

# RHEOLOGY BULLETIN

Publication of The Society of Rheology, Inc.

Vol. 52, No. 2

August 1983



## 55th ANNUAL MEETING

Knoxville Hilton  
Knoxville, Tennessee  
October 16-20, 1983

The 55th Annual Meeting of The Society of Rheology will be held October 16-20 at the Knoxville Hilton, 501 Church St., Knoxville, Tennessee 37902; Phone: 615/523-2300.

Local arrangements co-chairmen are D. C. Bogue (615/974-5339) and J. F. Fellers (615/974-5345) (please note that these *new telephone numbers* differ from those on the enclosed information sheet), Dept. Chem/Met/Poly Engr., University of Tennessee, Knoxville, TN 37996. Most of the detailed arrangements will be handled by the University Conferences Office, 2016 Lake Avenue, Knoxville, TN 37996 (615/974-6688) (same number as before).

The program organized by Lothar W. Kleiner (chairman) and William B. Russel (co-chairman) appears as a separate enclosure, along with abstracts received as of printing deadline. If you have questions regarding the program, contact L. W. Kleiner, Raychem Corporation, 300 Constitution Dr., Mail Stop 2138, Bldg. H, Menlo Park, CA 94025. Phone: 415/361-3357;

or W. B. Russel, Dept. of Chemical Engineering, Princeton University, Princeton, NJ 08544. Phone: 609/452-4590.

## SOCIETY OF RHEOLOGY SHORT COURSE

A short course on "The Rheology of Composite Materials" will be given on Saturday and Sunday, October 15-16, prior to the annual meeting. Course instructors are John L. Kardos, Washington University, and Lloyd A. Goettler, Monsanto Company. Registration forms were mailed separately.

The course will cover both the solid state in which component materials perform, as well as the liquid state through which they pass during fabrication.

The fee for the course and lecture notes is \$150 prior to September 15, 1983. A late registration fee of \$175 is acceptable thereafter. Student rates are one-half the above. *Checks should be made payable to The Society of Rheology* and sent with the registration form to Dr. Edward A. Collins, Diamond Shamrock Corporation, P.O. Box 348, Painesville, OH 44077. Further information can be obtained from E. A. Collins, Phone: 216/357-3253.

Registrations for lodging at the Knoxville Hilton should be made by participants. A block of rooms has been reserved, so mention The Society of Rheology when making reservations.

## 1983 BINGHAM MEDAL AWARD

Professor Frederick R. Eirich, Distinguished Professor at the Polytechnic Institute of New York, has been named the 1983 Bingham Medalist of the Society of Rheology. He was selected for this honor on the basis of four distinct contributions to the science of rheology and to the Society, as follows:

First, for developing, at a very early stage of the science, an interdisciplinary approach to molecular hydrodynamics and transport phenomena in polymers which could be used to elucidate molecular and microscopic structures of these systems.

Second, for developing rheological as well as other experimental techniques to elucidate molecular conformation at surfaces and interfaces, with application to adsorption and adhesion in both biological and synthetic polymers. This work has found application to an unusually broad range of pragmatic problems.

Third, for being an exemplary teacher and distinguished spokesman for our science: one who encouraged participation by industrialists and scholars having a very broad range of backgrounds

and interests; one who served to unite and strengthen the otherwise diverse and sometimes divisive interests of members of the Society.

Fourth, for having the insights, perspectives and energy necessary to edit a series of volumes on rheology which have served to unify and to distinguish our discipline.

Professor Eirich was born in Vienna on May 23, 1905 and received his Ph.D. in physical chemistry from the University of Vienna in 1929. His research interests were developed and took form in many countries and on three continents: Europe, Australia and America. He has been a resident of the United States and an indefatigable supporter of the Polytechnic Institute of Brooklyn (later renamed the Polytechnic Institute of New York) since 1947. He was named a Distinguished Professor of that institution in 1969, served as Dean of Research there in 1967-1970 and was President of the Society of Rheology in 1972 and 1973. He has been honored by scientific and scholarly societies in Britain, Germany, Japan and Sweden, as well as in the U.S.

Professor Eirich is deeply involved in NASA-sponsored research on the origin of life, as well as in rheology, and continues as an active, voting member of the faculty at Polytechnic Institute of New York.

