

RHEOLOGY BULLETIN

Publication of The Society of Rheology, Inc.



Vol. 51, No. 2

July, 1982

54th ANNUAL MEETING

Holiday Inn of Evanston
Evanston, Illinois
October 25-28, 1982

The 54th annual meeting will be held at the Holiday Inn of Evanston, 1501 Sherman Ave., Evanston, IL 60201; Phone 312/491-6400. Registration and housing information are enclosed. Contact: Buckley Crist, Jr., The Technological Institute, Dept. of Materials Science & Engineering, Northwestern University, Evanston, IL 60201-9990; Phone 312/492-3279.

The program organized by Anthony J. McHugh and his committee appears as a separate enclosure, along with abstracts received as of printing deadline. If you have questions regarding the program, contact Anthony McHugh, Dept. of Chemical Engineering, University of Illinois, 108 Roger Adams Laboratory, 1209 West California, Urbana, IL 61801-3791. Phone: 217/333-1178.

Symposium chairmen for the October 1982 meeting are:

Technical Program Chairman

A. J. McHugh, address listed above.

Co-chairman

Lothar W. Kleiner
Diamond Shamrock Corporation
T. R. Evans Laboratory
P.O. Box 348
Painesville, OH 44077
216/357-3250

Food Rheology

D. D. Hamann
Food Science Department
North Carolina State University
Raleigh, NC 27650
919/737-2959

Food Rheology Co-chairman

J. Kokini
Food Science Dept.
Rutgers University
P.O. Box 231, College Farm Rd.
New Brunswick, NJ 08902

Rheology, Fluid Mechanics & Phase Transformations

J. L. White
Dept. of Chemical & Metallurgical Eng.
University of Tennessee
Knoxville, TN 37916
615/974-2421

Suspensions and Multiphase Flows

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

Rheology of Geological Materials

S. Passman and W. Wawersik
Division 5531
Sandia National Laboratories
Albuquerque, NM 87185
505/844-7686

Processing and Rheology of Conductive Polymers

Lothar W. Kleiner
Diamond Shamrock Corporation
Address listed above.

Interrelationship of Processing & Rheology

B. Bersted
Amoco Chemicals Corporation
P.O. Box 400 MC C-1
Naperville, IL 60566
312/420-5528

General

A. J. McHugh
Address listed above.

SOCIETY OF RHEOLOGY FUNDAMENTALS OF RHEOLOGY FOR FOOD SCIENTISTS

October 23-24, 1982

The Society will sponsor a short course on Fundamentals of Rheology for Food Scientists on October 23 and 24 prior to the Annual Meeting in Evanston, Illinois. The instructors will be ChoKyun Rha, Arturo Inda, and Edward B. Bagley. The fee for the two-day course will be \$150 for pre-registrants and \$175 for late registrants. Contact: Donald Hunston, National Bureau of Standards, Polymer Division, Washington, DC 20234. Phone: 301/921-3344. Housing will be at Holiday Inn, Evanston. Phone: 312/491-6400. Registration form with course outline was sent separately to members.

EDWARD B. BAGLEY WINS BINGHAM MEDAL

Dr. E. B. Bagley, Laboratory Chief, U.S. Dept. of Agriculture Engineering & Development Laboratory in Peoria, has been named the 1982 Bingham Medalist of The Society of Rheology.

Dr. Bagley was born in Alberta and received his degrees from the University of Western Ontario (B.Sc. in Chemistry & Physics, with a Gold Medal for exemplary scholarship) in 1950 and from Cornell (Ph.D. in Physical Chemistry) in 1954. He has worked as a research scientist (Canadian Industries Ltd., 1954-64, and U.S.D.A. 1971-75) and as a professor (Washington University 1964-71) before assuming his present position.

His publications have frequently identified new areas for study and new rheological phenomena. His work on flow instabilities in polymer processing represents an appreciable fraction of our understanding of this subject; he was an early author of studies of melt fracture and the first to show that large discontinuities in the apparent rheological properties may accompany this instability. His work on end corrections in viscometry resulted in an empirical analysis of unusual generality, one which is universally employed by rheologists everywhere, and his studies of die swell, of the effects of molecular weight distribution and of flow instabilities in general stimulated the interest of a host of other scholars once the incisive problem - identification process had been completed. With co-workers H. P. Schreiber and S. H. Storey he observed the fractionation of polymers which occurs in inhomogeneous flows and advanced a quantitative thermodynamic explanation of this phenomenon.

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

NINTH INTERNATIONAL CONGRESS OF RHEOLOGY

Acapulco, Mexico
October, 1984

J. R. Knox, Society Representative. Mexican Society of Rheology President is Baltasar Mena; Secretary is David M. Binding, Seccion de Mecanica Teorica y Aplicada, D.E.P.F.I., Fac de Ingeneria, U.N.A.M., Mexico 20, D. F. Mexico.

