RHEOLOGY BULLETIN

Publication of the Society of Rheology

Volume 22, No. 1 Spring 1953

THE RHEOLOGY ISSUE IN THE J. A. P.

At the time of the Fall Meeting 1952, our Society was informed by the Academic Press that, in view of the great number of papers sent to the Journal of Colloid Science, the Rheology Issue could no longer be accommodated within the page space available to the Journal, and that arrangements would have to be made for an extra Issue. In view of our policy of sending free copies to our members, this placed too high a financial burden on the Society as well as on the Academic Press. Fortunately, sponsored by Dr. H. A. Barton and Dr. E. Hutchisson, the American Institute of Physics came to our help by declaring themselves prepared to publish the papers of our annual Fall Meetings in one issue of the Journal of Applied Physics. Although there may be other papers in the same issue, it will again be called the Rheology Issue.

The Executive Committee of the Society wishes at this occasion to express their sincerest thanks to Mr. K. Jacoby of the Academic Press and to Dr. V. K. La Mer, the Editor of the Journal of Colloid Science, for their past generous cooperation. Their understanding and assistance accorded to the Society will always be remembered, and it is with great regret that we see this association ending.

On the other hand, it is only natural that as a member society of the A.I.P. we should publish through the medium of one of its Journals, and there are advantageous features in the new arrangement. In particular, it has often been maintained that a Journal was needed which possessed an equally wide distribution among physicists, engineers and metallurgists as among chemists, so as to reach all the disciplines interested in rheology. The Journal of Applied Physics fulfills this function ideally. For our members, it will be possible as of 1954 to obtain yearly subscriptions of the J.A.P. at the reduced rate of $8.75. Applications should be directed to the Secretary-Treasurer, G. J. Dienes, Brookhaven National Laboratories, Upton, Long Island, N. Y. Members and non-members interested in advertising should also take advantage of the unique opportunity of reaching the rheologically minded public, by advertising in the Rheology Issue of the J.A.P.

We are certain that the new arrangement will work out to the satisfaction of all concerned and are most appreciative of the friendly cooperation extended to us by the responsible quarters of A.I.P. and J.A.P. alike.

PROGRAM PLANS FOR THE ANNUAL FALL MEETING 1953

Your Program Committee is actively working on plans for the program for the 1953 meeting which will be held in the Hotel New Yorker in New York City, on October 29th and 30th. Last year papers were solicited from the membership in general by means of a similar request in the Rheology Bulletin with very gratifying results, as it was felt that this led to a broader participation by the membership in the Society's meetings. Will any members who are in a position to make a contribution to our next meeting, please notify the Chairman of the Program Committee, J. H. Elliott, Hercules Experiment Station, Wilmington, Delaware, before May 15. The Program Committee would also welcome any suggestions as to speakers or topics for an informal symposium which would be a part of this year's meeting.

As in the past, it is planned to have papers refereed, before the meeting, for presentation and subsequent publication in the Rheology Number of the Journal of Applied Physics. Contributors are therefore requested to submit three copies of their manuscripts before September 1, 1953, as this will greatly help speeding publication.

WHERE IS RHEOLOGY TAUGHT?

At the last meeting of the Executive Committee of the Society of Rheology, a discussion of present-day teaching of Rheology revealed the scarcity of organized courses, as well as the absence of satisfactory records in the files of the Society, of the nature, extent and locale of such teaching. It was decided that the Society should endeavor to compile such records, which should be of obvious benefit to members and interested non-members. As a first step, the Editor was authorized to enclose questionnaire cards with this issue. It is hoped that our members will agree that such a step is desirable and will cooperate by returning these cards promptly. The results of this inquiry will be published in a later Issue.

MINUTES

BUSINESS MEETING OF THE SOCIETY OF RHEOLOGY PHILADELPHIA, OCTOBER 30, 1952

The meeting was called to order at 4:45 P.M. by President Spencer.

It was moved and carried that the Minutes of the 1951 Business Meeting be accepted as printed in the Rheology Bulletin with the following correction: 1950 substituted for 1951 in the second sentence.

RHEOLOGY BULLETIN
F. R. EIRICH, EDITOR
The Polytechnic Institute
Brooklyn 1, N. Y.

