

New Constitution

THE
BRITISH SOCIETY
OF RHEOLOGY

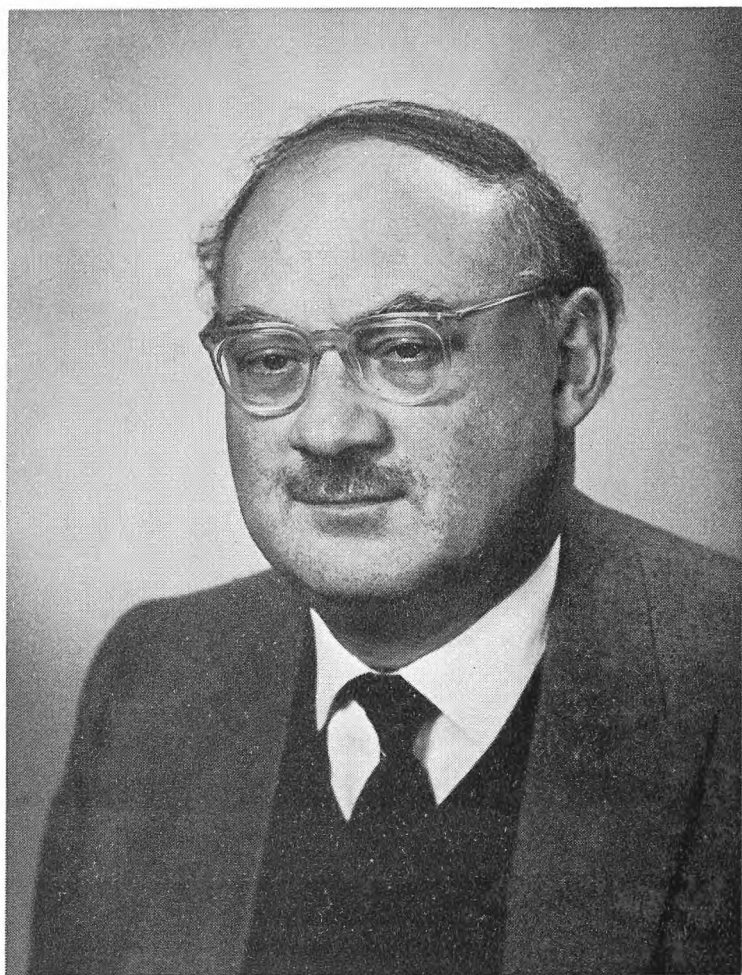
BULLETIN — No. 4, 1966

Hon. Secretary :

DR. B. S. NEUMANN,
Fullers' Earth Union Ltd.,
Nutfield Road,
Redhill, Surrey.

Hon. Editor (Bulletin) :

DR. D. W. HADLEY,
J. J. Thomson Physical Laboratory,
Whiteknights,
Reading, Berks.



THE PRESIDENT 1966-68
Professor Arthur Charlesby

COUNCIL 1966-67

- President:* PROFESSOR A. CHARLESBY, D.SC., PH.D., A.R.C.S., F.INST.P., Physics Dept., Royal Military College of Science, Shrivenham, Swindon, Wiltshire.
- Hon. Secretary:* BARBARA S. NEUMANN, PH.D., Fullers' Earth Union Ltd., Nutfield Road, Redhill, Surrey.
- Hon. Treasurer:* R. J. COLE, B.SC., C.ENG., F.R.I.C., A.M.I.CHEM.E., Paint Research Station, Waldegrave Road, Teddington, Middlesex.
- Hon. Membership Secretary:* K. WALTERS, M.SC., PH.D., Dept. of Applied Mathematics, University College of Wales, Pen-glais, Aberystwyth.
- Hon. Editor (Abstracts):* B. WARBURTON, B.A., School of Pharmacy, University of London, Brunswick Square, London, W.C.1.
- Hon. Editor (Bulletin):* D. W. HADLEY, PH.D., A.INST.P., J. J. Thomson Physical Laboratory, University of Reading, Whiteknights, Reading, Berkshire.
- Ordinary Members of Council:* M. F. CULPIN, B.SC., PH.D., F.INST.P., I.C.I. Fibres Ltd., Pontypool, Monmouthshire.
- A. GRAHAM, M.SC., D.I.C., Rheology Section, National Gas Turbine Establishment, Pyestock, Farnborough, Hampshire.
- A. T. J. HAYWARD, M.SC.(ENG.), A.M.I.MECH.E., F.INST.PET., Fluids Group, National Engineering Laboratory, East Kilbride, Glasgow.
- C. C. MILL, M.SC., A.INST.P., P.A.T.R.A., Randalls Road, Leatherhead, Surrey.
- G. H. TATTERSALL, M.SC., PH.D., F.INST.P., Dept. of Building Science, The University, Sheffield.
- R. W. WHORLOW, B.SC., A.R.C.S., A.INST.P., Battersea College of Technology, London, S.W.11.

CHANGES IN COUNCIL MEMBERSHIP

Professor A. J. Kennedy retired as President of the Society in September 1966. Amongst the features of his term of office were two notable events in the history of the Society, for which he provided both the original suggestions and much of the later detailed planning. These events were, of course, the Markus Reiner Dinner and the design of a B.S.R. emblem. We wish Professor Kennedy well in his new post of Director of The Non-Ferrous Metals Research Association.

The Society is indeed fortunate to have as its new President Professor Arthur Charlesby, of the Royal Military College of Science. Professor Charlesby, who has been a member of the Society since 1960, was one of the founders of the British Polymer Physics Group. His work on irradiation of polymers is well known and his mono-

graphs on this subject, and on radiation induced solid state polymerization are standard works.

Only a terse summary of his distinguished career is possible in the short space available:

CHARLESBY, ARTHUR. Professor of Physics, Head of Physics Department, R.M.C.S., Shrivenham, Nr. Swindon, Wilts. B.Sc.; 1937 Ph.D.; D.I.C. 1937-39, D.Sc. 1954 (Lond.) (Imp. Coll.): F.Inst.P.; F.Phys.S.; Member of Association for Radiation Research. Previously Scientific Adviser A.O. C.-in-C., R.A.F., Germany; Radiation Group, Metallurgy Division, A.E.R.E., Harwell; Radiation Department, T.I. Research Laboratories, Hinxton Hall, Nr. Cambridge. Editor: Series on Radiation Effects on Materials. Books and Sections: Atomic Radiation of Polymers. Fracture Processes in Polymeric Solids. Struktur und Physikalisches Verhalten der Kunststoffe. Effets des Rayonnements de Grande Energie sur les Polymeres. Reports in Progress of Physics. Numerous papers in Proceedings of the Royal Society, Proceedings of the Physical Society, London, Journal of Polymer Science, International Journal of Radiation Biology, etc. Main interests are: Properties of polymeric systems, radiation effects in polymers, radiation protection, radiation chemistry, comparison of radiation effects in polymeric and biological macromolecules; growth of oxide films on metals, electron diffraction. Non-scientific interests: Travel, operatic music, photography.

This summary omits, however, to mention his very characteristic friendliness and good humour; traits which will certainly become evident to members during the next two years.

Reginald Cole has been forced by pressure of work to relinquish the arduous task of Hon. Secretary. His services are not, however, lost to the Society, since he has taken over the only slightly less arduous post of Hon. Treasurer. During the past few years the Society has grown in size, extended its contacts with other scientific societies in Britain, and has established liaison with rheological organizations overseas. All these undertakings benefit the Society as a whole and its members as individuals, but necessarily entail additional responsibilities on the Hon. Secretary.

