Table 1. Faculty (thousands) changes projected for 1972–1990.*

Year	Total full-time faculty (projected)	Net increase in faculty ages 40 to 65
1972	336	3.8
1973	351	4.5
1974	365	9.6
1975	380	8.5
1976	394	14.6
1977	406	9.6
1978	417	8.7
1979	427	13.1
1980	437	14.5
1981	445	10.6
1982	451	7.1
1983	452	15.3
1984	446	14.0
1985	436	13.1
1986	423	13.1
1987	411	13.6
1988	405	13.9
1989	405	12.0
1990	408	10.6

* Over the period 1982–90, while the total full-time faculty decreases by 43,000, the number of professors in the 40 to 65 age group increases by 105,600. There is substantial opinion that resea chers in their 40's are past their prime, particularly in the hard sciences and mathematics. If this is true, and if the numerical projections hold, then the 1980's may be the beginning of a period of relative intellectual stagnation in American higher education.

leave (retire, die, or leave for other reasons) are over age 40.

Cartter suggests that retirement age be lowered to 64 to make more room for younger people. This is a move in the right direction, but a 1-year reduction is not sufficient to prevent the impending aging of our faculties. Why not make the retirement age 60 or even 55? Pensions could be adequate, efforts could be made to place these retired people into useful activities outside academia and, as Cartter suggests, those older professors who are still quite lively could continue on annual appointments. The benefit of a lowered retirement age would be to break the tenured hold of unproductive older professors on scarce faculty positions.

ALLAN MAZUR
5282 Kentfield Drive,
San Jose, California

MARTIN EINHORN
Lawrence Radiation Laboratory,
Berkeley, California

Although the letters from Spengler and from Mazur and Einhorn seem contradictory, I have strong sympathies with both points of view. Mazur and Einhorn are rightfully concerned with maintaining institutional vitality in the next two decades. Higher education and research could stagnate if we do not find some means of making room for a constant influx of bright young scholars. Expansion of the market has long provided that opportunity, but the next 20 years could make the colleges look more like the American railroad today.

Spengler is concerned with the individual's welfare and his potential contribution. I was not suggesting that after 25 years of labor a man should be put out to pasture or advised to pursue Golden Age Club activities. Rather I believe that a faculty should have the option of replacing a colleague who has not retained his scholarly prowess after 25 years, and that all professors should have the option of seeking a new career or opportunity for service without major financial risk. As a long-time colleague of Spengler's, I know that he will never retire as a scholar whatever the rules; I would be a charter member of the Spengler-for-Congress club and count it as a social benefit if he would turn his talents and zestful spirits to other forms of public service upon retirement as a professor.

I thoroughly share Bock's concluding sentiments and have pleaded for an understanding and sustaining federal policy. To date, this has been in vain, and I fear that several major universities may be destroyed before a positive response is forthcoming. I wish I could be as optimistic as Bock about the possibility of stabilizing (or even modestly contracting) doctoral output in many fields. Wisconsin has been better than most states in preventing the proliferation of graduate programs, but the experience of many other states with aspiring younger universities does not give me a sense of optimism.

ALLAN CARTTER
New York University,
New York 10003

Solar Eclipse Information

L. J. Robinson's letter ("Another eclipse in 1973," 26 Feb., p. 751) prompts me to ask *Science* to publish the following information.

The National Science Foundation is making plans to coordinate activities connected with the June 1973 total solar eclipse which will occur across central Africa. The foundation will provide services similar to those rendered for the 1966 and 1970 eclipses and plans to have a site-surveying party visit Africa this summer. A report of planned coordination activities was presented at the International Symposium on the 1970 Eclipse in Seattle, Washington, 18–21 June 1971.

Responsibility for the program within the National Science Foundation has been assigned to Thomas B. Owen, Assistant Director for National and International Programs. Limited support for university scientific efforts will be provided by the Astronomy and Atmospheric Sciences Sections of the Research Directorate, headed by Edward C. Creutz, Assistant Director for Research. Information concerning the eclipse can be obtained from Ronald R. La Count in the Office of National Centers and Facilities Operations (202—632-5712).

C. C. OHLKE
Office of Government and
Public Programs Director,
National Science Foundation,
Washington, D.C. 20550

Averting Nuclear Blackmail

Concerning the dangers inherent in large-scale processing and movement of nuclear fuel (News and Comment, 9 April, p. 143), I believe that it is not "reactor proliferation," as such, that threatens but our way of going about it.

