

RHEOLOGY BULLETIN

Publication of The Society of Rheology, Inc.

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August, 1977

48th ANNUAL MEETING October 23 - 27, 1977 University of Wisconsin Madison, Wisconsin

Program Committee: L. V. Cancio, Clopay Corporation; W. W. Graessley, Northwestern University (Co-Chairman); R. R. Huilgol, Flinders University; D. Hunston, Naval Research Laboratory; and J. L. Schrag, Madison, Wisconsin.

Local Arrangements Committee: R. B. Bird, Chemical Engineering Department, University of Wisconsin, Madison, WI 53706; and A. S. Lodge, Dept. of Engineering Mechanics, University of Wisconsin, Madison (Co-Chr.)

Location: All activities will take place at the Wisconsin Center, 702 Langdon St., Madison, Wisconsin 53706, with the sole exception of laboratory visits on Wednesday night.

Housing: Accommodations have been reserved up to October 1 at the Wisconsin Center Guest House (Daily rates \$16 single, \$20 double) and at nearby Town and Campus Motel (daily rates \$17 single, \$20 double). Accommodations should be reserved on enclosed form. Do NOT enclose payment for accommodations. After Oct. 1 accommodations will be booked at other nearby motels, as required.

Information:

Registration: P. Gaitan - (608) 262-1122

Housing: D. Fjelstad - (608) 256-2621

Program: J. L. Schrag (608) 262-3145

Messages: Incoming telephone calls to participants will be received at (608) 262-1122 during business hours.

Registration: The registration fee has been set at \$15 for members, \$25 for non-members, and \$5 students, if made before October 1. After October 1, an additional registration fee of \$10 will be required.

Registration desk will be open from 7 p.m. to 9 p.m. on Sunday, October 23, and from 8 a.m. to 12 noon on Monday and Tuesday.

Sunday Evening Social Hour: Light refreshments and cash bar from 8-10 p.m.

Monday Evening Informal Discussion: (Beer Session) The fourth paper on the Oil Recovery Symposium will be presented at 8 p.m. The beer session will follow at 9:00 p.m.

Tuesday Evening: BINGHAM AWARD - Professor Arthur B. Metzner, Department of Chemical Engineering, University of Delaware, has been named the 1977 Bingham Medalist. (See Excerpt of Citation.)

Wednesday Evening: Open house, Rheology Research Center Laboratories.

SHORT COURSE ON RHEOLOGY

POLYMER RHEOLOGY: AN INTRODUCTORY SURVEY

H. Markovitz

O'Hare Inn, O'Hare Airport
Chicago, Illinois

Saturday Evening, October 22
and Sunday, October 23

A survey of the mechanical properties of polymeric materials in their many forms: melt, rubber, glass, crystalline, solution, mixtures and composites. Models of rheological behavior: viscosity, elasticity and viscoelasticity. Failure. The role of rheological properties in characterization, testing, fabrication and use of polymeric materials. Emphasis: phenomenological and physical, not mathematical.

Prerequisites: Bachelor's degree in engineering or a physical science with elementary courses in mathematics, chemistry and physics; basic knowledge about polymers helpful, but not essential. No previous acquaintance with rheology is assumed. Lecture notes provided.

Fee for course and notes is \$100 prior to Sept. 1, 1977. Late registration penalty of \$25 is acceptable thereafter. Student rates are one-half. Further information may be obtained from Edward A. Collins, B. F. Goodrich Chemical Company, Ayon Lake, Ohio 44012, Telephone: (216) 933-6181, extension 263. A registration form appears on back page of this bulletin.

Lodging reservations should be made by participant at O'Hare Airport, Chicago, Illinois. Rooms \$28 per night for single, \$36 for double.

BIOGRAPHICAL SKETCH OF ARTHUR B. METZNER

Professor Arthur B. Metzner, Department of Chemical Engineering, University of Delaware, has been named the 1977 Bingham Medalist of the Society of Rheology.

