

## THE CONSTITUTION

The special task committee on the Constitution consisting of W. F. Fair, Chairman, R. S. Marvin, M. Mooney and R. S. Spencer met on January 20, 1956 and prepared recommendations for revisions in the Constitution and By-Laws of the Society. A number of important amendments were incorporated in these revisions.

The growth of the Society and addition of new responsibilities necessitated this complete review of the rules under which the Society operates. Certain specific developments could be postulated which would leave the Society inoperable under the old Constitution. For example if some unforeseen circumstance postponed the Annual Meeting and election beyond the 31st of December the Society would be without an Executive Committee and officers.

After further study and some additional revision the recommendations of the special task committee were accepted by the Executive Committee.

A copy of the new Constitution and By-Laws, together with the present constitution and a letter ballot have been mailed to the membership. It is hoped that each member will study both documents with great care and return their ballots to the Secretary at their earliest convenience. As provided by the present Constitution, the votes on the amendments shall be canvassed within ninety days of their origin and said amendments shall become effective immediately upon certification of approval by the Secretary to the Executive Committee.

## PUBLICATION OF RHEOLOGY PAPERS

The Special Issue on Rheology of the Journal of Applied Physics was published in May and distributed to the members. Nine of the papers presented at the 1955 Annual Meeting in New York were included in this issue. These papers were arranged for publication and edited by Dr. H. Leaderman, the Associate Editor of the Society. Through his efforts and the cooperation of the editorial staff of the Journal of Applied Physics early publication of these papers was achieved.

## FUTURE PLANS

The publication of Rheology papers is becoming an increasingly difficult and expensive proposition. A special task committee consisting of F. R. Eirich, Chairman, L. C. Nielson and A. Bestul was appointed by the President

to study our future publication needs and to make recommendations. This committee met on February 4th and prepared a memorandum on this subject for consideration by the Executive Committee.

It is becoming evident that the present method of handling the publication of papers presented before the Society has some undesirable features. The publication of papers in host journals deprives the Society of some prestige. In addition a limit not only in the number of pages, but also in the nature of the papers to be published is imposed. Although host journals quite rightly have the privilege of deciding what fields of interest should be included in their issues the desire of the Society to embrace all disciplines of natural and engineering sciences is counteracted by this policy. On the other hand the use of host journals has the positive advantage in that rheology papers will thereby reach a circle of subscribers which a journal of our own might not cover.

Consideration has been given to the question of whether a direct channel of publication by the Society, outside the Bulletin, was desirable. Several alternatives have been studied. Publication of a regularly appearing journal by an individual society has been found to be a hazardous business. For example the reviving of the Journal of Rheology would require funds considerably beyond the present capacity of the Society. In addition editorial assistance without pay, would be needed from approximately five or six experienced rheologists to organize the material and to keep the publication coming out on time. In view of the above this idea has been discarded.

Through the efforts of Dr. Eirich an attractive offer has been received from Interscience Publishers. In essence they have made the following proposal.

At the financial responsibility of Interscience Publishers they will publish annually in letterpress copies of a Transactions of the Society of Rheology. This would be a volume of approximately 200 pages containing the papers and discussion given at the Annual Meeting. The volume would be paper bound and similar in size, style and design to the Journal of Polymer Science. A minimum of 1500 copies would be prepared of each volume.

For the amount of \$1000.00 Interscience would provide copies for the approximately 400 members of the Society. Twenty-five free reprints of their articles would be provided to each author and additional reprints would be available at standard rates.

The remaining copies of the Transactions would be

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

sold by Interscience on the open market at a price they would fix.

This offer would appear to solve many of the Society's problems. The cost of \$1000.00 to the Society is not much above that which we paid in 1955 for publication in host journals.

In order to obtain a general reaction to this proposal the membership will be canvassed and in addition the opinions of the authors of all papers presented in the last five years will be solicited. The Executive Committee requests careful consideration by the membership in this vote. Once such a plan as this publication is undertaken retraction or change would be annoying and embarrassing.

