

RHEOLOGY BULLETIN

Publication of The Society of Rheology, Inc.

Vol. 58, No. 2



July, 1989

61st ANNUAL MEETING OF THE SOCIETY OF RHEOLOGY

in conjunction with the

FIRST ANNUAL MEETING OF THE CANADIAN RHEOLOGY GROUP

and

FIRST INTER-AMERICAN CONFERENCE ON RHEOLOGY

GRAND HOTEL
777 University Avenue
MONTREAL, CANADA H3C 3Z7

Telephone: (514) 879-1370
Reservations: (800) 361-8155

October 21 and 22: Short Course
October 22: Reception, Salle Cartier, 6-8 P.M.
October 23-26: Technical Meeting
October 27: Tours will be organized, of École Polytechnique, McGill and Industrial Materials Research Institute of the National Research Council of Canada. Sign up at the meeting.

A short course description, the full technical program and the hotel and meeting reservation forms are all enclosed.

EXHIBITORS OF RHEOLOGICAL AND POLYMER PROCESSING EQUIPMENT: a major equipment exhibit is being organized. Exhibitors not yet included are urged to call Dr. Utracki as soon as possible.

LAST MINUTE ABSTRACTS: In order to include last-minute research results the organizers will accept contributions to the poster session at least as late as August 1. Please submit an abstract, in the format used in the attached program, to the technical program chairman.

Technical Program Chairman

Dr. L. A. Utracki
NRCC/IMRI, 75 boul. de Mortagne
Boucherville, Que., Canada J4B 6Y4
Telephone: (514) 641-2280
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Local Arrangements Chairman

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C. P. 6079 Succursale A
Montreal, Que H3C 3A7
Canada
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Telephone: (514) 678-2045 (Home)
FAX: (514) 340-4159

1989 BINGHAM MEDALIST

The Bingham Medal for 1989 will be awarded to Professor **Irvin M. Krieger** of Case Western Reserve University in recognition for his scientific contributions to the field of rheology of dispersions.

Irvin Krieger received his B.S. degree in Industrial Chemistry, followed by an M.S. in Physical Chemistry, both from Case Institute of Technology in 1948, where he worked with Professor S. H. Maron on the rheology of synthetic latex. He received his Ph.D. degree in Physical Chemistry from Cornell University in 1951 with Professor Peter Debye as his advisor. Throughout his academic career, Irvin Krieger has been at Case Western Reserve University where he rose from the rank of Instructor to Professor. He has served as Executive Officer and Acting Chairman of the Department of Chemistry. Moreover, he was the founder of the CWRU Center for Adhesives, Sealants and Coatings and served as its director from 1982 to 1988. Professor Krieger has held visiting Professorships at the Université de Bruxelles, the Weizmann Institute of Science, the University of Bristol, and

RHEOLOGY BULLETIN
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FAX: 302-451-1048

members do not receive the Winter Bulletin prior to January 15.

The committee chairman is:

Professor C. W. Macosko
Department of Chemical Engineering
and Materials Science
University of Minnesota
421 Washington Avenue SE
Minneapolis, MN 55455

When submitting nominations, please observe the following brief guidelines, which are a condensation of the full set of formal guidelines listed in the July, 1988 Bulletin. [Should any members wish the complete set, please call Debbie Cook, the Journal and Bulletin Secretary.]

GUIDELINES

Nominations shall include:

- a) a brief scientific biography
- b) a review of those accomplishments upon which the nomination is based.
- c) a concise evaluation of the importance of the nominee's contribution in advancing the science of rheology.
- d) a list of publications.
(up to three reprints may also be submitted)
- e) supporting letters from other rheologists that address the nominee's contributions.

the Ecole Nationale Supérieure de Chimie de Mulhouse. He is a member of numerous scientific and professional societies and was President of the Society of Rheology from 1977 to 1979.

Irvin Krieger's most significant contributions to the field of rheology have been in the rheology of concentrated dispersions, where he made pioneering and lasting contributions. His work is considered by many to be the basis for the modern scientific study of colloidal suspensions, and he is one of the most cited authors in this field. This work comprises three key contributions: (1) the elimination of ambiguities about particle size and shape, (2) the adjustment of the solution chemistry to simplify the interparticle potential and to isolate individual effects, and (3) the introduction of dimensional analysis to interpret and generalize experimental results.

