orders did not come up to the expected percentage. As a result, the size of the complete edition will be smaller than had been planned, and the cost per volume will be correspondingly higher. Thus, the membership subscription established for this edition appears to have been too low.

A request for contributions to make up this deficit has been mailed to those included, or scheduled for inclusion, in the 10th edition (the editors hope that no supplementary contributions will be needed for future editions). It is well known that subscriptions and contributions have never been factors in the selection of scientists to be included in *American Men of Science.*

It has been proposed by a large proportion of those who have returned their proofs that specialized volumes be published. This may be the solution.

I would be glad to receive suggestions from readers of *Science* as to the best method to be followed in future publication of this important tool of the scientists of America.

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Science Teaching

The recent letter on science teaching [*Science* **132**, 836 (23 Sept. 1960)] by Harry Milgrom made reference to an earlier report by Howard E. Gruber [*ibid.* **132**, 467 (19 Aug. 1960)]. Both were stimulating and informative. Each points up a real problem in the area of higher education in the United States (particularly in science education) and the need to re-examine not alone what we are teaching but the pre-service and graduate training we are giving those who have chosen teaching as a career.

We think it ridiculous to teach scientific facts as isolated units of knowledge, but a cursory study of most college examinations indicates that the measurement of factual knowledge is the primary objective. There is much talk in academic meetings about the development and use of the scientific method and the scientific attitude, but there seems to be little attempt to attain these objectives through our present traditional methods of teaching and evaluating.

Jerome Bruner, in a little book called *The Process of Education*, has spoken well of this dilemma in present-day teaching and refers to the teaching of "unconnected facts having a pitiably short half-life in memory."

The preparation of good secondary school and college teachers involves

more than a series of unrelated courses capped with a research paper or a thesis. It should include a well-articulated program of scope and depth in general and professional education. College teachers who prepare secondary school science teachers need to know something about the problems of secondary school science teaching, and the graduate schools that prepare college teachers of science need to have some idea of science teaching in small colleges.

My thinking has been similar to Gruber's in that I think the history leading up to a scientific discovery and the consequences of such a discovery are important in science teaching. How and where would a student get the background in the history of science for this kind of teaching? Possibly through leisure reading, for there is limited chance for him to receive such training as a required part of his preparation for teaching.

In 1957 I made a random sample of 135 colleges and universities to find to what extent the history and philosophy of science were being offered as a requirement or an elective for those going into teaching. A summary of the compiled data looks as follows: Of the 107 colleges and universities that answered the questionnaire, 58, representing 54.1 percent, answered that they did not include in their curriculum in any form whatever a course directly or indirectly connected with the teaching of the history of science. Ten of the schools included the course in both the department of history and the department of philosophy. In all except four of the institutions the course was at the undergraduate level, and in every instance except two the subject was listed as an elective.

My contention is not that a specific course will be just the answer to problems dealing with the broad background and development of ideas in the sciences, but few will argue that one's scientific education and potentials as a teacher would not be enriched if this and similar disciplines were a part of his required preparation.

In the light of my findings (*1*) I think there is need for more inquiry into what teachers are being trained to teach. This is of real concern to both colleges and secondary schools. We will then be moving in the direction of improving the quality of science instruction.

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Reference

1. R. H. Simmons, *Sci. Educ.* **41**, No. 1 (1957).

Racial Differences

I have often wondered why some scientists (like other people) are prone to take extreme positions on a subject when there is a logical mid-ground which comes closer to the essential truth. A case in point is the letter by H. E. Garrett [*Science* **132**, 685 (1960)] taking *Science* to task for the news article entitled "Un-American science" [*Science* **132**, 24 (1960)]. It is probably true, as suggested by Garrett, that "equalitarian dogma" regarding racial differences has been too widely accepted as a basic premise. It is also probably true that this has hindered research in this field. To suggest that research in racial differences is "Un-American science" is certainly unscientific. On the other hand, to infer that any proven differences should have any effect on social treatment of the Negro (or any other race) is immoral, ridiculous, and utterly opposed to Jeffersonian equality.

The truth of the matter is that races of men do differ; else they would not be races. These differences almost certainly extend to mental as well as physical traits, just as in the case of individual people. The normal distribution curves for a particular inherent mental characteristic for different races of men would surely be different, just as the curves would differ between