

RHEOLOGY BULLETIN

Publication of the Society of Rheology

Volume 35, No. 2



MAY, 1966

37TH ANNUAL MEETING OF THE SOCIETY
OF RHEOLOGY
Traymore Hotel
Atlantic City, New Jersey
October 31 - November 2, 1966

Abstracts: The maximum allowable length of abstracts has been extended to 500 words. Abstracts should be typewritten, double-spaced, and should include, just below the title, the name and address of the author; in case of multiple authorship, the name of the author who is to present the paper should be underlined. For a paper to be considered for presentation, two copies of the abstract, *postmarked no later than August 1, 1966*, should be mailed to Herschel Markovitz, Mellon Institute, 4400 Fifth Ave., Pittsburgh, Pa. 15213.

Acceptance and presentation of Papers: The Program Committee will review all abstracts submitted before the August 1 deadline, and select those most appropriate for presentation at the meeting. Authors will be notified of the outcome on or before September 15, 1966.

Each speaker will have at least twenty minutes for his presentation (more if the size of the program permits). Discussion of papers will be scheduled separately.

Standard facilities available in each meeting room will consist of projectors for both 2" x 2" and 3 1/4" x 4 1/4" slides, plus a blackboard. Speakers are urged to rely on slides as much as possible. If other equipment is required, notification to this effect should be included in a covering letter accompanying the abstract at the time of its submission.

Publication: Authors are urged to consider publishing papers presented at the meeting in the Transactions of the Society of Rheology. Manuscripts will be eligible for inclusion in volume 11 if submitted to the author, R. R. Myers, Chemistry Department, Kent State University, Kent, Ohio, on or before November 1, 1966. Acceptance for publication will be decided by the editor, in consultation with referees appointed by him for each manuscript. Brevity will be an important consideration. Presentation at a meeting is not a prerequisite for publication.

Program Committee: N. W. Tschoegl, (Chairman), Division of Engineering and Applied Mechanics, California Institute of Technology, Pasadena, California.

Herschel Markovitz, Mellon Institute, 4400 Fifth Avenue, Pittsburgh, Pennsylvania 15213.

L. E. Nielsen, Central Research Department, Monsanto Chemical Company, 800 N. Lindberg Blvd., St. Louis, Missouri 63166.

J. L. White, U. S. Rubber Company, Wayne, New Jersey 07470

Host Committee:

Local arrangements are being handled by John G. Brodyman, Rohn & Haas, Springhouse, Pa.

NOTICE OF WINTER MEETING

February 5-8, 1967, Miramar Motel, Santa Barbara, California.

J. L. White, (Chairman), U. S. Rubber Company, Research Laboratory, Wayne, New Jersey.

A. Eisenberg, Department of Chemistry, University of California, Los Angeles, California.

D. J. Plazek, Mellon Institute, 4400 Fifth Avenue, Pittsburgh, Pennsylvania 15213.

N. W. Tschoegl, Division of Engineering and Applied Mechanics, California Institute of Technology, Pasadena, California.

BINGHAM AWARD COMMITTEE

R. S. Porter, (Chairman), Chevron Research Company, P. O. Box 1276, Richmond, California 94802.

S. Prager, School of Chemistry, University of Minnesota, Minneapolis, Minnesota 55455.

B. H. Zimm, School of Science and Engineering, University of California, San Diego - La Jolla, California.

W. L. Peticolas, IBM Research Laboratory, Monterey and Cottle Roads, San Jose, California.

L. J. Zapas, National Bureau of Standards, Washington, D. C.

EXECUTIVE COMMITTEE MEETING

Mark Thomas Inn
Monterey, California
January 30, 1966

Minutes

1. The meeting was called to order at 1:45 by President Marvin. Executive Committee present were S. Prager, R. Landel, T. Smith, A. Lewis and J. Miller. Chairman of the Winter Meeting, D. Meier, was present.
2. The minutes of the previous meeting were approved as distributed to the Executive Committee.
3. The Secretary reported for the Treasurer that the financial standing was unchanged since the last meeting. All financial reports will be made by the Treasurer in the future.
4. The Secretary suggested that all Bulletins be mailed by first class in the future. Additional suggestions were made to speed up distribution of abstracts in the Bulletin before the meeting. These were earlier deadlines for abstracts and a faster printing method.

