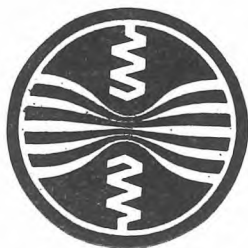


BULLETIN



BRITISH SOCIETY OF RHEOLOGY

1972, No. 3, Vol. 15

CONTENTS

	Page
Foreword	i
Officers and Council	ii
Victoria Branch: 1971-72 Council	ii
Report on the Conference on the Rheology of Lubricants held at the Trent Polytechnic, Nottingham, 6-7 July 1972. (P. L. Langborne) ...	47
Constitution of the British Society of Rheology	51
Future Meetings:—	
Conference on "Yield, Deformation and Fracture of Polymers" ...	59
Chemical Society Postgraduate School in Integrated Spectroscopic Techniques	59
The Chemistry and Physics of Fibres and Filaments	59
Selection of Materials in Machine Design	60
Personal News	60
Recent Elections	61
Diary	62
The 1970 Survey of British Rheological Research	62

Hon. Editor:

Dr. J. M. HOBBS,
Properties of Fluids Division,
National Engineering Laboratory,
East Kilbride,
GLASGOW, G75 0QU.



FOREWORD

One way to hasten the retirement of a superior recommended by Parkinson was to arrange a strenuous world tour for him. The first stages of such a plan would be well covered by the combination of rheology meetings currently being held.

Starting with the Sixth International Congress on Rheology in Lyon, our man would make a relatively short hop to Prague for the Third Discussion Conference on General Principles of Rheology. Following a short break relaxing in an overgrown garden, off to the University of Warwick to lecture in the BHRA course on Hydraulic Transport of Materials in Pipelines and take part in Hydrotransport 2. After this gentle break-in period he should be fit to dash off to the Far East to act as consultant to the Hong Kong harbour authorities, possibly stopping off in the United States on the way back for an appropriate meeting of the Society of Rheology, but arriving back in Britain in time for the AGM of our Society.

Because of the full programme of meetings in September and commitments in the early part of October, Council decided that not only would it be impracticable to hold a full-scale Autumn meeting, but even an afternoon meeting and AGM could not reasonably be convened until late October. It is hoped that members not personally involved with other conferences will understand this and give the meeting their full support.

As the AGM is the only business meeting of the year, included in this issue is a current version of the Society's contribution. This was last published in full in the 1966 No. 4 Bulletin, so a repeat now may be helpful, especially to recently elected members.

COUNCIL 1971-72

President: PROFESSOR J. LAMB, Department of Electrical Engineering,
University of Glasgow.

Hon. Secretary: DR. K. M. BEAZLEY, English China Clays, St. Austell.

Hon. Treasurer: MR. R. W. WHORLOW, Department of Physics,
University of Surrey.

Membership Secretary: DR. J. FERGUSON, Dept. of Fibre Science,
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Abstracts Editor: MR. A. EVANS, Department of Surgery, University
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Bulletin Editor: DR. J. M. HOBBS, National Engineering Laboratory,
East Kilbride, Glasgow.

Ordinary Members:

MR. J. F. HUTTON, DR. B. S. NEUMAN, DR. J. R. A. PEARSON,
DR. P. SHERMAN, DR. K. WALTERS.

1971-72 COUNCIL, VICTORIA BRANCH (AUSTRALIA)

Chairman: MR. O. DELATYCKI, Department of Industrial Science,
University of Melbourne, Parkville, Victoria 3052.

Secretary: DR. J. STEARNE, Footscray Institute of Technology, P.O.
Box 64, Footscray, Victoria 3011.

Treasurer: DR. E. J. DICKINSON, Road Research Board, 60 Denmark
Street, Kew, Victoria 3101.

Abstracts Editor: DR. R. FOX, Central Labs. I.C.I.A.N.Z. Ltd.,
Newson Street, Ascot Vale, Victoria 3032.

