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

populations of laborers and college teachers. However, these distribution curves would overlap and, furthermore, would differ for different traits. For example, there may be a higher percentage of Negroes than Scots with an inherent acute sense of rhythm. In a statistical sense U.S. Negroes apparently have greater ability than whites in short-distance running and some other athletic events. In some other traits the shape of the normal distribution curve for the two populations would favor whites. In some there would be little or no difference.

Is this view unscientific, un-American, or undemocratic? Conversely, recognition of racial *differences* is no excuse for branding any race as generally *inferior* to any other. Above all, it is no excuse for intolerance or discrimination. It is just as silly to use racial differences as a basis for discrimination as it is to label studies of racial mental differences "un-American science."

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Wave-Riding Dolphins

The very interesting discussion which has recently taken place between Scholander and Hayes concerning the possible ways in which dolphins or porpoises might obtain free rides in the bow waves of ships (*1*) has stimulated me to keep a very close watch for such activities while at sea. This watch has resulted in the accompanying photograph (Fig. 1), which shows a dolphin (probably *Tursiops* sp.) riding motionless with its tail some 15 to 20 centimeters in front of the bow of a small ship moving at a speed of 10 knots.

This photograph was taken from the bow of the 62-foot motor vessel *Capre* at about 2 P.M. on 9 August 1960, in an absolutely flat calm about 20 miles offshore, en route from the town of Gladstone, Queensland, Australia, to Heron Island, in the Capricorn Group of islands at the southern end of the Australian Great Barrier Reef (*2*). A Zeiss Contaflex II camera was used, with Kodachrome film and a shutter speed of 1/125 second.

Shortly before the picture was taken three dolphins of the same species were observed doing the same thing over a period of about 5 minutes. All three would ride at once, the two outboard ones being tipped over on their sides at angles of about 30°.

My observations of these dolphins have led to further consideration of one of the major problems debated by Scholander and Hayes—namely, why, in Scholander's model, the dolphin does