His delineation of the steady shear viscosity of hard sphere dispersions as a function of volume fraction and dimensionless shear rate, with several co-workers, stands as a classic contribution and has subsequently been thoroughly corroborated by data on other systems. His measurements with Eguluz of the second electroviscous effect demonstrated the magnitude, the importance of added electrolyte, and the appearance of a yield stress, and stimulated subsequent work by several other groups. Furthermore, his studies on order-disorder transitions in deionized solutions of latices, in collaboration with Hiltner and Papir, led to the discovery of phase equilibration between an ordered crystalline phase and a fluid-like disordered phase. More recently, in collaboration with Choi, Krieger studied the rheology of sterically stabilized suspensions. In these studies, they were able to elucidate the important roles played by entropic and energetic interactions between the stabilizing layers on neighboring particles, and between the stabilizing layer and the dispersing medium.

Based on his original and innovative contributions which have inspired the modern school of dispersion rheology, his career as an educator, and his service to the Society, the 1989 Bingham Medal is to be awarded to Irvin M. Krieger.

Nomination for the 1990 Bingham Award

Nominations should be submitted to the committee chairman before January 15, 1990. Please note that this may be our only notice concerning this nomination since many

SOCIETY OF RHEOLOGY OFFICERS AND BOARD - 1989-90

President John M. Dealy
Vice President Robert A. Mendelson
Secretary Donald G. Baird
Treasurer Edward A. Collins
Editor Arthur B. Metzner
Past President Robert F. Landel
Members-at-large Joseph D. Goddard
Gregory B. McKenna

COMMITTEES (Most recent available listing)

Membership:

A. M. Kravnik, chairman
S. J. Armour
R. H. Colby

Education:

E. A. Collins, chairman
M. M. Denn
D. Hunston
G. B. McKenna
J. L. Throne

Site Selection:
E. A Collins, chairman
D. Hunston
M. E. Ryan

Bingham Award:
C. W. Macosko, chairman
R. C. Armstrong
G. G. Fuller
J. E. Glass
R. G. Larson
M. T. Shaw
Chi-Kai Shih

Industrial Liaison:
Peter E. Clark

International Relations K. Wissbrun
Public Policy G. McKenna
Society Services K. Wissbrun

We need to place someone on the Publishing Policy Committee. The SOR members need to be informed of these committees in order to increase SOR participation. G. McKenna agreed to represent SOR at the AIP Society of Officers' meeting March 30 and 31 in Arlington, VA.

Ken Ford (Executive Director of AIP) emphasized that AIP is to serve member societies. Discussion of Margaret Ensley's services to SOR took place and it was agreed that she would keep a log of the time she spent on SOR matters. AIP wants more reimbursement for her services.

2. Publication of the Journal of Rheology

(Ken Ford departed before this discussion.) There is considerable concern over the charges by Wiley for the publication of the Journal. J. Dealy, R. Mendelson and A. Metzner are to express to Wiley our concerns regarding financial and professional aspects of publishing the Journal. If Wiley does not respond acceptably to our concerns, then a contract will be entered into with AIP to publish the Journal. This will be done by March 15, 1989.

3. SOR Committees

A new membership committee chair person is needed and various names were suggested. J. Dealy will seek candidates. (Andy Kraynik was later appointed.)

The Bingham Committee met on February 13.

The nominating committee for new officers is to present its report by April 15. The members must be informed of the nominees. R. C. Armstrong is the chairman of the committee. Other members are K. Wissbrun, M. Tirrell, and G. Fuller.

4. Sustaining Member Policy

Peter Clark has agreed to prepare a proposal for the member policy. Some discussion of what to offer them and appropriate charges occurred.

5. Amendment of SOR Constitution

There is confusion as to the number of members on the Bingham Committee. It was approved that a letter ballot will be sent to the members in which the members will vote to approve an amendment to Article VIII.2 in the constitution in which it will be stated there will be seven members on the Bingham Committee.

Article VI.1, paragraph 2 in the SOR constitution also needs to be amended. The new article shall read: "If not an elected member of the executive committee, the AIP Governing Board representative shall be a non-voting participant at all SOR

ELECTION OF OFFICERS BALLOT FOR RULES AMENDMENT

A ballot for election of new officers for the period October, 1989 - October, 1991 is enclosed. It includes candidates nominated by petition as well as those selected by the nominating committee.

A ballot for two significant Rules amendments is also enclosed.

EXECUTIVE MEETING MINUTES February 12, 1989

The executive meeting was called to order at 9:10 a.m. at the Gainesville Hilton on February 12, 1989. Officers present included: John Dealy, Bob Mendelson, Art Metzner, Don Baird, Joe Goddard, Greg McKenna. In addition, Ken Ford, Executive Director of AIP, was present as was Kurt Wissbrun. Officers absent were Ed Collins and Bob Landel.