BAGLEY SKETCH (continued)

His inventive talents have been recognized with a USDA Distinguished Service Award, an Inventor of the year designation by the Assoc. for the Advancement of Invention and Innovation and an IR-100 Award - all for his role in the invention of "Super-slurper," a starch graft copolymer with an unusual affinity for water. He has served The Society of Rheology as vice president (1977-79) and president (1979-81) and has coauthored a USDA report for Congress on the feasibility of developing domestic sources of natural rubber.

In summary, Dr. Bagley is recognized as an inventive scholar and scientist. He has been chosen as the 1982 Bingham Medalist on the basis of his unusually innovative contributions to the science of rheology.

Dr. Bagley's lecture Tuesday morning at 9:00 is entitled "Dispersions of Deformable Particles."

1983 ANNUAL MEETING

University of Tennessee
Knoxville, Tennessee
October 17-20, 1983

Program Chairman: Lothar Kleiner, Diamond Shamrock Corporation, T. R. Evans Res. Ctr., P.O. Box 348, Painesville, Ohio 44077.

Local Arrangements Chairman: James L. White, and Co-Chairman: Donald C. Bogue, Departments of Polymer Engineering and Chemical Engineering, University of Tennessee, Knoxville, Tennessee 37916.

POSSIBLE WEST COAST MEETING

The Society of Rheology Executive Committee wishes to have your views on meetings for 1985:

February

- _____ Williamsburg, Virginia
- _____ Gainesville, Florida
- _____ Pasadena or Santa Barbara, California

October

- _____ Atlanta, Georgia
- _____ Bethlehem, Pennsylvania
- _____ Cleveland, Ohio
- _____ Pasadena or Santa Barbara, California

The Society has never held an annual meeting in California and we would like to correct that situation if a meeting that far west meets with your approval. Therefore, please return the listing, above, with your stated preference 1 through 4 (1 most favorable). Please return your list to the Editor.

53rd ANNUAL MEETING

Louisville, Kentucky

We inadvertently missed the name of a donor to the social portion of the 53rd annual meeting at Louisville. We wish to thank Hercules, General Electric, IMASS, and Rheometrics for their contributions.

PRESIDENT'S COMMENTS

Raymond R. Myers has accepted my request to serve on the Physics and Astronomy Classification Scheme (PACS) Advisory Board as our Society Representative.

Members and friends of The Society will be interested to know that our editor, Raymond R. Myers, University Professor of Chemistry at Kent State University, has been awarded the University *President's Medal* for extraordinary service to the University as Professor, Researcher, former Chairman of the Chemistry Dept., Director of the Paint Research Institute, and long-time Editor of the Journal of Rheology. Congratulations, Ray! It is nice to know that your university colleagues appreciate your long and distinguished service. We certainly do.

Alan Gent, President

MINUTES OF EXECUTIVE COMMITTEE MEETING

March 30, 1982

Members Present: A. Gent, W. Schowalter, R. Myers, J. Collier, E. Collins, E. Bagley, and J. Dealy.

Members Excused: K. Wissbrun

The meeting was called to order at 10:00 AM in the Red Carpet Lounge of the United Airlines area, Cleveland Hopkins airport.

Minutes of the previous meeting (Oct. 11, 1981) were corrected to spell Wawersik correctly, and to indicate the donors supporting the 53rd Annual Meeting were Hercules, General Electric, Rheometrics, and IMass. The corrected Minutes were accepted by a unanimous vote.

Buckley Crist, Jr. informed Dr. Gent by letter and telephone that the Orrington Hotel in Evanston, Illinois (intended meeting location) would be closed for renovation during October 1982. As a result, the Holiday Inn in Evanston (0.7 miles from Northwestern) has been designated as the meeting location. The banquet will be held at the Norris Center at Northwestern University. Program Chairman is Professor A. J. McHugh of the University of Illinois, Urbana. Registration fees for members will be \$25; and non-members will pay a \$45 registration fee which will include their membership dues for the subsequent year.

Professor C. K. Rha of M. I. T. will be in charge of the Short Course on Food Rheology. The emphasis will be on the basics of food rheology. The fee for the two-day course will be \$150 for pre-registrants and \$175 for late registration.

University of Tennessee at Knoxville and California Institute of Technology at Pasadena are being considered as possible meeting sites for the last week in October 1983.

Cal-Tech, Williamsburg, Virginia, and the University of Florida at Gainesville are being considered for this meeting in February 1985 (delayed due to October International Conference in Mexico). The location will be discussed at the October 1982 business meeting of The Society.