## NOMINATIONS FOR 1984-85 OFFICERS OF THE SOCIETY OF RHEOLOGY

The nominating committee (R. S. Marvin, chairman, C. W. Macosko, and D. J. Plazek) present the following candidates for office for 1984-85 (2-year terms):

<i>President</i>	W. R. Schowalter
<i>Vice President</i>	R. F. Landel K. F. Wissbrun
<i>Secretary</i>	J. R. Collier
<i>Treasurer</i>	E. A. Collins
<i>Editor</i>	R. R. Myers
<i>Executive Committee (vote for two)</i>	A. Eisenberg D. D. Hamann D. L. Hunston M. T. Shaw

## NINTH INTERNATIONAL CONGRESS OF RHEOLOGY

Acapulco, Mexico  
October, 1984

Although the 2nd circular has not arrived on this event, contacts with the ICR indicate that the meeting plans are progressing. October 8-13 is the date. Contact: David M. Binding, IXth International Congress on Rheology, Apdo. Postal 70-353, Ciudad Universitaria, Coyoacan, 04510, Mexico, D. F., Mexico.

Abstract deadline is December 1, 1983.

## 1984 ANNUAL MEETING

Williamsburg, Virginia  
February or March 1985

Program Chairman	W. B. Russel, Princeton University
Program Co-Chairman	S. J. Kurtz, Union Carbide Corporation
Local Arrangements Chairman	D. G. Baird, Virginia Polytechnic Institute
Local Arrangements Co-Chairman	G. L. Wilkes, Virginia Polytechnic Institute



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

**MINUTES OF EXECUTIVE COMMITTEE MEETING**

April 16, 1983

The meeting began at 10 AM at Cleveland Hopkins Airport. Members present were A. N. Gent, R. R. Myers, J. R. Collier, E. A. Collins, E. B. Bagley, J. M. Dealy, and K. F. Wissbrun. W. R. Schowalter was not able to attend and I. M. Krieger attended a portion of the meeting. The following agenda items were handled.

1. Minutes of the October 24, 1982 meeting were approved as published.
2. The 1983 Annual Meeting to be held at the Knoxville Hilton Hotel should have registration fees of \$25 for members and \$45 for non-members (including a \$20 membership fee). The deadline for papers is June 1 and a short course on composites will be held on October 15 and 16.
3. The 1984 Annual Meeting will be held in February 1985 at Williamsburg, Virginia due to the International Congress in October 1984 at Acapulco, Mexico.
4. I. M. Krieger met with the Executive Committee and discussed Guidelines for Bingham Medal selection.
5. The Editor's report by R. R. Myers was received with appreciation. Dr. Mena has suggested the journal become the publication for the International Conference. It was decided to not upset the normal publications of the journal by publishing all the papers as proceedings. Therefore, a limit of 60 papers from the conference will be used.
6. During the Treasurer's report, E. A. Collins reported the year end balance on December 31, 1982 was \$47,695.05, up from \$44,896.15 the previous year. The percent of page charges being paid is dropping. The report was received with appreciation.
7. During the Secretary's report, it was affirmed that the sustaining members (also called charter members) dues are \$150 per year.
8. Under consideration of the American Institute of Physics matters, the increase in number of Executive Committee members of AIP, from six to seven, was approved unanimously. The amendment to the AIP constitution to increase dues from one dollar to a maximum of ten percent of the average society dues was approved by a four to three vote. A new AIP By-Law will be developed that will set the dues level at two dollars. Approval by President Gent and Secretary Collier of a statement on SOR dues stating that one dollar of the dues is for "Physics Today" was ratified.
9. Reports were received on Education and Membership Committees matters.
10. Liability insurance for the Society is being investigated by E. A. Collins.
11. It was decided that program session rooms at the annual conference should be divided into smoking and no smoking sections and that moderators should announce the division.

The meeting adjourned at 4 PM.

Respectfully submitted,  
John R. Collier, Secretary

**EDITOR'S REPORT**

April 13, 1983

*Journal of Rheology*

Fifty-eight manuscripts were submitted in 1982, of which 35 were published and six rejected. The remainder are in the review stage. Judging from our 1981 performance, seven of these will not emerge as articles.

Eighteen papers from 1981-82 are in the publisher's hands.

In 1983 there already have been 17 submissions, of which five have been accepted and one rejected. This count projects a slightly larger volume than in 1982, especially when viewed in the light of our expectations for one or two symposium issues from the 1982 annual meeting. Donald Hamann has four papers from the food rheology

symposium and expects three more to fill one issue. Stephen Passman has reported a sufficient number of papers to make an issue on the rheology of geological materials, but we have no details.

Invitations have been extended to four individuals to write a definitive article on a specific rheological topic. One article of this nature scheduled for 1983 has not yet cleared the referees.