RHEOLOGY BULLETIN
Raymond R. Myers, Editor
Kent State University
Department of Chemistry
Kent, Ohio, 44240

- S. Prager, previous program chairman did not believe earlier abstracts would help. It was decided to investigate faster printing methods such as photo-offset.
5. New Constitutions of the Society incorporating the latest changes have been printed. The Constitutions will be made available at the Fall and Winter meetings.
 6. At present, the Secretary receives all the exchange journals from other national societies. The Committee decided to forward these to AIP for inclusion in the library if this action is acceptable to AIP.
 7. A new Constitution for the U.S. National Committee on Theoretical and Applied Mechanics was approved unanimously. The Committee will be affiliated with the National Research Council and National Academy of Sciences. The Society will no longer pay \$100 dues to the Committee since the contribution to the International Committee will be paid by NRC-NAS.
 8. President Marvin reported on his discussion with Dr. Proskauer of Interscience Division of John Wiley about expenses of the Transactions. If a page charge is instituted, costs to the Society will be lowered somewhat, but it was not clear how much. The Committee felt more detailed information was necessary from Interscience before a comparison could be made with publication by the American Institute of Physics. Under the conditions of instituting a page charge, the Society would have to obtain the copyright. Dr. Proskauer suggested quarterly publication for over 600 pages and for over 1200 pages, a bi-monthly. The Editor, R. Myers approved the idea of a quarterly providing the half-time service of a secretary were allowed to help him with the mechanics. The additional help would cost about \$2,000 per year.
The Executive Committee approved in principle the institution of a page charge.
 9. The question of the Bingham Award Committee operation and award was discussed. In keeping with the operation of other societies, the Executive Committee decided to formally ratify the choice of the Bingham Award Committee. This is merely a formalization of some previous considerations of the Executive Committee.
 10. R. Coulehan was determined as Membership Committee Chairman.
 11. A suggestion was made to have the same program chairman for both meetings of the Society. This was not considered advisable by past chairman of the program committee.

12. Various sites for annual meetings were discussed. Atlantic City, Williamsburg and Pocono Mountain resorts were mentioned. A number of places in California were mentioned with the Miramar in Santa Barbara, the most likely. A discussion of acceptable costs to attendees at a technical meeting resulted in general agreement that a reasonable cost for meals and room would be \$16-18.
13. The question of timing of the two technical meetings was raised and a discussion by the Executive Committee did not resolve the problem. A suggestion to canvass the membership for an opinion on the best time for the meetings will be followed through by the Secretary.
14. The Society has a representative to the Council of the American Association for the Advancement of Science. J. Tordella, our past representative has decided not to continue. A new representative will be appointed.
15. The meeting was adjourned at 6:00 P.M. to be reconvened Tuesday at noon.
16. At the meeting on Tuesday, further clarification of editorial mechanics and compositions costs were presented by the President in which it appears Interscience is offering a lower cost than AIP. President Marvin will write to Interscience for additional clarification of costs.
17. The meeting was adjourned at 1:30 P.M.

John C. Miller

CONSTITUTION
Amended January 1, 1966

ARTICLE I — Name

The name of this organization shall be The Society of Rheology.

ARTICLE II — Purpose

The object of this Society shall be the advancement of Rheology and its applications. Rheology is here defined as the science of the deformation and flow of matter. The objects shall be promoted (a) by meetings, (b) by a publication policy designed to increase and disseminate knowledge of Rheology, and (c) by other appropriate means.

ARTICLE III — Membership

Any person or institution interested in the purposes of the Society may apply for membership provided an application, made out in due form, is submitted to the Chairman of the Membership Committee hereinafter provided for in ARTICLE IV of the By-Laws.

ARTICLE IV — Officers and Executive Committee

Section 1

The officers shall consist of a President, a Vice-President, a Secretary a Treasurer, and an Editor.

Section 2

The governing body of the Society shall be the Executive Committee.

