

Don't Bar the Door...Let Them In

Many letters have been written by distinguished physiologists and younger members of our profession emphasizing that this is a unique period for funding of biomedical research. Since I began my professional career in 1956 there has never been so much pessimism expressed by so many. Grants are exceedingly difficult to obtain, particularly for the younger members of our profession. They will become even more difficult to obtain if Congress passes the budget cuts it promises, reducing biomedical research funding approximately 30% by the year 2002. The severe reduction in research support will make it even more difficult for young scientists to obtain research funding or to find academic positions for which they have been trained.

How has this situation come about? There are probably almost as many answers to that question as there are people who ask it. One thing is certain: less money is available now to support worthy projects than at any time in the past 35 years. Additionally, financially strapped universities and colleges are unable to hire sufficient faculty to ease the backlog of young investigators waiting their turn to enter the academic world as full-fledged members.

Matyas and Frank (2) presented some data relating to the problem of oversupply and underfunding. In Fig. 1, I have used those data to plot the results of their study and visually present the extent of the problem. The curve labeled "total PhDs" represents the sum of postdoctoral fellows and new PhDs awarded to American citizens and permanent residents. During the past 14 years we have decreased the number of PhDs granted in physiology by about 30%, but at the same time the number of postdoctoral fellows has increased by 60%, from 494 to 786. Academic job openings steadily declined, from a high of 104 in 1984 to 54 in 1992, yet 199 new PhDs were awarded in 1992. Each year the difference between academic jobs available and the number people seeking jobs is growing.

This discrepancy highlights our failure as mentors to our young colleagues. It is evident that a reduction in the production rate of new PhDs would bring the top and bottom curves of Fig. 1 closer together. However, that solution has been a topic of conversation in most departments for some time, and little has been done to alleviate the surplus of PhDs waiting in limbo. I propose a partial solution to this problem, which has not yet been discussed in any great detail.

First, I wish to preface my partial solution with the observation that we, as senior members of the scientific community, owe the young a great deal. We were the people who helped train them for a profession that is now unable to support them, no matter how able they are. We continue to send brochures and posters to colleges to attract graduate students, and we set up training programs for them, knowing full well that our graduates will have a difficult time obtaining an academic position. We continue trying to lengthen our curriculum vitae, as if more papers will do more for our reputation.

Graduate students help us in our own research, add to our curriculum vitae, and, when their time is up, we give them a PhD and send them on their way to become what may best be described as postdoctoral fellows emeritus. We owe our students more.

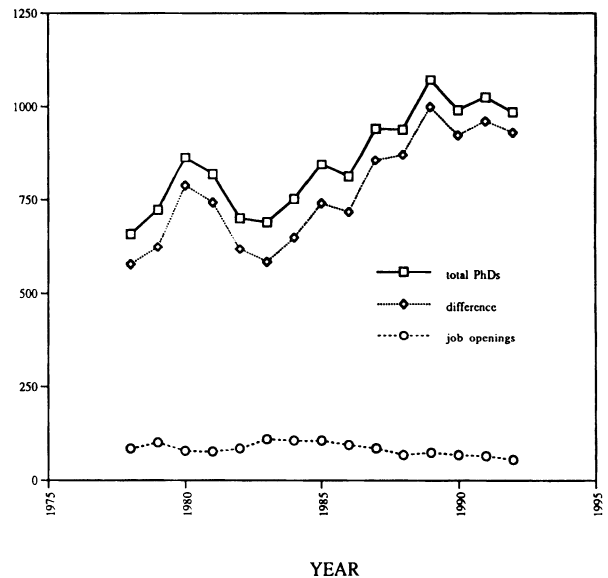


Figure 1. Data on jobs available vs. those seeking jobs, recalculated from Matyas and Frank (1). Total PhDs is the sum of postdoctoral students plus new PhDs awarded. Difference represents the difference between total PhDs and job openings.

More may be given. We at the top should recognize that full professors of my generation (65+) have had a wonderful time. We lived during the time of plenty; we published and traveled to conferences throughout the country and the world. We lived the good life.