Undeterred by knowledge of the amount of work involved Dr. Barbara Neumann accepted nomination, and was duly elected, as Hon. Secretary. A member of the Society since 1947, and a Research Chemist (section leader) at Fullers' Earth Union Ltd., she has previous experience as a member of the Executive Committee. Dr. Neumann's rheological interests are well known to those present at the Nottingham Conference on Powders and Granular Solids, at which she presented the introductory survey paper.

G. K. Jones, who has retired as Hon. Treasurer, can look back with pleasure to the improved state of the Society's finances during his tenure of office. He was associated with the successful move to obtain for the Society a share of the profits arising from Rheology

Abstracts, and was responsible for redrafting the Constitution so that the Society may become a registered charity, thereby escaping the burden of taxation on the profits mentioned above.

John Hutton retired from the Executive Committee in September after giving years of valuable service to the Society. He is a former Editor of the Bulletin, and recently had acted as Chairman of Committee on occasions when the President was absent. His place on Council has been filled by the election of A. Graham, a member of the Society since 1949, and a frequent attender of its conferences. Mr. Graham is head of the Rheology Section at N.G.T.E., and is one of the few members of the Society concerned primarily with metals. It would be incorrect, however, to refer to him as a metallurgist, since his interests lie in attempting to determine a unified description of rheological behaviour for all materials.

Each extension of the Society's activities, whether it be arranging conferences, setting up working committees or improving publications, involves extra administrative effort, all of it voluntary and unpaid. It would seem appropriate, therefore, for members to thank those who have just retired from office, applaud those who have just taken on their responsibilities, and express gratitude to all those who spare so much time on the Society's behalf.

BRITISH SOCIETY OF RHEOLOGY—REPORT OF THE HONORARY SECRETARY 1965-66

I am pleased to be able again to report a year of continuing growth of your Society.

- I. *Finance.* The financial situation has remained fairly healthy, but under current economic conditions one cannot be complacent and finance must continue to receive the vigilance of your Executive Committee. Savings of tax by registration of the Society as a Charitable Institution seems to your Committee to be clearly desirable although (without anticipating any immediate increase in subscription), it is also asking for a little more freedom to manoeuvre subscription level.

It should perhaps be pointed out that through the profit-sharing arrangement your Committee negotiated last year with Pergamon Press, the Society stands to profit not only by non-member subscription to Rheology Abstracts but also by advertisement revenue. The attention of members is called to the conditions of membership as regards the Society's publication (see membership below) and to the fact that members' affiliations can help by utilising the advertisement facilities of both Rheology Abstracts and the Bulletin.

II. *Constitution.* Your Executive Committee has given much consideration during the year to the form of the Constitution of the Society and has been legally advised. An Amended Constitution has been drafted and an appropriate Resolution will be before the Annual General Meeting. Your Committee is pleased to be able to report that it has been advised that if this Amended Constitution is approved by the Annual General Meeting, registration of the Society as a Charitable Institution will most probably follow almost automatically. The Committee therefore recommends your acceptance of the Amended Constitution.

III. *Membership.* At August 1st the total membership of the Society stood at 462.

In the Amended Constitution, provision is made for an Entrance Fee payable by applicants for election to membership. This change is aimed to remove certain anomalies found in practice.

A new form of membership application form came into use during the year on which applicants for membership are now asked to accept that the Society's Journals are supplied for their personal use and to undertake not to pass them to a library. All members will eventually be asked to give a similar undertaking. The matter is of importance to the Society's finances as already mentioned above (Non-member subscription to Rheology Abstract is £10 per annum of which the Society derives a share income).

A new Register of members in improved format was issued during the year.

IV. *Research Committee.* Your Executive Committee has approved the separate Report of the Research Committee.

The Amended Constitution provides for the recognition and governing of the Research Committee.

V. *Meetings Held.*

- (a) Chemistry and Rheology of Water Soluble Gums and Colloids—Joint meeting with the S.C.I.—Colloid and Surface Chemistry Group—London—March 28th 1966. Attendance about 200.
- (b) Non-Newtonian Behaviour in Elastohydrodynamic Lubrication, etc.—Maidenhead—August 4th 1966 (afternoon).
- (c) Markus Reiner Dinner—Maidenhead—August 4th 1966 (evening)—Presentation to Professor Reiner.
- (d) Deformation and Flow in High Polymer Systems—Loughborough—September 14th–16th 1966.

VI. *Meetings Projected.*

- (a) Joint evening meeting with S.C.I.—Oils and Fats Group—London—November 1966.
- (b) Rheology and Texture of Foodstuffs—Joint meeting with S.C.I.—Foods Group—London—January 5th–6th 1967.
- (c) Rheology of Building and Road Materials—Sheffield—probably March 1967.

VII. *Publications.* The Society's own established publications have continued to appear. The Society is deeply indebted to the following who have served as Honorary Abstractors during the year: B. Warburton (Honorary Abstracts Editor), K. M. Beazley, E. R. Ballantyne, W. H. Banks, A. D. Bramhall, D. C.-H. Cheng, M. F. Culpin, J. O. Cutter, C. B. Duckham, S. R. Finn, N. Gay, M. J. Groves, D. W. Hadley, P. Howard, E. P. Humphreys, J. F. Hutton, H. B. Johns, D. Jopling, A. S. Lodge, M. R. Nearn, J. G. Oldroyd, J. R. A. Pearson, R. S. Porter, D. R. Reid, R. Roscoe, G. R. Southern, G. W. Scott-Blair, N. Wilson, H. W. Thomas, R. E. Wetton.

The Society has become a Participating Society in *Rheologica Acta*. Participation does not imply any obligation for either the Society or its members to submit papers or proceedings for publication in *Rheologica Acta* (although it can be to their advantage to do so in certain cases). Members benefit by being able to obtain any publication of *Rheologica Acta* at 20 per cent discount.

The following publications have appeared: Flow of Powders and Granular Solids, Nottingham Conference – *Rheologica Acta*: 1965, 4, No. 3. Rheology of Paints and Allied Products, Joint Teddington Conference 1964 – *Rheologica Acta*: 1965, 4, No. 4.

Arrangements are going ahead for publication of the Colloid Gums and the Foodstuffs Symposia as Society of Chemical Industry Monographs. Arrangements have been made for Macmillan's to publish the Polymer Symposium in book form.

VIII. *British Standard Glossary.* The British Standards Institution has accepted the Society's proposal to set up a committee to produce a B.S. Glossary of Rheological Terms and Symbols.

IX. *Society Emblem.* The Society will in the near future be adopting an emblem which after consultation with the Council of Industrial Design, has been designed by Mr. Richard D. Grasby and approved by the Executive Committee. The emblem will be displayed on the Society's publications, letter-headings, medals, etc.

- X. *Society Medals.* A gold medal is being struck in honour of the distinguished member, Professor Markus Reiner, to mark his 80th year (1966). Arrangements are going ahead for the award of the Society Medal for Applied Rheological Research. Both medals will incorporate the Society's new emblem.
- XI. *Overseas Liaison.* The Society has been active in interchanging information with the Society of Rheology (American) and with the Groupe Francais de Rheologie. The Bulletin of the Society of Rheology is circulated to the British Committee, and the French Group have, on certain occasions offered partial support in the way of expenses for one or two members of the British Society attending rheology conferences in France.
- XII. *British National Committee on Materials.* During the year the Society has again been represented on the British National Committee on Materials by the President.

