LETTERS

Obscurity cult

I have often marveled at the problem that is the basic query of your [April] editorial ("Is physics too tough?"). It has seemed to me for some years that among physicists there is almost a cult, although certainly not an organized one, which I please to call a cult of obscurity. The creed of the cult is that a member disgraces the profession if he ever writes, lectures or teaches intelligibly to anyone but his immediate colleagues in the profession.

Some high-school physics teachers are true soul-members of the cult, but most are not. The nonmembers, however, often feel driven to make physics difficult in order to live up to standards that they believe are actually and validly set by members of the profession.

The cult varies in strength from decade to decade but would appear to be near a maximum just now. Noncommunicants cannot help but feel the lash of scorn from cultist colleagues. I suggest that the present ascendancy of the cult is the major force making "physics too tough."

Robert N. Varney
Lockheed Missiles & Space Co.

Discovery of the electron

Those who believe J. J. Thomson discovered the electron (letter by W. B. Lewis, PHYSICS TODAY, May, page 12) should read A. Schuster, *Proc. Roy. Soc.* **47**, 526 (1890); E. Wiechert, *Sitzungsber. der physikal.-ökon. Ges. Königsberg* **38**, 1 (1897) and *Wied. Ann., Beiblätter*, **21**, 443 (1897); and W. Kaufmann, *Wied. Ann.* **61**, 544 (1897) and **62**, 598 (1897). Schuster, Wiechert and Kaufmann determined the ratio of e/m for cathode rays, which is precisely what Thomson did, and in so doing they assumed the particle nature of the electron.

Schuster's value for e/m was poor, but Wiechert found it to be between 2×10^7 and 4×10^7 emu, and Kaufmann obtained first 10^7 and then 1.77×10^7. These values are quite as good as Thomson's values of 7.7×10^6 and 1.17×10^7 as given in *Phil. Mag.* 44, 293 (1897). Indeed, later measurements of e/m (1.758796×10^7) are extremely close to Kaufmann's value of 1.77×10^7.

Paul T. Bailey
Massachusetts Institute of Technology

Exploration by computer?

It is often stated that distant stars cannot be investigated by earth people because it would be impossible to build a rocket capable of traveling more than 5% of the velocity of light. Therefore, the argument goes, the exploration would take more than 100 years and could not be accomplished either because people would be incapable of enduring such long isolation or because the rocket would have to be too large (too expensive, too). These points were discussed by Herbert Malamud in reviewing *Flight to the Stars* by James Strong (PHYSICS TODAY, April, page 95).

Why are we so preoccupied with sending human beings to explore the stars? Instead we could send instrument packages. Thus the size of the rockets could be reduced, and, if we have faith in our future (after all, we bury time capsules after world's fairs) the time required for interstellar exploration should be of no concern.

For the first several missions we might make the packages return to earth with their findings. In the future we could send miniature robots to occupy planets of distant stars and set up communication links with the earth using energy from sources on the planets.

Certainly we expect that a computer capable of human intelligence will be