(*Continued from Page* 1)

The Secretary-Treasurer submitted his interim report. The financial condition of the Society was reported on as of September 15, 1952, and the tentative budget for 1953 submitted (complete reports on file with the Secretary-Treasurer's records).*

FINANCIAL STATEMENT FOR 1952

GENERAL FUNDS

Cash on hand, January 1, 1952	$1,542.08
Income in 1952	1,531.64
Total	$3,073.72
Disbursements	1,449.14
Balance**	1,624.58
Surplus for 1952	$ 82.50

SPECIAL FUNDS

BINGHAM FUND

Total in Fund,*** Deecmber 31, 1952	$ 802.70

RHEOLOGICAL MEMOIR FUND

Total in Fund*** December 31, 1952	78.21

The Society operated within its income and budget. Cash on hand is given as $1,542.08 rather than $1,342.08 as given in the financial statement for 1951. This is because the special appropriation of $200.00 for the Rheology Issue was not required, as the Editor succeeded in obtaining sufficient outside support for this issue so that our reserve funds did not have to be used. Full financial report will be made at the end of the year.*

TENTATIVE BUDGET FOR 1953

Estimated cash at end of 1952		$1,600.00
Estimated Income		1,560.00
Total cash resources		$3,160.00
ESTIMATED EXPENSES		
AIP assessment and service charge	$ 260.00	
Publication costs	850.00	
Meeting expenses (above reg. fees)	50.00	
Printing and mimeographing	120.00	
Mailing services and Secretary's expenses	70.00	
Rheology Bulletin (2 issues)	160.00	
Total estimated expenses	$1,510.00	
Estimated surplus	$ 50.00	

It was moved and carried that the Secretary-Treasurer's interim report and the budget for 1953 be accepted and filed.

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* In the meantime the final Financial Statement for 1952 has come to hand and is printed in abbreviated form above.

** Checking Account, Peoples Nat. Bank of Patchogue.

*** Savings Account, Peoples Nat. Bank of Patchogue.

Important items considered at the Executive Committee meeting were reviewed at the business meeting (full details are given in the Minutes of the Executive Committee Meeting). A brief summary is given here.

Two important items concern our relation to the American Institute of Physics. First, Physics Today will be sent to all members free of charge effective January 1, 1953. This action of AIP fully justifies our early faith in and support of Physics Today. Second, a change in AIP assessments has been passed by the Governing Board and Executive Committee of AIP. It has been apparent for some time that the straight percentage charge penalizes the large Member Societies. Consequently, it is proposed that the assessment be $1.00 per member or a percent charge, not to exceed 12% of dues, whichever is larger. This charge is to become effective in 1954 after an Institute Committee, of which the Secretary-Treasurer is a member, has recommended the implementation of this policy. The Executive Committee authorized the Secretary to accept the new AIP assessment in principle and so represent the Society on the above Committee.

As far as our Society is concerned the above assessment cannot be considered excessive in view of all the services rendered by AIP and the free distribution of Physics Today. However, the additional approximately $250.00 per year cannot be paid out of current income (see budget) without curtailing our essential services. The Executive Committee, therefore, recommended that the dues be raised. At the business meeting it was moved and carried that a letter ballot be sent to the membership amending the by-laws so that the dues may be raised to $5.00 in the United States and $5.50 abroad effective in 1954.*

The time and place of the 1953 Annual Meeting has been set. The meeting will be held in New York City on October 29-30, 1953.

President Spencer announced the appointment of: a Committee on Nomenclature with H. Leaderman as its chairman for 1953; a Committee on a second Viscosity Standard with W. F. Fair, Jr., as chairman; and a Committee on Publication with the Editor in the Chair.

The meeting at the Franklin Institute was an unqualified success. Attendance (about 150) was excellent with a very good turn out from the Philadelphia area largely due to the excellent publicity campaign carried on by the Franklin Institute. We added 12 new members at the meeting. F. D. Dexter informed the Secretary that a number of applications have come in since. Incidentally, the Society also came out with a balance of $9.90 for the meeting rather than the usual small deficit. It was moved and carried that President Spencer inform the Franklin Institute of the Society's appreciation for an excellent meeting with special thanks to Dr. E. Thelen, Chairman of the Arrangements Committee.

Submitted by:
G. J. Dienes, *Secretary-Treasurer*

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* This Ballot was postponed for reconsideration, in view of the favorable arrangements made in the meantime with the J.A.P. for the Rheology Issue.