The Cleveland-Akron area, Georgia Tech at Atlanta, Lehigh University in Bethlehem, Pennsylvania, Cal Tech, and Williamsburg, Virginia are being considered for October 1985 Annual Meeting.

The possibility of a non-annual Jan. 1984 Winter Meeting was discussed with no conclusion reached.

Professor Art Metzner, University of Delaware, is chairman of the six-member selection committee for the Bingham Medalist and is to report the committee recommendations and basis for choice to the Executive Committee through the President by May 30. The Executive Committee has the final responsibility for the choice. The President can only vote on the selection to break a tie vote.

Each Editorial and Executive Committee member is requested to solicit a paper. Wiley is encouraging the Journal to increase the number of pages at no cost to members. Current circulation is to 1138 members and 670 others. Two sequential issues will be contributed Ferry papers with a February 1, 1983 deadline for papers.

The year end balance for 1981 was \$45,233.15 compared to \$21,497.06 for the previous year. However, this did not include \$8,811.48 for Vol. 25 issues one through six billed in January 1982, increased interest rates (\$3,887), net proceeds from Williamsburg and Louisville (\$5,218), and other adjustment. A reasonable adjusted balance is \$35,000.

The Executive Committee decided only non-profit organizations may receive lists of members, profit organizations should become charter members (\$150) to obtain the lists. Announcements of books and journals can be made by advertisements in the *Journal of Rheology* or *Rheology Bulletin*.

Dr. C. Sieglaff and Professor M. Shaw will be asked to provide a list of services to corporate members for the next Executive Committee meeting.

A request will be made to have the 1988 International Meeting in Canada. The Executive Committee supports this request and will instruct Jack Knox to support it as our representative.

The Executive Committee stated their appreciation for secretarial and related services from AIP and does desire to have AIP continue to collect dues. Representatives to various functions will continue to be appointed. However, the Executive Committee does not agree to pay additional costs to AIP, particularly, since one-third of our dues currently go to A.I.P.

The meeting adjourned at 3:30 p.m.

Respectfully submitted,
John R. Collier, Secretary

EDITOR'S REPORT

March 12, 1982

JOURNAL OF RHEOLOGY

There were 58 manuscripts submitted to JOR during 1981; of these, plus the 1980 backlog, 46 were accepted and 11 were rejected. Sixteen manuscripts are in the publisher's hands and 31 are in the referee process.

We have until March 29 to supply copy for the August issue which is at the 100-page mark at this writing. We probably will hold at that mark and wait for October to decide if the 1982 volume can be pushed past the 600-page mark. That deadline is May 28, whereas the December deadline is August 2.

Volume 25 (1981) contained 688 pages (33 papers, 11 notes, one addendum, and abstracts from our annual meeting plus JSOR, Japan).

Journal Circulation

There were 1807 subscribers at the end of 1981. Members took 1138 of those, up from 1079 a year ago.

We encountered a possible circulation problem when John Schrag wrote that a Ferry Festschrift was in the making. We responded that we wanted the papers, regardless of how we handle the format. It appears that incorporating the papers in a single enlarged issue will be feasible, especially if that issue is bound and sold separately (as well as given to the members). Suggestions are welcome.

BULLETIN

We issued two bulletins in 1981, and one has emerged in 1982. Final galleys for the latter went to the printer on January 19 and 1300 of the final copies went to AIP in New York on January 22; 100 were sent to Program Chairman McHugh, and one each to the executive committee and session chairmen who had been identified. Exactly one month later our copy arrived from New York, although we learned that other members received theirs earlier.

BINGHAM CERTIFICATES

Those Bingham medalists who were at the Louisville meeting received their certificates from President Bagley. All others received theirs by mail. These small remembrances seemed to be appreciated, for we found a way to secure a response from all of the medalists: we wrote telling them how their name would appear on the certificate if they returned the notice with their approval.

Raymond R. Myers, Editor

ANNOUNCEMENTS

The 53rd Shock and Vibration Symposium on Dynamic Environments and Systems Survivability will be held at The Radisson Fencroft Hotel in Danvers, Massachusetts on October 26-28, 1982. Contact: The Shock and Vibration Information Center, Code 5804, Naval Research Laboratory, Washington, DC 20375. Phone: 202/767-2220 (Autovon 297-2220).

An International Workshop on Extensional Flows will be held January 24-28, 1983 near Mulhouse, France. Registration deadline September 30, 1982. Contact: Prof. C. Wolff, Table Ronde, Centre national de la Recherche Scientifique, E.N.S.I.T.M., 11 rue A. Werner, 68093 Mulhouse Cedex, France.

The first Conference of European Rheologists was held in Austria, at Graz University, in April 1982.

