

# RHEOLOGY BULLETIN

Publication of The Society of Rheology, Inc.

Vol. 53, No. 1



January, 1984

## 55th ANNUAL MEETING

Knoxville, Tennessee  
October, 1983

The Society of Rheology wishes to thank Celanese Research Company, E.I. duPont deNemours & Co., Rheometrics, Inc., Imass, Inc., American Enka Co., Hercules, Inc., Tennessee Eastman Co., and Diamond Shamrock Corporation for their contributions toward the Annual Meeting.

Also, thanks to Raychem Corporation, Princeton University, and the University of Tennessee for permitting Lothar Kleiner, William Russel, Donald Bogue and John Fellers the time to effectively carry out their duties chairing the Program and Local Arrangements committees.

## 56th ANNUAL MEETING

Williamsburg, Virginia  
February 24-28, 1985

This will be the official 1984 meeting to be held in 1985 in deference to the International Congress to be held October 1984.

### *Program Committee*

William B. Russel (chairman)  
Dept. of Chemical Engineering  
Princeton University  
Princeton, NJ 08544  
609/452-4590

Stuart J. Kurtz (co-chairman)  
Union Carbide Corporation  
Polyolefins Division  
1 River Road  
Bound Brook, NJ 08805  
201/365-8000, Ext. 2471

### *Local Arrangements Committee*

Donald G. Baird (chairman)  
Dept. of Chemical Engineering  
Virginia Polytechnic Institute and State University  
Blacksburg, VA 24061  
703/961-5998

Garth L. Wilkes (co-chairman)  
same address  
703/961-5498

### *Deadlines*

Abstracts due November 1, 1984. Symposia chairmen will be announced in the August Bulletin.

### *Short Course*

There will be a Short Course, possibly a repeat of an earlier course.

## 1984 BINGHAM MEDAL AWARD NOMINATIONS

Nominations should be sent before March 15, 1984 to the Chairman of the Bingham Award Committee, Thor L. Smith, IBM Research Lab, K42/282, San Jose, CA 95193. Phone: 408/256-7303.

Members of the Committee are: T. L. Smith, D. D. Joseph, B. D. Marsh, W. O. Winer, G. Leal, and L. Schmidt.

Each nomination should include a statement of the nominee's contributions to the science of rheology and a list of the nominee's publications. Though not required, one or two supporting letters will be accepted.

Nominations submitted in 1983 will also be considered for the 1984 award.

## 1985 ANNUAL MEETING

University of Michigan, Ann Arbor  
October, 1985

### *Local Arrangements Committee*

Alan Wineman (chairman)  
Dept. of Applied Mechanics  
Macromolecular Research Center  
University of Michigan  
Ann Arbor, MI 48109

Frank Felisco  
Dept. of Materials Science  
University of Michigan  
Ann Arbor, MI 48109

## IXth INTERNATIONAL CONGRESS ON RHEOLOGY

October 8-13, 1984  
Acapulco Convention Center  
Acapulco, Mexico

The registration fee of \$185 should be sent by registered mail so that it is received before March 15, 1984. No personal checks will be accepted. Late registration fee will be \$220. Student registration fee is \$100. Fee includes participation in scientific sessions and social program. No lunches included in this fee. A fee of \$70 will be charged for each accompanying person, payable at same time as registration. Cashier's checks to banks in Mexico City, made payable to Sociedad Mexicana de Reologia, A.C., should be sent to:

Prof. B. Mena  
Instituto de Investigaciones en Materiales  
Apdo. Post 70-360  
Ciudad Universitaria  
Coyoacan 04510, Mexico, D. F., Mexico

Hotel and travel packages may be arranged through American Express Co., Mexico, S.A. de C.V. Inquiries should be directed through Prof. Mena at above address.



## RHEOLOGY BULLETIN

Raymond R. Myers, Editor  
Department of Chemistry  
Kent State University  
Kent, Ohio 44242  
216/672-2034

### SOR OFFICERS AND BOARD - 1984-86

William R. Schowalter (president)  
Robert F. Landel (vice president)  
John R. Collier (secretary)  
Edward A. Collins (treasurer)  
Raymond R. Myers (editor)  
Adi Eisenberg (member-at-large)  
Montgomery T. Shaw (member-at-large)  
Alan N. Gent (past president)

### MINUTES OF THE EXECUTIVE COMMITTEE MEETING

October 16, 1983

The meeting began at 2:00 p.m. at the Knoxville Hilton Hotel. Members present were: A. N. Gent, W. R. Schowalter, K. F. Wissbrun, E. G. Bagley, J. R. Collier, J. M. Dealy, R. R. Myers and E. A. Collins. J. Fellers, D. C. Bogue, and A. B. Metzner also attended a portion of the meeting.

