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The Preparation of High School Science Teachers in Iowa

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THE PREPARATION OF HIGH SCHOOL SCIENCE TEACHERS IN IOWA

KARL A. STILES

The Cooperative Committee on Science Teaching published a very interesting report entitled "The Preparation of High School Science Teachers." This report pointed out that many of the science teachers in America are inadequately prepared for their jobs.

The writer has long felt that that was particularly true of the Iowa science teachers. He has also been disturbed by the fact that our state requirements for certification of teachers were such that one could teach high school biology with only five semester hours of college credit. The same thing is true for chemistry and physics. On the other hand, a language teacher must have ten semester hours, a mathematics teacher ten semester hours, and a commercial teacher five semester hours for each subject taught; for example, typing, shorthand, and bookkeeping. In addition to these subject matter requirements, a commercial teacher must have two semester hours in commercial methods. Twenty semester hours are required for physical education, twenty-four semester hours for music, and thirty semester hours for art.

Why should the requirements for teaching science in the secondary schools of Iowa be less than for teaching in other subject matter fields? Certainly one reason is that the scientists of this state have been exceedingly slow in developing a program of science education.

The Cooperative Committee on Science Teaching after thorough study made the following recommendation:

"The Committee recommends that approximately one-half of the four-year college program be devoted to courses in three science subjects. Any combination of three of the following five subjects is recommended: biological science (including botany and zoology), chemistry, earth science, mathematics, physics. Science departments in the colleges are urged to cooperate among themselves and with the department of education in devising such a program of teacher preparation.

"At the same time, the Committee recommends a policy of certification or licensing of teachers for three subjects to correspond to the program which teacher-training institutions are asked to adopt. The Committee recommends that a total of at least 60 semester hours' credit be required in the science area, with at least 18 hours' credit in each subject for which the certificate is granted, except that 24 hours' credit should be the minimum for certification in biology, including courses in both botany and zoology. For certification to teach general science in the junior high school only, the Committee recommends as an alternative to certification in three subjects the require-

ment of a minimum of 15 hours in biological science, 15 hours in physical science (including both physics and chemistry), 6 hours in earth science, and 6 hours in astronomy."

Personally, this seems to me a very excellent recommendation. However, the report in itself will do little good unless science teachers find some way to implement it. Actually, a reform of the type suggested can come about only through action of college faculties and state certification authorities. The Cooperative Committee made the following recommendation for the implementation of its report:

"There are two ways by which scientists and educators can work to influence practices in colleges and state departments of education.

"In colleges, members of the departments most interested in these problems can act on their own initiative to broaden the science preparation of prospective high school teachers. Much progress has already been made by this method, as the answers to our questionnaire show. College science departments may also cooperate with departments of education to devise professional programs for the preparation of science teachers.

"The best method of effecting changes in certification procedures is through organizing committees on state and local bases which can make their voices heard in the state capitol and the state university. This method has been effective since 1939 in the state of Indiana, where a statewide committee has made proposals for certification which are being considered by the State Department of Education. In Pennsylvania there is a Committee for the Promotion of Science in Secondary Education for the State of Pennsylvania. This Committee recently issued a report on certification of science teachers in secondary schools which recommends raising the standards for certification in that state."

The author recently wrote to Dr. Loehwing as follows:

"It seems to me that something should be done by the Iowa Academy of Science to effect an improvement in science teaching standards in this state. Do you agree with me that the Iowa Academy of Science would be a logical spokesman on this subject for this state?"

Dr. Loehwing replied as follows: "I definitely agree with you concerning the possibility and even desirability of the Iowa Academy of Science in assuming initiative as a spokesman for science in general in the State of Iowa. Any publications of the Academy would be given serious consideration by our schools, Office of the State Superintendent of Public Instruction, and possibly even by the legislature in connection with pending reforms in the public schools of the state. There is such a wide spread interest in this subject at this time that I believe that leadership of the Academy would be welcomed. I also believe that we could not only use the Proceedings as an outlet for our papers on science teaching but that any such publication would also be welcomed by journals such as *School and Society*, *School Science and Mathematics*, etc."

If more time were available for the section on Science Teaching, it would be highly desirable to have a round table discussion on the

problems of the improvement of science teaching and how the Iowa Academy of Science might provide some leadership for the raising of the standards for science instruction in the state of Iowa. In view of the fact that only thirty minutes has been allowed for our program this did not seem feasible. However, this paper is being made very brief to allow opportunity for a discussion of this very important question.

The author favors the Iowa Academy's recommending to our State Office of Education the report made by the Cooperative Committee on Science Teaching. Furthermore, it is suggested that the Academy appoint a committee which shall have the responsibility of promoting improved state requirements for certification of secondary school teachers which will at least place the requirements for science on a par with other fields such as language, physical education, music and art.

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