If we go ahead with this plan the Executive Committee will study the details of the contractual agreement and of course seek the advice of counsel.

### SYMPOSIUM ON RHEOLOGICAL PROBLEMS

The Society of Rheology and ASTM Committee E-1 jointly sponsored a presentation of papers and informal talks on various complex rheological problems at the ASTM Annual Meeting at Haddon Hall, Atlantic City, 9:30 a.m. Friday, June 22, 1956. The program included the following papers.

*Dynamic Viscosity and Shear Modulus of Molten Polystyrene as a Function of Molecular Weight.*

W. P. Cox, L. E. Nielsen, and R. Keeney, Monsanto Chemical Co.

The dynamic mechanical properties of molten polystyrene have been investigated in a new concentric cylinder elastoviscometer. Polystyrene fractions of weight average molecular weight ranging from 240,000 to 1,130,000 were studied in the temperature range of 150 to 220C and the frequency range of 0.02 to 5 cps. Data obtained at different temperatures with a given fraction could be reduced to a single composite curve of dynamic viscosity (or rigidity) versus frequency using the reduced variables of Ferry.

*Stress-Strain Relations in Soils. Plastic and Frictional.*  
D. C. Drucker, Brown University.

The term soil mechanics would seem to imply a mathematical formulation of the problem and of the basic equations to be used in the solution of such problems. The most essential equations would be the relations

between stress and strain or between strain increments and stress increments. It is the purpose of the paper to explore the stress-strain relations for soil in greater detail. *Rheology of Asphalts.* W. Philippoff, Franklin Institute

The asphalts are viscoelastic bodies or non-Newtonian liquids, the properties of which vary extremely with a change in temperature. Dynamic tests could be correlated in a large range by using the method of reduced variables. The instruments used in the investigations are described as well as the results on eleven asphalts chosen to give a general survey of the commercial grades.

*The Impact-Absorbing Capacity of Textile Yarns.* J. C. Smith, F. L. McCrackin, and H. F. Schiefer, National Bureau of Standards.

The limiting breaking energy density, or energy per gram of yarn required for an immediate impact break, is suggested as a suitable parameter for characterizing this impact-absorbing property. Several methods for measuring limiting breaking energy density are described. Typical data, including stress-strain curves obtained at high rates of straining (5000 per cent per sec) are given for several high-tenacity textile yarns.

*The Characterization of Pressure-Sensitive Adhesives.* F. H. Wetzel, Hercules Powder Co.

Quantitative methods for a study of factors effecting pressure-sensitive adhesion have been developed. (1) Tack is determined as a surface property that defines the instantaneous adhesiveness of the tackifying resin-elastomer mass. (2) Yield stress of free films reflects internal strength or cohesion. (3) A study of viscosity affords a scale for comparison of long-term flow. These methods are useful in studying pressure-sensitive adhesion as a function of concentration of tackifying resin in pure rubber as well as the effects of accelerated aging.

*A New Coal Plastometer.* D. C. Hills, Citizens Gas & Coke Utility.

*Photographic Method for Sharpening Isochromatic Photoelastic Patterns.* R. R. Myers, Lehigh University.

*Stresses and Strains in the Shaping of Metal Tubes.* E. T. Onat, and W. Prager, Brown University.

### AMERICAN INSTITUTE OF PHYSICS

#### EXTRACTS FROM MINUTES OF MEETINGS OF MARCH 23 AND 24, 1956

The Executive Committee and Governing Board met at the Institute building, 57 East 55th Street, New York 22, New York on March 23 and 24 respectively. The Director announced that Mr. Eugene Kone has been employed to head the AIP Office of Information and Public Relations. In addition to publicity for Society meetings this office will also handle other phases of public relations for the Institute. In order to increase public understanding of developments in physics authors of papers of general

interest will from time to time be asked to prepare accurate lay translations of the subject matter covered. This should mean that any version which is finally published in the papers will be closer to the truth than if it were interpreted by someone else.