The following agenda items were handled.

- Minutes of the April 16, 1983 Executive Committee Meeting were approved as published.
- Future Meetings:  
The 1984 Annual Meeting will be held the week of February 24, 1985 in Williamsburg, Virginia with Don Baird and Garth Wilkes serving as the Local Arrangements Committee, and Bill Russell and Stuart Kurtz as the Program Chairman and Co-Chairman. Registration will again be \$25 for members and \$45 for non-members with the additional \$20 going, at the non-members option, to one year's dues.  
The 1985 meeting will be in Ann Arbor, Michigan.  
The 1986 meeting will be in either Tulsa, Oklahoma, Atlanta, Georgia, or Buffalo, N.Y.  
Springfield, Connecticut is being considered for the 1987 meeting.
- The Bingham Medal Committee will consist of Thor Smith '84, Dan D. Joseph '84, B. Duane Marsh '85, W. O. Winer '85, Gary Leal '86, and Larry Schmidt '86.  
The Executive Committee passed a motion to expand the Bingham Committee to 7 members in 1985 with appointments in a 2, 2, 3 cycle. The Executive Committee also revised the Rules to Govern the Bingham Medal Award.
- A motion was passed to accept, with appreciation, the nomenclature committee report and recommended for adoption in papers published in the Journal.
- The Editor reported that the Journal is in good shape and the committee agreed that the bulletin should be mailed from Kent State.
- The Treasurer reported the December 31, 1982 balance was \$47,259.05 compared to \$44,896.15 a year earlier. Payment of page charges are down and A.I.P. expenses are up.
- The Secretary reported the election results as also reported in the Business Meeting Minutes.  
The meeting adjourned at 6:30 p.m.

John R. Collier  
Secretary

### MINUTES OF THE BUSINESS MEETING

October 18, 1983

President Gent called the meeting to order at 5:30 p.m. and the following matters were handled:

- Minutes of the 1982 meeting were approved as published.
- The election results were:  
President: W. R. Schowalter  
Vice President: R. F. Landel  
Secretary: J. R. Collier  
Treasurer: E. A. Collins  
Editor: R. R. Myers  
Members-at-Large: M. Shaw and A. Eisenberg.
- Sponsors of the 1983 meeting were reported to be:  
Tennessee Eastman Company  
E. I. duPont deNemours & Company  
Celanese Research Company  
American Enka Company  
Rheometrics  
Diamond Shamrock  
Hercules  
IMass

- The Treasurer's report included the enhanced financial condition of the Society.
- The Editor encouraged symposia chairmen to submit papers for publication in the Journal.
- The president thanked the retiring Executive Committee members J. Dealy, K. Wissbrun, and E. Bagley. He also thanked the Local Arrangements Committee D. Bogue and J. Fellers, and the Program Committee of L. Kleiner and W. Russel.
- President-elect Schowalter moved a rising vote of thanks for President Gent.

The meeting adjourned at 6:25 p.m.

John R. Collier  
Secretary

### EDITOR'S REPORT THE SOCIETY OF RHEOLOGY

September 20, 1983

#### *Journal of Rheology*

Volume 26 (1982) contained 27 articles and five notes; these plus abstracts totaled 620 pages.

Volume 27 already contains 23 articles and one note through Issue 4 of a projected six issues. We received 52 manuscripts, accepted 38, rejected seven, and await action on 42. These figures never total up because the numbers denoting action refer to submissions made up to that time. A disproportionate number of the 42 pending papers will be withdrawn or rejected.

Mary Curtis, new Publisher of Wiley-Interscience Journals, has advised that 700 published pages are planned for Volume 28. Unfortunately, its price to non-members will be \$138. Free subscription to SOR members continues to be a bargain. Outside subscriptions dropped from 1751 to 1741 between 1982 and 1983 as measured in July.

The editorial board will have a chance to meet Ms. Curtis at the Knoxville meeting at a working luncheon scheduled for Monday.

We continue to solicit papers from SOR symposia by offering each symposium chairman the privilege of serving as Guest Editor for the issue which carries the symposium papers. Inasmuch as some of the symposia are a bit peripheral to rheology as measured by the content of some of the papers, we insist that at least two rheologists serve as referees. This practice is working, although the percentage of positive responses is low and certainly not congruent with the fact that the Journal serves as the Transactions of the Society.