Old Business

Minutes of the last meeting held in Philadelphia, November 13, 1988 were approved. The editor's and treasurer's reports were given at the business meeting.

New Business

1. AIP Matters

Kurt Wissbrun (SOR representative to AIP) reported that the following amendment to the AIP constitution needed to be ratified (Article XI.1):

At the first meeting of the Governing Board, an executive committee shall be elected composed of the chair person of the Governing Board and nine other current members of the board. The elected members shall not serve more than five years.

The amendment was approved by the SOR executive committee.

AIP committees in which SOR is active were discussed. At present the committees and representatives are:

Society Treasurers E. Collins
Education Committee M. Shaw

executive committee meetings." This must also be voted on by the members.

6. Meetings

A. Kraynik, local arrangement chairman for the 62nd annual meeting, reported on the various arrangements he has made. The 62nd annual meeting will be held in late October, 1990 in Santa Fe, NM, at the Sweeney Conference Center. He has secured a number of hotels with prices ranging from \$45 to \$95 per night. This meeting will be held in conjunction with the Society for Engineering Sciences.

M. Shaw is the program chairman and he needs suggestions for symposia.

Joe Goddard will discuss with past president, Bob Landel, ideas that have been put forward on annual meeting policy. He will then formulate a policy statement and distribute this to the Executive Committee members.

Chuck Beatty gave a brief report on the local arrangements for the Gainesville meeting.

The meeting was adjourned at 4:45 p.m.

BUSINESS MEETING MINUTES February 14, 1989

The business meeting was called to order at 5:15 p.m. at the Gainesville Hilton.

Old Business

The secretary's report was read and approved. In the president's report it was noted that:

1. A. Kraynik will take over as chairman of the membership committee.
2. Peter Clark will formulate a proposal for the sustaining member policy.
3. The election committee, chaired by Bob Armstrong, will prepare a list of candidates which should be received by the members in April 1989. Ballots will follow in July.
4. An amendment to the constitution pertaining to having seven members on the Bingham Committee will be voted on by letter ballot.

The treasurer's report was presented by J. Dealy in Ed Collins' absence. The balance as of December 31, 1988 was estimated as about \$90,000. (This is total assets, not net.) It was estimated that the balance at the end of 1989 would be \$73,300. Publication charges for the Journal of Rheology are the largest expense.

A. Metzner gave the editor's report. He noted that it takes about 12 months for a manuscript to appear in the Journal

once it is received by the editor. Art would like to receive comments on printing quality. The acceptance rate was 67% in 1987 and 57.5% in 1988. From 1990 and beyond, there will be about 1,200 pages in the journal per year. In 1989, there will be 1,440 pages in order to catch up from 1988. It costs about \$30 per member to print the journal. Negotiations are underway to reduce publications costs. B. Coleman pointed out that the page charges benefit the Society and not the publisher, but this is not made clear on our billing.

New Business

1. International Committee

A. Metzner announced that the XIth international meeting will be in Brussels in 1992. M. Crochet and J. Mewis are the co-chairmen. The meeting will be held in late August at the Hilton Hotel (\$80 per double room). The ICR president is Roger Tanner (Sydney) and the secretary is David James (Toronto) (both were present at the business meeting).

2. Annual Meetings

Abstracts for the Montreal meeting (61st Annual Meeting) are due May 1.

The 62nd meeting will be held in Santa Fe, October 21-25, 1990, in conjunction with the Society for Engineering Sciences. A. Kraynik reported that the meeting will be held at the Sweeney Convention Center. Hotels have been secured (rates \$45 to \$95 per night).

Some discussion took place pertaining to the joint meeting approach.

The meeting was adjourned at 6:24 p.m.

EDITOR'S REPORT

This year, in the life of Journal of Rheology, is a historic one. Whether history will judge the decisions made positively remains to be seen, but historic they will be.

The journal "Rheology" was launched with Vol. 1, No. 1, in October, 1929, with Eugene C. Bingham as editor. The Chemical Foundation, headquartered in New York City, served as the business manager. The assistant and contributing editors included Markus Reiner, Herbert Freundlich, H. R. Kruyt, Wolfgang Ostwald and Ludwig Prandtl. Could we have wished for any more auspicious beginning? The journal was to be published quarterly and the subscription charges were \$3.00 per year (of which \$1.00 was set aside for membership dues) for U.S. members. Non-members such as corporations and libraries were asked to pay \$5.00 per year.