We had scheduled a Ferry Festschrift for a September 1982 deadline, hoping for enough manuscripts to fill several issues of JOR in 1983 and perhaps be bound separately. Problems arose regarding who would assemble the papers, and as a result, we are not as sanguine about this enterprise as we were when the subject was broached.

Volume 26 (1982) contained 613 pages, of which there were 27 papers, 5 notes, and abstracts from the 53rd SOR meeting in Louisville and the 54th in Evanston. Also, abstracts from JSOR, Japan, Vol. 9, Nos. 2, 3, and 4, and Vol. 10, No. 1, were published.

We asked David Binding of the IXth International Congress on Rheology Organizing Committee to announce that JOR is interested in publishing refereed papers from the Congress. Subsequent executive committee action affirmed this invitation and set a limit of 60 papers.

*Rheology Bulletin*

The January 1983 Bulletin contained six pages, plus an abstract form and the report of the nomenclature committee. This bulletin was shipped to AIP in New York on January 18; our copy arrived on February 21.

The July Bulletin deadline for copy is July 1. This also is the deadline for abstracts in a form ready to be assembled and sent to the printer. Assuming the standard two-week interval for the copies to reach New York, this schedule projects into a mid-August receipt of the Bulletin. Registration materials for the Knoxville meeting may have to be sent separately if this projection appears to be uncomfortable for the meeting organizers.

*Personal Note*

Many members of the Society recall the interest displayed by Alan Wittman, Wiley's editor. Alan has accepted the presidency of Macmillan Publishing Company's newly formed Professional Division.

Mary E. Curtis is the new publisher of Wiley-Interscience Journals.

In concluding this report, I wish to thank the assistant editors (Robert Armstrong, Edward Collins, Shigeharu Onogi, George Savins, Charles Sieglaff, Alex Silberberg, and James White) for their superb efforts in assuring the quality of all papers published in JOR. Every journal should have an editorial board as good as this one.

Submitted by  
Raymond R. Myers, Editor

**ANNOUNCEMENTS**

A 2-day Rheological Seminar will be held in Chicago, Illinois on October 14-15, 1983. Title: Applied Rheology. New Developments in Rotational Rheometry and Elongational Flow Measurement. Cost: \$195. Contact: Sangamo Schlumberger Rheology Division, 1875 Grand Island Blvd., Grand Island, New York 14072. Phone: 716/773-0090.

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A 5-part 53rd Shock and Vibration Bulletin, containing the Proceedings for the 53rd Shock & Vibration Symposium held in Danvers, Massachusetts in October 1982, may be ordered from the Shock and Vibration Information Center at the address given above. Cost: \$140 (U.S.); \$175 (Foreign).

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A 54th Shock and Vibration Symposium will be held at Huntington-Sheraton, Pasadena, California, October 18-20, 1983. This is hosted by the Jet Propulsion Laboratory on behalf of National Aeronautics & Space Administration. Theme: Shock and Vibration. Old Problems - New Solutions. Contact: Shock & Vibration Information Center, Code 5804, Naval Research Laboratory, Washington, D.C. 20375. Phone: 202/767-2220.



A Call for Papers is made for a Symposium on Advances and Trends in Structures and Dynamics to be held at the Sheraton National Hotel, Washington, DC on October 22-25, 1984. Contact: Ahmed K. Noor, The George Washington University, Mail Stop 246, NASA Langley Research Center, Hampton, Virginia 23665. Phone: 804/865-2897.

A Call for Papers is made for the International Adhesion Conference to be held at The University of Nottingham on September 12-14, 1984. Contact: Diane Varley, The Plastics & Rubber Institute, 11 Hobart Place, London SW1W OHL, England.

A Euromech 176 colloquium on The Mechanics of Gas Liquid Systems will be held at Villard de Lans on September 21-23, 1983. Contact: G. M. Lespinard, Colloque Euromech 176, Institut de Mécanique, BP 53 X - 38041, Grenoble, Cédex, France.

International Symposium of New Methods in Biorheology. A satellite meeting of the Vth International Congress of Biorheology will be held in Nancy, France, August 17-18, 1983. Contact the Secretariat at Centre Régional de transfusion sanguine Brabois, 54500, Vandoeuvre Les Nancy, France.

A Euromech 175 colloquium on Viscoelasticity and Applications will be held at the University of Bucharest, September 6-10, 1983. Contact: Prof. N. Cristescu, University of Bucharest, Department of Mechanics, Str. Academiei 14, Bucharest 70109, Romania.