Subscriptions are available for the international journal "Carbohydrate Polymers" edited by J.M.V. Blanshard and John Mitchell. Contact: Applied Science Publishers Ltd., Ripple Road, Barking, Essex, England.

Canadian rheologists have organized a "Canadian Rheology Group" to encourage interactions among Canadian rheologists and to make a bid for the 1988 International Congress. The Executive Committee of the Society has agreed to support the bid for the Congress, and President Gent was invited to be present at the Canadian Group's organizational meeting in Toronto in June. The Group's affairs are currently in the hands of an interim steering committee chaired by John Dealy of McGill University.

The American Institute of Physics has published the *AIP 50th Anniversary Physics Vade Mecum*, a handbook of equations, data, and formulas from various fields of physics.

Chapter 19, edited by Hershel Markovitz of Carnegie-Mellon University, deals with rheology.

Chapter 13, edited by Ronald Eby of the National Bureau of Standards, covers High Polymer Physics.

It is available from the AIP, 335 E. 45th St., New York, NY 10019, for \$25.

A European meeting on Polymer Processing and Processing will be held June 14-16, 1983, organized by Societa Italiana di Reologia. Contact: Paolo Masi, Istituto di Principi di Ingegneria Chimica, Piazzale Tecchio, 80125 Napoli - Italy.

Edgar J. Pagé, member of The Society of Rheology, won the 1982 Award of Merit by ASTM.

OBITUARY

Arthur K. Doolittle, the originator of the free volume concept, died January 19 at Broomall, Pennsylvania. He had been director of plastics research for Union Carbide Chemicals Company, then its first Senior Scientist, reporting directly to the president. Upon retirement in 1975, he founded the Arcadia Institute for Scientific Research in Philadelphia for research on liquid state physics.

AMERICAN INSTITUTE OF PHYSICS INCORPORATED
for
SOCIETY OF RHEOLOGY

Statement of Receipts and Disbursements - Year Ended December 31, 1981

Balance in Account - December 31, 1980*	\$21,497.04
<i>Receipts (January 1 - December 31, 1981)</i>	
Dues Collections	\$24,735.00
Sale of Mailing List	46.00
Interest Short Term Dues Collection	89.00
Interest, Savings & Certificates	3,886.68
Page Charges, J of Rheology	6,945.00
1980 Annual Meeting (Williamsburg)	1,664.56
1981 Annual Meeting (Louisville)	3,708.77
Short Course (Louisville)	1,682.50
Payment on Account (Transfer from Savings)	5,000.00
	<u>47,757.51</u>
	Net Receipts \$69,254.55
 <i>Disbursements (January 1 - December 31, 1981)</i>	
Charge for Dues Billing and Collection (\$1.40 per Item Billed-Annual Charge)	\$ 1,564.00
Charge for Preparation and Maintenance of Member Record File (\$1.65 per Member Record-Annual Charge)	2,018.00
Financial Handling Charge - Year 1981 (5/8 of 1% of Business Handled)	161.00
Member Society Dues - Year 1981 (\$1 per Member per Year)	1,050.00
Journal of Rheology Subscription and Mailing Expense	1,524.00
May Bulletin	933.00
Ballot Mailing	359.00
Officer Nominaton Mailing	270.00
Renewal Billing	618.00
Short Course Mailing	23.00
Amendment Mailing	252.00
Abstract and Bulletin Mailing	112.00
Administrative Services	2,100.00
Typesetting, Postage, and Other	1,279.00
Editorial Charges	2,609.00
CWRU (telephone & postage)	24.90
Bingham Award Medal	66.05
Commercial Press Bulletin & Abstracts	1,650.34
President's Society Dues	50.00
Legal Fees (Amendment to Charter)	150.00
Presidential Discretionary Fund	200.00
Treasurer's Discretionary Fund	402.00
Louisville Meeting (Dr. Miller)	155.00
Short Course Expenses	1,451.11
AIP Transfer of Funds from Savings	5,000.00
	<u>24,021.40</u>
	Net Disbursements \$24,021.40
Balance in Account - December 31, 1981**	\$45,233.15***

*Adjusted to include 1980 Final Receipts and Disbursements Variance

**Only includes variance for 6 months ending June 30, 1981.

***1981 Year End Balance does not reflect the charges for Volume 25, Number 1-6 billed in January 1982 and amounting to \$8,811.48.

The increase in dues is also starting to be reflected positively on the balance. The purpose of the dues increase was to maintain a cushion roughly equal to a year's operation. The increased interest rates for our savings investments for the amount of \$3,887; the net proceeds from the Williamsburg and Louisville meetings of \$5,218 and the amount collected for honored page charges during during the calendar year all contributed to the favorable year end balance.

Submitted by
E. A. Collins, Treasurer
March 7, 1982