GENERAL REPORT

SEVENTH ANNUAL MEETING

of

THE MIDWESTERN ASSOCIATION OF CHEMISTRY

TEACHERS IN LIBERAL ARTS COLLEGES

held at

Beloit College

Beloit, Wisconsin

October 24-25, 1958

P R O G R A M

Friday, October 24

1:00-3:00 p.m. Registration, refreshments, and tours of the laboratories

3:00 General Meeting
Welcome by Dr. Miller Upton, President of Beloit College
Assignments to discussion groups

3:30-5:30 Meetings of discussion groups

1. Should we request that the ACS "Minimum Standards Used as Criteria in Evaluating Professional Training in Chemistry" be revised in the light of new developments in undergraduate curricula?

2a, 2b. What can we do to make our chemistry curricula more attractive to superior students?

3. What is the place of research in the undergraduate curriculum?

4. What should be included in "General Chemistry"?

5. What are some new approaches to the teaching of inorganic chemistry?

6. What main topics and big ideas should be included in the four year, undergraduate curriculum in chemistry?

7. Designing chemical laboratories.

8. The physical chemistry laboratory manual.

3:30-5:30 Tea for wives of members at the home of Mrs. Fuller

6:00 Dinner

7:30 Lecture: "Chemistry and the Utilization of Solar Energy" by Professor Farrington Daniels, Chairman of the Department of Chemistry, The University of Wisconsin

9:00 Reception for members and their wives, given by Dean and Mrs. Ivan M. Stone

P R O G R A M

Saturday, October 25

9:00 a.m. General Meeting

"Progress Report on Research in MACTLAC Colleges" by Harry F. Lewis. (A copy of the mimeographed report may be obtained by writing to Dr. Lewis at The Institute for Paper Chemistry, Appleton, Wisconsin.)

"The Current Program of the National Science Foundation" by Dr. Edward L. Haenisch. (Copies of a publication on which Dr. Haenisch based his report may be obtained by writing to him at the National Science Foundation, Washington 25, D.C.)

"Research Opportunities for College Teachers and Students at the Argonne National Laboratories" by Dr. Earl W. Phelan. (Information on these opportunities may be obtained from Dr. Phelan, Argonne National Laboratories, P.O. Box 299, Lemont, Illinois.)

10:00-10:30 Coffee break

10:30-12:00 Meetings of discussion groups

12:30 p.m. Luncheon

1:30-3:00 General Meeting

1. Reports from discussion groups (see below).
2. Business Meeting (see attached minutes).

WRITTEN SUMMARIES FROM DISCUSSION GROUPS
(complete reports are available from the secretary-treasurer)

Group 1. Possible revision of ACS "Minimum Standards"
Chairman: Fulmer, DePauw; Secretary: Walhout, Rockford

The following points were discussed in some detail: (1) benefits of ACS approval, (2) proper use of ACS approval, (3) trends in undergraduate curricula, and (4) suggestions to the ACS committee. In spite of several suggestions in part (4), the general feeling seems to be satisfaction with present minimum standards, as long as they are flexible in applications of the standards to specific situations. The member of the minimum standards committee present expressed the view that undergraduate curricula are changing so rapidly at present, that the committee does not wish to revise the mimimum standards at this time.

Group 2a. What to do for the superior student
Chairman: Culbertson, Cornell; Secretary: Erickson, Augustana

An attempt should be made to attract good students toward a career in chemistry as early as the freshman year. Superior students may be identified early by placement examination and guidance programs supplementing reliable recommendations from high school officials. A number of methods may be used to hold the interest of the gifted student: (1) Honors sections of regular courses, (2) special lectures and laboratory work, (3) studies of special topics by particular students, (4) second semester laboratory especially for gifted students, (5) evening sessions for discussion of topics too advanced for inclusion in the regular course, (6) separate laboratories, desks, and other facilities. Not all of these methods are applicable in small colleges. To interest superior high school students in chemistry it was suggested that college teachers arrange programs for the tenth and eleventh graders to catch their interest, hold science and mathematics days at the college, arrange special exhibits on science, and organize special seminars and lectures for high school teachers and students. The problem of selecting superior high school students for such programs may be partially solved by giving placement or proficiency examinations supplemented by recommendations from high school teachers.

Group 2b. No report.

Group 3. The place of research in the undergraduate curriculum
Chairman: Runquist, Hamline; Secretary: Greef, Carleton

Research programs are a strong part of the curricula of nearly all of the MACTLAC colleges. With increasing interest in science and increasing numbers of good students majoring in this field and preparing for graduate studies, our research programs must grow.