The British Society of Rheology and Deutsche Rheologische Gesellschaft in association with EFCE Working Party on Non-Newtonian Fluid Processing announces a Conference on Engineering Rheology to be held September 19-23, 1983 at the Imperial College. Contact: Dr. G. C. Maitland, Dept. of Chemical Engineering, Imperial College, Prince Consort Road, London SW 7 2BY, U.K.

The 2nd Congress of the National Polytechnic Institute of Lorraine University of Nancy will hold a conference on the "Techniques Avancées en Hémo-rhéologie" on November 16-18, 1983. Contact: M. L. Viriot, GRAPP du LA 238 du CNRS - E.N.S.I.C. - 1, rue Grandville, 54042, Nancy, Cedex, France.

The 18th Annual Meeting of the Groupe Français de Rheologie will be held November 30 and December 1, 1983 at l'Ecole Nationale des Ponts et Chaussées, 28, rue des Saints-Pères, 75007 Paris 7e, France. Theme: Methodes et Appareils de Mesures Rheologiques. Contact: M. Stéphane Richemond, CERMaC, ENPC, 28, rue des Saints-Pères, 75007 Paris, France.

An international and comprehensive systematic bibliography of current titles on rheological properties and rheometry of liquids, solids, gases and dispersed and granular systems, entitled "Documentation Rheology," is available from Bundesanstalt für Materialprüfung (BAM), Fachgruppe Rheologie und Tribologie and Deutsche Rheologische Gesellschaft (DRG), Unter den Eichen 87, D-1000, Berlin 45, Federal Republic of Germany.

Elsevier Sequois announces the formation of *Polymer Engineering Reviews*. The first issue is devoted to the Japan SOR symposium. Contact: Peter van der Spek, Elsevier Sequoia S.A., P.O. Box 851, 1001 Lausanne 1, Switzerland.

The 10th Anniversary of the Japan Society of Rheology was held in June. John D. Ferry was initiated as an honorary member. The USA was represented by J. Knox, G. Berry, C. D. Han, C. W. Macosko, and J. L. White. New officers of the society are: President - Onogi; Vice President - Kurata; Secretary - Masuda; Treasurer - Kotaka; and Editor - Odani. The Japanese Bingham Medal was awarded to Hiro Kawai.

William R. Willets, internationally recognized authority on coatings technology and on industry testing procedures, died April 3 at the age of 77. He was Secretary-Treasurer of the Society in its early days.

Mr. Willets distinguished himself particularly through his research and development work on titanium dioxide as a filler for paper and as a coating pigment. At the same time he gained preeminence as an industry statesman and scientist in the development and advocacy of industry testing procedures on the national and international level.

Among his many awards are: first recipient of the TAPPI Testing Division Award, TAPPI Fellow, Award of Merit of the American Society of Testing and Materials, and the Bingham Medal of the Society of Rheology.

Included in this issue of the Bulletin is an article Mr. Willets wrote which was published in the July 14, 1981 issue of "Inside AIP."

## REMINISCING ON RHEOLOGY AND AIP

(Reprinted from July 14, 1981 *Inside AIP*)

In the mid-1920's, Professor E. C. Bingham coined a new name for an old science — "Rheology." At about the same time some fifty scientists met in a symposium at Lafayette College. They were all involved in the science of the deformation and flow of matter. (I regret that the folder of the Society of Rheology no longer notes the name of Professor E. C. Bingham, whose name has been honored by the Bingham Medal, which is awarded annually.)

The name of rheology was brought to the public when the magazine *The New Yorker* (November 23, 1935) published an article "A Reporter at Large: Everything Flows." The reporter had attended a rheology meeting the month before. There were 500 members of the Society at that time, and 200 had attended the meeting.

When I joined the Society, the number of members remained the same, but now it has grown to more than 1100 members. (This was gleaned by Peggy Nightingale from the files, mea gratias.)

I was introduced to the president of the Society by a mutual friend, and became a member in 1946. Having spent most of my professional life in the paper industry I was anxious to understand more of this science of rheology, realizing much of paper technology involved deformation and flow, and I was experimenting with paper coatings.

I was asked to do many tasks for the Society, and eventually was elected Secretary-Treasurer in 1953. Until then the Society handled its own business affairs, such as dues collection, financing, paying bills, bookkeeping, mailing lists, etc. (I still cannot balance my own check book!) Happily the Society was one of the five founding societies of AIP. Therefore it was logical for AIP headquarters to handle all business, except that the Society made up its own budget and the Treasurer had the power to approve all invoices. In the eight years of my tenure, I came to know and like the staff at AIP headquarters. They were patient and kind to this neophyte officer — Harry Barton, Wallace Waterfall, Kay Setze, Mary Johnson, Emily Wolf, Sistina Greco, and others whose names escape my memory. A wonderful, friendly, helpful, and interesting bunch. How AIP has grown; I only hope that its size hasn't been corrupted by Parkinson's Law. In 1953, AIP was housed in the beautiful mansion on East 55th Street, but later it was moved to 335 East 45 Street.