This journal ceased publication after just a few issues, however, with the Great Depression undoubtedly contributing to its demise. It was revived in 1957 as Transactions of the Society of Rheology under the capable editorship of Bryce Maxwell of Princeton University with R. D. Andrews of Dow

Society of Rheology

Election of Executive Committee for 1989 - 91

BALLOT

For President (vote for one)

R. A. Mendelson (Monsanto Company)

Vice President (vote for one)

J. D. Goddard (University of Southern California)

G. B. McKenna (National Institute for Technology and Standards)

Secretary (vote for one)

D. F. James (University of Toronto)

A. M. Kraynik (Sandia National Laboratories)

Treasurer (vote for one)

E. A. Collins (Avon Lake, Ohio)

Editor of the Journal of Rheology (vote for one)

A. B. Metzner (University of Delaware)

Members at Large (vote for two)

A. J. Giacomin (Texas A&M University)

S. J. Kurtz (Union Carbide Corp.)

R. K. Prud'homme (Princeton University)

H. H. Winter (University of Massachusetts)

Return this ballot by September 1, 1989 to the Secretary of the Society:

Professor D. G. Baird
Polymer Materials and Interfaces Laboratory
Virginia Polytechnic Institute & State University
Blacksburg, VA 24061-6496

Society of Rheology

Ballot for Rules Amendments

The Executive Committee has approved the submission of the following Rules Amendments to a letter ballot of the membership. Please vote on each amendment.

1. Amendment to Article VIII concerning the Bingham Award Committee:

In line of Section 2, replace "six" by "seven".

Explanation: This corrects the inconsistency in section 2 and is in accord with current practice.

2. Amendment to Article VI:

Add the following to the second paragraph of Section 1:

"If the Society's representative on the Governing Board of the American Institute of Physics is not an elected member of the Executive Committee, he or she shall be a non-voting participant at all meetings of the Executive Committee."

Explanation: The objective here is to have close liason with AIP. This is more important than ever now that AIP is to take over the publication of the Journal of Rheology.

Indicate your vote below:

Amendment No. 1	For	<input type="checkbox"/>	Against	<input type="checkbox"/>
Amendment No. 2	For	<input type="checkbox"/>	Against	<input type="checkbox"/>

Please return this ballot to the Secretary of the Society before September 1, 1989 at the following address:

Professor D.G. Baird
Polymer Materials and Interfaces Laboratory
Virginia Polytechnic Institute & State University
Blackburg, VA 24061-6496

**FIRST-INTER AMERICAN CONFERENCE ON RHEOLOGY
MONTRÉAL, CANADA
October 21 to 26, 1989**

CONFERENCE REGISTRATION FORM

Please complete and return to: L. A. Utracki, Program Chairman, NRCC/IMRI, 75 De Mortagne,
Boucherville, Québec, Canada, J4B 6Y4,
Tel.: (514) 641-2280, Telex: 055-61622, FAX: (514) 641-4627

Name (also for badge use): _____

Organization: _____

Mailing Address: _____

City: _____ State (Prov.): _____ Zip Code: _____

Phone: _____ FAX: _____ Telex: _____

Fees (Check appropriate box)

IF MAILED:	BEFORE SEPT. 1st, 1989		AFTER SEPT. 1st, 1989	
Full Conference members*	US \$80 <input type="checkbox"/>	CDN \$95 <input type="checkbox"/>	US \$115 <input type="checkbox"/>	CDN \$135 <input type="checkbox"/>
non members	US \$120 <input type="checkbox"/>	CDN \$140 <input type="checkbox"/>	US \$155 <input type="checkbox"/>	CDN \$180 <input type="checkbox"/>
Students	US \$25 <input type="checkbox"/>	CDN \$30 <input type="checkbox"/>	US \$25 <input type="checkbox"/>	CDN \$30 <input type="checkbox"/>
One Day Registration	US \$50 <input type="checkbox"/>	CDN \$60 <input type="checkbox"/>	US \$65 <input type="checkbox"/>	CDN \$75 <input type="checkbox"/>
Banquet Ticket (per person)	US \$45 <input type="checkbox"/>	CDN \$50 <input type="checkbox"/>	US \$45 <input type="checkbox"/>	CDN \$50 <input type="checkbox"/>
Spouse's Program	Free of charge		Free of charge	

Name of accompanying person: _____

* Members of the sponsoring organizations; the fee does not include banquet ticket

Refund policy: cancellations postmarked before October 1st, 1989 will be subject to a US \$25 (CDN \$35) administrative charge. After October 1st, 1989, no refunds will be made.

Conference registration may be limited. Preference will be given on a first come first serve basis.

Make check payable to First Inter-American Congress of Rheology. Payment must accompany registration.

Check for: US \$ _____ CDN \$ _____ is enclosed.