The firm of A. T. Kearney and Company has been retained to conduct a management survey of several Institute operations. Improvements in the accuracy and efficiency of cost accounting procedures and methods of distributing charges and handling subscriptions are hoped for from this study.

The Institute housing problem has finally been solved with approval by the Governing Board of the sale of the property at 57 East 55th Street and the purchase of a new headquarters at 335 East 45th Street. This new property is located about 150 feet from the United Nations Plaza. The building is 56 feet by 100 feet, has a basement and three stories of that size and a fourth floor approximately 56 feet by 80 feet. A committee has been appointed to complete the transactions involved in purchasing this property and the sale of the present headquarters and to make such contracts as are necessary for remodeling the new property for occupancy by the Institute.

The Society of Exploration Geophysicists has petitioned the A.I.P. for membership. The Governing Board has passed a resolution nominating the S.E.G. for consideration by the member societies as a new member society. This makes the first time since the beginning of the Institute in 1931 that such a petition has been received.

The Institute is now publishing "Soviet Physics—JETP" under a grant from the National Science Foundation. Indications are that the Russian journal will be expanded substantially in 1956 and it will be necessary to request a larger grant from NSF. The National Science Foundation has urged the Institute to undertake publication of translations of four additional Soviet Journals; Journal of Technical Physics, Physics sections of Doklady, the new Soviet Acoustics Journal and the new Soviet Atomic Energy Journal. The Institute staff has been authorized to proceed with negotiations with the NSF on this subject.

On the occasion of the retirement of George B. Pegram as Treasurer of the Institute, the Governing Board passed a resolution regarding the Institute's indebtedness to Mr. Pegram for his unparalleled contribution toward the original establishment and subsequent management of the Institute over a period of twenty five years.

## 1956 MEETING PLANS

Preparations for the Annual Meeting at the Mellon Institute in Pittsburgh are moving along well. Tentative plans call for sessions starting at approximately 10 a.m. Wednesday, November 7th and continuing until Friday afternoon, November 9th. Consideration is being given to the possibility of cutting the Friday afternoon session short and adjourning at about 1 p.m. without a luncheon break to enable members to make travel connections. In view of the outstanding facilities of the Mellon Institute

the success of this meeting is assured.

The Webster Hall will be the meeting hotel. Since the Schenely has been purchased by the University of Pittsburgh, Webster Hall is the only hotel in the area and members are advised to make their reservations as early as possible.

Preparation for the Annual Meeting are being made under suggested principles prepared by the Executive Committee from the report of the ad-hoc meetings committee composed of J. T. Bergen, Chairman, R. Buchdahl, E. R. Fitzgerald and E. Thelan.

The distribution of subject matter at previous meetings was felt to be satisfactory although more attention might be given to the practical phases of rheology to increase membership interest and attendance. There should be a limit on the number of invited papers of a general or review nature. This limit should be at the discretion of the Program Committee. In general a thirty minute limit for introduction, presentation and discussion of each paper be adhered to with perhaps stricter enforcement of time limits. Every effort should be made to induce speakers to enunciate clearly and present data so that it can be seen by everyone present. If the number of papers warrant, simultaneous sessions may be held.

Selection of papers, preprint problems and refereeing decisions are in the hands of the Program Committee.

A symposium concerning unexpected effects accompanying flow of viscoelastic liquids at high shear rates is anticipated. Members of the Society and nonmembers as well are invited to submit papers in this and other fields of rheology.

