

been discussed several times before and that experiments in Copenhagen on the inelastic deuteron scattering gave the first evidence for such shapes in the rare-earth region (B. Elbek, M. Kregar and P. Vedelsby, *Nuclear Physics*, **86**, 385, 1966).

BENT HERSKIND  
Niels Bohr Institutet

A REPLY FROM BERKELEY: We are of course familiar with the pioneering work of Bent Elbek and his colleagues, and we referred to it in our *Physics Letters* publication (**26B**, 127, 1968).

Elbek and his collaborators did indeed observe an anomalous behavior that they attributed to a hexadecapole component in the rare-earth region, but they were able to make only a crude estimate of its magnitude. They quote a  $\beta_4$  of 0.09 in the gadolinium region; we find 0.036 for  $Gd^{158}$ . More serious, they were not able to determine the sign of  $\beta_4$ . They speculate, however, that it should be negative near the beginning of the deformed region (which includes gadolinium) whereas we definitely find that it is positive. They were unable to detect a  $\beta_6$  component of the shape whereas we obtained the sign and approximate magnitude.

The experiment of Elbek and his colleagues—and particularly the crude analysis—were not such as to compel belief in the results that they quote. In our work the very detailed agreement between experiment and theory makes it extremely unlikely that our interpretation is in error.

BERNARD G. HARVEY  
University of California, Berkeley

### Dropout rate at Imperial

I feel I must comment on your editorial remarks about Imperial College on page 23 of the March issue ("it has long been known as a difficult college for a student to get into but an easy one for him to drop out of").

It is true that it is fairly difficult to enter this department as an undergraduate, but personally I don't think it is correct to say it is easy to drop out of. The situation in recent years is that 84% of our entry obtain their bachelor's degree here at the end of the minimal period of three years, a further 4% to 6% after a fourth year, while the remaining 12% to 10% leave because of academic failure,

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## LETTERS

health and other reasons. Although we are not satisfied with these figures, nevertheless it is a good record for universities in this country.

I hope you will publish these figures to counteract the impression given in your introduction to your March issue that substantial numbers of students fail to obtain degrees with us.

CLIFFORD C. BUTLER  
Imperial College, London

### *A slight to astrophysics*

In the tabulation of "Sixty-One Programs," which appeared in the March *PHYSICS TODAY*, the column marked "Astrophysics" is misleading. If one were to take the table literally, it would appear that there are no astrophysics courses available as electives to physics students at Indiana University. In reality the astrophysics courses at Indiana are taught in the astronomy department and physics students are frequently enrolled in them.

A glance at the table shows several other institutions where astrophysics courses that are offered in separate astronomy departments have been omitted. This column should never have been published without checking astronomy departments as well as physics departments. It would have been easy to make this check with material supplied by the American Institute of Physics itself in its annual faculty directory, which in 1967-68 for the first time included departments of astronomy and astrophysics.

MARSHAL H. WRUBEL  
Indiana University

### *Trujillo and confluent beams*

In the May issue of *PHYSICS TODAY* Lewis M. Branscomb's review titled "Atoms, Molecules and Electrons" cites Roy Neynaber and me for development of the "confluent-beams" technique. Stephen M. Trujillo was omitted although he formulated the basic ideas, he designed most of the experiment and he has been conspicuously involved in the experiments.

Trujillo and Neynaber deserve the credit. By comparison my own contribution is very modest.

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