Date: _____ Signature: _____

I wish to take the following tours on Friday:

Ecole Polytechnique McGill University

Industrial Materials Research Institute

HOTEL RESERVATION (Le Grand Hotel)

Please direct your registration forms to Dr. L. A. Utracki

In order to ensure lower rates and benefits, rooms at Le Grand Hotel should be reserved through the organizing committee by filling in the following form to be sent along with the conference registration form. The rates are valid prior to September 15, 1989.

Group: FIRST INTER-AMERICAN CONFERENCE ON RHEOLOGY

Name: _____ First Name: _____ Arrival Date: _____

Street: _____ Time: _____

City: _____ Departure: _____

Prov./State: _____ Time: _____

Tel: _____ FAX: _____ single room US \$90 CDN \$110

If arrival after 6 p.m., one night deposit or credit card guarantee is required double room US \$107 CDN \$130

Credit Card: _____

Exp.: _____

Application for Membership in the SOCIETY OF RHEOLOGY

I wish to apply for membership in THE SOCIETY OF RHEOLOGY dating from January 19 _____.

Name _____
(Please print)

Mail Address _____

Telephone Number _____

E Mail Number _____

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
Experimental Methods	B
Foods	C
Inks, Paints, Coatings	D
Materials Science	E
Petroleum Production	F
Plastics Processing	G
Polymer Dilute Solutions	H
Polymer Melts and Conc. Solns.	I
Rational Mechanics	J
Rubbers and Elastomers	K
Solid Polymers	L
Suspensions	M
Theory of Viscoelasticity	N
Other _____	O

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 \$40 for Regular Annual Dues (\$25 for Student and Retired Members) and mail to:

THE SOCIETY OF RHEOLOGY
c/o American Institute of Physics
335 East 45th Street
New York, New York 10017

**THE
SOCIETY
OF
RHEOLOGY**

TWO-DAY SHORT COURSE

RHEOLOGY AND MICROMECHANICS
OF DISPERSIONS

BY

I. M. KRIEGER, COURSE DIRECTOR

Lecturers:

Professor I.M. Krieger
Case Western Reserve Univ.
Cleveland, Ohio

Dr. T. F. Tadros
Imperial Chemical Ind.
U.K.

Professor T. Van de Ven
McGill University
Montreal Canada

To be held Saturday and Sunday
October 21 and 22, 1989

Grand Hotel
777 University Ave.
Montreal, Quebec
Canada H3C 2Z7

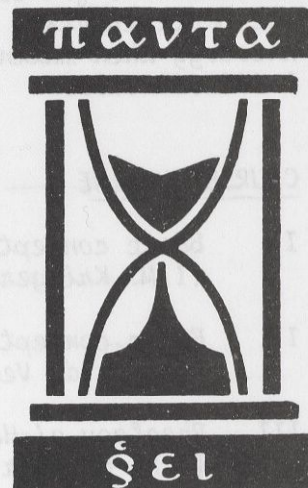
In conjunction with the
61st Annual Meeting of the Society of Rheology

COURSE DESCRIPTION

This course is intended for scientists and engineers entering or working in the field of suspensions or colloidal dispersions. The course will contain the key elements essential to the fundamental understanding of the rheology and micromechanics of dispersions starting with the basic concepts, followed by particle interaction considerations and applications to concentrated dispersion, emulsions and gels. Participants who have completed a bachelor's degree in science or engineering should have little difficulty with the course.

SPECIAL SYMPOSIA

In conjunction with the short course, several symposia on Rheology of Dispersion and related topics will be held at the Society of Rheology Meeting (Oct. 22-26). Registration for this 61st Annual Meeting will be handled separately.



REGISTRATION

The fee for the 2 day course and lecture notes is \$300.00 prior to Sept. 11, 1989. A late registration fee of \$325.00 is acceptable thereafter. Student rates are $\frac{1}{2}$ of the above. Checks should be made payable to "The Society of Rheology" and sent with the registration form to Dr. Edward A. Collins, 255 Glenview Dr., Avon Lake, Ohio 44012. Further information can be obtained from Dr. E.A. Collins (216)933-6308.

Reservations for lodging at the Grand Hotel in Montreal Canada should be made by the participants. A block of rooms has been reserved so mention the Society of Rheology when making reservations. (514)879-1370--Telex 055-60223--Reservations 1-800-361-8155.

