

Letters

Scientific Enlightenment: Whose Responsibility?

Whereas David Victor agrees in his recent letter (22 May, p. 897) that understanding science is essential for wise decisions by policy-makers, he argues that the lack of understanding is the fault of scientists: "The solution is for those who are knowledgeable . . . to write articles and give talks to those judges, journalists, legislators . . ." Science has been taught in schools and universities as far back as the youth of the oldest sitting juror; comprehensive and competent reports on science have been appearing in specialized lay publications for decades; more recently many universities have added courses on science and social issues. But to what extent do schools of law, business, and journalism require science courses as prerequisites for admission or provide and require such courses for graduation? To what extent do legal and journalistic societies, local or national legislatures, support remedial courses on science and technology for themselves? Surely, the responsibility lies with the educable but ignorant adults to enlighten themselves.

Victor further implies that scientists refuse "to advise and guide their inherently less knowledgeable" fellow citizens. Is this so? News reports teem with accounts of scientists advising, criticizing, and testifying on issues from evolution to genetic engineering to missile defenses. Scientific societies have sponsored Congressional Fellows to provide guidance to legislators. I think the common experience of scientists is that their opinion is more often offered than it is sought.

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Nuclear Reactor Risk Estimates

Readers of Eliot Marshall's "Recalculating the cost of Chernobyl" (News & Comment, 8 May, p. 658) may be puzzled by the discrepancy between Marvin Goldman's lower limit of zero for the number of cancer deaths in Western Europe from Chernobyl and Robert Gale's lower limit of 2500. This mirrors the discrepancy between the 1972 BEIR report (1) of the National Academy of Sciences and the 1980 report (2). The former assumed no-threshold; the latter, much

more properly, stated, "The Committee does not know whether dose rates of gamma or x-rays of about 100 mrad per year are detrimental to man." In short, the issue is transscientific.

To be faithful to what science can say about cancer casualties from large radiation releases, I have urged (3) that casualty estimates be given in two groups. At exposures of, say, several rads per year or higher, estimate casualties by multiplying person-rem by cancers per rem. But for exposures of around 100 millirems per year, the only scientifically defensible statement is "and x number of people received radiation dose commitments of 100 millirads or less per year."

This procedure, if adopted in probabilistic risk estimates of reactor accidents, would surely improve the scientific basis for such estimates and, one would hope, enhance, their credibility with the public.

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REFERENCES

1. National Research Council, Advisory Committee on the Biological Effects of Ionizing Radiations, *The Effects on Populations of Exposure to Low Levels of Ionizing Radiation* (BEIR I) (National Academy of Sciences, Washington, DC, 1972).
2. National Research Council, Committee on the Biological Effects of Ionizing Radiations, *The Effects on Populations of Exposure to Low Levels of Ionizing Radiation* (BEIR III) (National Academy Press, Washington, DC, 1980).
3. A. M. Weinberg, *Issues Sci. Technol.* 2, 63 (1985).

ACS Journals and Prices

The article "Libraries stunned by journal price increases" by Constance Holden (News & Comment, 22 May, p. 908) portrays quite accurately the strong concern in the library community about the rapidly increasing subscription prices of journals, particularly those in science and those sold by foreign publishers. There is a need, however, to correct some inaccuracies and to remove some misconceptions the *Science* reader might have received as a result of reading the article.

Richard Dougherty of the University of Michigan is quoted as saying that "there has been a 36% increase in the past year in the price of publications from the American Chemical Society." This figure is absolutely incorrect. A library subscriber taking all our journals in both 1987 and 1986 would have faced an increase of around 8%; the average subscriber to printed publications of Chemi-

cal Abstracts Service (a division of the ACS) would have experienced an increase of approximately 7%.

I also must echo the remark of A. F. Spilhaus, Jr., cited by Holden, that it is vital to consider subscription prices in the context of the quality and quantity of information provided in each journal. The price of the journal alone means next to nothing. Within the ACS, we have assembled a series of comparative figures showing clearly that the prices of ACS journals, on a per unit of information basis, are usually far lower than those of other publishers' journals in similar subject areas. I shall be glad to make the specific numbers available to any member of the library community upon request. In addition, the quality of our journals is very high, as measured by many quantitative and qualitative criteria. In short, we believe that our publications are fairly priced to institutions and that the ACS is a responsible publisher, attuned to and sympathetic with the very real budget problems in today's research libraries.

Later in the same article, I am quoted (correctly) as saying that the size of the ACS journal in organometallic chemistry has increased from 1800 pages to 2600 pages in the period from 1982 through 1986. The name of that journal, however, is *Organometallics*, not "*Organic Metallic Chemistry*," as stated in the article.

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Response: Bowen is correct. Dougherty was misquoted about the increase in prices of ACS publications. The 36% is a figure for the past 3 years, not 1 year.—CONSTANCE HOLDEN

Volts and Bolts

Despite all of the thunderstorm research funded by NASA, rockets are still launched into electrified clouds. But Eliot Marshall's News & Comment article (22 May, p. 903) cites "a charge of 8000 volts per meter" and a "charge of plus or minus 1000 volts." Charge should be expressed in units of coulombs. "Volts per meter" is a unit of electric field and is what the Kennedy Space Center's field mills measure. "Volts" is a unit of electrical potential.

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