LETTERS

Horatio Alger clap trap

It was hard to believe that you had actually published the rash, reactionary editorial in the June PHYSICS TODAY. At a time of crisis for the physics profession, brought about by an unenlightened lay Congress and administration, you choose to line up on the side of the ignorant and against the interests of the people and the science you purport to represent.

Being one of those who wrote letters about the employment situation that were quoted out of context in your editorial, I would like to point out to you that the issue here is too serious to be greeted by this peevish response to some direct or implied criticism of the American Institute of Physics and its officers.

With regard to some specific points in your editorial: Is it "ludicrous" for a PhD in physics to ask of society that he be given the opportunity to do the work for which he was trained? As far as being "educated at society's expense," it seems to me that, in view of the current employment prospects especially, I have incurred an enormous economic loss in acquiring my education. However, for argument's sake, let us say that the state provided the major support for the education of *all* physicists. Then it is only right that the state get some return on its investment. Would you let me know how I could put, e.g., a year's course work in quantum electrodynamics to use in the Peace Corps? (In a typical Peace-Corps country they recently asked that even elementary-school teachers be replaced by technicians and skilled laborers.) Before people start making silly suggestions on how to bridge the gaps between the advanced and the backward, the educated and the uneducated, the rich and the poor, they should learn how vast those gaps are.

When you said that "we" do not feel that we should have to find jobs for physicists, I presume that you were speaking for AIP in large part in that immensely pompous statement. Never have it said that I suggested such an arrangement. Let AIP confine its incompetency to journal publishing. If they want to do something about the employment situation, they could, as a logical start, discontinue such perverse activities as recruiting unsuspecting students into physics in the face of an employment depression. In addition, they could conduct, with a critical attitude, investigations into the nature of the sources of support for physics research and make suggestions for alternative sources. If anything is to be learned from the present hard experience, it's that the supporting foundation for physics is an unstable one.

With regard to your questions about the nonemployability of physicists relative to others and the harm in attaining a physics education today, a realistic appraisal of the situation, taking into account that physics PhDs are trained so as to attain very specialized skills and knowledge that they can apply only to a very narrow set of tasks, must lead to affirmative replies.

The remainder of your editorial sounded like so much Horatio Alger-like clap trap. You are guilty of the practice (which is very popular among political conservatives) of using the terms "free" and "freedom" in an absolute sense when you actually are conveying only your own relative attitude about the subject at hand. As far as the beginning physicist is concerned, freedom is *also* only one side of a coin. The other is opportunity, and without it "freedom" becomes meaningless as do also the words "physics PhD."

JAMES D. KERWIN
Nesconset, New York

Ourselves to blame

The view of the June editorial in PHYSICS TODAY ("Who Finds the Job?") is a perfect example of an attitude that has contributed much to the present difficulties of physics in the US today. With such an attitude of professional leadership it should be no surprise that physicists, alone among professionals, are now feeling the effects of unemployment. In what other profession does the leadership suggest to new members that they might seek work as high-school teachers or Peace Corps volunteers? Does the author really believe that having a

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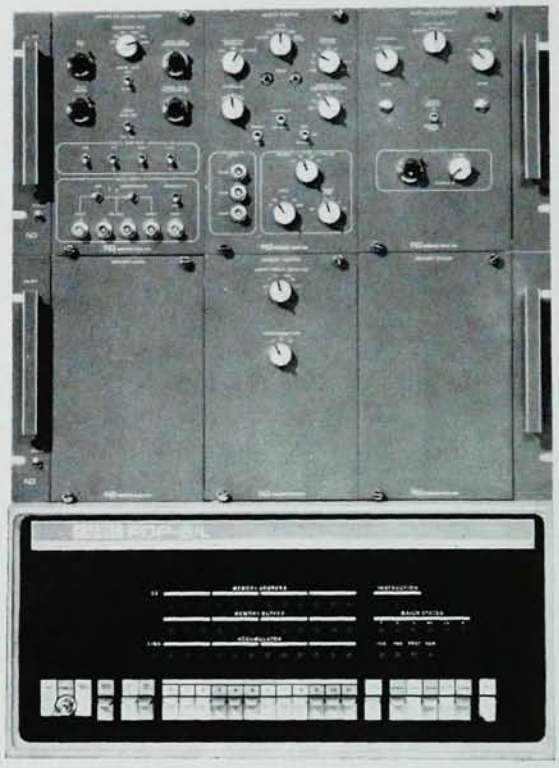