Section 3

The Executive Committee shall consist of the officers of the Society, the most recent living Past-President of the Society, and two other members elected by the Society.

Section 4

The terms of the officers and the Executive Committee shall be two years or until their successors are elected. The terms shall start at the beginning of the last day of the Annual Meeting held subsequent to the date of their election, and shall terminate at the beginning of the last day of the Annual Meeting in the year of expiration of their terms of office.

If for any reason the Annual Meeting is postponed beyond the end of the election calendar year in which it would normally be scheduled, the incoming officers and members of the Executive Committee will take office at noon on December 31 of said election year.

Section 5

The Executive Committee shall be the legal representative of the Society. It shall have the power to expend the funds of the Society, or to invest the same, but shall not incur indebtedness beyond the assets of the Society. It shall transact all business of the Society not otherwise provided for specifically in the Constitution and By-Laws of the Society.

ARTICLE V — Nomination and Election of Officers

Section 1

At a suitable time prior to an election, a Nominating Committee consisting of three members of the Society shall be appointed by the President. One of the three members of this Committee shall be designated by the President to act as Chairman. If for any reason the President cannot take this action, the Executive Committee shall appoint the members and Chairman of the Nominating Committee.

Section 2

The Nominating Committee shall, through its Chairman, report to the Secretary of the Society one nominee but no more than two nominees for each of the offices named in Section 1 of ARTICLE IV of this constitution, and at least two nominees for membership on the Executive Committee.

At least one hundred forty five (145) days prior to the date of the Annual Meeting at which an election is to be had, the Secretary shall inform the members of the Society of the list of nominees reported to him by the Nominating Committee. For a period of forty five (45) days following the date of such notification, additional nominees may be named by petition forwarded to the Secretary and signed by at least fifteen (15) members in good standing of the Society. Upon receipt of such petition, the Secretary shall, after acceptance of such nomination by the nominee, add such names to the ballot prepared by him. The complete list of nominees comprising the ballot shall be arranged in alphabetical order, where more than one nomination for each office has been made.

Section 3

At least ninety (90) days prior to the Annual Meeting at which an election is to be had, the Secretary shall forward to each member of the Society a complete ballot, prepared as provided in Section 2 of this Article. The Ballot shall, in addition, contain a notice that the voter may vote for any qualified persons other than the listed nominees, and spaces shall be provided for recording such votes.

Ballots shall be returned to the Secretary, and to be valid must be postmarked not later than thirty (30) days prior to the Annual Meeting at which the election is to be had. Any ballot marked so as to indicate a vote for more than one nominee for any one office shall be void in its entirety.

Section 4

The Secretary shall transmit the ballots unopened to an Election Committee appointed by the President. This Committee shall meet at a time and place directed by the President and open and count all ballots cast by members in good standing. The candidates who receive the highest number of votes cast for the several offices shall be declared elected.

The results of the election as determined by the Election Committee shall be announced by the President at the Annual Meeting. If the Annual Meeting is postponed or abandoned, the President shall direct the Secretary to report the election results to the members of the Society by mail prior to December 15.

If there be a tie vote, the President shall order a ballot to be taken at the Annual Meeting to decide which of the candidates who have received the same number of votes shall be chosen. If for any reason the Annual Meeting is not to be held that year, the President shall immediately order another ballot by mail, allowing thirty days for return of the ballots.

ARTICLE VI — Meetings

Section 1

An Annual Meeting of the Society for the purpose of conducting technical sessions or symposia, and to transact business shall be held each year. The Executive Committee shall announce the time and place at least six months prior to the meeting.

Section 2

Additional meetings may be held as shall be determined by majority vote of the Executive Committee.

Section 3

Notwithstanding Section 1 of this Article, the Executive Committee may determine the existence of extraordinary conditions, requiring postponement or abandonment of the Annual Meeting in any single year. If the Committee determines a postponement, it shall fix the time and place for the next meeting as soon as possible.

ARTICLE VII — Reports

The Secretary of the Society shall report to the membership at the Annual Meeting on the activities. The Treasurer of the Society shall report to the membership at the Annual Meeting on the financial condition of the Society. Abstracts of these reports shall be sent to the membership.

