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Partners in Science Education

Countless college students have been told in the first lecture of a science course: "Forget what you learned in high school." It would be interesting to know how many of those freshmen had the wit to reply: "Who was responsible for teaching science to our high-school teachers?"

The high-school science teacher is a product of the college instruction he has had. Whether his background for the task be good or poor, he is responsible for preparing for college the students who will later enroll in college science courses. Moreover, he is responsible for giving to those of his students who will not enroll in college science courses much of the knowledge about and the attitudes toward science that they will have as adult workers, citizens, and voters. Since a large number of high-school science courses are taught by teachers whose knowledge of science is extremely weak, it is lamentably true that the advice, "Forget what you learned in high school," is frequently justified. But must not the college departments of science accept part of the responsibility for this fact?

Certainly more is required to be a good high-school teacher than mere knowledge of science, but the quality of the teacher's own knowledge is one of the most important factors—some would say the most important—in determining the quality of his teaching. Yet college departments of science have frequently shrugged off all responsibility for the training of teachers. Partly, by default, the responsibility for training teachers has been assumed almost wholly by departments of education. If the science faculty does not like the result, it would seem more profitable to step in and help improve the situation than to sit back and resort to name calling.

Training future research scientists and providing a background of fundamental science for students who plan to become engineers, physicians, or members of other fields of applied science are traditional functions of the college science departments. The rise of general education has added a third function, that of teaching the student who will not work in either pure or applied science but who needs some knowledge of science as part of his general education.

A fourth function is now being increasingly recognized: the preparation of high-school teachers of science. Special courses are being offered for prospective teachers; summer session arrangements to remedy deficiencies of practicing teachers are being made; plans and courses are being prepared in cooperation with departments of education; college teachers are cooperating directly with nearby high schools in the planning of instruction and curricula. John S. Coleman, who has been keeping a close eye on such developments on behalf of the National Research Council's Division of Physical Sciences, reports that some 40 special programs have come to his attention, in all of which college science departments are going outside of their old established routines in order to do a better job of training high-school science teachers.

These developments are good. But there should be more of them. The Science Teaching Improvement Program of the AAAS, announced in *Science* a few weeks ago [122, 145 (1955)], has as one of its principal objectives the assumption by scientists of a larger share of responsibility for the training of science teachers. Despite a considerable measure of former aloofness, high-school and college teachers are partners in science education. There is growing recognition that fuller cooperation will enable both to improve their contributions to the total effort.—D.W.