

MIDWESTERN ASSOCIATION OF CHEMISTRY TEACHERS  
IN LIBERAL ARTS COLLEGES

July 16, 1979

TO: MACTLAC Members in good standing

FROM: Office of the Secretary-Treasurer  
Central College  
Pella, Iowa 50219

RE: 1978-79 Report

THE CARLETON COLLEGE MEETING - October 20-21, 1979

Carleton College in Northfield, Minnesota, was the host for the twenty-sixth annual MACTLAC meeting. About 145 members attended the meeting. MACTLAC members owe a large vote of thanks to Dr. Richard W. Ramette and his staff for the planning and execution of an interesting and well-planned meeting. The good weather and beautiful Fall foliage added for a good week-end.

The opening session on Friday afternoon was the Presidential Address by Dr. Joe D. Woods of Drake University. Joe's topic was entitled: "Energy Resources - How Much, What Form and Who Cares?". Joe discussed various sources of energy which are currently available and options for the future. It was a particularly timely address with the "energy crunch" upon us.

The Friday evening address was by Dr. Bassam Shakhashiri, University of Wisconsin/Madison. His address was "New Ideas and Exhortations for Lecture Demonstrations". The large lecture table was filled with flasks, solutions, etc. and it was a lively session. Dr. Shakhashiri also led a discussion session on Saturday morning on "Classroom Demonstrations."

The General Meeting on Saturday morning was a panel discussion on "Research in Liberal Arts Colleges." The panelists were Dr. Brian Andreen, Research Corporation, Dr. Arthur Findeis, NSF, and Dr. Joseph Rogers, Petroleum Research Fund. Each of the panelists briefly discussed their organizations and the application procedures for research funds and then answered questions. The panelists also led a discussion session later on Saturday morning on "Research Grants."

There were a variety of discussion groups which met on Friday afternoon and Saturday morning. I received summaries of the discussions from five of the groups and I thank them for their reports. What follows is either the entire summary or, if it seemed to long, an edited summary:

NON-SCIENCE MAJORS - Attendance = approx. 30. Some goals varied but, in general, the courses were designed to teach some basic principles and go into some depth on current issues and how chemistry applies to social and economic issues. Some approaches include: (1) Why we believe what we don't see; (2) Current issues

and industrial chemistry; (3) Food science and how chemistry applies in foods; (4) Energy; (5) Forensic chemistry; (6) Environmental chemistry; (7) Drug chemistry. In general, courses have labs and attempt to establish some rigor in the courses -- make people able to converse about the subject. William Child.

THE WHOLE FOUR-YEAR CHEMISTRY CURRICULUM DEBATE - Attendance = approx. 60-70 for two seasons. Discussion points: (1) Too much to cover; (2) Too little time to do it in; (3) Do what you do best; (4) Graduate school and medical schools be damned; (5) Core curriculum vs. advanced courses; (6) Consideration of student goals. (A series of straw votes showed no striking trends although considerable variation from school to school in terms of: number of majors, direct employment, graduate vs. medical school); (7) Seminar, use of primary literature, written and oral presentations, and student research were all felt to be valuable. Brock Spencer and Wilmer Stratton.

TEACHING BIOCHEMISTRY - Attendance = approx. 25. Began by discussing the relative advantages and disadvantages of various textbooks for both biochemistry lecture and laboratory courses. Quite a bit of time was spent discussing how much material could and should be covered in a course lasting one term, one semester, or one year. Opinions differed widely, some advocating breadth at the expense of depth, others suggesting only a limited number of topics be covered in considerable detail, still others agreeing that perhaps in some instances we were presenting "too much too fast."

Probably the largest and most challenging discussion topic centered around the individual students taking a biochemistry course. What are their interests, majors, backgrounds, career plans, etc.? Undergraduate biochemistry audiences are typically quite diverse, consisting of chemistry majors, biology majors and students interested in medically-related professions. Consequently, backgrounds vary widely, different instructors require different prerequisites, and overlaps with other courses depend on the specific biology and chemistry curricula at a given institution. No consensus was reached as to the ideal biochemistry sequence, what courses should come first and which later, or the proper level of presentation of biochemical material. Little difficulty was encountered, however, in agreeing that biochemistry is coming to occupy an increasingly important part in the undergraduate curriculum. Hope was expressed that some means could be found to include in our future discussions the opinions of faculty members teaching biochemistry courses in biology, as well as chemistry departments at liberal arts colleges. Elliott Uhlenhopp

TEACHING INORGANIC CHEMISTRY - Attendance = 14. Discussion began with a short discussion of the inorganic programs at the various colleges represented. Most courses were of a rather traditional nature -- offered during the senior year with a physical chemistry prerequisite (corequisite), with texts such as Huheey, Cotton and Wilkinson (short version), Purcell and Kotz. About half had formal laboratory work associated with them. A few had courses taken earlier without physical chemistry prerequisites. Several schools

had integrated laboratory at the upper level which included inorganic chemistry.