R. J. COLE,
Honorary Secretary.

August 1966

BRITISH SOCIETY OF RHEOLOGY RESEARCH COMMITTEE ANNUAL REPORT FOR 1965

1. *Membership.* At the beginning of the year the composition of the Committee was as follows:

Dr. R. Roscoe (*Chairman*)
Mr. R. J. Cole
Dr. E. R. Howells
Professor A. J. Kennedy
Dr. J. R. A. Pearson
Professor J. F. Raffle
Mr. A. T. J. Hayward (*Secretary*)

During the year Professor A. J. Kennedy resigned. By the end of the year he had not been replaced, but steps were being taken to appoint two new members.

2. *Joint Working Party on Non-Newtonian Flow.* This Working Party, which is sponsored jointly by the Research Committees of the Institution of Chemical Engineers and the Society, met several times during the year. It concentrated its effort on the preparation of a scheme of classification of published information on non-Newtonian flow.

3. *Research Award.* The Executive Committee has accepted a recommendation of the Research Committee that an award should be made for research in which basic rheological principles have been used to solve an industrial problem or problems. Details of the award were still under discussion at the end of the year.

4. *Survey of Research in Progress.* It was decided that the Committee should co-operate with the National Engineering Laboratory in the preparation of a new edition during 1966 of the Survey of Rheological Research in Progress in Britain.

5. *Rheological Terminology.* The Executive Committee has acted on a recommendation by the Research Committee that the British Standards Institution should be asked to appoint a committee, with a view to producing a glossary of rheological terms and symbols.

6. *Members' Enquiry Service.* It was decided that the Committee should institute a technical enquiry service for members. A notice was inserted in the Autumn issue of the Bulletin inviting members to submit their problems to the Research Committee. Five enquiries were received during 1965. These were all considered by every member of the Committee, and appropriate answers were sent.

7. *Survey Papers.* The Committee decided that members of the Society should be encouraged to write survey papers on rheological topics, and the Chairman approached the Editor of the Institute of Physics and the Physical Society to see whether such papers might be accepted for publication in the Journals of the Institute and Society. One member of the Research Committee undertook to write a survey paper on the rheology of fibres.

8. *Miscellaneous Activities.* Other matters considered by the Committee during the year included methods of stimulating research on selected topics, the possibility of instigating co-operative research projects, methods of classifying rheological research, the interchange of information with foreign rheological societies, and matters arising from the report of the Exploratory Committee which was published in 1964.

THE BRITISH SOCIETY OF RHEOLOGY

ACCOUNTS FOR THE YEAR ENDING 30th JUNE, 1966

INCOME					EXPENDITURE				
1964/65			£	s. d.	1964/65			£	s. d.
481	Balance in hand	1.7.65	...	1,365 3 5	219	Expenses incurred in producing Bulletins and Abstracts	...	265 0 9	
446	Subscriptions	...	...	419 15 0	201	Committee and administrative expenses	...	452 17 3	
1,240	Meetings	...	...	4 3 11	973	Meetings	...	88 14 8	
5	Sale of advertisement space in Bulletin	...	...	26 5 0	17	Miscellaneous	...	32 11 0	
—	Miscellaneous	...	...	11 5 3	1,365	Balance at 30.6.66	...	1,014 17 9	
9	Interest on Post Office Savings Bank Account	...		8 17 0					
—	Interest on Deposit Account			18 11 10					
				£1,854 1 5					£1,854 1 5

ACCOUNTS FOR YEAR ENDING 30th JUNE, 1966

The Accounts, shown opposite, do not as they stand, give a full picture of the Society's financial state, since the financial year ends on 30th June.

The Society's share in the profits of Rheology Abstracts amounts to almost £600 per annum. In 1965 payment was made before 30th June, and in 1966 after that date. Hence this important item does not appear in the Balance Sheet.

A sharp rise in administrative expenditure is due partly to an extension of existing activities, but arises largely because the total cost to date of the activities of the Research Committee is included.

A final balance for Meetings will not show a loss on the year's activities. The figure shown in the Accounts includes advance expenditure for the Loughborough Conference (September 1966), but does not include the profit made on the Colloid Gums Symposium, held jointly with S.C.I.

An appreciable sum must be set aside for tax to be paid on the profits from Rheology Abstracts. Although the Society will not be liable for taxation once it becomes a charity, it is liable until that status is achieved—and retrospective exemption cannot be obtained. Negotiations as to the amount of tax payable are still in progress.

THE NEW CONSTITUTION

The new Constitution approved by the Annual General Meeting contains only one alteration from the draft published in Bulletin No. 2, 1966; the annual subscription will be fixed by the Annual General Meeting, and will not be decided solely by the Council.

The Society's legal advisers consider that the new Constitution is of a form suitable for the Society to become registered as a charity, thereby escaping payment of income tax and company tax on the receipts from Rheology Abstracts. An application for registration as a charity has now been made, but a decision on the application has not yet been announced.

The new Constitution is reprinted below; italic type denotes changes from the former Constitution.

CONSTITUTION

Name

1. The Society (formerly known as The British Rheologists Club) shall be called The British Society of Rheology.

Objects

2. (a) The objects of the Society shall be the promotion of scientific inquiry and the diffusion *to the public* of knowledge connected with the advancement of pure and applied rheology defined as the science of the deformation and flow of matter.
(b) In furtherance of the objects hereinbefore defined the Society may
 - (i) purchase or otherwise acquire or procure to be written and print copies issue and circulate gratuitously or otherwise any reports of periodicals books pamphlets or other documents *provided that any sums received from sales under this sub-section shall be applied solely for the charitable purposes of the Society.*
 - (ii) arrange and provide for or join in arranging and providing for the holding of exhibitions meetings lectures and classes.
 - (iii) assess promote encourage undertake or organise research.
 - (iv) affiliate or become affiliated to any body having similar objects to those herebefore defined and acquire and undertake all or any part of the assets liabilities and engagements of any such body which the Society may lawfully acquire.

Membership

3. (a) Any person interested in rheology shall be eligible to apply for membership of the Society but no application for group membership will be entertained.
(b) Application for membership of the Society shall be made in writing and supported in writing by a member of the Society in a manner to be approved from time to time *by Council (see 5 (a)). The Entrance Fee (see below) shall be sent with the application for membership. Council* shall consider any such application and if a majority of *Council* members present at a meeting approve the application then notice shall be given to the applicant of his election and he shall be requested to pay his first subscription. Having paid his first subscription he shall be enrolled as a member and be entitled to all the benefits and privileges of membership and be bound by these rules.
(c) If an applicant elected as aforesaid shall not have paid his subscription within one month of being notified of his election then *Council* may at its absolute discretion declare the election of such applicant to be void.
(d) *Council* shall have power to elect to honorary membership any person who has attained distinction through scientific attainment or by reason of service to the Society.

(e) Any member may resign his membership by giving to the Membership Secretary notice in writing to that effect. Every such notice shall, unless otherwise expressed, be deemed to take effect as from 1st October next following receipt thereof and the member shall cease to be a member from that date.

(f) *Council* may if at any time it shall be of the opinion that the interests of the Society so require by letter invite any member to resign from the Society within a time specified in such letter. Notwithstanding the provisions of the preceding sub-clauses hereof the resignation of a member so resigning shall be deemed to take effect immediately it is received. If the member does not resign within the time specified then *Council* shall consider his expulsion. The member shall be given an opportunity to offer an explanation of his conduct verbally or in writing and if thereupon *Council* shall by a two-thirds majority of those present and voting decide to expel him he shall thereupon cease to be a member of the Society.

(g) Any person shall upon ceasing to be a member of the Society forfeit all right to and claim upon the Society and its property and funds.