Contributions should be sent to one of the members of the Program Committee. They are:

Dr. J. T. Bergen  
Armstrong Cork Co.  
Research Laboratory  
Lancaster, Pennsylvania  
Mr. A. A. Bondi  
Shell Development Company  
4560 Horton Street  
Emeryville, California  
Mr. R. E. Colwell  
Research Division  
Monsanto Chemical Company  
100 Monsanto Avenue  
Springfield 2, Massachusetts  
Dr. R. R. Meyers  
Lehigh University  
Bethlehem, Pennsylvania  
Dr. Thor L. Smith  
Jet Propulsion Laboratory  
4800 Oak Grove Drive  
Pasadena 3, California  
Dr. J. P. Tordella  
DuPont Experimental Station  
Wilmington 98, Delaware  
(Chairman)

A short description of the field of interest to be covered in a paper should be submitted as soon as possible so that a tentative program can be made up. The deadline for submission of abstracts is September 1; for manuscripts, October 1, 1956.

Arrangements for the meeting are under the Chairmanship of Dr. H. Markovitz. A social evening "smoker", after the fashion that the Society has found so pleasant in the past, at which the only business is the presentation of the Bingham medal is planned as the best means of encouraging members to meet each other. Symposia or organized discussion at the "smoker" seem undesirable although brief entertainment might be suitable. A formal banquet does not seem either desirable or necessary.

## INTERNATIONAL RELATIONS

Mr. N. Wookey, the Honorable Secretary of the British Society of Rheology, has suggested that all national rheological societies include on their mailing list all the other rheological societies. By this means each society will be kept informed of the activities throughout the world, while avoiding currency difficulties which have arisen in the past by having each secretary join the other national societies.

The Executive Committee has endorsed this proposal and adopted this plan. For the convenience of members traveling abroad or wishing to communicate with the other nation societies the following list of names and addresses of Secretaries is supplied.

Mr. N. Wookey

The British Society of Rheology  
52 Tavistock Road  
Edgware, Middlesex, England

Prof. H. Weiss

Office National de Universities et Ecoles Francaises  
96 Boulevard Raspail, Paris VIE, France

Prof. B. Tamamushi

University of Tokyo  
865 Komabamachi, Megoroku, Tokyo, Japan

Prof. H. Kroepelin

Deutsche Rheologen-Vereinigung  
Fasanenstr 3, Braunschweig, Germany

Dr. H. Umstatter

Deutsche Rheologen Gessellschaft  
Berlin-Dahlem, Unter deu Eichen, 87 Germany

Dr. R. N. J. Saal

Kon/Shell-Laboratorium  
Amsterdam, Holland

## SOCIETY OF RHEOLOGY

### Statement of Financial Condition

### December 31, 1955

Cash on hand, January 1, 1955 .....				\$ 4,013.50
Receipts:				
Dues (\$588.40 for 1955; \$1,182.85 for 1956) .....			\$ 1,771.25	
Interest on G bonds .....			17.50	
Net income—sales of "Journal of Rheology" ....			7.63	
Meeting:				
Registration fees .....	\$ 156.00			
Sale of banquet tickets	245.00	401.00	2,197.38	
				\$ 6,210.88
Disbursements year ended December 31, 1955:				
Contribution to A. I. P. ....			\$ 167.24	
Publication expense—September issue of Journal of Applied Physics .....	\$ 498.75			
September SPE Journal	227.83	726.58		
Bulletins:				
Printing .....	\$ 253.38			
Addressograph plates ....	10.14			
Secretarial help .....	15.00	278.52		
Meeting expense:				
Banquet .....	\$ 320.50			
Printing tickets .....	8.50			
Miscellaneous .....	11.33	340.33		
Dues .....			11.48	
Secretary-Treasurer's office:				
Election of Officers .....	\$ 31.56			
Directory .....	37.10			
Printing membership cards .....	6.70			
Dues collection (A. I. P. charges) .....	118.16			
Miscellaneous .....	15.00	208.52		
Bingham Medal .....		6.39	1,739.06	
Cash on hand, December 31, 1955 .....				\$ 4,471.82
Bingham Fund:				
U. S. Government Series G bonds .....				\$ 700.00