(November, page 11) surmised that the qualified women now outside academic physics would "be unwilling or unable to become professors of physics." Recent experience with the NSF Visiting Professorships for Women in Science and Engineering, however, supports a more optimistic outlook.

This NSF program, initiated in 1982, was designed to enable experienced women scientists and engineers to serve as visiting professors at academic institutions. Despite a lead time of only seven weeks between distribution of the program announcements and the application deadline, 118 proposals were received in response to the announcement, and 18 of these came from physicists and astronomers. The research proposals were of such high caliber, as evaluated in the usual peer-review process, and the funding was so limited, that the rejection ratio for highly rated proposals was several times that for typical programs. In all, 17 awards were made; two physicists and two astronomers were among the successful applicants. While approximately half of the awardees are already on academic faculties, the other half do not currently hold faculty positions in PhD-granting institutions. That split is true also for the physicists and for the astronomers.

The significance of the potential implied by these results must be considered in relationship to the situation requiring improvement. Findings of the Eisenstein–Baranger Survey on the 171 institutions in the United States granting PhDs in physics were reported in February 1982 (page 99). Of the 3665 senior physics faculty positions in these institutions, only 54 were held by women. An increase in this number by even one or two per year would be significant, particularly if that increase came in the 125 institutions having no woman at any rank among their physics faculty. Response to the NSF program adds further evidence to the findings of the APS Panel on Faculty Positions for Women Physicists, suggesting that there is a substantial pool of women, with the appropriate credentials, who would be willing and able to make the required career changes if suitable opportunities were presented.

CAROL JO CRANNELL
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2/83

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The Council of the American Physical Society officially recognized the underrepresentation of women physicists on the faculties of major universities in 1981, by appointing a panel on senior faculty positions for women. The goals of the Council were to highlight the situation and to increase the number of women in senior faculty positions. I am pleased to report that the APS has now been joined in this endeavor by the American Astronomical Society, which has added two distinguished astronomers, Vera Rubin and Jeremiah Ostriker, to the Joint Panel.

The Panel now regularly receives letters from heads of departments and search committees. Through this means and others, the Panel is currently aware of dozens of open positions, either at tenure rank or convertible to tenure rank if a highly qualified woman candidate is identified. Although the faculties of US physics and astronomy departments as a whole are not expanding, there is still turnover in the system, even in departments of high research accomplishment and prestige.

At the same time, the Panel has identified dozens of women physicists who not only have had the kind of "notable careers in industry and in government laboratories" that I mentioned as an example in my March 1982 guest editorial, but also are willing to be approached by university departments. As with a significant number of men who first took industrial or government laboratory positions and later found satisfying faculty appointments in research universities, some of these women have indicated that they are now willing to explore the opportunity to work with graduate students in a university research setting, to teach and to join colleagues in the life and work of an academic community. By their accomplishments, these women have earned the attention of our Committee and would be valuable additions to this community.

Key to accomplishment of these APS and AAS goals is the encouragement of high standards for these appointments. This includes both the qualifications of the women and the resources for their research to be provided or found in the university setting. From its experience to date, the Panel is encouraged to believe that these goals and high standards are realistic. The proportion of senior women in academic positions is very small, but when the numbers are small, each new appointment can be significant.

RALPH O. SIMMONS
APS–AAS Panel on Faculty Positions for Women Physicists and Astronomers
8/83

Arms-race education

PHYSICS TODAY is certainly to be commended for assembling the March issue, which addresses the single most crucial issue of our time, the nuclear arms race, and points to the benefit