Subscription

4. (a) *An Entrance Fee of £1 shall be paid by anyone applying for membership.*

(b) *An annual subscription of such amount as the Annual Meeting may decide shall be paid by each member.*

(c) *All subscriptions (except the first subscriptions of a new member as provided by rule 3) shall be payable on October 1st in each year.*

(d) *If the subscriptions of any member shall be three months in arrear notice shall be sent to him calling his attention thereto and if he does not pay the amount within 21 days of such notice the Society may forthwith cease to send him any of the Society's publications. If the annual subscription of a member shall still be unpaid at the expiration of 12 months from the date it was due, then a further notice shall be sent calling his attention thereto and if the subscription be not paid within one month of the posting of such further notice then he shall cease to be a member of the Society and his name shall be removed from the list of members. Any person who ceases to be a member under this rule may be re-elected to membership, but only after re-application and payment of a further Entrance Fee.*

Council and Executive Officers

5. (a) *The affairs of the Society shall be managed by a Council of 12 members which shall include the President and five*

executive officers of the Society, namely a Secretary, a Treasurer, a Membership Secretary, an Editor (Abstracts), an Editor (Bulletin).

(b) A President shall be elected at an Annual General Meeting to serve in that office for two years and all other members of *Council* shall be elected at each Annual General Meeting to serve for one year. Candidates for the Presidency or for any *executive* office or as *ordinary membership of Council* may be proposed and seconded (i) by two members of the Society giving the Secretary written notice at least three days before the Annual General Meeting or (ii) by two members verbally at the Annual General Meeting before the election takes place. Any member of the Society shall be eligible to be elected as President or as an officer or as *an ordinary member of Council*, and any officer or *Council* member shall be eligible for re-election except that (i) a member shall not be eligible to fill the office of President for more than two years successively (ii) a member shall not be eligible to fill the same office for more than four years successively and (iii) a member shall not be eligible to serve on *Council* for more than four years successively without filling an *executive* office. The election of the President, the *executive* officers and the other members of *Council* shall be by those present at the Annual General Meeting and in the event of a contested election shall be by each member of the Society present having one vote for each position to be filled. The candidate who receives the most votes for a particular office shall be declared elected to that office. The vacancies on *Council* shall be filled by the candidates up to the number of vacancies who shall receive most votes and they shall be declared elected. If two or more candidates receive an equal number of votes either for an office or for a vacancy on *Council* the election to such office or vacancy shall be decided by drawing lots.

(c) *Council* shall have power to appoint any member of the Society to fill any casual vacancy among the *executive* or on the *Council* until the next Annual General Meeting. Any member so appointed shall retire at the next Annual General Meeting but shall be eligible for election at that meeting.

Research Committee

6. (a) DUTIES AND POWERS

(i) *The Research Committee shall advise Council in all matters concerned with the Society's objects of assessing, promoting, encouraging, or organising research.*

(ii) *The Research Committee through its Secretary shall submit to Council an annual report of its activities, which*

report, if Council approves, shall be before the Society at the Annual General Meeting.

(b) COMPOSITION

(i) The Research Committee shall consist of a minimum of six members. It shall elect its own Chairman and Secretary from among its members.

(ii) Members of the Research Committee shall be appointed by Council having regard to names of suitable persons brought to its notice (e.g. as recommended by the Research Committee itself, as proposed at an Annual General Meeting of the Society, or as notified in writing to the Secretary of the Society). Either the Chairman or the Secretary and at least one other member of the Research Committee shall be members of Council

(iii) Members shall be appointed for service on the Research Committee for two years. They will be eligible for re-appointment at the end of this period.

(iv) Any suitably qualified member of the Society shall be eligible for consideration by Council as a member of the Research Committee.

Auditors

- 7. The accounts of the Society shall be audited by professional accountants. The appointment of auditors and the fixing of their remuneration shall be made at the Annual General Meeting.*

Meetings

- 8. (a) Council shall meet at least four times during the year. Four members of Council shall form a quorum except that a quorum of eight members of Council shall be required when Council is considering the expulsion of a member who has not resigned at Council's request. Council shall elect each year a Chairman from among its own members (excluding the President) who may take the chair if the President is absent or does not wish to do so. In the event of an equality of votes the Chairman of the meeting shall have a second or casting vote.*

(b) The Annual General Meeting of the Society shall be held in the month of September or thereabouts in each year upon a date and at a time to be fixed by Council. The business at such meeting shall include the following:

- (i) The election of officers and other members of Council.*
(ii) To receive a report and audited accounts from Council.

(iii) To deal with any resolution or special matter which *Council* desire to bring before the members or any member wishes to raise and receive suggestions from the members for consideration by *Council*.

Notice convening the Annual General Meeting shall be sent to the members not less than three weeks before the meeting. The notice shall specify any proposed change in the rules and where possible it shall also specify the other matters to be dealt with provided that nothing in this rule shall prevent matters (other than a change in the rules the winding up of Society or the severance of the Society's connection with a Branch) from being considered by the Annual General Meeting solely because notice of such matters has not been circulated to the members.

(c) At the request of four members of *Council* or of twenty members of the Society the Secretary shall call an Extraordinary General Meeting within two months of receiving such request. Such an Extraordinary General Meeting shall have the full authority of an Annual General Meeting to consider only the business for which the meeting was called. Notice convening an Extraordinary General Meeting shall be sent to all the members not less than ten days before the meeting and shall specify the matters to be dealt with.

(d) The quorum at all General Meetings shall be 20 or 8% of the total membership of the Society whichever shall be the less. All decisions at General Meetings shall be made by a simple majority of the members voting except that a change in the rules shall require a two-thirds majority of the members present and voting provided that the members voting in favour of such a change must number at least 20 or 8% of the total membership of the Society whichever shall be the less.

(e) The President shall take the Chair at Annual and Extraordinary General Meetings of the Society and at meetings of *Council*. If the President is absent or does not wish to take the Chair at any of these meetings then the Chairman of *Council* or failing him another member elected at any such meeting shall take the chair.

Powers and Duties of *Executive Officers* and *Council*

9. (a) *Council* shall manage the funds and affairs of the Society and shall do all such acts as may appear to them necessary or desirable for carrying into effect the objects and views of the Society.

(b) *Council* may engage remunerate and dismiss any servants as may be deemed necessary or expedient.

(c) *Council* may appoint any sub-Committee which it may think necessary or expedient for carrying out its business. Any number not exceeding one-third of the members of any sub-Committee may be persons who are not members of *Council*. *Council* may delegate any of its powers to a sub-Committee and may give general or particular directions as to the exercise of such powers to which directions the sub-Committee shall conform. *Council* may at any time add any member to or remove any member from any sub-Committee or may dissolve the sub-Committee but need not in any such case assign a reason for such action.

(d) Subject to the provisions of this constitution *Council* may regulate its own procedure.

(e) The Secretary shall be responsible for the general conduct of the Society's correspondence and other day to day business. He shall prepare the Agenda for each meeting of the Society and of *Council* and shall give notice of meetings and invite nominations for any elections on the Agenda. He shall take the minutes at all meetings of the Society and at meetings of *Council* and enter them in a Minute Book.

(f) The Membership Secretary shall be responsible for all matters relating to membership of the Society, other than the receipt of subscriptions.

(g) The Treasurer shall receive all sums of money due to the Society transact all its pecuniary affairs and keep a proper account of receipts and payments. The financial year of the Society shall end on June 30th.

(h) The Editor (Abstracts) shall be responsible for the Society's publication of Rheology Abstracts and the Editor (Bulletin) shall be responsible for the Society Bulletin for private circulation to the members.

(i) *Council* shall present to each Annual General Meeting a written report and audited accounts of the Society for the preceding year.

Conferences

10. (a) Non-members may be admitted to any of the Society's Conferences at the discretion of *Council*. *Council* shall be the power to charge a fee for such admission if it considers this desirable.