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PhD physicist do such work would be of value either to the physicist or to society? He mentions the cost that society has incurred in educating a man to the level of a PhD. That man has also incurred some costs in time, effort and lost income. Both he and society are entitled to the return that can be had only if he can do the work he was trained for.

I am particularly concerned by the implication that the editorial is speaking for society to young PhDs. Society will render its own judgment on the need for physicists; PHYSICS TODAY can not presume to speak for it. What it can do is offer something more constructive to those of us about to enter the profession than the chilling thought that unemployment is the price of freedom. Other professions find it not only possible but desirable for their publications to speak for them as well as to them. Like it or not, others will regard PHYSICS TODAY as a voice of the physics profession in any case. If we continue to present ourselves as martyrs to our work, totally unconcerned about our position, reputation or security, society will treat us that way, and we will have only ourselves to blame.

ROBERT LEVINE
University of Pennsylvania

Who accepts responsibility?

I am aghast that R. Hobart Ellis Jr could take such an irresponsible position in the June editorial, "Who Finds the Job?" His primary attitude seems to be (correct me if I err in my interpretation) that competent physicists who cannot find jobs within physics should leave and undertake other vocations (he suggests specifically high-school teaching, the Peace Corps and advising the poor and underprivileged). Furthermore he suggests that the universities and the American Institute of Physics have no responsibility for the physicist after graduation beyond providing employment data and job placement services.

My position, as a graduate student, is this: If colleges and universities throughout this country are preparing thousands of physicists only to face careers in some other field, they are propagating a cruel joke. Do not misunderstand me on this point. I am not knocking the Peace Corps or high-school teachers or any other worthy occupation Ellis would suggest. I am merely stating that I have not *chosen* any of these avenues as a career and I do not care to be *forced* to choose them. I am not asking for a handout when I graduate. I simply want to find a productive job within physics.

I can not offer any concrete proposals to alleviate the present situation except to suggest that Ellis's attitude of passive acceptance is precisely what is *not* needed. I sincerely hope that Ellis's position does not represent the official attitude of AIP. After encouraging students to major in and study physics, I feel that it would be inherently dishonest for AIP to turn around and disown them after they graduate and can not find a job. I certainly could not support a professional society that is not interested in the welfare of its members.

WILLIAM M. GREENBERG
San Diego State College

How far to quasar?

I am sure that Fred Hoyle and Geoffrey Burbidge would not wish to take the entire discredit of being the *only* devil's advocates in the matter of quasar distances as suggested in Bernard Burke's excellent article on radio telescopes (PHYSICS TODAY, July, page 54). A good part of the opprobrium for suggesting that quasars may be at less than cosmological distance must rest on me (J. Terrell, *Science* **145**, 918, 1964; **154**, 1281, 1966; **156**, 265, 1967; *Astrophys. J.* **147**, 827, 1967; *Science* **159**, 291, 1968; *Phys. Rev. Lett.* **21**, 637, 1968).

The question of quasar distance is still open as there are a number of puzzling observations apparently inconsistent with cosmological distance, such as anisotropy of quasar distribution, apparent cutoff of red shifts at $z \approx 2.4$ ($z =$ change of wavelength divided by laboratory wavelength) and lack of association with distant galaxies. Origin of the observed quasars in a gravitational collapse at the center of our galaxy would appear to be more consistent with these and other observations. JAMES TERRELL
Los Alamos Scientific Laboratory

Subjective relativity

The February article in PHYSICS TODAY, "Space, Time and Elementary Interactions in Relativity" by Mendel Sachs, is certainly a most valuable report on modern developments in rela-