Unfortunately, many of us look at our own research contributions as ground breaking and believe we must continue working the same way we did in the past; our contributions were so important, the scientific world can hardly move ahead without more of them. I submit that we overestimate our contributions. It is a common human failing. We may also believe that science will progress faster if we remain as active as we did years ago. I also submit that our replacement by a young investigator may actually allow a mind into the field that is at least as productive and certainly will produce for a longer time.

My solution? Do not hang in there until you are so old you find it difficult to manage. Step down at 65 and become an active Professor Emeritus. It might appear that the retirement of only a few full professors will not make a dent in the academic openings for physiologists. However, that is not so. If only 25 additional people become emeritus professors, and if most of their salary money is used for new hires, there will be a 100% increase in job openings!

Reduce your research commitment. One small grant is enough. Free up university salary money for at least one more Assistant Professor. (In many institutions, a full professor's salary equals the sum of two Assistant Professors, with some money to spare.) Mandel (1) has pointed out that only 12% of first time R01 applications are funded. Free up money at NIH and NSF for the young who are not part of the "old boys" network and who find it almost impossible to obtain a grant.

I do not suggest that each investigator stop work immediately on his or her 65th birthday. Rather, find other productive outlets for talents developed over a lifetime. We have unique abilities that should not go unused. Become involved in mentorship programs. They exist in all schools and offer a most rewarding experience to the mentors, as well as valuable advice and experience to the young. Do not be afraid to use your knowledge to help young physiologists write grants, present papers at meetings, design research projects, and do all the things we learned long ago.

If you care about future generations, enroll as volunteer scientists in the Science by Mail Program¹, in which scientists act as mentors to primary and secondary school students, guiding them through simple science projects. You will have the opportunity to become pen pals with some bright, lively, interesting youngsters. You may also help a few start on the road we trod long ago.

In your own community, primary and secondary schools, as well as community colleges, will be most receptive to your volunteering to present a lecture or two on your field of

expertise. The students will be equally receptive to your talk.

If speaking to younger people is not to your liking, try giving a course to undergraduate students. They are bright and earnest, and if they choose your course they do so because they are interested in the subject. It is particularly gratifying to spend a few hours a week with students who are truly interested in what you have to say.

If none of the above interests you, become involved in the political aspects of our profession. Now, more than ever, we need to educate our state and federal legislators about the need for continued support of the sciences (particularly the biomedical sciences), as well as the danger of the growing antivivisectionist attacks on animal research. Your representatives need input from knowledgeable and articulate constituents. If you don't know where to start, I am certain the American Physiological Society office will help you. You need not vegetate when you retire. You can serve your profession in new and important ways. I urge you to do so.

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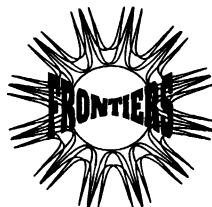
*Richard L. Malvin
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References

1. Mandel, H.G. Funding of NIH grant applications: update. *Science* 269:13-14, 1995.
2. Matyas, M., and M. Frank. Physiologists at US medical schools: education, current status, and trends in diversity. *Physiologist* 38:1-12, 1995.

¹ Science by Mail, 800 McKinley Monument Drive, NW, Canton, OH 44708-4800 (Phone 216-455-7043).

Applications Available for Frontiers in Physiology 1996 Science Teacher Summer Research Program



**Don't miss the application deadline!
Friday, January 5, 1996**

Applications and contact lists are now available for the 1996 Frontiers in Physiology Science Teacher Summer Research Program. Through the Frontiers program, middle and high school science teachers spend 7-9 weeks during the summer working in the research laboratory of an APS member who serves as a research host.

Applications are developed jointly by the science teacher and the APS member in whose laboratory the teacher will be working. All applications must be received at the APS Education Office by Friday, January 5, 1996. Applicants will be notified of their acceptance by March 8, 1996.

If you are interested in receiving an application to pass on to a science teacher, science supervisor, or principal, please contact: APS Education Office, Frontiers in Physiology, 9650 Rockville Pike, Bethesda, MD 20814-3991; or call Phyllis Edelman, Project Coordinator, (301) 571-0692; email: pedelman@aps.faseb.org; or fax (301) 571-8305.