For about six years we have published abstracts of papers published in the Journal of the Japanese Society of Rheology. The journal is readily available, but only the abstracts are in English. We are now negotiating with the Australian Branch of the British Society of Rheology to publish abstracts of their biennial (odd-year) meeting papers, which do not enjoy wide circulation.

#### *Rheology Bulletin*

Two bulletins issued this year. The August bulletin was sent to AIP on July 20, left their office for the delivery service on August 9, and was mailed from New York at various times, starting apparently around August 16. The combination of two transshipments, two offices being involved, and the involvement of the New York post office in both receipt and sending imposed a delay of at least two weeks in the initial mailing. This delay in itself is tolerable, but the cause of some members not receiving their copies until September clearly is the responsibility of the New York post office.

To address this state of affairs, we have asked our local post office how to secure third-class mailing privileges. Form #3624 indicates that a tax-exempt organization like ours would encounter no difficulty. The Executive Committee will be asked to consider the alternative of mailing bulletins directly from our office. In addition to the form, we must supply 1) our bylaws and constitution; 2) list of officers and directors; 3) our IRS status; and 4) two sample copies of the bulletin. The Cleveland office will then consider the request.

We have initialed correspondence with all foreign societies of rheology known to us (mostly in Europe) to secure notices of meetings. Results are already apparent in the SOR Bulletin.

#### *PACS Revision*

Your editor represents the Society of Rheology on an AIP committee for Physics and Astronomy Classification Scheme (PACS). Under the guidance of Gerald Goodman, manager of PACS, a number of suggestions were made that do little to aggrandize the status of rheology. I wrote a stopgap letter concerning the overall outline and will be glad to share it with any member who wishes to have input to the revised PACS. Action is not expected until 1984, and by the time a concerted voice is needed from the SOR, I intend to involve the Assistant Editors. Alternatively, the Executive Committee may want to name a task force to work with me.

#### *Acknowledgment*

The Assistant Editors for the Journal of Rheology are Robert C. Armstrong, Edward A. Collins, Shigeharu Onogi, J. George Savins, Charles L. Sieglauff, Alex Silberberg, and James L. White. A century of man-years has been turned in by this group, and I am truly grateful.

Raymond R. Myers, Editor



STATEMENT OF RECEIPTS & DISBURSEMENTS  
YEAR ENDED DECEMBER 31, 1982

Balance in account December 31, 1981		\$44,896.15
<i>Receipts</i> January 1 - December 31, 1982		
Dues 1982 and 1983	\$23,970.00	
Interest and Saving Certificate	3,819.96	
Page Charges/Journal of Rheology	4,572.50	
Annual Meeting, Short Course, Mailing List	<u>3,850.00</u>	<u>36,212.46</u>
	Net Receipts	<u>\$81,108.61</u>
<i>Disbursements</i>		
Charges for Dues, Billing, Collection @\$1.50	1,834.00	
Charges for Preparation & Maintenance Records @\$1.75	2,467.00	
Financial Handling	251.00	
Member Dues 1982 @\$1.00	1,100.00	
Journal of Rheology Vol. 26 #1-6	8,196.00	
Journal of Rheology Vol. 27 #1-6	8,811.48	
Renewal Billing	326.00	
SOR Mailing Bulletins, Membership	875.00	
Membership Directory	1,235.00	
Administrative Services AIP	2,100.00	
Editorial Charges	1,800.00	
Mack Printing	930.32	
Commercial Press Bulletin, Abstracts, Programs	2,320.72	
Miscellaneous-Postage, UPS, Bingham Award, Bingham Certificates, Discretionary	<u>1,603.04</u>	<u>33,849.56</u>
Balance in Account December 31, 1982*		<u>\$47,259.05</u>

\*Adjusted for year-end variance.