THE SOCIETY OF RHEOLOGY

The officers, committee members, and representatives of The Society of Rheology for 1953 are as follow:

OFFICERS:

R. S. Spencer, *President*
W. H. Markwood, Jr., *First Vice-President*
F. D. Dexter, *Second Vice-President*
G. J. Dienes, *Secretary-Treasurer*
F. R. Eirich, *Editor*
R. N. Traxler, *Member of Executive Committee*

COMMITTEES:

Nominating Committee:
R. N. Traxler, *Chairman*
W. F. Fair, Jr.
H. K. Nason

Bingham Medal Award Committee:
R. Buchdahl, *Chairman*
T. Alfrey, Jr.
B. Maxwell
W. Prager
J. Rehner, Jr.

Program Committee:
J. H. Elliott, *Chairman*
C. E. Beyer
R. S. Marvin
E. Thelen

Rheological Nomenclature Committee:
H. Leaderman, *Chairman*
R. S. Marvin
Others to be appointed by the chairman.

Committee on a Second Viscosity Standard:
W. F. Fair, Jr., *Chairman*
A. B. Bestul
W. H. Markwood, Jr.

Membership Committee:
F. D. Dexter, *Chairman*
Others to be appointed by the chaairman.

Publicity:
W. H. Markwood, Jr.

Arrangements for Meeting, New York, 1953:
W. R. Willets

Committee on Publication:
F. R. Eirich, *Chairman*
F. D. Dexter
G. J. Dienes

REPRESENTATIVES:

Governing Board of AIP: G. J. Dienes

Assistant Secretary for West Coast: A. A. Bondi

Foreign Secretary: Dr. V. G. W. Harrison, Editor of the British Society of Rheology

AAAS Representative: R. S. Spencer

National Association of Corrosion Engineers — Inter-Society Committee on Corrosion: W. F. Fair, Jr.

ASA Committee Z 59: R. B. Dow

Representative to AIP Committee to consider member societies' contributions to AIP: G. J. Dienes

AIP Committee for 1956 Joint Meeting: W. R. Willets
Robert S. Spencer, *President*
The Society of Rheology

MEETINGS OF THE BRITISH SOCIETY OF RHEOLOGY

A symposium on the Rheology of Foodstuffs was held on December 11, 1952, at the Institute of Physics in London, under the Chairmanship of Dr. G. W. Scott Blair. The following three papers were given: S. W. Butterworth, The Relaxation of Dough; E. H. Callow, The Thawing of Frozen Meat; J. H. Prentice, The Rheology of Butter and Some Other Fats.

A Meeting and Exhibition were held at the Polytechnic, London, on January 9, 1953. Dr. J. Topping was in the Chair. The following papers were read: E. B. Atkinson, An Apparatus for Measuring Pressure-Volume Curves of Hot Plastics; E. C. Ellis and K. G. A. Pankurst, A Rotational Viscometer for Surface Films; E. W. J. Mardles, A New Standard Method of Determining Viscosity; P. Mason, A Parallel Plate Plastometer for Use with Pastes.

THE SECOND MEETING OF RHEOLOGISTS IN BERLIN, 1952

In the previous Issue, our members' attention was drawn to the above Meeting. The abstracts of the papers given at this Meeting have since been received, and the titles are quoted below:

R. Auerbach, Flow and Separation on Vibrating Supports; J. E. Coffyn, The Flow of Visco-elastic Liquids; K. Edelmann, The Influence of Molecular Weights on the Rheology of Highpolymer Solutions; H. H. Emschermann, Extension Measurements with Strain Gauges; H. Goettner and G. R. Schultze, Comparison of Grease Consistometers; B. Gross, The Distribution Functions of Relaxation and Retardation Times; F. Hoeppler, A History of Rheology, including recent Methods of Measurements; J. Kubat, Non-Maxwellian Relaxation as a Statistical Problem; W. Neudert and R. Schwaben, The Mechanics of Deformation of Phase Boundaries; M. Pasler, The Thermal Damping of Vibrating Solids; J. Pryce-Jones, Studies in Thixotropy; S. v. Schiessl, The Thickness of Oil Interfaces Between Metal Surfaces; R. Schwaben, and H. Umstatter, The Construction of Rotary Viscosimeters; O. Vaupel, Elastic Deformations and Internal Strains by the X-ray Method; G. Zeidler, Consistency Measurements in the Paint Industry.

