

# RHEOLOGY BULLETIN

Publication of the Society of Rheology

Volume 25, No. 1

January, 1956

## 1955 ANNUAL MEETING

The Annual Meeting held in New York on November 2-4 was attended by one hundred and twenty members and guests. The interest shown in the question and answer period following the presentation of each paper and the spirited informal discussion at the Social Evening and Smoker indicate that this was one of our most successful meetings.

The Society is indebted to Dr. A. B. Bestul and his committee for the organization of a well rounded technical program. In accordance with the desire to have all fields of rheology represented papers ranging from the earth sciences to the flow of synovial fluid were included. The cross fertilization afforded by this bringing together of diverse interest in the flow and deformation of matter should be an important stimulus to our members.

At the dinner meeting the presentation of the 1955 Bingham Award to Dr. Herbert Leaderman was made by Dr. John D. Ferry. In making the presentation Dr. Ferry reviewed Dr. Leaderman's research and writings in the field of rheology and his work in preparing and promoting an international standard of nomenclature of rheology.

At the business meeting several problems currently facing the Society were discussed. A report on this meeting will be found elsewhere in this Bulletin. The membership is asked to study this report carefully and to communicate to the appropriate committee chairmen any suggestions they may have regarding the various topics under consideration.

## SYMPOSIUM ON THE RHEOLOGY OF POLYMERS

At the 25th Anniversary Meeting of the American Institute of Physics in New York on Friday, February 3, 1956, a joint symposium sponsored by the Society of Rheology and the American Physical Society Division of High Polymer Physics will be presented. The program is as follows:

### FRIDAY MORNING

1. "Viscoelastic Properties of Crystalline and Amorphous Polymers". A. V. Tobolsky, Princeton University. (30 min.)

2. "The Normal Coordinate Treatment of Relaxation Processes in Polymers", Bruno H. Zimm, General Electric Company. (40 min.)
3. "Mechanical Relaxation Spectra and Friction Coefficients and Their Dependence on Polymer Structure". John D. Ferry, University of Wisconsin. (30 min.)
4. "Stress Relaxation in Concentrated Solutions of Poly-methyl-methacrylate. Molecular Weight Dependence". John M. Watkins, E. I. duPont de Nemours & Company. (30 min.)

### FRIDAY AFTERNOON

5. "The Numerical Inversion of Relaxation Data to Distribution Functions of Relaxation Times". Paul J. Blatz, Aerojet-General Corporation. (30 min.)
6. "Some remarks on the Normal Stress Effect". R. S. Rivlin, Brown University. (30 min.)
7. "The non-Newtonian Rheology of Raw Rubber". M. Mooney, United States Rubber Company. (30 min.)
8. "Stress Analysis in Viscoelastic Materials", E. H. Lee, Brown University, (30 min.)

## INTERIM REPORT OF SECRETARY-TREASURER

### 1. FINANCIAL STATEMENT

The financial statement as estimated for 1955 together with the proposed budget for 1956 is given below.

### 2. ELECTION OF OFFICERS

In accordance with instructions from the Nominating Committee, the Secretary-Treasurer had ballots prepared and submitted to the membership. Ballots have been returned to his office and were turned over to the Election Committee appointed by the president at the time of the Executive Committee Meeting (November 2, 1955).

The new officers elected were reported to the Annual Business Meeting.

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## RHEOLOGY BULLETIN

Bryce Maxwell, Editor  
The Princeton University  
Plastics Laboratory  
Princeton, New Jersey

### 3. MEMBERSHIP

Membership now stands at approximately 400. Members who were still delinquent as of July 1st after receiving three notices for dues were dropped from the Roster. Applications received after September 1st were (according to the By-Laws) applied to 1956.

Dr. J. H. Dillon, Membership Chairman, and his staff, with the cooperation of the A.I.P. Staff prepared and circulated to all the members the Society Roster as of July 25, 1955.

### 4. PUBLICATIONS

An issue of the Rheology Bulletin was distributed late last year following the Annual Meeting, the 1955 Spring Issue early in the summer and the pre-meeting issue in October.

The papers presented at the 1954 Annual Meeting were published in Volume 26, No. 7 of the Journal of Applied Physics (July 1955) and in Volume II, No. 7 of the Journal of the Society of Plastics Engineers (September 1955). This involved considerable extra expense to our Society and a great deal of extra work on the part of the Editor, Dr. Eirich.

### 5. CORRESPONDENCE, ETC.

All correspondence, membership applications and the like have been handled as expeditiously as possible. Information coming to the Secretary-Treasurer regarding meetings and publications is referred regularly to the Editor so that he may include whatever he deems suitable in issues of the Rheology Bulletin.

