Letters

The Public Aspect of Science

Sterling (Letters, 20 Aug., p. 676), notes that scientific investigators may not always be glad to expose their raw data to public review, and expresses concern that their reticence "threatens one of the basic tenets of science in a free society." He further claims that "the transactions of the scientific community must be conducted in public." He documents his view with quotations from Bertrand Russell and a AAAS committee report that appeared in *American Scientist*.

Sterling takes a position that is too extreme. Neither of the quotations he gives implies that "*Data* [italics mine] on which scientific claims are based must be public in the sense that they are available for review," nor that "to give credence to reports based on privileged data is to destroy the validity of the scientific method."

It has never been a necessary aspect of science that anyone who wishes shall be able to subpoena a colleague's data to see whether he treated it wrongly. Rather, it has always been the responsibility of the worker himself to present, justify, and explain his conclusions in such a way as to bring conviction to his audience, which in historical terms has often been a hostile one. Criticism comes soon enough, as Sterling attests, and again, it is the worker himself who must decide how to answer it, if he can.

The public aspect of science is not at all a matter of freedom of a society nor of adherence to rules proposed by philosophers or scientific committees, nor does it depend on any individual worker's set of data. It transcends all of these. It is public in the sense that Sterling and others can and do feel free to offer their criticism, constructive or otherwise. They are even free to actually repeat some or all of the work according to their own style, to conclude from it what they will, and in turn to display their own results in public for whatever further criticism may come from still others, and so on.

It is this capability for infinite refinement, verification, and extension that provides consensual validation and lends to science a public aspect. A "fair, unbiased, and authoritative review of the data" might not be possible, even with Hammond's best cooperation; for who is "unbiased," and what have "fair" and "authoritative" to do with "science in the public mode" (*1*).

ELLIS BLADE
1 University Place, New York 10003

Reference

1. See my article in *Essays on Creativity in the Sciences*, M. A. Coler, Ed. (New York Univ. Press, New York, 1963), pp. 183–206.

Scientific Writing

The Council of Biology Editors (CBE) has long sought to improve the quality of scientific writing, especially in professional journals. Now, through its Committee on Training in Scientific Writing, CBE is attempting to identify all those governmental and industrial institutions that offer formal courses in scientific writing to their scientists.

As a related matter, CBE would like to know of courses in scientific writing that are being taught in undergraduate, graduate, and professional schools.

DAVID FROST
Scientific Editorial Section,
Squibb Institute for Medical Research,
New Brunswick, New Jersey 08903

Disenchanted Students

In the article "Supply of scientific and engineering manpower: Surplus or shortage?" (30 July, p. 399) the observation was made that the graduating classes of 1962 and 1963 signaled the start of the decline in the number of students entering science and engineering fields. It was stated that students in these classes were in high school at the time of Sputnik. "Thus, if Sputnik had any effect on American youth's interest in a career in science or engineering, the effect was negative."

There is a very good reason for this negative effect. Before Sputnik, a teacher was successful teaching students their various subjects with homework assignments of approximately ten problems per day. After Sputnik, the educators suddenly became infected with the idea that the day of reasonable assignments was over; from then on, students had to complete at least 100 problems per assignment, in addition to increased reading assignments. Each instructor seemed to take the attitude that his assignments should occupy all of a student's waking hours, to the exclusion of all other subjects. My daughter was preparing for a career in medicine, taking science courses. She had more homework to do in high school than I had when I was a senior in a university.

The overwhelming amount of homework reduced the student's ability to really learn his subjects, and the thoughtful student contemplating a career in science or engineering said to himself, "Should I endure 6 or 7 years of this to prepare for a vocation that will give me a starting salary of $125 per month, when a monkey-wrench and sledgehammer mechanic who cannot sign his own name can make big money? Never!" Thus, young men and women became disenchanted with science and engineering.

MARSH F. BEALL
15515 Southeast Meadowlark Lane,
Portland, Oregon 97222

In Defense of Mrs. Benson

Robert Gillette reports (News and Comment, 29 Oct., p. 479) that a member of the State Department's advisory committee on the human environment belittled Mrs. Bruce B. Benson, president of the League of Women Voters. It is obvious that this member knows nothing about the League of Women Voters and even less about Mrs. Benson.

Long before environmental concern became "the thing," when it was plain, dull, hard work, the League of Women Voters was studying and recommending measures to preserve and protect the environment. Some of the very words this committee member feared Mrs. Benson wouldn't understand may well have been coined in League research.

The League has become so knowledgeable about environmental concerns that its members are asked to testify