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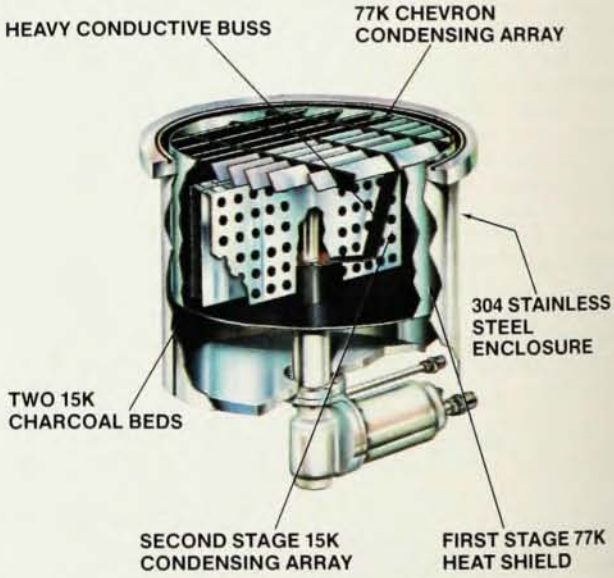

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that may be derived from an informed involvement by physicists and the scientific community at large. Indeed, education should be central to the role played by the citizen physicist.

I must say, however, that one sentence in the article by Dietrich Schroeer simply confounded me. "A good measure of the success of arms-race education may well be its ability to institutionalize itself." The author was clearly decrying the ravages of on-again/off-again funding. But allow me to offer a contrary view: A good measure of the success of arms-race education will certainly be its demise at the hands of its own success. (A circular argument is an offense in science, but not necessarily in politics.) When these courses move from the current-events curriculum to history, we will all be able to rest easier.

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4/83

Value of a physics education

I want to discuss an issue concerning "displaced physicists" that seems to be prevalent today because of the employment situation (June, page 107). Many people who are educated in physics who do not pursue a career in physics (perhaps for no reason of their own) need to resolve any inconsistencies between their education and their present career objectives. A physics education instructs one to obtain understanding and solve problems through fundamental principles. This type of educational experience usually leads one into a career of research. A non-physics environment has the reputation of applying to problems solutions derived from other working systems, without a total understanding of the fundamentals involved. This may be due to time constraints or necessity. In this type of environment, a contradiction would arise between the skills of someone educated as a physicist and the immediate requirements of the task at hand.

Does this make the displaced physicist bitter that he may not have the opportunity to use in his future endeavors the many hours of arduous study he spent in such subject areas as quantum mechanics and mathematical physics? The physicist can resolve this dilemma by forcing application of his esoteric skills to the tasks at hand. He must realize that his education was meant to train his mind and prepare him for advanced problem solving that may be beyond the scope of specialized engineering. A sincere effort must be made by the physicist to apply his talents to the problem at hand, whether called for or not. Perhaps this would be the greatest challenge of all. For example, a physicist friend of mine, who is now employed as a design engineer, told me he uses *S*-matrix scattering theory to design surface acoustic wave devices.

A physics education does not have to be put aside when one is engaged in a non-physics career. In fact, the physicist will have more than his share of tools necessary for producing good work, including analytical thinking and cogent expression that he gained from studies of quantum mechanics, and so on. The application of his talents and fundamental approach will put him in a position of versatility and much visibility relative to his colleagues. I, for one, now have a job that does not directly use most of my physics talents (naval mine engineering), but it gives me much pleasure to employ them whenever possible. For this reason, I continue to belong to the American Physical Society, take advantage of its many opportunities to be involved with physics, and faithfully read PHYSICS TODAY.

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7/83

Saturday-morning physics

A number of recent letters have spoken glowingly of physicists' Saturday-morning or other lectures to high-school students or to elementary and high-school teachers. While I think it is fine that physicists are doing this, I would like to note that such programs are nothing new and, moreover, that such extracurricular after-school classes are likely to have extremely little positive *national* effect on our educational system. Indeed, they may have a bad effect if they convince scientists that they are thereby doing their bit for improving science education and need do nothing else.

I know of no careful studies that show programs of this kind to be of value. The evaluations of the many teachers' training programs conducted with NSF and other funds in the 1960s and 1970s tended to be negative.

Education certainly suffers severe problems at present, both in school systems and in universities. University professors, often unaware of their own problems, tend to focus on the problems of others. It seems very unlikely that with the major problems confronting American education today, a limited number of faculty lectures given in very few locations around the country will make much difference in the total picture. If we consider that only one-third of our high schools now

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