### 6. RELATIONS WITH AIP

The past and present Secretary-Treasurers were proxies to the annual meeting of the American Institute of Physics in February. The President as a member of the Governing Board of A.I.P. attended meetings of the Board. As noted in the Rheology Bulletin (Volume 24 No. 2, Fall 1955) there will be a joint meeting with the A.I.P. in January at which a number of authors will present papers which normally would have been presented at our 1955 meeting.

Our accounts are being kept and all monies received and disbursed by the American Institute of Physics which submits quarterly reports. The Staff of A.I.P. has continued

to be most helpful and again the Secretary-Treasurer wishes to make his appreciation a part of this record.

### 7. ACKNOWLEDGMENTS

The Secretary-Treasurer wishes to express his appreciation for the help given by various officers and committee chairmen and especially to those who supplied written reports for inclusion as appendices to the Agenda for the Executive Committee meeting.

Respectfully Submitted:

William R. Willets

Secretary Treasurer

## SOCIETY OF RHEOLOGY

### Estimated Abridged Financial Statements

#### For 1955 and 1956 Including 1956 Budget

Total Cash on Hand January 1, 1955.....	\$4,013.50
Income to October 1, 1955 .....	586.57

<b>TOTAL .....</b>	<b>\$4,600.07</b>
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Disbursements to October 1, 1955 .....	\$ 987.52
Estimated Expenses Oct. 1-Dec. 30, 1955 .....	513.92
Bingham & Memoirs — Cash .....	218.91

<b>TOTAL .....</b>	<b>\$1,720.35</b>
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Estimated Balance January 1, 1956.....	\$2,879.72
Estimated 1956 Income (incl. 1956 dues)	1,600.00

<b>TOTAL .....</b>	<b>\$4,479.72</b>
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#### ESTIMATED EXPENSES FOR 1956

AIP Assessment .....	\$ 170.00
AIP Member Service Charge .....	110.00
Misc. AIP Charges (Mailing etc.) .....	100.00
Publication Costs J.A.P. ....	600.00
Membership Committee .....	100.00
Rheology Bulletin .....	350.00
Misc. Printing and Duplication .....	150.00
Misc. Expenses Secretary-Treasurer .....	70.00
Meeting Expenses .....	70.00

#### TOTAL BUDGETED

EXPENSES 1956 .....	\$1,720.00
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#### Estimated Available Cash Balance

January 1, 1957 .....	\$2,759.72
Bingham Fund (incl. G Bonds) .....	863.95
Rheological Memoirs Fund .....	81.21

Estimated Total Assets January 1, 1957 .....	\$3,704.90
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## MINUTES

### Business Meeting of Society of Rheology

Hotel Henry Hudson, New York City

November 3, 1955

The meeting was called to order by the President, W. H. Markwood, Jr. at 4:45 P.M. The Minutes of the last Business Meeting as reported in The Rheology Bulletin, Volume 23, No. 3, December 1954, were unanimously approved. The interim report of the Secretary-Treasurer, together with abridged financial statements and the proposed budget for 1956 was presented and unanimously accepted.

The President announced that the next meeting would be held at the Mellon Institute, Pittsburgh, Penn. November 7-9.

The President reported on problems being encountered in the publication of papers presented at Annual Meetings. As noted in the Interim Report of the Secretary-Treasurer publication of the 1954 Meeting Papers was distributed between two journals at considerable expense above that originally estimated. The Journal of Applied Physics only allots our Society 60 pages for publishing the Annual Meeting papers and requirements exceeded this by a wide margin this year and undoubtedly will also do so for the papers presented at the 1955 meeting which will be published in 1956. This problem will be considered by a special "task committee" to be appointed which will report to the Executive Committee early next year.

An analogous problem having to do with the presentation of papers at the Annual Meetings was also discussed. In past years an attempt has been made to give each author sufficient time for a full presentation of his paper and a complete discussion and answer period following. Since the Society is expanding, and far more authors wish to present papers, the alternatives for two meetings per annum, a longer single annual meeting, or concurrent sessions at an annual meeting were discussed, with the possibility also of actually limiting the program by carefully selecting the papers to be presented in a given time and rejecting the rest. It was also suggested that papers be abstracted at the meeting and presented in five or ten minutes followed by a discussion. The possibility of pre-printing papers was also discussed but the President pointed out that this would be far beyond the finances of the Society. Mr. F. D. Dexter also commented that such preprints were frequently considered as "publication" and therefore some journals might not publish a preprinted paper. This problem will also be referred to a "task committee".

In addition to the two problems referred to above, a "task committee" will also be appointed to study the present Constitution and By-Laws and suggest ways for

better operation of the Society, which task committee will also report to the Executive Committee in March.

Dr. Herbert Leaderman, Chairman, Committee on Nomenclature, discussed the work of his Committee and noted that a new report on nomenclature for viscoelastic behavior was prepared and circulated in August 1955 to members of his Committee and to about 40 other rheologists both here and abroad. The Committee was requested to complete the questionnaire submitted and comments from the others were also solicited. The replies to date have been encouraging. A committee of the Dutch Rheological Society is working on a similar problem and plans to issue a report which will be similar to that submitted by our Committee. A final report will be available in a few months. Anyone interested should communicate with Dr. Leaderman.