(b) Representatives of the Society on other bodies or at Conferences of other organisations shall be elected from among the members of the Society by *Council*.

Branches

11. (a) A Branch of the Society may be formed in any area outside the United Kingdom subject to the approval of *Council*. The activities of a Branch shall be governed by the rules of the Society and by the rules of the Branch.

(c) The rules of a Branch shall be approved by *Council*. Such rules shall provide for the election of a Chairman, Secretary, Treasurer and Committee and when the rules have been approved the officers and the Committee shall be elected and the Branch shall commence to function.

(d) The Committee of a Branch of the Society shall be subject to any directions given to it by *Council* but so that neither *Council* nor the members of the Society (other than members of the Branch) shall be responsible for any action taken by the Branch Committee.

(e) An application for membership of a Branch shall if approved by the Branch Committee in accordance with the rules of the Branch be treated also as an application for membership of the Society and shall be sent to the Membership Secretary of the Society for consideration in the normal way by the *Council*. If the applicant is elected to membership of the Society he shall be given notice of his election and shall be requested to pay his first subscription in accordance with the next following rule to the Treasurer of the Branch. Upon payment of this subscription he shall be enrolled as a member of the Society and of the Branch and be entitled to all the privileges of membership of the Society and the Branch and shall be bound by these rules and by the rules of the Branch.

(f) The subscription payable by a Branch Member shall be decided from time to time by the Branch Committee and shall be due on the first day of October in each year, a Branch Member shall not be called upon to pay any subscription in respect of his membership of the Society apart from his Branch subscription. Part of the subscription of each Branch Member shall be sent with a list of names of paid up Branch Members to the Treasurer of the Society before the last day of December of each year. This part of the subscription shall be decided from time to time by *Council*.

(g) The Society may sever any connection between itself and a Branch if such severance is supported by two-thirds majority of the members present at a General Meeting of the Society. The Branch shall be notified forthwith of any such decision and shall thereupon cease to be a Branch of the Society but the members of that Branch may at the discretion of *Council* remain members of the Society.

General

12. (a) The Society shall not be liable for any damage or loss to the persons or the property of members howsoever caused whether the Society has been negligent or not. Provided nevertheless that *Council* may in its absolute discretion make an ex gratia payment out of the Society's funds in respect of any such damage or loss if it thinks that such a payment is appropriate.

(b) Every member of the Society shall from time to time communicate to the Membership Secretary his address and all notices posted to such address shall be considered as having been given on the day following the date of posting.

Alteration to Rules

13. These rules may be added to repealed or amended by resolution at any annual or Extraordinary general meeting provided that no such resolution shall be deemed to have been passed unless (a) it be carried by a majority of at least two-thirds of the members voting thereon and (b) the votes in support of the change number at least 20 or 8% of the total membership of the Society, whichever is the less.

Dissolution

14. A resolution for the dissolution of the Society may be proposed at any General Meeting where at least four weeks' notice has been given to the members of the intention to propose such a resolution. If the resolution for the dissolution of the Society shall be passed at such a General Meeting by a majority of two-thirds of the members voting thereon and the members voting in favour of the resolution number at least 20 or 8% of the total membership of the Society whichever is the less *Council* shall thereupon or at such future date as shall be specified in such resolution, proceed to realise the property of the Society and after the discharge of all liabilities shall *apply the same for charitable purposes approved by the Secretary of State for Education and Science and upon the completion of such application the Society shall be dissolved.*

Interpretation

15. *Council* shall be the sole authority for the interpretation of these rules and the decision of *Council* upon any question of interpretation or upon any matter affecting the Society and not provided for by these rules shall be final and binding on the members.

DEFORMATION AND FLOW IN HIGH POLYMER SYSTEMS

Loughborough University of Technology

14th–16th September, 1966

This was a most successful conference. It was well attended—by nearly 150 members and visitors, of whom about 15 per cent came from overseas; the surroundings were pleasant, the food good and the accommodation satisfactory. A heavy programme of talks, well chaired, was attentively heard and discussed by an audience that averaged nearly 100. Much of the credit for this must go to the two unobtrusive organisers, Mr. R. W. Whorlow of Battersea College of Technology, and Dr. R. E. Wetton of Loughborough University of Technology, who deserve the wholehearted thanks of the Society.

The three days were split evenly between solids and fluids. It was most encouraging to note the strong participation of the Bristol group, who provided the introductory speaker (Dr. I. M. Ward) for the “solids” session and two other papers on orientation and crystallization effects in stressed polymer sheet. Dr. Ward’s survey of the rheological scene, ranging over elastic, linear viscoelastic and non-linear viscoelastic effects, was admirable. He managed to convey his own considerable enthusiasm for the subject and gently but firmly introduced the tensor concepts necessary for succeeding contributions. Most important of all, to my mind, we witnessed a commendable and long overdue attempt (largely by Dr. Keller) to bridge the gap between continuum mechanics and structural physics for crystalline thermoplastics—a task long since achieved for elastomers.

These latter materials were well represented in talks by Hall and Saunders from the College of Aeronautics, Cranfield, who reported careful experiments in a non-linear range of elastic deformation, by Allen *et al.* of Manchester, who reported delicate experiments to measure thermodynamic functions, and by the other introductory speaker, Dr. Treloar, who outlined the essential similarities between rubber-like solids and liquids, drawing heavily for this on his own and Dr. Lodge’s work.

Other talks that displayed a broad approach to their subject were given by Wetton *et al.* on the mechanical relaxation of poly (tetramethylene oxide) in different states of crystallization and by I. H. Hall from Manchester on the viscoelasticity of textile fibres at finite strains. Encouragingly the models of modern continuum mechanics are now being subjected to experimental test.

The work reported by A. E. Turner, of the I.C.I. P & P laboratories, on dynamical mechanical loss in filled polymer systems, was less convincing in that it was an interim report and had not been critically analysed. Some fascinating results on the generation of free radicals by large strain deformations in polyamides were given by

Bates and Jackson of the same laboratories. J. F. Jansson, of A.S.E.A. Sweden, presented an empirical method for using complex-modulus data to predict creep; the mathematical techniques involved were those of linear viscoelasticity; it was difficult to assess its full merits.

An exhaustive account of mechanical tests on delignified wood—showing the expected wide spread of results—given by L. Eriksson from Stockholm led him to conclude that “no noteworthy changes take place in tensile properties”. Had his talk given a little more explanation (with slides say) of the structure of *Pinus Silvestris* L. and of the meaning of the terms used, it might have held our interest a lot more, and even suggested similarities with other systems: as it was, it remained rather an outsider.

The talks on fluids ranged rather widely, and led to somewhat critical comment, partly because the attitudes adopted had all been rehearsed before at other meetings, and because there still seems to be little unity in approach. Viscosity and normal-force measurements, particularly with cone-and-plate apparatus, remained high on the list of topics studied: Batchelor and Berry of R.A.P.R.A. reported some straightforward and apparently unambiguous measurements on bulk polymer systems confirming that $(P_{22} - P_{33})$ is, in the cases studied, much smaller than $(P_{11} - P_{22})$. Pollett *et al.*, from AEI Harlow, were more concerned to show that genuine rheological breakdown takes place when certain polymer melts are sheared continuously; their experiments clearly demonstrated this: unfortunately it seemed to be inferred that steady-state measurements could never meaningfully be made. The limitations and range of applicability of the cone-and-plate and parallel-plate apparatus were discussed in two theoretical contributions by K. Walters of Aberystwyth. Employing his usual but powerful fluid models of an elastico-viscous fluid with a spectrum of relaxation times, he showed why inertia and secondary-flow effects are unlikely to be significant in steady shear measurements, and how inertia can be taken account of in oscillatory measurements, thus extending the range of utility of a rheogoniometer. Highgate and Whorlow reported some interesting experiments on suspensions of spherical particles in P.I.B. sheared continuously in a cone-and-plate apparatus, during which outward particle migration in the form of moving concentric rings took place. No such effect took place when a Newtonian fluid was used. A crude explanation based on normal forces was given, but did not convince all the audience.