COURSE OUTLINE

- I. Basic concepts of Rheology and Rheometry - an overview
(I.M. Krieger)
- II. Basic concepts of Colloid Science
(T. Van de Ven)
- III. Rheology of Hard Sphere Dispersions
(I.M. Krieger)
- IV. Particle Motions in Sheared Suspensions
(T. Van de Ven)
- V. Particle Interactions and Structure in Concentrated Dispersions
(T.F. Tadros)
- VI. Dispersions in Polymeric Media
(I.M. Krieger)
- VII. Control of Rheology and Stability of Dispersions
(T.F. Tadros)
- VIII. Emulsions and Gels
(T.F. Tadros)

Chemical Company as Assistant Editor. Volume I of Transactions was published by Interscience Publishers. Dr. Andrews, then at MIT, edited Volumes II and III. Volumes IV through VII (1963) were edited by Professor E. H. Lee, first at Brown University and then at Stanford. Interscience became a division of John Wiley and Sons in 1962 and this company has continued to serve as our publisher through the present time. R. R. Meyers, of Kent State University was editor of Volumes VIII through XXIX; the present editor began with Volume XXX. Thus Professor Myers edited two-thirds of our volumes to date; his output, however, covers three-quarters of the total linear bookshelf space devoted to Journal of Rheology and its predecessors.

The Society of Rheology was one of the founding members of the American Institute of Physics, at the Cosmos Club in 1931, and this organization has handled our business affairs over the years. Since A.I.P. is involved in major publishing activities, it has always seemed somewhat incongruous that publication of our journal was never included in these. And, although the officers of the Society contemplated a move of our publication from Wiley to A.I.P. on two occasions over the years, such a move was, in fact, never consummated. Perceived benefits of a move to A.I.P. were seen to be the possibility of lower costs (assuming comparable efficiencies in the non-profit and profit organizations) and more direct control of our publication. Disadvantages appeared to be those of publishing dislocations and discontinuities during a move and a very serious financial problem if it did not proceed smoothly.

The pressure to move our publishing from Wiley to A.I.P. built in 1987 and 1988 as more good manuscripts were received than Wiley felt able to publish. When a confrontation over this issue resulted, the officers of John Wiley offered a new contract under much more favorable terms to the Society. But, long-term considerations still favor a move to A.I.P. A team of your officers, led by the president and including the vice-president and editor, consequently negotiated a contract with A.I.P. this year and a termination of our association with John Wiley. Mr. Meyer Kutz, Vice President and Executive Publisher of John Wiley, has generously agreed to turn over their subscription list to us.

An so, beginning with Volume 34, in 1990, we are off on a new adventure! While the Society will profit from any excess income which publication of Journal of Rheology brings to us, we will also be responsible, for the first time, for all expenses and for any losses incurred. Your editor will miss the friends he came to know at Wiley, and their expert support; he looks forward to new friends at A.I.P. and to the new challenges there. He looks to the support of the membership of the Society of Rheology during the uncertainties of the transition period.

OBITUARY

Rheologists, particularly Society members, will be greatly saddened to learn of the death of Robert S. Marvin on May 17, 1989. He had been seriously ill for some time and died of complications after a stroke.

Bob Marvin was a chemistry graduate of the University of Minnesota. After wartime service in the Army at Los Alamos and in the Pacific Theater he earned a doctoral degree at the University of Wisconsin as one of John Ferry's earliest students. He began work at the National Bureau of Standards in 1949 in the Rubber Section. In 1956 he was asked to form a Rheology Section which he led until 1970, at which time he transferred to the newly formed Office of Standard Reference Data. He retired from N.B.S. in 1973.

Bob Marvin's early work explored the validity of time-temperature superposition of the viscoelastic properties of rubber-like polymers. To that end, he organized a collaboration with 27 laboratories measuring the properties of a "standard" high molecular weight polyisobutylene over a 15 decade range of frequency. Results of that study gave a solid experimental base for a generation of molecular models of viscoelastic polymers. He himself formulated a molecular model of a polymer chain which allowed the evaluation of molecular parameters from practical measurements. He also generalized the idea of superposition to include the effects of pressure. The data he and colleagues developed on bulk modulus as a function of frequency and temperature is still cited. Later his interests turned to non-linear viscoelastic effects. His stewardship of the Rheology Section at N.B.S. marked its most fruitful period.

Bob Marvin was a very active member of the Society of Rheology since 1950; he did much to broaden the membership and served in many posts, including that of president. He was a member of the International Committee on Rheology and, in 1960, a visiting professor at Kyoto. More importantly, Bob Marvin was a very gentle, human person whose friendship and influence will be sorely missed.

E. A. Kearsley
L. J. Zapas
National Institute of Standards
and Technology

MEETINGS

Society of Rheology
and of The International Committee on Rheology

62nd ANNUAL MEETING, Society of Rheology.