ARTICLE VIII — Amendments to the Constitution

Amendments to this Constitution may be made by a 2/3 vote of those voting in a letter ballot submitted to the membership after the members attending a regular meeting of the Society have voted to submit such amendments to a letter ballot. Letter ballots shall be sent to the membership by the Secretary within thirty days after this meeting. Ballots shall be returned to the Secretary, and to be valid must be received by him within ninety days after this meeting. Amendments so approved shall become effective immediately upon certification of approval by the Secretary to the Executive Committee and to the membership except that amendments which change the status of officers shall become effective when the new officers are declared elected.

BY-LAWS

ARTICLE I —

Duties of Officers and Executive Committee

Section 1

The President of the Society shall exercise general care and supervision over the affairs of the Society subject to the direction and approval of the Executive Committee, and shall do and perform all acts usually incident to the office of President.

Section 2

The Vice-President shall assist the President in the performance of the latter's duties. In the event of the absence of the President, or his inability to serve, the Vice-President shall act in his stead. He shall perform such other duties as are assigned to him by the President or by the Executive Committee.

Section 3

The Secretary shall keep the records of the Society, including minutes of all meetings, appointments, committees, and membership files.

He shall be responsible for the official correspondence of the Society.

He shall prepare an annual report of the activities of the Society in accordance with ARTICLE VII of the Constitution.

He shall be responsible for the printing, distribution, and collection of letter ballots which may be presented to the membership for vote. In particular, he shall be charged with the issuance and receipt of the ballots for the membership vote on officers as defined in ARTICLE V of the Constitution, and for the issuance and tabulation of ballots on proposed amendments to the Constitution and By-Laws as specified in ARTICLE VIII of the Constitution, and in ARTICLE VIII of the BY-Laws, respectively.

Section 4

The Treasurer shall account for all monies of the Society.

He shall be the disbursing officer of the Society and shall approve all expenditures by the Society upon authorization of the Executive Committee.

He may be required to give bond for the faithful discharge of his duties, to the extent as may be required by the Executive Committee.

He shall prepare an annual budget and present it to the members at the Annual Meeting.

He shall prepare an annual report on the state of the finances of the Society in accordance with ARTICLE VII of the Constitution.

Section 5

The Editor shall be responsible to the Executive Committee for carrying out the publication policy of the Society.

He shall have the technical direction of the Society's publications, as defined in ARTICLE VI of the By-Laws.

Section 6

The Executive Committee shall be empowered to make working rules of order for the control and operation of the Society. All rules and regulations so made shall terminate with the expiration of tenure of office of the officers promulgating them, unless continued by incoming officers constituting the succeeding Executive Committee.

In the event that an officer of the Society dies or resigns before the completion of his term of office the Executive Committee shall appoint a successor to complete his unexpired term, subject to the provision stipulated in Section 2 of ARTICLE I of the By-Laws that the Vice-President shall succeed if the office of President becomes vacant.

It shall determine the date and place of the Annual Meeting and any other meetings of the Society which shall be called in accordance with ARTICLE VI of the Constitution.

The Executive Committee shall have the power to overrule or modify the action of any officer of the Society.

ARTICLE II — *Quorum*

A quorum of the Society shall be the number present at a regularly scheduled business session of the Society. A quorum of the Executive Committee, and of all other Committees, shall be a majority of said committee.

ARTICLE III — *Dues and Privileges*

Section 1

Regular members of the Society shall be natural persons and shall pay annual dues of \$10.00, payable in advance. Each member shall receive the official publications of the Society.

Section 2

Sustaining members shall be persons or organizations with an active interest in the science of, and Society of Rheology. Sustaining members shall pay dues of \$100.00 annually, as a minimum. These dues are payable in advance and sustaining members shall receive the official publications of the Society.

A sustaining member may appoint a representative to act for it at meetings of the Society.

Section 3

Accepted applications for membership in the Society received prior to June 30, shall be considered as for the current year and back numbers of the current volume of the Journals will be furnished to said members. Applications accepted for membership after June 30, shall be applied to the following year and Journals will start with the first issue of the following year unless applicants specifically request the application to be applied to the current year.