What is meant by "descriptive inorganic chemistry"? What are needed are organizing principles -- this could include the periodic table, acid-base (hard-soft, Lewis), oxidation-reduction potentials, cycles in nature. What goes on in the laboratory? It appears that usually a set group of experiments are required. The ACS Professional Training Committee has indicated that inorganic chemistry is to be included as a selective course along with biochemistry and polymer chemistry. No comments were made by this MACTLAC group. There was considerable concern about the content of the textbooks presently available -- especially the presence of "quantum mechanics" near the beginning. Anne Sherren

INDUSTRIAL CHEMISTRY - Attendance ? . This group suffered from a deficiency of experienced teachers of industrial chemistry. Of the schools represented, St. Olaf has had the course for two years (as an independent study) and Elmhurst will have had it for the first time in 1978-79. Problems faced by those wanting to teach industrial chemistry: (1) Most faculty members have had no industrial experience. (2) Recent trends in courses have stressed theory rather than industrial processes (or descriptive material of any kind). (3) The students don't feel any "need to know" this material. (4) Problems with courses proliferation - do we really want another specialty course in the curriculum?

Some suggestions for possible incorporation of industrial topics: (1) Include some literature research in organic labs; e.g., investigating process design including different paths to the product and their relative costs and difficulties; (2) Try to point out to students different ways to get the same product and possible reasons for choosing one over another. Other needs: (1) A broad overview to be sure the students get a realistic idea of the possibilities open to them for careers. (2) Contacts with industry. This will take some work.

Some special assignments that can be used: (1) Analysis of a company, emphasizing one chemical. This requires direct contact with the company as well as library work. (2) Cost calculation of a chemical process, using the patent literature and current cost information on raw materials. (3) Oral presentation, as if the speaker were trying to persuade a group of managers to use a particular polymer (or other product), with both technical and economic data. Donald Tarr

Other discussion groups were: Personal Computing, Laboratory Microcomputers, Integrated Laboratory, Time-sharing Computers For Small Colleges, Teaching Organic Chemistry, Classroom Demonstrations, and Research Grants.

Prior to the Friday evening banquet, MACTLAC members were treated to a social hour and exhibit of recent paintings by Richard Kinnaird. Ms. Deborah Brown, Carleton Art Department, gave an interesting talk on Kinnaird's simulation of color as a phenomenon of light for which the MACTLAC members were appreciative.

## 1979 MEETING

The 1979 meeting will be at Beloit College in Beloit, Wisconsin on October 26-27, 1979. Brock Spencer and Roc Ordman are planning the meeting. You should be receiving information from them on that meeting soon. Make plans to be there!

### GENERAL BUSINESS MEETING, Oct. 21, 1979

1. President Joe D. Woods, Drake University called the meeting to order.
2. Arthur J. Bosch, Sec.-Treas. gave a brief report of the Friday morning Executive Council meeting. Items mentioned were:
  - a. 1979 meeting - Beloit College, Oct. 26-27.
  - b. No definite action taken on the 1980 and 1981 meetings.
  - c. Honorary Membership unanimously voted for Enno Wolthuis, Calvin College, Michigan.
  - d. Emeritus Membership unanimously voted for Warren A. McMullen, Greenville College, Illinois.
  - e. Accepted reports of the Placement Committee and Political Awareness Committee.
3. New State Representatives, Three-year terms  
Dr. Mike Collins, Viterbo College (Wisconsin)  
Dr. Jerry Mohrig, Carleton College (Minnesota)  
Dr. Roger Lembke, Central Methodist College (Missouri)
4. President-Elect  
Jeff Keiser, Chairman of the Nominating Committee, nominated Eugene Jekel, Hope College, as President-Elect. There were no nominations from the floor. It was moved to close nominations. Jekel was elected by unanimous vote.
5. President and Sec.-Treas.  
John Zimmerman, Wabash College, is the 1979 president and Arthur J. Bosch, Central College, is the continuing Sec.-Treas.
6. Committee reports
  - a. Political Awareness Committee

Richard J. Cook, Chairman, gave an oral report and responded to questions. He summarized the written report which was given to the Executive Council. Several items of note from the written report are:

Because of the rapidly-changing developments in the political area, Richard Cook acted essentially as a "committee of one." The major activity centered on saving NSF-supported programs particularly important to MACTLAC schools. Early in the year it became clear that the NSF Education Directorate was prepared to shift significant resources to science education at

the elementary and junior high school level at the expense of other programs, particularly URP and ISEP. Working with the assistance of the Independent Colleges Office in Washington, D.C. and with the approval of MACTLAC President Woods, a petition drive and letter-writing campaign of MACTLAC members were launched. Some 380 endorsements of the Request to Congress were received, compiled, and sent to all Senators and Representatives who sat on appropriate committees. In addition, many letters were written to members of Congress describing the effectiveness of the programs in question and asking Congress to reverse NSF's decision to reduce or eliminate their funding. The efforts of this action were very significant and played an important role in Congressional restoration of URP and increased funding for educational programs. "MACTLAC made the largest concerted effort in the country to save important NSF programs and can take some satisfaction in knowing that these efforts were largely successful."

A letter was also published in the July 3, 1978, issue of Chemical and Engineering News informing the general chemical community of MACTLAC's concerns and efforts.