Edward A. Collins, Treasurer  
October 10, 1983

1984 TREASURER ESTIMATE

Estimate Balance in Account January 1, 1984		\$48,500.00
<i>Receipts</i>		
Dues 1983 & 1984	\$20,000.00	
Interest	1,800.00	
Income, Short Course	3,700.00	
Page Charges, Journal of Rheology	3,000.00	
Annual Meeting	<u>1,000.00</u>	<u>29,500.00</u>
	Total Receipts	<u>\$78,000.00</u>
<i>Disbursements</i>		
Charges for Billing & Collection @\$1.75	1,925.00	
Charges for preparation & maintenance file @\$2.15	2,365.00	
Financial Handling	600.00	
Membership, Society Dues @\$1.00	1,100.00	
Journal of Rheology	10,000.00	
Editorial Expenses	3,600.00	
Subscription Expenses	2,000.00	
Bulletin/Abstracts/Programs	4,500.00	
Administrative Services, AIP	2,100.00	
President's Discretionary Fund	500.00	
Treasurer's Discretionary Fund	500.00	
Society of President Dues	100.00	
Miscellaneous-Postage, UPS, Award	2,000.00	
Expenses, Short Course	<u>2,500.00</u>	<u>\$33,790.00</u>
Estimated Balance December 31, 1984		<u>\$44,210.00</u>

Edward A. Collins, Treasurer  
October 10, 1983



## ANNOUNCEMENTS

The Australian Branch of the British Society of Rheology has recently been dissolved and the membership reconstituted as The Australian Society of Rheology. The executive committee is as follows:

Pres. - P.U.A. Grossman  
Vice Pres. - S. N. Bhattacharya  
Secy. - P.H.T. Uhlherr  
Dept. of Chemical Engineering  
Monash University  
Clayton, Victoria, 3168  
Australia  
Treas. - A. L. Halmos  
Past Pres. - K. R. Hall  
Committee Members - A. Pritchard  
R. I. Tanner  
C. Tiu  
J. B. Watkins

The Committee of the Belgian Group of Rheology is composed as follows:

Pres. - G. Schoukens  
S. A. Solvay, Labo Central.  
Rue de Ransbeek, 310 - 1120  
Bruxelles, Belgium  
Vice Pres. - Crochet  
Treas. - J. L. Leblanc  
Secy. - J. M. Rigo  
Members - Marco, Mewis, Cardon, Boiy

The Council of the Netherlands Society of Rheology is composed of

Pres. - P. F. van der Wallen Mijlief  
Techn. Univ. Twente-Physisch Dept.  
P.O. Box 217  
7500 AE Enschede, The Netherlands  
Sec. Treas. - W. S. Overdijp  
Members - F. Th. te Bats, H.C. Booiij, and J. H. den Otter

IUTAM/ICP/ICM will sponsor a symposium on the "Fundamentals of Deformation and Fracture" April 2-5, 1984 at Sheffield, England.

Contact K. J. Miller, Dept. of Mechanical Engineering, University of Sheffield, Mappin St., Sheffield, S1 3JD, U.K.

Euromech 178 will hold "The Mechanics of Oil Recovery" Symposium April 10-13, 1984 at Bucharest, Romania.

Contact H. I. Ene, INCREST, Department of Mathematics, Bd Pacii 200, 79622 Bucharest, Romania.

The British Society of Rheology will sponsor a conference on "General Rheology" April 11-13, 1984 at Birmingham, England.

Contact D. R. Oliver, Department of Chemical Engineering, University of Birmingham, PO Box 363, Birmingham B15 2TT, U.K.

Kent State University will present three short courses for Polymer and Coatings Specialists:

"Dispersion of Pigments and Resins in Fluid Media" May 7-11, 1984.

"Adhesion Principles and Practice for Coatings & Polymer Scientists" May 21-25, 1984.

"Thermal & Rheological Characterization of Coatings and Polymers" June 4-8, 1984.

Contact Carl J. Knauss, Chemistry Dept., Kent State University, Kent, OH 44242. Phone: 216/672-2327.

Euromech 179 colloquia on "Waves in Fluid-Filled Tubes" will be held June 1984 in Rimini, Italy.

Contact Francesco Mainardi, Dipartimento di Fisica, Via Irnerio 46, I-40126 Bologna, Italy.

The Chemical Institute of Canada (Macromolecular Science Division) is sponsoring a symposium on the Quantitative Characterization of Plastics & Rubber at McMaster University, Hamilton, Ontario, Canada, on June 21-22, 1984.

Contact J. Vlachopoulos, Dept. of Chemical Engineering, McMaster University, Hamilton, Ontario, Canada L8S 4L7.

A symposium on the "Influence of Polymer Additives on Velocity and Temperature Fields" will be sponsored by IUTAM June 25-27, 1984 at Essen, Germany.

Contact B. Gampert, Univ. Essen Gesamthochschule, Fachbereich 12, Maschinentechnik, Postfach 103764, D-4300 Essen, BRD.