Dr. Alden Bestul reviewed last year's recommendations on a Second Viscosity Standard. A project has been set up at the National Bureau of Standards dealing with this and interested individuals should communicate with Dr. Bestul. Dr. M. Roth discussed the need for a dynamic viscosity standard.

At this point the President introduced Dr. Masatami Takada a member of the Japanese Rheology Society, who is a visiting scientist at the University of Illinois.

Dr. Ralph Traxler, Chairman of the Election Committee made his report.

President: F. D. Dexter

First Vice-President: J. H. Dillon

Second Vice-President: John H. Elliott

Editor: Bryce Maxwell

Secretary-Treasurer: W. R. Willets

The retiring President, W. H. Markwood, Jr. turned the chair over to the incoming president. Mr. Dexter reviewed the plans for considering the various problems facing the Society and announced he would shortly appoint the "task committees" to report to the Executive Committee in March.

The President suggested that all suggestions relating to policies of publication, meetings, program, reorganization and the like be submitted in writing to either himself or the Secretary-Treasurer so as to be channelled to the "task committee" handling the matter.

Dr. Robert Marvin discussed the Joint Symposium on the Rheology of High Polymers to be conducted at the Annual Meeting of the American Institute of Physics by the High Polymer Physics Division of the American Physical Society and the Society of Rheology. This symposium will be held February 3, 1956 and appropriate publicity will be given.

Mr. W. H. Markwood, Jr. reported on the joint symposium sponsored by our Society and Sub-Committee 9 of ASTM Committee E-1 to be held during the Annual ASTM Meeting during June, 1956.

A unanimous vote of thanks was tendered Mr. P. C. Alford, Jr. of the Textile Research Institute for making the local arrangements for the 1955 Annual Meeting.

The meeting was adjourned at 5:25 P.M.

Respectfully submitted:

Henry J. Karam, Recorder

William R. Willets, Secretary-Treasurer

## SPECIAL TASK COMMITTEES

As mentioned in the minutes of the business meeting three very pressing problems confront the Society. The President has appointed committees to study these problems and to prepare recommendations for presentation at the Executive Committee meeting in March.

### PUBLICATIONS

In view of the increasing number of papers presented at the Annual Meeting it is not possible to publish all of them in the Rheology Issue of the Journal of Applied Physics. The following committee will consider this problem with the objective of establishing a long range solution.

Dr. F. R. Eirich, Chairman

Dr. L. E. Nielson

Dr. A. Bestul

### MEETINGS

The meeting programs of our Society has become the subject of some controversy. With the growth of interest in Rheology more papers of excellent quality have been submitted for the programs than can be accommodated under the present system. The basic questions are: How many papers? How many sessions? How long a meeting or more than one yearly meeting? The following committee has been designated to establish policy in this matter.

Mr. J. T. Bergen, Chairman

Dr. R. Buchdahl

Dr. E. R. Fitzgerald

Mr. E. Thelan

### CONSTITUTION

At the meeting of the Executive Committee several inadequacies in our Constitution and By-Laws were dis-

cussed. Of particular importance are the rules under which the nominations for officers are selected. The following committee has been appointed to study this problem as well as other areas in which the Constitution and By-Laws may be obsolete.

Dr. W. F. Fair, Jr., Chairman

Dr. R. S. Marvin

Dr. M. Mooney

Dr. R. S. Spencer

## STANDING COMMITTEES

The composition of the Standing Committees for 1956 is as follows:

Publicity—Dr. J. H. Dusenbury, Chairman

Nomenclature—Dr. Herbert Leaderman, Chairman

Second Viscosity Standard—Dr. A. B. Bestul, Chairman

Membership—Dr. J. H. Dillon, Chairman

Arrangements—Dr. H. Markovitz, Chairman

R. M. Arnold

W. C. Teach

N. M. Brandt

L. Epstein

N. Weber

Program—Dr. J. T. Tordella, Chairman

Bingham Award—Dr. W. F. Busse, Chairman

## 1956 PUBLICATION PLANS

Once again the number of papers presented at the Annual Meeting requires that additional space be found for publication. We are fortunate this year in having Dr. Leaderman as Associate Editor of the Society. He has very kindly taken on the job of editing the papers and making publication arrangements.

At the moment it is planned to publish as many papers as space will permit in the Rheology Issue of the Journal of Applied Physics. Through the kindness of Dr. Herman Mark arrangements are in process for publication of four or five of the papers presented dealing with polymers as a group in the Journal of Polymer Science. If arrangements can be made and if the budget can stand it, we hope to supply the membership with reprints of this group of papers.