

letters

of the college and secondary-school teacher, and stimulated a number of long-range educational projects, such as in the development of curriculum materials, laboratory apparatus, and teaching aids. The government of India has sought the advice of NSF in establishing a number of these programs, and, when requested to do so our office has brought in specialists to serve as consultants. Thus even though NSF's participation in the regular summer-institute program has ended, there are still a number of opportunities for qualified US physicists to offer their services in assisting the development of physics education in India.

W. A. Blanpied

Agency for International Development
New Delhi

Record rapid publication

The rapid publication of the *Proceedings* of the Tenth International Conference on the Physics of Semiconductors, Cambridge, Massachusetts is by no means a record as suggested by J. E. Fischer in his letter in the May issue (page 13). Congratulations are nevertheless in order. The 820-page *Proceedings* of the International Conference on properties of Nuclear States, Montreal, Canada (M. Harvey, R. Y. Cusson, J. S. Geiger, J. M. Pearson, eds.) was available within 14 weeks from the end of the conference. The record, however, I believe is held by the editors of the 990-page *Proceedings* of the 1960 International Conference on Nuclear Structure, Kingston, Canada (D. A. Bromley, E. W. Vogt, eds.) with a production time of less than two months.

M. Harvey

Chalk River Nuclear Laboratories
Chalk River, Ontario

Physicist production

Although the evidence is overwhelming that production of new physicists will continue to exceed demand for many years, there has been a reluctance on the part of most physicists to accept any but voluntary mechanisms to control the production process. Even the gloomy Grodzins report¹ couches its recommendations in language such as:

"Physics departments should tighten their standards for the PhD."

"Physics departments must reexamine their training programs especially for careers for which few employment opportunities exist."

"We should reduce those financial inducements that channel students into fields of little employment potential."

The report makes no suggestions as to

how these recommendations are to be implemented, so we must conclude that the authors of the report believe that departments will altruistically turn away a good fraction of the few students they can now attract, purge research assistants from their research groups, and otherwise seek to reduce graduate enrollments (as well as the "head count").

As one of the few who have suggested that it might be appropriate to consider nonvoluntary constraints on graduate programs to control the production of new physicists,² I have heard from numerous correspondents that natural processes will certainly limit the proliferation of new advanced degree programs. To check this hypothesis I have surveyed the latest three editions of the "AIP Directory of Physics and Astronomy Faculties" to see how many graduate programs were being phased out. The results are shown in the table.

Changes in Physics Graduate Programs

Change in program	Number of institutions	
	1968-9 to 1969-70	1969-70 to 1970-71
B → M	9	13
M → D	1	3
X → D	0	3*
D → M	1*	1*
M → B	2	1
M → X	1	0

B—Highest physics degree granted is bachelors.

M—Highest physics degree granted is masters.

D—Highest physics degree granted is doctorate.

X—Not listed in AIP Directory.

* It appears that one school in each of these three categories may be incorrectly listed as a doctoral-level institution in the AIP Directory.

The disturbing aspect of these data is not so much the proliferation of new programs—a net increase of 21 new masters' programs and 5 new PhD programs (assuming that all PhD-granting institutions also grant masters' degrees)—as the indication that the trend is not slowing down. Six of the seven new doctoral-level programs were instituted in the academic year 1970-71, even though the handwriting has been on the wall for several years. The net increase in masters'-level programs was 16 in this year, as compared with six the previous year. Only two programs were phased out in the latest academic year, as opposed to five the previous year. (If we delete three questionable listings in the AIP Directories, the figures would be five new doctoral programs last year compared with one the year before, and none phased out.)

There is no evidence at all to support the contention that physics departments are reluctant to institute new graduate programs, even though the likelihood that their graduates will find suitable positions is small. Rather, the evidence supports the belief that departments will continue to expand their graduate programs so long as funds and university approval are forthcoming.

This sort of evidence makes it hard to believe that calls for austerity and self-sacrifice on a voluntary basis by individual physics departments will effectively limit excess production of physicists. If voluntary measures fail, the limiting process will clearly be nonvoluntary. The physics community can seek to control the production of new physicists by mechanisms such as accreditation,² or it can sit back and let the Bureau of the Budget and other federal agencies decide which departments give what graduate degrees.

References

1. L. Grodzins et al., "The manpower Crisis in Physics," APS Special Report (April 1971).
2. W. Silver, American Scientist 58, 362- (1970); A.P.A. Newsletter, page 1 (5 Jan. 1971); physics today, March 1971, page 9.

William Silver
University of Kansas
Lawrence

Polaroid and South Africa

As one of the black workers fired by Polaroid Corporation for protesting their support of South Africa and sale of products since 1938 in South Africa and as a scientist, I would like to respond to the letter in the April issue (page 9).

Polaroid has been doing business in South Africa for 33 years (only one year less than its existence as a corporation), and since 1953 has been the sole supplier of cameras and instant film for South Africa's pass system. Because Polaroid produces a product that South Africa must have in order to enforce apartheid, Polaroid receives a special status of taxation and is exempt from undistributed profits tax. All passbooks are produced on instant film; the pass laws are too rigid to allow an African to be without his pass for any length of time. Polaroid has a world monopoly on instant photography, and it is impossible to say that other companies produce South Africa's passes.

The "Polaroid Experiment" is a public fraud; the changes being made by Polaroid have nothing to do with freedom or self-determination, and are merely a buffer to allow Polaroid continued exploitation of black people and their land. Polaroid has stated that it will respect the law, the South African law clearly states that Africans will remain