

letters

there are not as many industrial openings for physicists.

The broad scientific education that you receive, *still receive*, in physics at many universities is not an asset—it has become a liability. When there was a shortage of trained technical people, a general background meant you could step into a job in a number of areas and complete it successfully. A good broadly based scientific background is still an asset after you get a job and encounter unexpected developments.

The change has taken place in getting the job in the first place. There is such a glut of trained people in many areas that companies wait to find someone who has done work in the exact area they have a project in, and if they wait long enough they will find somebody who fills the bill. This leaves the person with a good general background out in the cold.

The conclusion isn't that the PhD himself has changed as much as that the hiring practices of American industry has changed. There is the implication that multidisciplinary programs that are not tailored to fill a specific job opening will not be very successful. There is also the implication that very little can be done to a specific PhD program that can have any significant influence on the situation.

What is really needed is a change in national attitude. Getting a PhD, in anything, should not exclude you from employment in nonresearch areas. Unless changes are made in rigid hiring practices and salary schedules, the future of a PhD in physics will continue to be very bleak for some time to come.

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Duty-free imports

My contacts with US universities and research institutes have convinced me that most of them are unaware of the rules under which they can purchase foreign scientific equipment free from US duty. The US is party to the so-called Florence Agreement, an international treaty, which regulates the duty free import of scientific equipment into the participating countries. This matter is covered in the United States Tariff under Item 851.60 which grants exemption to articles entered for the use of any nonprofit institution, whether public or private, established for educational or scientific purposes.

Included under the exemption are instruments and apparatus, if no instrument or apparatus of equivalent scientific value for the purposes for which the instrument or apparatus is intended

to be used is being manufactured in the US. These such items can be imported free of duty. Duty-free treatment for the repair components for such instruments is also provided.

When applying for duty-free entry of such equipment, the purchaser will have to indicate that to the best of his knowledge no domestic equipment has the performance features that are required for his application. It is further stipulated that equipment so entered cannot be used for commercial purposes within five years after being entered and must be reserved exclusively for the institution involved.

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Population exposure

The values for the cosmic-ray dose to Man given by Joseph Lieberman in his article "Ionizing Radiation Standards for Population Exposure" (November, page 32) appear to be considerably in error. He gives a value of 40 mrem per year for California, (presumably averaged over the entire population) which, taking into account current solar influence on cosmic-ray intensity and latitude effects, corresponds to an altitude of 1.3 km¹, nearly the elevation of Denver. The value given for Colorado, 120 mrem per year, corresponds to an altitude of 3 km, again accounting both for latitude and solar period¹. By contrast, the corresponding sea-level dose rate is 28 mrem per year, and the corresponding dose rate at the elevation of Denver is 45 mrem per year¹. As these numbers are used to assist in defining the perspective from which the assessment of risk is made, their accuracy is important.

Reference

1. Keran O'Brien, J. E. McLaughlin, Health Physics (to be published).

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Lieberman's article, like most studies on the subject, considers radiation hazards primarily in terms of amount of radiation entering the body from outside the body. Only passing mention is made of the hazards from nuclides that enter the body and remain for a finite time. The radiation dosage from such nuclides in close proximity to or inside of cells of especially vulnerable body parts—bone marrow, vital organs and glands—can be very large.

I would like to see more consideration of these hazards, particularly when computing effects from fallout from bomb tests or when estimating probability of surviving after a nuclear attack. How

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