SMALL PARTICLE STATISTICS

by G. HERDAN

Elsevier Press, 1953; 520 pages; Price $12.00

The increasing number of scientific workers and of industries who deal with disperse systems will welcome a long-needed Monograph on the Statistics of Small Particles. No

knowledge of statistics is required to read the book with benefit, and the mathematics given is illustrated by many examples and tables. The book thus becomes quite self-contained, and it will frequently not be necessary to consult other texts or the original literature. It may be added that in view of the formal and actual similarity of the size distribution functions of suspensions, pastes, or powders with those of molecular weight distributions in the case of plastomers and elastomers, the usefulness of this book applies to a very wide field indeed; it may further be judged from the following main chapters: Determination of Fineness of Solids, The Technological Importance of the Fineness of Solids, Attainment of a Specified Fineness and Homogeneity, Principles of Statistics of Coarse, Disperse Systems, Experimental Design and Experimental Errors of Particle Size Determination.

MOLECULAR THEORY OF FLUIDS

by H. S. GREEN

North-Holland Publishing Co., 1952,
Distributed in U.S.A. by Interscience; 280 pgs.; Price $5.75

Under the heading of Deformations and Flow, our readers were advised in the previous Issue of a series of Monographs on the Rheological behavior of Natural and Synthetic Products. The Second Volume of this series has now appeared and provides an account of the general properties of fluids in terms of molecular structure.

The scope of the book is different from other existing monographs. A single, simple molecular model has been used throughout, and the reader will find physical interpretations all along the mathematical arguments, which themselves are on a fairly readable level. While the presentation is systematic, many sections can be read out of context. The book will also serve well as a reference volume. There are chapters on:

Statistics of Molecular Motion, The Structure of Fluids at Rest, Condensation and the Liquid State, The Structure of Fluids in Motion, Complex Fluids and Fluid Mixtures, Equilibrium Properties, The Kinetic Theory of Fluids, The Quantum Theory of Fluids.

SOME FORTHCOMING MEETINGS OF INTEREST TO RHEOLOGISTS

Lubrication Engineers, Hotel Statler, Boston, April 13-15

Modern Physical Metallurgy, Purdue University, April 25

Thermodynamics and Gas Dynamics, Iowa State University, April 27-28

Oil Chemists' Society, Hotel Roosevelt, New Orleans, May 4-6

Acoustical Society of America, Hotel Warwick, Philadelphia, May 7-9

American Institute of Chemists, Benjamin Franklin Hotel, Philadelphia, May 12-13

Instrumentation in Industrial Waste Treatment, Manhattan College, New York, May 14

European Technicians of Paint, Varnish and Ink Industries, Noordwijk-aan-Zee, Netherlands, May 18-23

Society for Experimental Stress Analysis, Hotel Sheridan, Milwaukee, May 20-22

A.C.S. Rubber Chemistry, Spring Meeting, Hotel Statler, Boston, May 27-29

Annual Conference on Industrial Research, Columbia University, New York, June 1-5

American Leather Chemists, Hotel Netherland-Plaza, Cincinnati, June 7-10

International Conference on Electrical Acoustics, and Symposium on Sound Insulation, The Hague, Netherlands, June 16-24

International Chemical Exhibition, Paris, June 18-29

American Physical Society, Rochester, N. Y., June 18-20

Institute of Food Technologists, Boston, June 21-25

26th International Congress of Industrial Chemistry, Paris, June 21-27

American Crystallographic Association, Ann Arbor, Michigan, June 22-26

Polymer Symposium, Minneapolis, June 22-23

National Colloid Symposium, Minneapolis, June 24-26

International Congress on Glass, Venice, Italy, June 27-July 5

Second International Congress of Rheology, Oxford, England, July 26-30

International Congress of Pure and Applied Chemistry, Stockholm and Uppsala, Sweden, July 29-August 7

American Geophysical Union, Minneapolis, August 31

Briquetting Conference, Hotel Banff Springs, Canada, August 31-September 1

Chemical Plant Exhibition, Olympia, London, Sept. 3-17

A.C.S. National Meeting, Chicago, September 6-11

International Leather Chemists, Barcelona, Spain, September 6-11

American Institute of Chemical Engineers, San Francisco, September 13-16

American Association of Textile Chemists, Conrad Hilton Hotel, Chicago, September 17-19

Acoustical Society of America, Cleveland, Ohio, October 15-17

American Society for Metals, Cleveland, Ohio, October 19-23

Society of Rheology, Hotel New Yorker, New York October 29-30

Oil Chemists' Society, Fall Meeting, Hotel Sherman, Chicago, November 2-4

A.C.S. National Meeting, Kansas City, March 24-April 1, 1954

Conference on Physics of Particle Size Analysis, Institute of Physics, London, April 6-9, 1954.