Professor Metzner's research in the middle 1950's started the present era of expressing rheological concepts and non-Newtonian fluid mechanics in an engineering framework. This early work was concerned with generalizing the traditional friction factors and Reynolds numbers of fluid mechanics to allow for non-Newtonian behavior. In more recent years Professor Metzner has contributed widely to basic research in such areas as the measurement of normal stresses and the development of tractable constitutive (stress-strain-strain rate) equations. He has always emphasized the need to throw a few "life lines" across the wide gulf which separates the practicing engineer and the research rheologist. His influence on rheology, as rheology is actually used in a practical setting, has been enormous, both in magnitude and direction. Professor Metz-

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Raymond R. Myers, Editor
Department of Chemistry
Kent State University
Kent, Ohio 44242

ner has also received the W. K. Lewis Award of the American Institute of Chemical Engineers, awarded annually to a person who has made continuing contributions to chemical engineering education.

MINUTES OF EXECUTIVE COMMITTEE MEETING

FEBRUARY 27, 1977

Executive Committee members present were: E. A. Collins, J. R. Knox, I. M. Krieger, R. A. Mendelson, R. R. Myers, and C. L. Sieglaff. Also present were J. D. Ferry, N. Nakajima, and A. S. Szczesniak. The meeting was called to order by President Knox at 5:05 p.m.

1. The minutes of the November 4, 1976, Executive Committee Meeting were approved after two corrections: (1) in item 2, "The Journal of Rheology," and (2) in item 9, "The Society of Rheology's."
2. Treasurer Collins presented the Treasurer's Report, which was discussed, and acceptance was moved, seconded and passed. The discussion centered on current financial status with relation to the costs of the *Transactions* and to the dues increase. While it is too early to have a complete picture, The Society appears to have improved its financial position.
3. Editor Myers presented the Editor's Report whose acceptance was moved, seconded, and passed. Myers requested the views of the Executive Committee on two items: (1) should the abstracts of Meeting papers be published in *Transactions of The Society of Rheology*, and (2) was the proposed change of *Transactions* title format acceptable. Discussion of the first item led to the decision that the Editor should consult with the Assistant Editors and either act on their recommendation or refer that recommendation back to the Executive Committee. Discussion of the second item resulted in general approval (except the recommendation to drop "The" before "The Journal of Rheology"), but the similar decision that the Editor should consult with the Assistant Editors before making a final decision.

4. A brief New York Meeting Local Arrangements Committee report was made by Knox for J. C. Miller, and a report on the Rheology of Food Products Symposium was presented by A. S. Szczesniak who also reported that plans are progressing for the next two years. Planning for the 48th Annual Meeting in Madison, Wisconsin (October 1977) was discussed by J. D. Ferry. A guideline figure of \$25 member registration was given. The Program Committee for this meeting was reported: W. W. Graessley/L. Cancio - co-chairmen, R. Huilgol, D. Hunston, J. Schrag - members. A potential problem for the Short Course was noted in that the weekend prior to the meeting is Univ. of Wisconsin Homecoming. The proposed joint meeting in 1978 with the British Society of Rheol-

ogy will not be held as a joint meeting (the British Society will hold it as their own meeting) because of inability to set a mutually acceptable date and other concerns of ours about the extent of U.S. participation. The location of the proposed 50th Anniversary (1979) Meeting was the subject of discussion. A Poconos location, as opposed to the earlier suggested Washington location, was favored and was to be discussed at the Annual Business Meeting. The proposal for a 1978 meeting in Houston was accepted, and a final decision will be made with Houston members to hold the Annual Meeting in Houston in October 1978. It was also pointed out that the 1980 Annual Meeting will have to be held in 1981 to accommodate the VIIIth International Congress on Rheology, to be held in Italy in the fall of 1980.