The prospects for illegal diversion of special nuclear materials and their use by nations or groups for nuclear blackmail or worse have long been recognized by those of us who work in the nuclear fuels field. The way to minimize this problem also has been apparent for some time: use nuclear fuels in a fully automated, closed cycle, energy extraction process, with on-site reprocessing as an integral part of the cycle. It is well within the capability of current technology to deliver new fuel to the nuclear electric plant, to burn and breed in the energy extraction step, and to reprocess, refabricate, and recycle on site—nonfuel by-products and wastes being eventually shipped out. Obviously, this will also reduce the potential threat to the environment by allowing low-value spent wastes to age and cool over longer periods of time before they are transported.

The current trend toward large, regional fuel-reprocessing plants coupled with endless patterns of fuel transport—from initial processor to enricher to fabricator to user to reprocessing plant (to Tinkers to Evers and, very much, to Chance)—is both illogical and, in the long run, uneconomic, as many

studies have shown. Some of these same studies have also shown that it may be wise to bring thorium into the overall fuel cycle soon, simultaneously breeding uranium-233 and plutonium for optimum neutron economy, plutonium dollar economy, and resource conservation. A "crossed-progeny," closed cycle breeder can be self-sustaining and ultimately free from dependence on central enrichment plants (as many competitor countries are well aware).

The closed cycle, nuclear electric-generating plant will cost more initially but, in the view of people who have looked into the problem, we can't afford to proceed very far without it. This should have a high national priority.

ROBERT L. STETSON
1023 Shary Court,
Shary Industrial Park,
Concord, California 94520

Mercury in Meat

The article by Curley *et al.* ("Organic mercury identified as the cause of poisoning in humans and hogs," 2 Apr., p. 5), contains an error. The statement that "the present U.S. Food and Drug Administration tolerance limit for mercury in meat products is 0.5 ppm" is incorrect. The present interim guideline of 0.5 ppm applies to fish only.

ALBERT C. KOLBYE, JR.
Food and Drug Administration,
Washington, D.C. 20204

Air Pollution Consultants

I would like to suggest a means of relocating jobless engineers, which might, in addition, provide a vital health service not presently available.

Engineering scientists who have had experience in life support systems and clean room technology could be retrained to act as consultants in air pollution. This service would be available to physicians, who could evolve a group of air pollution monitors to visit patients in their homes and evaluate and advise. The patients who would benefit from this service would be those who suffer from chronic cardiorespiratory disease, cystic disease, and asthma. The medical profession could not ever provide this service, because of the demands on their time. This project could be carried out locally or under the direction of some federal agency. It does not seem logical to me to spend money training a few engineers in administrative pollution matters, when the basic problem of pollution at this time is public ignorance of practical pollution measures.

ROMAN L. YANDA
7232 Van Nuys Boulevard,
Van Nuys, California 91405

Alcohol Breath Tests

N. H. Spector (*Science*, 2 April, p. 57) states as his discovery that alcohol-breath tests cannot be taken within the first 15 to 20 minutes after ingestion of alcohol. Actually, for the last 40 years, ever since the inception of breath-alcohol tests, this has been recognized as one of the inherent limitations of this test.

The second reference of Spector's report (*1*) contains the following:

> A period of approximately 15 minutes after the last ingestion of alcohol or its regurgitation, must elapse before the sample is obtained, to insure elimination of the possible effects of any residual mouth alcohol.

The Supreme Court of Washington in 1960 (Washington against Baker), specified that the police record has to indicate clearly that the breath-alcohol sample was obtained at least 15 minutes after ingestion of alcohol. Donigon in 1966 (*2*) repeated the requirement.

Currently, it is standard training procedure for police officers and technicians to wait 20 minutes before a breath-alcohol test, and judges throughout the country make sure that this procedure has been followed and is properly recorded. Within the last few years, there is to our knowledge only one report where the waiting period had not been observed, and not a single case where justice has miscarried on this basis.

We appreciate Spector's interest in our problem, but in this case, he raised a false alarm.

JOHN A. EDWARDS
U.S. Department of Transportation,
National Highway Traffic Safety
Administration, Washington, D.C.

References

1. Committee on Medicolegal Problems, *Alcohol and the Impaired Driver: A Manual on the Medicolegal Aspects of Chemical Tests for Intoxication* (American Medical Association, Chicago, 1968).
2. R. L. Donigon, *Chemical Tests and the Law* (Traffic Institute of Northwestern University, Evanston, Ill., 1966), p. 68.