D. R. Oliver of Birmingham rather startled the company by asserting that water is measurably elastic at a shear rate of 10^6 sec^{-1} , basing his remarks on measurements made on the thrust of a fine laminar jet. (An alternative deduction, favoured by some others, was that his results on water merely gave an estimate of the error involved in the method.)

Some straightforward experimental results on viscosities at various temperatures for dilute polymer solutions and at various concentrations

for PVC—plastisol dispersions were reported by Professor Moore and G. Hartley from Bradford. The molecular interpretations given were of a qualitative nature. Some questioners wondered whether the interpretations were not merely redefinitions. I noted a tendency to draw conclusions from straight lines drawn rather unconvincingly through as few as three points.

An outline of some elaborate calculations carried out with Kirkwood or Zimm-type models for dilute solutions of macromolecules was given by E. Chaffey from Strasbourg. Predictions for viscosity measurements and streaming birefringence proved apparently not to correspond to observations. Pearson and Petrie reported some further results for theoretical models of melts showing melt flow instability, and were reminded of a thermodynamic restriction on 2nd order fluids; this has the effect of making the latter a most unsuitable model, and left the Oldroyd fluid B model as the only one that might give rise to the observed type of instability. Professor Schutz of Mulhouse reported some viscometric results for concentrated aqueous carbohydrate systems but spent rather a long time discussing the surely well known mathematical manipulations that are necessary when wide-gap Couette viscometers are used. M. M. Cross's talk appeared to add little to his earlier published work.

A balance between theory and observation, so often absent in past meetings, was considerably evident, particularly in the contributions from academic institutions, and suggests that rheology has developed into a vigorous point of growth in science as well as technology. An understanding of the interaction between the structure of materials, itself a function of their past history, and their mechanical behaviour, though long realised as being the objective of rheological investigations, is only now being achieved: this is an exciting development and promises well for future meetings. Prospects for these were discussed both formally and informally, and the suggestion of a European meeting was seriously considered. The relative merits of a longer Annual General Conference, generally favoured by academics, and of shorter more specialized, meetings on particular applications of rheology having immediate industrial appeal, strongly favoured by members in industry, were vigorously put forward. Clearly there is room for both: one of the lessons of the conference was that pure and applied rheology are complementary.

J. R. A. PEARSON.

THE SOCIETY EMBLEM

Photographs of the Markus Reiner gold medal are reproduced on the inside back cover. The obverse of the medal depicts the Society's new emblem, which will in future appear on all publications and stationery.

A Society emblem had been proposed informally on several occasions, but positive steps were not taken until the Markus Reiner presentation had been decided upon. The Council of Industrial design was approached, and Richard D. Gransby was suggested as a "graphics designer of the quality, calibre and experience to produce a drawing for subsequent translation by a medallion firm into a medal".

The Executive Committee suggested possible elements that might be incorporated in an emblem, and Mr. Grasby, after discussion with Professor Kennedy and Mr. Cole, produced a design which was simple, and capable of reproduction over a wide range of sizes, but nevertheless incorporated symbols highly appropriate to the purposes of the Society.

The medal was struck by Pinches, of London, and the same die, but with a different reverse, will be used to strike the Gold Medal for Applied Rheological Research, to be awarded by the Society in 1967.

M.Sc. COURSE IN TRIBOLOGY

As a result of the recent interest in lubrication and wear processes the University of Reading proposes to offer an M.Sc. degree in Tribology, and an application for support for the course has been made to the Science Research Council.

The course will consist of lectures, given both by members of University staff and by visitors from industrial and national laboratories, together with practical laboratory work and a research project. For further particulars write to Senior Asst. Registrar, Room 41, O.R.B., The University, Reading, Berks.

IMPROVING RHEOLOGY ABSTRACTS

Rheology Abstracts is not only an invaluable guide to widely scattered literature, it is also the Society's main source of income. The form of the journal has remained unchanged for several years, and the number of abstracts has not increased proportionately with the number of new journals published. It is probable that not all the appropriate literature is being searched, and any member who knows of a suitable journal not included in the list overleaf is asked to inform the Editor (Abstracts). [Such information implies no obligation on any member to supply abstracts himself.]

A small sub-committee, consisting of the Editor (Abstracts), the immediate past Editor (Mr. Whorlow), and the Hon. Secretary, is to consider ways in which the usefulness of Rheology Abstracts might be increased. Members of the sub-committee would be pleased to receive any constructive proposals.

LIST OF JOURNALS CURRENTLY COVERED FOR RHEOLOGY ABSTRACTS

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|-------------------------------------|-----------------------------------|
| <i>Advanc. Polym. Sci.</i> | <i>J. Sci. Fd. Agric.</i> |
| <i>A.I.Ch.E.J.</i> | <i>J. Sci. Instrum.</i> |
| <i>Ann. Rheum. Dis.</i> | <i>J. Soc. Dy Col.</i> |
| <i>Arch. Rat. Mech. Anal.</i> | <i>J. Soc. Matls Sci., Japan</i> |
| <i>Arthritis Rheum.</i> | <i>J. Soil Sci.</i> |
| <i>A.S.L.E. Trans.</i> | <i>J. Text. Inst.</i> |
| <i>Aust. J. Appl. Sci.</i> | <i>Kolloid Z.</i> |
| <i>Aust. J. Chem.</i> | <i>Kolloidni Zh.</i> |
| <i>Aust. J. Phys.</i> | <i>Lab. Pract.</i> |
| <i>Aust. J. Soil Sci.</i> | <i>Lubric. Engng</i> |
| <i>Biorheol.</i> | <i>Makromol. Chem.</i> |
| <i>Brit. Chem. Engng</i> | <i>Matl. Res. Stand.</i> |
| <i>Brit. J. Appl. Phys.</i> | <i>Mod. Plast.</i> |
| <i>Brit. Plast.</i> | <i>Nature, Lond.</i> |
| <i>Bull. Rheum. Dis.</i> | <i>N.L.G.I. Spokesman</i> |
| <i>Cahiers Gpe. Fr. Rheol.</i> | <i>Petrol. Refin.</i> |
| <i>Canad. J. Chem.</i> | <i>Petroleum, Lond.</i> |
| <i>Canad. J. Phys.</i> | <i>Plastics, Lind.</i> |
| <i>Canad. J. Soil Sci.</i> | <i>Polymer</i> |
| <i>Chem. Engng</i> | <i>Polym. Sci. USSR</i> |
| <i>Chem. Engng Sci.</i> | <i>Proc. Camb. Phil. Soc.</i> |
| <i>Chem. Rev.</i> | <i>Proc. Inst. Rubber Ind.</i> |
| <i>Current Chem. Papers</i> | <i>Proc. Phys. Soc., Lond.</i> |
| <i>Dairy Ind.</i> | <i>Proc. Roy. Soc.</i> |
| <i>Dokl. Akad. Nauk SSSR</i> | <i>Process Control</i> |
| <i>Food Tech.</i> | <i>Quart. Appl. Math.</i> |
| <i>Helv. Chim. Acta</i> | <i>Rev. Inst. Franc. Petrol.</i> |
| <i>Indian Soc. Soil Sci. Bull.</i> | <i>Rev. Mod. Phys.</i> |
| <i>Industr. Engng Chem.</i> | <i>Rev. Sci. Instrum.</i> |
| <i>Industr. Engng Chem. Fundam.</i> | <i>Rheol. Acta</i> |
| <i>Instrum. Pract.</i> | <i>Rubber Chem. Tech.</i> |
| <i>J. Amer. Ceram. Soc.</i> | <i>Russ. Chem. Rev.</i> |
| <i>J. Amer. Chem. Soc.</i> | <i>Russ. J. Phys. Chem.</i> |
| <i>J. Amer. Oil Chem. Soc.</i> | <i>Soc. Petrol. Engrs J.</i> |
| <i>J. Appl. Chem.</i> | <i>Soil Sci.</i> |
| <i>J. Appl. Chem. USSR</i> | <i>Soil Sci. Soc. Amer. Proc.</i> |
| <i>J. Appl. Phys.</i> | <i>Sov. Abst. Mech.</i> |
| <i>J. Appl. Polym. Sci.</i> | <i>Sov. Phys. Tech. Phys.</i> |
| <i>J. Chem. Phys.</i> | <i>Sov. Phys. Uspekhi</i> |
| <i>J. Chem. Soc.</i> | <i>Sov. Soil J.</i> |
| <i>J. Colloid Sci.</i> | <i>S.P.E.J.</i> |
| <i>J. Dairy Res.</i> | <i>Text. Res. J.</i> |
| <i>J. Dairy Sci.</i> | <i>Trans. Brit. Ceram. Soc.</i> |
| <i>J. Fd. Sci.</i> | <i>Trans. Faraday Soc.</i> |
| <i>J. Inst. Petrol.</i> | <i>Trans. Inst. Rubber Ind.</i> |
| <i>J. Oil Col. Chem. Ass.</i> | <i>Trans. Plast. Inst., Lond.</i> |
| <i>J. Pharm. Sci.</i> | <i>Trans. Soc. Rheol.</i> |
| <i>J. Pharm. Pharmacol.</i> | <i>Wear</i> |
| <i>J. Phys. Chem.</i> | <i>Z. Phys. Chem., Frankfurt</i> |
| <i>J. Polym. Sci. (Parts A-D)</i> | <i>Z. Phys. Chem., Lpz.</i> |
| <i>J. Res. Nat. Bur. Stand.</i> | |