5. Following the Membership Committee report it was moved, seconded and passed that an appropriate statement be added to the membership application form bringing to the attention of the applicant the requirement that *The Transactions of The Society of Rheology* are for private use only (not to be provided to libraries, etc.).
6. A number of other committee reports were presented by President Knox for the various committee chairmen. The Industry-University Relations Committee report was presented by N. Nakajima.
7. A series of proposed amendments to the Constitution, as appended to the minutes of the November 4, 1976, Executive Committee meeting, except for a change of the proposed amendment to Article V, Section 2, to read "last sentence, add: 'A Statement of qualifications for the candidates for Editor shall be submitted with the ballot,'" were discussed, moved, seconded, and passed for presentation to the Annual Business Meeting for approval to submit to the Membership by letter ballot. A series of Rules amendments, also appended to the November 4, 1975 Executive Committee meeting minutes (including the proposed amendment to Article III, Section 3 concerning retired and unemployed members, were re-approved for letter ballot presentation to the membership at the same time as presentation of Constitution amendments.
8. The solicitation of AAAS to scientific societies for sponsorship of the Congressional Fellow Program was noted, but no interest was evinced and the financial requirements were considered to be beyond the resources of The Society.

The meeting was adjourned at 7:45 p.m.

Respectfully submitted,
R. A. Mendelson, Secretary

MINUTES OF THE ANNUAL MEETING

FEBRUARY 28, 1977

The Business Meeting was called to order by President J. R. Knox at 5:30 p.m., February 28, 1977, at the Biltmore Hotel in New York City. The Annual Report of the Secretary was presented by Secretary R. A. Mendelson, and its acceptance was moved, seconded and passed. The Treasurer's Report was presented by Treasurer E. A. Collins; its acceptance was moved, seconded, and passed. The Editor's Report was presented by Editor R. R. Myers who described a series of changes proposed to affect the journal (*Transactions of The Society of Rheology*). These included title format changes, introduction of abstracts of papers presented at The Society meetings, invitation to Japan Society of Rheology to publish English language abstracts in the *Transactions*, and expansion to six issues. Following discussion of these

proposed changes acceptance of the Editor's Report was moved, seconded, and passed.

Future meeting plans were outlined by President Knox, including the 48th Annual Meeting in Houston, Texas (1978). A tentative proposal for a joint meeting with the Japan Society of Rheology in Hawaii in 1979 at date immediately following the ACS Polymer Div. meeting there was discussed, and a non-binding vote was taken with a majority in favor of such a meeting. The fall meeting in 1979 will be the Society's 50th Anniversary celebration. Original tentative plans to hold this meeting in Washington, D.C., are being reconsidered, and the Executive Committee now favors a Pocono Mountains location. The subject was opened for discussion, but no definite decision was reached.

A brief report on the Short Courses was presented by E. A. Collins who indicated that the course on "Deformation and Fracture of Polymers," (February 26, 27) was successful, with 36 attendees.

A series of proposed amendments to the Constitution, previously approved by the Executive Committee (and included in the minutes of the November 4, 1976 Executive Committee meeting except as noted below) were presented by President Knox to the Members at the Business Meeting for vote of approval to submit a letter ballot to the general membership. The proposed amendment to Article V - Section 2 to add a last sentence: "A statement of qualifications for the candidates for Editor shall be submitted with the ballot." (differs from the November Executive Committee minutes) was moved, seconded, discussed, and passed. A series of proposed amendments to Article IV - Section 3, Article VIII - Sections 1, 2, 3, 4 and 5, and Article IX (as worded in the November Executive Committee minutes), having the effect of providing for Divisions of The Society, were moved as a group, seconded and passed after considerable discussion.

The meeting was adjourned at 6:45 p.m.

Respectfully submitted,
R. A. Mendelson, Secretary

PRESIDENT'S MESSAGE

To the Membership:

As the two-year term of the Executive Committee draws to a close, I realize that we have not accomplished as much as I had hoped. But some progress has been made. Beginning next year, "Transactions of The Society of Rheology" will become "Journal of Rheology," the name of our original journal, and will be a bi-monthly, thanks primarily to the efforts of Ray Myers. Dues have been raised, although not quite enough, so that we can come closer to breaking even financially each year. (Our major expense is the free subscription to the Journal for all members.) The computer listing of members has been modified so that interest areas are listed. With this listing we can plan our Annual Meeting program better, and we can see which areas of rheology need more attention by our Membership Committee. Our policy on overdue bills is changed so that members unpaid by April 1 will be dropped (as specified in the Constitution). Because bills are sent in September, this gives members six months to send in their dues and cuts our expenses on sending the Journal to those who don't plan to renew. Work is under way to write a history of The Society in time for our 50th Anniversary meeting in 1979. The Constitution has been brought up-to-date and the Bingham Award committee and policies officially established. Provisions for the formation of divisions into specific areas of rheology have been incorporated into the Constitution. Joint symposia with SPE and the American Association of Physicists in Medicine were arranged, and plans are under way for

joint symposia with the Acoustical Society of America in 1979, also their Golden Anniversary year. We had a press room and press conferences during our New York meeting, and although most of the New York science writers were in Denver for the AAAS meeting, we did have some activity.