Members delinquent in dues three months after the official date of renewal shall be declared suspended and their names removed from the official roster of the Society. Suspended or resigned members may be reinstated without payment of back dues; by action of the Membership Committee.

ARTICLE IV — *Membership Committee*

There shall be a standing membership committee of at least three members appointed by the President. The Chairman of the Membership Committee shall receive and pass upon all applications for membership with the advice of the Membership Committee, and shall notify the Secretary of the action taken upon the applications.

ARTICLE V —

Nominating Committee and Election Procedure

A Nominating Committee shall be appointed bi-annually and shall function in accordance with the provisions of ARTICLE V of the Constitution.

ARTICLE VI — Representatives

Section 1

As a Member Society of the American Institute of Physics the Society shall be entitled to nominate candidates for directorship on the Governing Board of the Institute, to the number of and under the circumstances authorized by ARTICLE VIII of the Constitution of the American Institute of Physics, Inc.

On the basis of a membership census the Society shall nominate one director to the Governing Board of the American Institute of Physics who shall be the President of the Society or his officially appointed representative.

When the membership of the Society attains such a number as to entitle it to more nominees to the Governing Board of the American Institute of Physics they shall be, in order, the Secretary, the Vice-President, the Treasurer and the Editor or alternates appointed by the President in their absences.

Section 2

The terms of office of directors representing the Society on the Governing Board of the American Institute of Physics shall be set for two year periods, which periods shall commence at the time of their nomination and election at the next annual meeting of the American Institute of Physics following the election of officers by the Society.

Section 3

The President shall appoint the Society's representative to the Council of the American Association for the Advancement of Science, on the basis of its membership as an Affiliated Society of Section B, Physics, of the A.A.A.S.

The President shall appoint an official representative of the Society to attend technical meetings, inaugurations, or dedications. Upon recommendation of the President, the Executive Committee shall determine the expense allowance of official representatives.

ARTICLE VII — Publications

Section 1

The Editor, or an Assistant Editor designated by him, shall assist authors of papers presented at the Annual Meeting in obtaining publication of their papers in appropriate journals.

Section 2

The Society shall publish or choose a publication which shall officially contain news of the Society and other matters of rheological interest.

Section 3

The Editor shall have the authority to appoint assisting, contributing, and publishing editors to be responsible for the development of the different aspects of the publications of the Society.

ARTICLE VIII — Amendments

The By-Laws may be amended by majority vote of the members returning a letter ballot after the members attending any regular meeting of the Society, or the Executive Committee, have voted to submit the proposed amendment to letter ballot. Letter ballots shall be sent to the membership by the Secretary within thirty days after the vote directing such a ballot. Ballots shall be returned to the Secretary, and to be valid must be received by him within ninety days after the vote directing the ballot. Amendments so approved shall become effective immediately upon certification of approval of the Secretary to the Executive Committee and to the membership.

ANNOUNCEMENTS

1. The Society of Rheology of America and the Fluid Mechanics Committee co-sponsored the Biomedical Fluid Mechanics Symposium of the 1966 ASME-EIC Fluids Engineering Conference held April 25-27 in Denver, Colorado.

Listing of all technical papers will be found in a future issue of Mechanical Engineering.

