sue a physics degree, the observation that students today are perhaps "wiser" than in the past, the importance of educating the public about physics, and ways to improve morale in graduate physics programs. We do not agree with some of his conclusions, however.

Although the physics "pipeline" notion did originate in the first decade or so after World War II, we did not intend to associate physics with cold-war and national-security issues. "Pipeline" is now in common usage as a metaphor for the progression through the educational system. We had no intent to dehumanize the process or the participants.

Today's students are looking more broadly for information regarding career options. The education and training of physicists takes place in settings where the physics focus is on research and teaching. A decade ago, students complained bitterly that physics professors were too "ivory tower" and were not connected with the "real world" when it came to advising students regarding job opportunities. The American Institute of Physics and the American Physical Society have made more information on career options available, and the Web makes it easily accessible for students.

We disagree with the rigid perspective that each career path has its own degree program. In addition, physics teaching and research are not the only legitimate career paths for physicists. Most PhD physicists engaged in neither teaching nor basic research report that physics was an appropriate background for them, and that their current positions are intellectually challenging. More significant, they would still pursue a PhD in physics if they were to make the choice today.

The purpose of our article was to describe the strength, vitality, and diversity of the job market for physicists, with emphasis on those who have PhDs. We believed it was important to dispel the notion that the situation for PhD physicists was bleak. It appears that the economic downturn that began after we wrote our article has not affected the academic or government job markets for physicists in the least.

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RIPIN REPLIES: Actually, I do think physics is for people who don't know what they want to do, in addition to those who think they do. Selecting a major that will serve you throughout a lifetime is chancy, particularly if you are young, inexperienced, and have limited knowledge about what day-to-day work involves. If a student lives, breathes, and dreams physics, or genomics, or programming, then the choice of major may be obvious. But isn't it important to retain flexibility? Most disciplines change direction and have ups and downs over a career. Personal interests and opportunities may shift as well.

Every survey I have seen supports the notion that a physics education, with its strong technical foundation and emphasis on critical thinking and problem solving, has, in bad times as well as good, provided tens of thousands of graduates with satisfying career options such as those exemplified in the Society of Physics Students poster. A good physics education broadens and retains options while many other majors narrow them. The main point of my article is that there

is more that physics department faculties can and should do to expand options for their graduates.

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Science in Franco's Spain

I was pleasantly surprised to see a full two-page article devoted to Spanish physicists (PHYSICS TODAY, August 2001, page 20).

In 1964, I was a research collaborator in the neutron diffraction group at Brookhaven National Laboratory. I came back to Spain in 1975, just after Francisco Franco died, and found a number of colleagues, including Julio Palacios, Luis Bru, Nicolas Cabrera, Fernando Agulló, Basilio Jiménez, and Federico Garcia Molíner, doing significant work in solid-state physics. Of course, in the following years, research activity in both theoretical and experimental physics increased greatly in Spain. But the initial impetus was already quite visible in 1976.

So I think it is a little unfair for Toni Feder to begin her article by suggesting that Franco's government was doing nothing to promote physics in Spain. Franco's image in his final years was more one of a benign elder statesman than a fascist dictator. Perhaps Franco's unforgivable sin was that he won a decisive victory over communism—decisive for his country and for Western Europe. He did this with the help of Texas Oil Co president Torkhild Rieber,[1] who extended credit to the nationalists during the war and gave them all the oil they needed.[2] Among Franco's good deeds was the establishment of the Consejo Superior de Investigaciones Cientificas. A plaque in the CSIC building on Serrano Street in Madrid commemorates this act.

References

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2. R. La Cierva, *Hacienda pública Española* **46**, 115 (1977).

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Fano Footnote

I have a note to add to the obituary for Ugo Fano (PHYSICS TODAY, September 2001, page 73), namely, that he wrote an excellent textbook, *Physics of Atoms and Molecules: An Introduction to the Structure of Matter* (U. of Chicago Press, 1972). The book is illustrated with beautiful hand drawings by his wife, Camilla Fano, the second author. I learned to appreciate the book when I adopted it to teach an advanced atomic physics course at the University of Munich. I still find it worth consulting.

In 1985, I had a chance to meet Ugo Fano in Copenhagen. He told me that he didn't know why that book did not sell very well.

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Corrections

January 2002, page 21—The quotation attributed to Thomas Prettyman, a technical staff member at Los Alamos National Laboratory, should have been attributed to LANL technical staff member Rob York.

February 2002, page 67—The photograph identified as that of MacArthur Fellow Brooks Pate actually showed another MacArthur fellow. ■