XVth International Congress of Theoretical & Applied Mechanics will be held at the Technical University of Denmark, Lyngby, Denmark on August 19-25, 1984. Abstract deadline February 6, 1984.

Contact Frithioff Niordson, President ICTAM, Technical University of Denmark, Building 404, DK-2800 Lyngby, Denmark.

Euromech 182 will hold a symposium on the "Mechanical Characterisation of Load-Bearing Fibre Composite Laminates" August 29-31, 1984 at Brussels, Belgium.

Contact A.H. Cardon, Vrije Universiteit Brussel, Faculty of Applied Sciences, Pleinlaan 2, 1050 Brussels, Belgium.

The 8th CHISA Congress with European Symposia on "Stress and Strain Behaviour of Particulate Solids" and "Mixing of Non-Newtonian Industrially Important Fluids" will be held September 3-7 in Prague, Czechoslovakia.

Contact 8th Congress CHISA '84, PO Box 857, 11121 Praha 1, Czechoslovakia.

An "International Rubber Conference" will be held September 4-9, 1984 in Moscow, USSR.

Contact V. A. Berestnev, General Secretary "Rubber 84" Organizing Committee, Krasnobogatyrskaya St. 42, Moscow 107258, USSR.

Euromech 186 conference on the "Rheology of Biological Fluids" will be held September 12-14, 1984 in Nancy, France.

Contact M. Lucius, Institut National Polytechnique de Lorraine, B.P. 3308, Porte de la Craffe, 54014, Nancy Cedex, France.

Xth International Conference on Nonlinear Oscillations will take place on September 16-23, 1984 near Varna, Bulgaria. The Conference will address emerging developments in the theory of nonlinear oscillations, the theory of differential equations and their applications.

Contact G. Brankov, Institute of Mechanics & Biomechanics, "Acad. G. Bonchev" Str., Bl. 8; 1113 Sofia, Bulgaria.

IUTAM Symposium on Optical Methods in the Dynamics of Fluids & Solids will be held at Castle Liblice, near Prague, Czechoslovakia September 17-21, 1984.

Contact Miroslav Pichal, Institute of Thermomechanics, Czechoslovak Academy of Sciences, Puvskanova n. 9, CS 160 00 Prague 6, Czechoslovakia.

An international symposium on "Composites: Materials and Engineering" will be held September 24-28, 1984 at the University of Delaware.

Contact A. B. Metzner, Department of Chemical Engineering, University of Delaware, Newark, Delaware 19716.

Euromech 183 conference on the "Plasticity of Crystalline Media" will be held September 24-27, 1984 at Villetaneuse, France.

Contact A. Zaoui, Laboratoire P.M.T.M., C.N.R.S. Univ. Paris-Nord, Avenue J. B. Clement, 93430 Villetaneuse, France.

The Groupe Francais de Rheologie will hold a meeting in Paris November 28-30, 1984 entitled "Rheology of Anisotropic Materials."

Contact Stephane Richemond, CERMAT, ENPC, 28, rue des Saints-Peres, 75007 Paris, France.

Euromech 191 symposium on "The Physics of Dispersions of Small Particles" will be held December 12-15, 1984 in Cambridge, England.

Contact E. J. Hinch, Department of Applied Mathematics & Theoretical Physics, Univ. of Cambridge, Silver Street, Cambridge, CB3 9EW, U.K.

PAC Chem '84 will be held December 16-22, 1984 in Honolulu, Hawaii.

Contact (for micromolecular sciences program) L. A. Utracki, NRCC-IMRI, 750 Bel-Air, Montreal, Quebec, H4C 2K3, Canada.

*Polymer Engineering Reviews* Vol. 3 contains a special issue on the 10th anniversary of the Society of Rheology of Japan. Volume 2 Issue 4 should also be of interest to rheologists. It was dedicated to the memory of Turner Alfrey, a Bingham medalist, and contained a biography plus six papers in the areas of polymerization and polymer processing.

Contact J. L. White, Editor, at The University of Akron Polymer Engineering Center, Akron, Ohio 44325.

The Australian Society of Rheology has the following conference volumes available:

1st Nat'l Conf. on Rheology, 1979 - \$15 (Aust.)  
3rd Nat'l Conf. on Rheology, 1983 - \$18 (Aust.)  
Post and packing to USA (per volume)  
Air- \$6; Surface - \$2.

Contact P.H.T. Uhlherr, Department of Chemical Engineering, Monash University, Clayton, Victoria, 3168, Australia.