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## The Conference of Teachers of High School Chemistry at Laramie

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The Conference of Teachers of High School Chemistry sponsored by the Division of Chemical Education, American Chemical Society, was held at the University of Wyoming from July 19 to August 20, 1954. This meeting developed tremendous stimulation to improve the teaching of the fifty-six teachers attending the five weeks meeting. The benefits to the participants consisted of: (1) the opportunity to meet and hear researchers discuss discoveries so recent that little or nothing is printed about them, (2) extensive exchange of ideas among many people with a common interest brought together for more than a month in formal and informal meetings, (3) the availability of one hundred twenty-five of the most recent textbooks of chemistry for study and comparison, (4) field trips to various industries that were interesting and instructive.

It might be asked: how did this meeting become possible, who attended, and what did they do?

First, let us consider the pioneering work done by Doctor Otto M. Smith and his associates at Oklahoma Agricultural and Mechanical College. About five years ago a number of college teachers gathered in Stillwater to discuss ways in which freshman chemistry instruction could be improved in their colleges. Interest in each succeeding meeting grew to the point where funds were found to defray part of the expense. Last year it was proposed that the high school teacher could benefit greatly from participating in a similar meeting. The Committee for the Advancement of Education of the Ford Foundation and some chapters of the American Chemical Society offered funds to help with the expense of the meeting. A phenomenal amount of work was done in a limited time to make possible this conference for high school teachers during the summer of 1954.

Who were these fifty-six high school teachers that took part in the conference? They came from sixteen states, from Oregon to Florida. Their experience varied from that of a man who had taught chemistry in high schools for thirty-five years to that of the young man who was preparing to teach for the first time this year. The average was eighteen years of teaching with nine of those years at the present location. Many teachers had extended experience in other subjects but only one or two years in chemistry. About one-half of them had a master's degree and the others a bachelor's, but only one-third had a chemistry major, and one-fourth a minor in chemistry. Probably those teachers with limited course work in chemistry studied the subject years ago. One in five of the teachers was a woman. The size of high school averaged twenty-six teachers. Some taught only chemistry, but most of them had other subjects to teach with thirty-eight percent of their classes being in chemistry. More than one-half of the participants felt more graduate credit in chemistry would help the appearance of their transcript; so they paid the enrollment fees for a credit course. Less than half of the teachers belonged to a science

teachers organization. Since the First Chemistry Institute for college teachers was held at the same time and on the same campus, abundant opportunity existed for mingling of speakers and interchanging of resource materials. The twenty-four special lecturers scheduled for the Institute also addressed the high school conference. These men were outstanding leaders in their fields. In addition, the faculty of the University of Wyoming was available and most co-operative.

The special speakers and some of the conference activities had to be scheduled far in advance. However, as many choices of study and discussion subjects as possible were left to the participants. The first day or two was spent in getting acquainted and deciding what topics we were most interested in studying. A typical day would include two morning meetings, two in the afternoon, and sometimes one in the evening. These meetings probably would be a combined Conference and Institute lecture, a lecture for the high school group only, and two meetings for interest groups to study and discuss their particular topics. Many of the evening meetings were of more general interest and attracted others besides the chemistry teachers.

Some of the field trips included a visit to an oil refinery, a cement plant, a large ice plant, and the Bureau of Mines Laboratory at Laramie.

During the five weeks, the Conference had about twenty-five combined meetings with the Institute, the same number of high school lectures, ten demonstration and report meetings, fifteen optional meetings with other groups, six field trips, and many study meetings. A few meetings were on Saturday but most of the week-ends were free of scheduled work. Also there were seven picnics and "mixers" in addition to the coffee hours each day.

A most invaluable feature of the conference was the small study group of one to ten persons working on a problem that was of special interest to them. After several days of work and discussion their findings would be reported to the entire conference, usually with mimeographed copies for each member. Some of the groups agreed on a common report, but sometimes the members had divergent views and gave both sides in their presentation to the conference. Considerable discussion often arose from statements made in these reports.

Some idea of what the conference members were most interested in studying is given by the following partial list of topics:

- Objectives of chemistry teaching in light of modern advances
- The chemistry curriculum—terminal, college preparatory, or both
- Textbooks—content, methods, evaluation
- Methods of teaching—function of teacher, conduct of classes
- Laboratory work—techniques, safety, science facilities
- Increasing the efficiency of the short laboratory period
- The periodic chart

- Visual aids in chemistry—films, charts, how to evaluate

All of the conference members took part in at least two of these study groups during the five weeks meeting. Many of the individuals searched diligently for information, one person sending to another campus for data and materials.

Another feature of the conference was the demonstration of "Quickie" experiments especially designed to attract attention and stir the imagination. All the participants gave one or more of their favorite demonstrations to help make this activity a success. Many of these were old stand-by experiments (with variations) that always thrill the observer; but each teacher also learned of demonstrations which were new to him. One member made a list of all the experiments and gave duplicate copies to each person.

Some free or low-cost materials were demonstrated, and sources of others were given to the members. Many of these can be very helpful in presenting ideas to chemistry students.

One valuable feature of the meeting was the mixing of college and high school teachers from many schools from many states. It certainly helped broaden the viewpoint and provide for many exchanges of ideas. More than one college instructor stated the meeting had helped him get a wider perspective of the problem of better instruction in chemistry. Typical of this experience was the request of some college teachers who asked for a psychologist to comment on their teaching procedures. This consultant's talks were so interesting that a second series of consultations was given. Many of both the college teachers and the high school teachers attended the sessions when he talked. They believed his comments about learning would be most helpful to them in improving instruction in chemistry.

A few conferees felt that five weeks was a little long for such a meeting, but all agreed that several weeks are necessary in order to accomplish maximum benefits. This period made possible the earning of credit hours to those desiring them. The sponsors furnishing funds to help defray the expenses felt the longer meeting would be the most valuable and did not want to help on a week or ten-day meeting. This expense grant persuaded many to come to the meeting who might have been inclined not to make the effort without this help.

The old experienced chemistry teachers seemed to enjoy the opportunity to hear the latest scientific theories and see recent materials which might aid teachers. They were happy to pass on freely from their experience to aid the less experienced members of the profession. The younger members were eager to learn all they could from the wealth of information made available at the conference.

Careful planning and the whole-hearted co-operation of the host school helped make the conference a success. The excellent leadership of Dr. William E. Morrell for the Institute and Elbert C. Weaver for the Conference was evidenced by the well-planned activities and abundance of information for all. Many of the twenty-four outstanding lecturers were secured by arranging months in advance so that they could stop a few days while on vacation. The housing, the cafeteria, and the rooms for meetings were excellent for such a conference. Typewriters and duplicators were available for those needing them. The summer climate at Laramie is ideal, and was especially appealing to an Oklahoman in 1954.

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