Total expenses for the 1977-78 year were \$80.25 for photocopying of materials sent to MACTLAC members. Kalamazoo College assumed all other photocopying expenses and charges for postage, telephone and telegrams.

He made several additional oral comments: (1) Responses from MACTLAC members weren't as great as desired (approximately 400 names were on the petition which included many non-MACTLAC members); (2) The responses were not as fast as needed -- these kinds of petitions and letters must be urgent.

A motion was made and seconded to accept the report.

Other discussion included: (a) What does MACTLAC want regarding the URP and should efforts be made to continue the program as it now exists? Relatively few URP grants are given to MACTLAC schools. Approximately 16% of the NSF-URP participants in 4-year colleges went to chemistry students this past year. (b) The URP Guidelines point out that a college cannot receive grants too many years in a row. Cook urges members to write NSF if we don't like what the Guidelines specify. (c) It was also suggested that perhaps a signed resolution could actually be obtained at a MACTLAC meeting.

The motion to receive the report was passed.

A motion was made and seconded to commend Chairman Cook for his work. The motion was passed with a round of applause.

b. Placement Committee

President Woods summarized the written report presented by Chairman Quentin R. Petersen to the Executive Council. Several items of note from the report are:

All MACTLAC Chemistry Department Chairmen (118) were sent information describing the service and requested to indicate their faculty needs, if any. Seventy-two colleges responded. Twenty-three openings and five possible openings at MACTLAC colleges were identified. The number of responses and openings identified compared closely to that of the past two years. The restricted-circulation placement list was requested and mailed to 18 individuals. Fourteen of these returned the Form. Two of these wrote later confirming that they obtained a new position.

As in the past, a larger number of positions were identified than there were candidates and the majority of the positions remain non-permanent.

It was Petersen's feeling "that the Placement Service continues to fill a needed function of centralizing information about openings in MACTLAC schools."

Don Cook is the new chairman of the Placement Committee. If MACTLAC members want to be on the mailing list, they should let Cook know. Woods also explained the functions of the Placement Committee.

7. New business

- a. Brock Spencer, Beloit College, invited all MACTLAC members to the 1979 meeting at Beloit College, Oct. 26-27.
- b. It was announced that the Great Lakes Regional meeting of the ACS would be held at Rockford College, June 4-6, 1979.
- c. Zimmerman moved, seconded by someone, that the Sec.-Treas. should write a letter of thanks to the President of Carleton College for their hospitality in hosting the 1978 MACTLAC meeting. The motion passed.
- d. Zimmerman moved, seconded by someone, that the Sec.-Treas. should write a letter of thanks to Dick Ramette, Jerry Mohrig, and "crew" of Carleton College for the excellent job of hosting the 1978 MACTLAC meeting. The motion was passed with a round of applause.
- e. Wilmer Stratton urged all MACTLAC members to have membership in the Division of Chemical Education of the American Chemical Society.

8. The meeting was adjourned.

## HONORARY AND EMERITUS MEMBERSHIP IN MACTLAC

This is just a reminder about the criteria for honorary and emeritus membership in MACTLAC. The appropriate sections of the MACTLAC constitution, Article II, on membership read as follows:

Section 2. Honorary membership shall be granted only by a unanimous vote of the Executive Council, and shall be reserved for those persons who have rendered extra ordinary service to this Association or who have made especially noteworthy contributions to the improvement of chemistry teaching in the member colleges. Election to honorary membership shall be recognized by the presentation of a specially prepared and individualized scroll. Honorary members may also be Emeritus members as described in Section 3.

Section 3. Any person who has been an active member for 10 years may, upon retirement, request status as an "Emeritus Member" and be excused from further payment of dues but retains all other rights of membership. Such status will be recognized by the presentation of a printed certificate. Such membership does not exclude the person from consideration for honorary membership.

Nominations for Honorary Membership in MACTLAC should be in the hands of the President, Dr. John Zimmerman, Wabash College, or the Secretary-Treasurer, Arthur J. Bosch, Central College, by Oct. 26, 1979. These nominations must be in writing and should have one or two seconding letters accompanying the nomination. PLEASE GIVE THIS MATTER SERIOUS CONSIDERATION.


Those eligible for Emeritus Membership should also notify the President or Secretary-Treasurer.

## MEMBERSHIP LIST UPDATE

Enclosed is a form regarding updating our membership and dues file. The appropriate section of our By-Laws states: "The active members shall be those whose dues are not more than one year in arrears. A member who becomes more than one year in arrears for dues shall be removed from the membership list. Reinstatement will full membership privileges shall require payment of back and current dues, but the assessment for back dues shall not exceed two years dues." We would like to keep all interested, eligible chemists on our membership list. If you also want to pay the 1979 dues (which normally are not due until the annual Fall meeting), please indicate such payment on the form.

If this newsletter is addressed to someone at your school who no longer is there or whose address is incorrect, please let the Sec.-Treas. know. Also indicate prospective MACTLAC members on that form.

Sincerely,

  
Arthur J. Bosch  
Sec.-Treas., MACTLAC