VICTORIAN BRANCH B.S.R.

The guest speaker at the Annual General Meeting, held at Melbourne University on 3rd August 1966, was Mr. J. Steggles of the Central Research Laboratories I.C.I.A.N.Z., whose subject was "Some Highlights of Printing Ink Rheology".

The flow behaviour under printing conditions of lithographic and typographic inks having plastic viscosities in the range 100–1,000 poise was considered. Limits to certain rheological parameters, some of which are difficult to measure reproducibly, are set by experience. The difficulties were considered, particularly as they apply to the measurement of plastic viscosity, yield stress, thixotropic index and "tack".

Skilful presentation, including slides of two modern tack-meters, made the subject matter of interest even to those unconnected with the printing industry.

The Hon. Branch Secretary is now: J. C. Godfrey, Div. of Chem. Engng., Chemical Res. Labs., CSIRO, Box 4331, Melbourne.

THE BINGHAM MEDAL 1966

The Society of Rheology (U.S.A.) has awarded the Bingham Medal to Dr. Prince E. Rouse of Los Alamos Scientific Laboratory, in recognition of work carried out while he was associated with the Franklin Institute. His theoretical formulation of the problem of the dynamics of polymer chains, published in 1953, provided a physically realistic model whose rheological behaviour could be expressed in a simple and useful fashion. His concurrent experimental studies, in collaboration with K. Sittel and E. D. Bailey, provided the first of many confirmations of the essential validity of this model. Most present descriptions of the rheological properties of amorphous polymers and polymer solutions have been derived directly from Rouse's pioneering work.

FUTURE CONFERENCES

The Institution of Mechanical Engineers announces the following conferences:

"Novel Instrumentation in Fluid Mechanics and Thermodynamics", a one day symposium and conversazione, to be held at the Engineering Dept., Queen Mary College, University of London, on Tuesday 11th April 1967.

"High Pressure Engineering", to be held at Imperial College, London, 11th–15th September 1967. Transmission, containment and material properties will be examined, together with extrusion and pressing processes covering both the hardware and material involved. An Exhibition will also be held.

"Subsonic Fluid Flow Losses in Complex Passages and Ducts", 4th-5th October at the Institution Headquarters. Papers will deal with work that is predominantly experimental in nature, but purely analytical investigations are not excluded. Papers are limited to data pertaining to the steady, incompressible flow of a single fluid.

Details of all three meetings may be obtained from the Institution, at 1 Birdcage Walk, Westminster, London, S.W.1.

Loughborough University of Technology is holding a series of courses on Particle Technology during the current University session. The third of these courses, on "Fluidisation", is to take place on 16th-20th January 1967. The syllabus includes: theories of fluidisation; solid-fluid interactions; spouted beds; heat and mass transfer in fluidised beds; use of fluidised beds. All enquiries to Mr. J. Harris, Dept. of Chem. Engng, Loughborough University of Technology, Loughborough, Leics.

The Faraday Society will hold a General Discussion on "The Structure and Properties of Liquids" at Exeter University, from 11th-13th April 1967. Papers of particular interest to rheologists include, "Visco-elastic relaxation in supercooled liquids" (J. Lamb and A. J. Barlow), and "The influence of molecular rotation on the steady-flow viscosity and shear relaxation of liquids" (D. B. Davies and A. J. Matheson). Further information from The Assistant Secretary, The Faraday Society, 6 Gray's Inn Square, London, W.C.1.

The Society of Rheology (U.S.A.) will hold its Annual Winter Meeting at Miramar Hotel, Santa Barbara, California, from 6th-8th February 1967. Details from M. C. Shen, North American Aviation Science Center, 1049 Camino Dos Rios, Thousand Oaks, California, U.S.A.

The British Polymer Physics Group propose to hold a meeting on "Orientation in Solid Polymers" at Bristol on 10th-11th April, 1967. Further details from Dr. A. Keller, Dept. of Physics, The University, Bristol.

NOTES AND NEWS

The University of Massachusetts, U.S.A., has inaugurated an advanced degree programme in Polymer Science and Technology. The programme, which is the co-operative effort of the Department of Chemistry and the School of Engineering, is an outgrowth of the Polymer Research Institute directed by Professor R. S. Stein. An extensive schedule of courses, seminars and symposia has been initiated, and M.S. and Ph.D. degrees will be granted. University and research fellowships are available. Those interested should write to Professor R. S. Porter, Chairman, Polymer Science and Engineering Program, Goessmann Laboratory, University of Massachusetts, Amherst, Mass. 01002, U.S.A.

The Editor receives copies of Rheology Bulletin (U.S.A.) containing advanced abstracts of papers to be presented at the biannual meetings of the Society of Rheology. Members may borrow these Bulletins on application.

The Plastics Institute and the Institution of the Rubber Industry organized a joint symposium, held at Loughborough University in the spring of 1966, on the theme of "Areas For Further Research in Polymer Technology". Attendance was limited by invitation to 120 representatives of industry, research associations, government departments and academic institutions.

The objectives of the symposium, which was chaired by Sir Harry Melville, F.R.S., Chairman of The Science Research Council, were:

- (a) to define areas where gaps in fundamental knowledge in rubber and plastics technology are holding up development, with emphasis on physics and engineering;
- (b) to characterise, as examples, specific targets in each area;
- (c) to stimulate academic interest in these areas, and suggest targets for research endeavour.