2. A special dinner is being arranged to honor Markus Reiner's eightieth year. It is proposed that the dinner be held on a date in August when Reiner intends to be in England and at a hotel either in the Reading or London area. The British Society of Rheology will make a presentation for the occasion.
3. The Fifth U. S. National Congress of Applied Mechanics will be held June 14-17, 1966 at the University of Minnesota in Minneapolis. Abstracts are being printed and authors will make brief, ten-minute presentations primarily designed to indicate the subject matter. General lectures, survey lectures and research lectures designed to cover certain areas in detail will be printed in full in the Proceedings, which will be available at the registration desk. Advance programs may be obtained from Robert Plunkett, Secretary, Fifth U. S. National Congress of Applied Mechanics, 107 Aeronautical Engineering Building, University of Minnesota, Minneapolis, Minnesota 55455, phone 612 373-2174. The Registration Fee is \$16.00 up to May 15 and \$20.00 thereafter. Cultural and entertainment programs are being planned for wives and children of all ages.
4. The First International Conference on Hemorheology will be held at the University of Iceland, Reykjavik, July 10-16, 1966. New information regarding this Conference can be found in recent issues of BIORHEOLOGY. Arrangements can be made through the Icelandic Government Tourist Bureau in Reykjavik, Icelandic Airlines or Pan American Airlines.
5. Films based on experimental demonstrations in fluid mechanics as an aid in classroom presentations are available for purchase or loan. A list of films and an order form can be obtained from the National Committee for Fluid Mechanics Films, Educational Services Incorporated, 47 Galen Street, Watertown 72, Massachusetts.
6. The American Association for the Advancement of Science will hold its 133rd Annual Exposition of Science and Industry this year. No other scientific meeting presents such a variety of important and attractive symposia in all major fields of science, or affords such opportunities for interdisciplinary programs and special events of general interest. For information on the 133rd meeting write the AAAS office at 1515 Massachusetts Avenue, NW, Washington, D.C., 20005.

AMERICAN INSTITUTE OF PHYSICS, INCORPORATED
for
SOCIETY OF RHEOLOGY
Statement of Receipts and Disbursements
Year Ended December 31, 1965

Balance in Account, January 1, 1965		\$13,233.90
<i>Receipts (January 1 — December 31, 1965)</i>		
Dues Collections:		
1964 Dues	\$ 40.00	
1965 Dues	2,154.22	
1966 Dues	7,278.99	
	\$ 9,473.21	
Income from Pittsburgh Meeting (October)		578.79
Interest on U. S. Government Bond*		38.74
Total Receipts		10,090.74
		\$23,324.64
<i>Disbursements (January 1 — December 31, 1965)</i>		
Charge for Dues Billing and Collection	\$ 295.45	
Contribution for Support of AIP for Calendar Year 1965	864.43	
Maintenance of Society List	528.55	
	\$ 1,688.43	
1965 Brochure:		71.12
Transactions:		
Printing — Volume 8 (685 Copies)	\$1,020.65	
Printing — Volume 9 Part I (740 Copies)	3,418.80	
Printing — Volume 9 Part II (740 Copies)	3,139.00	
Typing Envelopes	37.84	
Stuffing and Mailing	76.54	
2120 Kraft Envelopes	26.85	
Addressing	27.52	
Postage	290.79	
	8,037.99	
Spring Bulletin:		
Printing, Addressing and Mailing	\$ 131.39	
Postage	34.05	
	165.44	
Fourth International Congress:		
450 Copies of Proceedings Distributed to Members	\$1,845.00	
Labeling, Packaging and Mailing	127.22	
Postage	86.67	
	2,058.89	
Ballot Mailing:		
Addressing and Mailing	\$ 32.70	
Postage	37.43	
	70.13	
October Fall Meeting:		
Offsetting and Addressing	\$ 17.12	
Printing Bulletin	417.41	
Mailing	81.60	
Postage	131.54	
	647.67	
Secretarial Duties — E. Wolf:		
Letters to Delinquents:	18.23	
Welcoming Letters:	93.88	
Checking Membership Galleys	10.32	
	122.43	
Editorial Expenses — R. R. Myers:		
Secretarial Services	\$ 474.75	
Office Expense	166.95	
	641.70	
Other:		
Donation to 4th International Congress on Rheology	\$1,400.00	
Executive Committee Expenses of J. D. Ferry	37.68	
Subscription to SCIENCE for J. C. Miller	10.00	
January Santa Barbara Meeting Expense	60.00	
1965 Dues U. S. National Committee on Theoretical and Applied Mechanics	100.00	
Addressing and Mailing	3.55	
1500 Letterheads with New Officers Listing	22.14	
Bingham Medal 1965	20.59	
Telephone	39.46	
	1,693.42	
Total Disbursements		15,197.22
Balance in Account, December 31, 1965		\$ 8,127.42

* Bingham Fund: \$1,000.00 U. S. Government Bond 3-7/8% — Due May 15, 1968.