less obvious, but perhaps equally important, is the way past government policies helped bring this about. In the mid-1980s, both scientists and their associations—the NIH's "constituency"—argued passionately in favor of a fixed target number of grants: 6000 new awards. Congress cooperated at appropriations time, and the target number was either hit or closely approached in the years between 1984 and 1987. That policy was controversial; universities and their associations opposed it, partly because of concerns about indirect cost recovery, but also because they believed that the cost of meeting the targets would eventually outpace growth in appropriations. If so, the money would then have to go to meet continuing obligations to existing grantees, choking off opportunities for new applicants.

They were right. The Year of the Fall was 1987–1988, and by 1989 the number of new awards had crashed dramatically, dropping by 50% from the 1986–1987 peak to about 4000. That was bad enough; indeed, the 6000 number was not reached again for nearly a decade. Worse still was the shape of the recovery. Awards to the cohort 46 and over rebounded rapidly, nearly doubling in 5 years; over that same period, awards to the 35-and-under group failed to recover and have been dropping ever since.

Although it is true that changes in the research marketplace and its demographics have helped create NIH's problem, past policy mistakes must share the blame. What new policies might correct the situation? First, NIH could provide funding incentives that reward short doctoral programs, and supply "bridging" awards (like the "small grants" of an earlier era) especially aimed at young investigators. Second, the academic market now directs many of the best young investigators into primarily undergraduate institutions; which, incidentally, still send a higher proportion of their graduates on to doctoral training than do the elite research universities. NIH might start to repair the graying of the research professoriate by paying special attention to these places.

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