The proceedings of the symposium are now available, and may be borrowed from the Editor of this Bulletin.

The Institution of Chemical Engineers has appointed Dr. J. R. Flower as an Industrial Research Fellow in Chemical Engineering In Medicine, with the task of determining the requirements and problems in the field, the present state of knowledge, and research in progress. Dr. Flower's particular task is to prepare a report on the chemical engineering problems involved in the design and operation of the artificial lung and the artificial kidney, and subsequently endeavour to suggest areas in which useful research can be carried out through the application of chemical engineering principles.

The 1966 Swinburne Medal of the Plastics Institute has been awarded to Professor C. E. H. Bawn, C.B.E., F.R.S., of the University of Liverpool. Professor Bawn's interests extend far beyond the deep and extensive studies of polymerisation reactions with which his name is always associated. He is widely known for his ability to summarise, either orally or by the written word, any aspect of polymer science, and also for his interests in creating and maintaining bridges between the academic and industrial spheres. These abilities were ably displayed during the Swinburn Address, when Professor Bawn followed a brief survey of polymer structure with selected examples showing how macroscopic properties depended on details of that structure.

NEW MEMBERS

NAME AND ADDRESS	INTERESTS
J. P. Berry, B.Sc., Ph.D., 24 Westbury Road, Heath Farm, Shrewsbury, Salop. R.P.R.A., Shawbury, Shrewsbury.	General, rubbers, polymers, polymer solutions.
K. D. Bogie, B.Sc., M.Sc.(Eng.), 12 Albany Place, West Ferry, Dundee. Faculty of Appl. Sci., Queen's College, Dundee.	Polymer solutions, suspensions.
M. P. Brocklebank, B.Sc., 544 Mumbles Road, Mumbles, Swansea, Glamorgan. Dept. of Chem. Eng., University College, Swansea.	General, polymer solutions.
Prof. D. Dowson, B.Sc., Ph.D., "Ryedale", 43 Farrar Lane, Adel, Leeds, 16. Dept. of Mech. Eng, The University, Leeds, 2.	General, rubbers, polymers, lubrication, friction, wear.
R. N. Hills, B.Sc., Ph.D., 16 Hambleton Avenue, Cullercoats, Tyne-mouth, Northumberland. Dept. of Mathematics, The University, Merz Court, Newcastle-upon-Tyne, 1.	General.
W. M. Jones, B.Sc., D.Phil., F.Inst.P., Myrtle Villa, Waunfawr, Aberystwyth, Cardiganshire. Dept. of Physics, U.C.W., Penglais, Aberystwyth, Cardiganshire.	General, polymer solutions.
R. K. Khanna, M.Sc.(Tech.), 14 Baronsfield Road, St. Margaret's, Twickenham, Middlesex. Paint Research Station, Waldegrave Road, Teddington, Middlesex.	Polymers, polymer solutions, emulsions, suspensions, paints.
T. G. Laidlaw, B.Sc., 10 Juniper Avenue, Bricket Wood, St. Albans, Hertfordshire. Beecham Toiletry Div., Beecham House, Great West Road, Brentford, Middlesex.	General, emulsions, suspensions.
S. Matsumoto, B.Agric., Ph.D., 6 Rooks Hill, Welwyn Garden City, Hertfordshire. Unilever Research Lab., The Frythe, Welwyn, Hertfordshire.	General, polymer solutions, emulsions, suspensions, biorheology.
Dr. L. W. Morland, B.Sc., Ph.D., School of Mathematics and Physics, University of East Anglia, Norwich.	Theory, metals, polymers.
Dr. T. J. Peirce, B.Sc., Ph.D., A.Inst.P., 47 Pollards Drive, Horsham, Sussex. Morganite Res. and Dev. Ltd., Battersea Church Road, London.	General, suspensions, ceramics.
E. G. Prater, M.Sc., 21 Southgrove Road, Sheffield, 10. Univ. of Sheffield, Dept. of Civil and Struct. Engng., St. George's Square, Sheffield, 1.	Building and road materials.

- A. L. Sutton, M.A., D.Phil., "Camster", 13 Wood End Hill, Harpenden, Hertfordshire. Physics Dept., The City University, St. John Street, London, E.C.1. General, metals, polymers, polymer solutions, rubbers.
- D. J. Walkden, B.Sc., 4 Leybourne Street, Higher Broughton, Salford, 7, Lancashire. Univ. of Manchester, Inst. of Sci. and Technology, Sackville Street, Manchester, 1. General, suspensions, printing inks.
- Prof. R. B. Bird, B.S., Ph.D., Chem. Eng. Dept., Univ. of Wisconsin, Madison, Wisconsin, 53706, U.S.A. General, polymers, polymer solutions.
- H. H. Calvit, B.S., M.S., Ph.D., 58 Charles Field Street, Providence, R.I. 02906, U.S.A. Div. of Applied Maths., Brown University, Providence. General, polymers, polymer solutions, biorheology.
- J.-F. Jansson, Dr., M.Sc., Harnevigatan, 6, Vasteras, Sweden. Aud. K.Y.D.A., Lab. of Polymer Tech., A.S.E.A., Vasteras, Sweden. General, polymers, polymer solutions, glasses, ceramics, friction, wear.
- R. W. Penn, Ph.D., Rheology Sect., Mechanics Division, I.B.S., Washington, D.C. 20234, U.S.A. —————
- D. Rader, B.C.E., Sc.M., Ph.D., 77 Hope Street, Providence, R.I. 02906, U.S.A. Div. of Engineering, Brown University, Providence. General, polymer solutions, glasses, ceramics.
- R. A. Schutz, I.Ch., E.S.C.M., Dr.-Ing., 20 Rue Gabriel Fauré, Mulhouse-Dornach, France. Ecole Sup. de Chim. de Mulhouse, 3 Rue Alfred Werner, Mulhouse, France. General, rubbers, polymers, polymer solutions, emulsions, suspensions.
- J. Vocadlo, Ing., Praha 6, Cs. Armády 18, Czechoslovakia. Ustav pro hydrodynamiku CSAV, Praha 6, Podbabská 13. General, emulsions, suspensions.

THE BRITISH SOCIETY OF RHEOLOGY

GOLD MEDAL

FOR

APPLIED

RHEOLOGICAL

RESEARCH

Closing date for entries :

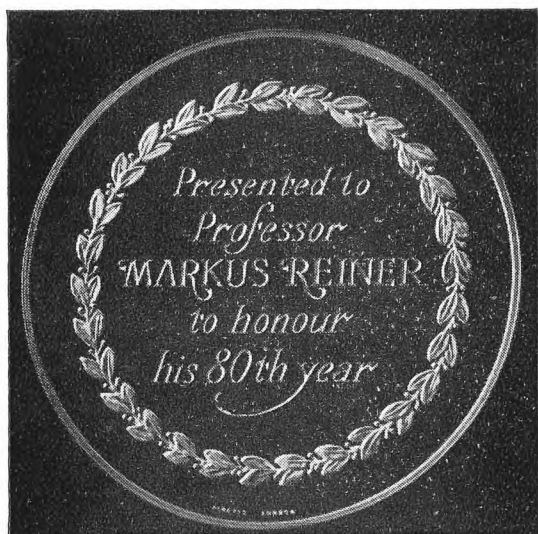
1st MAY, 1967

For Rules see :

B.S.R. BULLETIN No. 3, 1966

Further information from :

A. T. J. HAYWARD,
Secretary to the Research Committee
of the British Society of Rheology,
National Engineering Laboratory,
East Kilbride, Glasgow.



THE MARKUS REINER MEDAL

(Photograph by B. Alfieri Ltd.)