Originally, papers at the annual Rheology Meetings were published hit-and-miss in various scientific journals — there was always a problem to "get space." As a result, the Society decided to publish its own Transactions annually, and in 1967 converted that into a quarterly publication produced by John Wiley & Sons, Inc. Interscience Publishers. The name *Transactions of the Society of Rheology* was changed to a bi-monthly *Journal of Rheology* in 1978. Members also receive *The Rheology Bulletin* and advance abstracts of all papers being presented at Society Meetings.

As a closing note: I am not a physicist, at most I may be called a Paper Technologist. At the Board of Governors Meeting when Prince Philip was present, I said to Elmer Hutchisson: "I think I am the only member of the Governing Board who doesn't have a graduate degree, only a B.S. from the N.Y.S. College of Forestry," and he responded with his usual graciousness. My friends at AIP always showed me similar courtesy: friendship and helpfulness.



**AIP INC. FOR THE SOR STATEMENT OF RECEIPTS & DISBURSEMENTS  
YEAR ENDED DECEMBER 31, 1981**

Balance in Account - December 31, 1981*		\$544,896.15
<i>Receipts (January 1 - December 31, 1982)</i>		
Dues Collection 1981, 1982 & 1983	\$23,970.00	
Sales of Mailing List	100.00	
Interest, Savings & Certificate	3,819.96	
Page Charges J. of Rheology	4,572.50	
Annual Meeting-Evanston	1,800.00	
Short Course-Evanston	1,950.00	
		<u>36,212.46</u>
	Net Receipts	<u>\$81,108.61</u>
Disbursements (January 1 - December 31, 1982)		
Charge for Dues Billing & Collection (\$1.50/item)	\$ 1,834.00	
Charge for Preparation & Maintenance of Member file (\$1.75/member)	2,263.00	
Financial Handling Charge 5/8 of 1%	147.00	
Member Society Dues \$1/member	1,100.00	
J. of Rheology		
Subscription Expense-Vol. 26 #1-6	8,036.00	
Mailing and Printing Labels	160.00	
Renewal Billing	326.00	
Society Mailings (Bulletin, Short Course Brochure, Officer Ballot, October Meeting)	666.00	
Membership Applications and Letters	209.00	
Membership Directory	1,235.00	
Other		
Administrative Services	2,100.00	
Miscellaneous	643.00	
Editorial Charges	1,800.00	
Presidential Discretionary	138.00	
Wiley JOR Vol. 25 #1-6	8,811.48	
Mack Printing	930.32	
Treasurer Discretionary	300.00	
Commercial Press (Bulletin, Program, Abstracts)	2,320.72	
Council of Presidents Dues	70.00	
Bingham Certificates	129.04	
Transaction Return	195.00	
		<u>33,413.56</u>
Balance in Account December 31, 1982**		<u>\$47,695.05</u>

\*Adjusted to include 1981 Final Receipts & Disbursements Variance.  
 \*\*Includes variance for 9 month ending September 30, 1982. Edward A. Collins, Treasurer  
 March 10, 1982

**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 .....  
 (Please print)

Mail Address .....

Professional Affiliation .....

Position .....

Please indicate in the boxes provided below the code letter from the list to the right, which best describes your areas of interest, in order of decreasing importance.

- PRIMARY
- SECONDARY
- TERTIARY

INTEREST AREA	CODE
Biological Materials .....	A
Foods and Natural Products .....	B
Inorganic Materials .....	C
Oils and Lubricants .....	D
Soils .....	E
Synthetic Polymers .....	F
Fluids (Including Solutions) .....	G
Solids .....	H
Suspension and Particulate Systems .....	J
Engineering .....	K
Experimental Techniques .....	L
Mechanics .....	M
Phenomenology .....	N
All of the above .....	Y
None of the above .....	Z

I understand that my regular member's subscription to the **Journal of Rheology** is for my personal use, and not for library use.

Signature \_\_\_\_\_ Date \_\_\_\_\_

Enclose remittance of \$20 for Regular Annual Dues or \$150 for Sustaining Annual Dues and mail to:  
 THE SOCIETY OF RHEOLOGY  
 c/o American Institute of Physics  
 335 East 45th Street  
 New York, New York 10017