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An Inclusive Budget Process

Troy Shinbrot (Letters, 28 Jan., p. 455) disputes Robert Dorfman's assertion (Letters, 3 Dec., p. 1499) that the process used to cut the budget at the University of Maryland involved faculty, staff, and students. Shinbrot says that he personally did not know about any such involvement, and that "[t]he administration's role was never to actively involve faculty, staff, or students in these decisions. Its role was not to vigorously protest the budget cuts. . . ."

Campus publications were full of news of this process over about 18 months; it was covered extensively by the student newspaper, the *Washington Post*, and occasionally by local TV stations. One such occasion was a demonstration about the effect of budget cuts on education; it was attended by students, faculty, and administrators and was addressed by the president and the provost, who clearly shared the concerns of the larger community. Several committees investigated the consequences of eliminating specific departments; students were represented on each one; this was where the bulk of the work was done. These committees reversed some recommendations which had been made by the Academic Planning Advisory Committee. There were disagreements, but when the final decisions had to be made by the campus senate (again with student representation) some were made unanimously, and none of the votes was close. Before departments were eliminated, substantial cuts were made in the administrative offices of academic affairs. The central administration of the university system was cut dramatically.

There is a substantial issue here, raised originally in Philip Abelson's editorial of 22 October (p. 487): faculty are easily involved in decisions to enhance budgets or to open new programs, but institutions are much less adept at making negative decisions with equivalent consultation. An administrator seeking rational and open consultative procedures has to invent them, but it can be done. The Maryland experience represents an instructive example to be examined by someone with Abelson's legitimate concerns.

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Superconductor Radiation Damage After Doping

In his article "Holding the lines in high-temperature superconductors," Gary Taubes lucidly describes how linear damage re-

gions from heavy ions are being used to improve high-field current-carrying abilities of superconductors (Research News, 17 Sept., p. 1521). Two points were misleading, however: first, his implication that the use of ion effects began in 1991, and second, that doping with uranium, followed by neutron irradiation, to produce atomic damage by internal ion bombardment was new. Both are long-standing.

The doping technique was applied to the high-temperature oxide superconductors, starting with $YBa_2Cu_3O_7$ in 1989 (*1*) and shortly thereafter extended to Bi-Sr-Ca and Bi-Pb-Sr-Ca-based oxide superconductors (*2*). Internal irradiation has the advantages over accelerator ion-irradiation of being applicable to bulk samples and of using somewhat simpler procedures. As Taubes notes, having damage with isotropic orientations, rather than highly aligned, may be either a disadvantage or an asset.

The use of ion damage to improve superconducting behavior appreciably precedes 1991. In 1966 internal heavy-ion irradiation was used to enhance high-field critical currents by flux pinning in the intermetallic superconductors Nb_3Al and V_3Si (*3*). Here again, the particular method used was that of doping the superconductors with uranium and inducing fission with slow neutrons, each fission of ^{235}U leading to a column of radiation damage from the flight of the two resulting, oppositely directed heavy ions ("fission fragments").

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2. H. R. Hart *et al.*, *IEEE Trans. Magnetics* **27**, 1375 (1991); F. E. Luborsky *et al.*, *J. Mater. Res.* **6**, 28 (1991); F. E. Luborsky *et al.*, *ibid.* **8**, 1277 (1993).
3. C. P. Bean, R. L. Fleischer, P. S. Swartz, H. R. Hart, *J. Appl. Phys.* **37**, 2218 (1966).

Response: Fleischer's summary of events is correct. There are, however, new developments (*1*). The prior work on superconductors was done on sintered superconducting grains. The recent work involves increasing the high current capacity of melt-textured grains, without simultaneously reducing the large grain sizes available.—***Gary Taubes***

References

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