We have not increased our membership, but we have laid the groundwork so that we expect increases during the coming years, and the procedure for counting membership has been clarified so that we have a more accurate indication of active members. We have not increased our visibility in the scientific community to the level needed, but again a start has been made. I would hope that the new President will see fit to continue the History and the Publicity and Public Relations committees. We need an Education committee to find lecturers who will present information on opportunities and challenges in the field of rheology to undergraduate science students, and who will develop an award for outstanding rheology students and a source of funding for the award. We are currently evaluating the advisability of offering the opportunity to our members to subscribe to a group insurance program identical with that offered to members of the American Physical Society. We didn't get enough subscribers to sponsor the charter flight to Sweden for the VIIth International Congress, but we were well represented, and we have begun plans for another joint meeting with the Japan Society of Rheology in June of 1979.

In summary, some things were accomplished, but there is a lot still to be done. The help and encouragement of all the members are needed. I have enjoyed my term of office and hope that our Executive Committee has furthered The Society in directions that you are in agreement with.

Jack R. Knox

ANNOUNCEMENTS

The Constitution Amendments were passed and will appear in the new issue of the Membership Roster which will be mailed at a later date.

As a result of new regulations it is necessary for The Society to secure from authors a transfer of copyright agreement in which the authors reserve 1) proprietary rights other than copyright; and 2) the right to use the article in future works of their own. Before any papers can be accepted for publication signed statements of transfer must be received by the Editor's office on forms supplied by him.

OTHER MEETINGS

A symposium on food texture and rheology will be held under the auspices of the International Union of Food Science and Technology, at Queen Elizabeth College (University of London) on December 19-22, 1977. Contact P. Sherman, Dept. of Food Science, Queen Elizabeth College, (University of London), Campden Hill Road, London W8 7AH, England.

Eighth U.S. National Congress of Applied Mechanics University of California, Los Angeles, CA June 26-30, 1978. Send abstracts by December 31, 1977 to Prof. Julian D. Cole, Mechanics and Structures Department, School of Engineering and Applied Science, University of California, Los Angeles, CA 90024.

A symposium on "Non-Newtonian Fluid Mechanics" will be held in Louvain-la-Neuve, Belgium, on August 28 - September 1, 1978, with the sponsorship of the International Committee on Theoretical and Applied Mechanics. The organizing committee for the conference consists of: M. Crochet (Belgium, chairman), H. Giesekus (German Federal Republic), R. S. Rivlin (United States) K. N. Walters (Great Britain).

Application for Membership in the
SOCIETY OF RHEOLOGY

I hereby desire to apply for membership in the SOCIETY OF RHEOLOGY dating from
January 19.....

Name
(Include Title, e.g., Mr., Dr., Prof., Miss, etc.) Please print.

Mail Address

Professional Connection

Position

Chief Interest

Highest Academic Degree

Date

Enclose Remittance of \$15 for Regular Annual Dues or \$100 for Sustaining Annual Dues and
Mail to:

SOCIETY OF RHEOLOGY
American Institute of Physics
335 East 45 Street
New York, New York 10017

REGISTRATION FORM

Rheology Society Short Course

Saturday/Sunday, October 22 and 23, 1977
O'Hare Inn, O'Hare Airport, Chicago, Illinois

NAME

ADDRESS

COMPANY AFFILIATION & ADDRESS

..... (ZIP)

PHONE: (Work): (Residence): (Please include Area Code)

DATE OF ARRIVAL

Interest in Bus Transportation on Sunday, October 23 to Madison, Wisconsin Meeting.

Hotel