West of the Pecos in Santa Fe, New Mexico, October 21-25, 1990, will be a joint meeting with the Society for Engineering Sciences. Local Arrangements Chairman: A. M. Kraynik. Technical Program Chairman: M. Shaw.

63rd ANNUAL MEETING, Society of Rheology,
Princeton, New Jersey, October 1991.

XIth INTERNATIONAL CONGRESS ON

RHEOLOGY: Palace of Congresses, Brussels, Belgium,
August 17 to 21, 1992.

This meeting is scheduled to be followed by The International Congress of Theoretical and Applied Mechanics in Israel. The Palace of Congresses is a very comfortable and fully equipped meeting center located in the heart of Brussels and within walking distance of a number of large hotels. Student rooms will also be available at the University of Brussels.

The meeting will be co-chaired by Professor M. J. Crochet (Louvain-la-Neuve) and Professor J. Mewis (Leuven); the first circular will be mailed in September, 1990.

ANNOUNCEMENTS

Society of Rheology: E Mail Directory

Professor Giacomini at Texas A&M University has compiled an EMAIL Directory for SOR members. To receive your copy and to be included on the list, transmit a message to Professor Giacomini at:

AJG7063@TAMVENUS.BITNET

The Korean Society of Rheology was founded February 24, 1989. With 250 regular members it is already the world's 6th largest national society and expects to move into 4th or 5th position by year-end. Their first annual meeting is scheduled for this fall (late September or early October). President is Professor Sang Yong Kim, Department of Textile Engineering, Seoul National University; their membership secretary is Professor Seung Jong Lee, Chemical Engineering, Seoul National University, Seoul 151-742, Korea. Telephone: 82-2-886-0101, Ext. 3507; FAX: 82-2-888-7295. Earlier this year our president Dealy joined other rheology societies in sending congratulations and best wishes for future success to this group.

August 16-18, 1989: Amherst, Massachusetts. Meeting of the Polymer Processing Society. Co-chairmen: H. H. Winter (413-545-0922) and M. F. Malone (413-545-0838).

August 21-25, 1989: A short course "Rheological Measurements, with Applications to Polymers, Suspensions and Processing." University of Minnesota. Professor C. W. Macosko is the course coordinator. Information available from Ann Todd, 15 Church St., S.E., University of Minnesota, Minneapolis, MN 55455. Telephone: (612) 625-9502.

September 5-8, 1989: Metz, France. Ninth French Congress on Mechanics. Information available from the Congress Secretariat, Faculty of Sciences, Ile de Saucy, 57045 Metz.

September 12-15, 1989: Warwick, U.K. The Annual Conference of the British Society of Rheology. Theme is "Rheology of Food, Pharmaceuticals and Biological Materials." There will also be a general session. Chairman: Roy Carter, Tel. 0279-816779; FAX: 0279-816702; Mail: P. O. Box 2, Stansted, Essex CM24 8JG.

September 25-29, 1989: Stevenage, U.K. Five day course in Fluid Rheology at Warren Spring Laboratory. Contact Miss P. Madhvi, Warren Spring Laboratory, Stevenage, Herts. SG1 2BX, U.K. Tel: (0438) 741122, Ext. 438.

October 18-20, 1989: Fukuoka, Japan. Thirty-seventh Rheology Symposium, The Society of Rheology, Japan. Professor Toskiro Masuda, Secretary, The Society of Rheology, Japan; 1-101 Izumidono-cho, Yoshida, Sakyo-ku, Kyoto, 606 Japan.

October 18-20, 1989: Burlington, Ontario. Intensive short course on CAD/CAM Methods in Polymer Processing. Professor J. Vlachopoulos, Department of Chemical Engineering, McMaster University, Hamilton, Ontario L8S 4L7, Canada. Tel: (416) 525-9140, Ext. 4954.

October 30-31, 1989: Montreal, Quebec. Tenth International Symposium on Polymer Blends at the Industrial Materials Research Institute. Contact Dr. L. A. Utracki at the address elsewhere in this bulletin.

November 21-23, 1989: Paris, France. Twenty-fourth Annual Colloquium. Theme: Rheology in the Food, Cosmetic and Pharmaceutical Industries. Groupe Francais de Rheologie. Professor B. Launay, Departement Science de l'Aliment, ENSIA, 1 avenue des Olympiades, 91305 MASSY, France. Tel: (1) 6920-0523; Telex: ENSIA 602 174 F; FAX: (1) 6920-0230.

November 29-30, 1989: Tokyo, Japan. Ninth Rheology Short Course of The Society of Rheology, Japan. Contact Professor Masuda (above address).

December 17-22, 1989: Honolulu, Hawaii. Symposium on Polymer Rheology and Processing at the International Chemical Congress of Pacific Basin Societies. Dr. L. A. Utracki (above address).