The group discussed what calibre and level students should be included in such a program, assignment of research work, academic loads, financial support, and the values of the research project. All of our colleges experience similar problems in their research programs and a pooling of our experiences in this discussion group has proved helpful.

Group 4. What should be included in general chemistry
Chairman: Darling, Lawrence; Secretary: Sister M. Emeran, College of St. Francis

After a discussion of what was meant by the term "general chemistry", it was finally unanimously agreed that a primary essential for the content of such a course is enthusiasm on the part of the teacher. With that matter settled, the discussion was concerned with the organization of a modern general chemistry course based on recent text books which often relegate descriptive material to the background. Specifically considered were topics such as the divorce of theory from fact, the periodic table as a core for organization, organic chemistry, radio chemistry, nomenclature, stoichiometry, problem solving, field trips, and the "gray areas" of chemistry. There was general agreement that descriptive chemistry was not essential in the modern course although its neglect introduces a problem in the laboratory. There was some feeling that laboratory experiment should be more quantitative in nature. Finally, the discussion was concerned with methods of sectioning students on the basis of interests and abilities.

WRITTEN SUMMARIES FROM DISCUSSION GROUPS (continued)

Group 5. No report

Group 6. Main topics of four year chemistry curriculum
Chairman: Drenan, Millikin; Recorder: Rosenberg, Lawrence

At the beginning of the first session a large number of unrelated topics were put forth to provide a basis for discussion. The group then decided to choose a smaller number of broad headings by which the various detailed topics could be organized in a logical manner. After considerable discussion the broad headings chosen were:

1) Structure of atoms, molecules, and aggregates
2) Energetics
3) Descriptive chemistry or chemical behavior
4) Techniques, or chemical arts
5) Scientific method and outlook

Each of these areas was then discussed separately in order to choose the most important topics in each area. It should be emphasized that these topics are not subjects of specific courses. Whatever the course structure in the curriculum, it is believed that these topics will be repeated, at different levels, in every course in chemistry.

Group 7. No report

Group 8. Physical chemistry laboratory manual group
Chairman: Oelke, Grinnell; Secretary: Huselton, William Jewel

Fifteen eager members of MACTLAC met in two extra sessions to discuss improvements to be made in handling the laboratory work of the physical chemistry course. Present laboratory practices were discussed as were the purposes, advantages, and disadvantages of preparing a laboratory manual. It was decided to proceed with the development of a manual as a group project. A number of experiments were submitted as a beginning. A committee was named, consisting of A. L. Hanson (St. Olaf), R. M. Rosenberg (Lawrence), and P. M. Wright (Wheaton) in addition to the chairman and secretary. The committee solicits suggestions from the other MACTLAC members, and considered a suggestion that a questionnaire be prepared to help clarify ideas.

MINUTES (ABRIDGED) OF THE MACTLAC BUSINESS MEETINGS

HELD AT BELOIT COLLEGE OCTOBER 24-25, 1958

1. The 1959 MACTLAC meeting will be held at Valparaiso University (probably October 23-24) in Valparaiso, Indiana; and it was formally approved that the 1960 meeting sponsored jointly by the colleges of St. Paul, Minnesota, namely, Hamline, St. Thomas, Macalester, and St. Catherine's.

2. It was decided that future MACTLAC meetings would be organized more thoroughly in advance by a committee consisting of the president, the president-elect, the secretary-treasurer, and the chairman of the host institution. Some of the standard topics which are always of interest will be preserved, but appropriate special topics will be featured. From now on, group discussion leaders will be chosen in advance so that they will be able to plan discussions on various topics.

3. The state representatives for next year are
   Illinois: Stanley Parmeter, Wheaton College
   Indiana: Raymond Larson, Valparaiso University
   Iowa: Frank Pennington, Coe College
   Michigan: Howard Potter, Alma College
   Minnesota: Martin Allen, St. Thomas College
   Missouri: Delta Gier, Park College
   Wisconsin: Enid Bever, Milwaukee-Downer College

4. The following officers were elected
   President: Stephen Darling, Lawrence College
   President-Elect: Paul Wright, Wheaton College
   Secretary-Treasurer: Richard W. Ramette, Carleton College

ATTENDANCE AT BELOIT MEETING

members present	118
guests	14
	132

FINANCIAL STATEMENT

Balance as of 1 January 1958			356.10
Income (dues) since 1 January 1958	243.00		
Expenses since 1 January 1958		226.44	
Balance as of 14 May 1959			372.66

(meeting expenses borne by Beloit: = $40.00)