March 26-29, 1990: Liverpool, U.K. International Conference on Rheology of Fresh Cement and Concrete. Dr. P. F. G. Banfill, School of Architecture and Building Engineering, University of Liverpool, P. O. Box 147, Liverpool L69 3BX, U.K.

April 17-20, 1990: Nice, France. Sixth Annual Meeting of the Polymer Processing Society. Secretariat - PPS.6 (Nice), Ecole des Mines de Paris, CEMEF, SOPHIA ANTIPOLIS, 06560 VALBONNE, FRANCE. Tel: 93.95.75.75; FAX: 93.65.43.04.

May 21-25, 1990: Jerusalem, Israel. Tenth Polymer Networks Group Meeting. Contact Melia-Teum, POB 8388, Jerusalem 91082, Israel. Tel: 972 2 667402; Telex: 25628 TEUMJ IL; FAX: 972 2 637572.

May 21-25, 1990: Tucson, Arizona. Eleventh U.S. National Congress of Applied Mechanics. Contact Professor C. F. Chen, Department of Aerospace and Mechanical Engineering, University of Arizona, Tucson, Arizona 85721 U.S.A.

July 15-20, 1990: Halifax, Nova Scotia. Canadian Rheology Group Sessions at the First C.I.C. (Chemistry and Chemical Engineering) Congress. Contact Professor D. DeKee, Department of Chemical Engineering, University of Sherbrooke, Sherbrooke, Quebec, J1K 2R1, Canada. Tel: (519) 821-7904. Abstracts due November 15, 1989.

August 26-31, 1990: La Jolla, California. The First World Congress of Biomechanics. Address inquiries and correspondence to: Professor Geert W. Schmid-Schönbein, Secretary General, The First World Congress of Biomechanics, AMES - Bioengineering M-005, University of California-San Diego, La Jolla, CA 92093 U.S.A. Tel: (619) 534-4272.

September 3-7, 1990: Edinburgh, U.K. The Golden Jubilee Conference of the British Society of Rheology and the Third European Rheology Conference. Enquiries and offers of papers should be sent to: Dr. C. J. S. Petrie, Department of Engineering Mathematics, University of Newcastle upon Tyne, Newcastle upon Tyne NE1 7RU, England.

Electronic mail to: Chris_Petrie@Newcastle.AC.UK on the EARN/BITNET networks or, on JANET, Chris_Petrie@U.K.AC.Newcastle.

CHANGE OF ADDRESS

If you are moving, be sure to inform:

Ms. Margaret Ensley
American Institute of Physics
335 East 45th Street
New York, NY 10017

**AMERICAN INSTITUTE OF PHYSICS INCORPORATED
FOR
THE SOCIETY OF RHEOLOGY**

Statement of Receipts and Disbursements Year Ended December 31, 1988

Balance in Account - December 31, 1987*		\$86,796.00
Receipt (January 1 - December 31, 1988)		
Dues Collections - 1987, 1988, 1989	\$43,596.31	
Sales of Mailing Lists: Less Processing Costs	479.45	
Interest	4,386.53	
Journal Page Charges	6,690.00	
Atlanta Annual Meeting	5,924.37	
		<u>61,076.66</u>
		<u>\$147,872.66</u>
Disbursements (January 1 - December 31, 1988)		
Charge for Dues Billing and Collection (\$2.75 per Item Billed-Annual Charge)	\$2,857.25	
Charge for Prep. & Maintenance Member records \$3/per	3,243.00	
Financial Handling Charge-Year 1988 (5/8 of 1%)	350.00	
Member Society Dues-Year 1988, \$2/member	2,354.00	
Renewal Billing Costs	1,085.04	
The Journal of Rheology: Volume 31(1-8)	11,552.12	
Editorial Charges	7,871.72	
Other:		
Administrative Services	2,100.00	
Membership Brochures	396.75	
February 1989 Meeting Mailing	455.81	
Miscellaneous Office Costs	276.60	
Short Course (Atlanta) Expenses	1,551.85	
Commercial Press Bulletin, Abstracts	2,679.89	
Banking Services	17.97	
Meeting Expenses	1,534.46	
Liability Insurance	148.00	
		<u>\$38,474.46</u>
Balance in Account December 31, 1988*		<u>\$109,398.20</u>

Dr. Edward A. Collins
Treasurer
April 14, 1989

** Not Adjusted for final variance

NOTE: The major publishing costs of Journal of Rheology are normally billed in the spring of the following year, and will need to be deducted from the above balance to give a current picture of our financial situation.