Ordinary Members:

MR. W. H. COPLEY, H. B. Selby & Co. Pty. Ltd., 352 Ferntree
Gulley Road, Notting Hill, Victoria 3168.

MR. J. D. GIBSON, Sidney Cook Chemicals Ltd., 98 Cromwell
Street, Collingwood, Victoria 3066.

MR. A. V. RAMAMURTHY, c/o Division Chemical Engineering,
C.S.I.R.O., P.O. Box 312, Clayton, Victoria 3168.

REPORT ON THE CONFERENCE ON THE RHEOLOGY OF LUBRICANTS HELD AT THE TRENT POLYTECHNIC, NOTTINGHAM, 6-7 JULY, 1972

by P. L. Langborne

The seventy or so delegates to this conference, held in the well appointed Trent Polytechnic, were regaled with a varied and often controversial selection of eleven papers in the space of two days. There was, however, no evidence of cramming on the part of the organisers and the generous time for discussion which was available helped to make this one of the most successful "little" conferences of recent years.

The proceedings opened with an excellent review paper "New concepts in theoretical and experimental rheology" by Dr. K. Walters. This brought delegates up-to-date with recent developments in Theoretical and Experimental Rheology. Dr. Walters caused a minor sensation when he suggested that, contrary to popular belief, it might not be appropriate to neglect normal stress terms in analyses of the lubrication situation and that polymeric VI improved oils could be expected to exhibit significant normal stress effects at high shear rates. Dr. Oliver's jet-thrust apparatus was said to be particularly suitable for normal stress measurements at high shear rates.

Another review paper "The Rheology of petroleum-based lubricating oils and greases" then followed. The author, Mr. J. F. Hutton, can generally be relied upon to make his subject interesting and this paper was no exception. Subjects dealt with included "Free volume theories of viscosity variation, intrinsic viscosity, viscosity at a solid-liquid boundary, variation of rheological properties with rate of shear and grease compressibility and viscosity. In connection with the standard ASTM method of calculating Viscosity Index, Hutton challenged his audience "What does it mean anyway? Why not throw it out?" Needless to say this enlivened the subsequent discussion.

The third paper was "The rheology of carbon-black filled lubricating oils" by former Bulletin Editor John Harris, now in Nairobi, and read at short notice by his co-author, Mr. E. T. Busby. Shear stresses were measured on a ring and plate apparatus for three engine oils with different de-flocculants, only two of which seemed to be effective. Many delegates felt the test results to be difficult to interpret because of lack of information on the nature of the samples.

There followed an interesting paper by Messrs. J. A. Spence and D. E. S. Middleton, "The rheological stability of crankcase lubricants." The authors, both from the Department of Mechanical Engineering, University of Dundee, examined oil samples taken from eight newer cars belonging to the local police and GPO after 2000 miles running. Tests for fuel and water dilution, the presence of large

solid particles and sludging were made. U-tube and rheogoniometer viscosities were measured. The average viscosity loss obtained for the eight cars (70°C.) revealed by this "Which" type survey was about 18 per cent. of the initial sample viscosity, and similar to that reported by other workers.

A long title, "Low temperature rheological properties of polymer treated lubricating oils," concealed a snappy polished presentation, ably supplemented with a film (complete with lively incidental music!). P. N. Slimming, I. R. H. Crail and P. J. Hattersley described a motored engine test which located a minimum circulation temperature (MCT) below which engine oil circulation was unsatisfactory. The MCT was correlated with the pour point and the logarithm of the Brookfield viscosity at -20°F . The effect of the polymer molecular weight on the rheological properties of a lubricant were studied using a cold cranking simulator. A remarkable reduction in viscosity under shear at 0°F . was shown to exist when a viscous VI improver was added to motor oil base stock.

The first day's proceedings closed with another paper by Dr. Walters, written in collaboration with J. M. Davies, "The behaviour of non-Newtonian lubricants in journal bearings—a theoretical study." The authors considered theoretically the infinite full journal-bearing problems for an elastico-viscous liquid. An exact solution for a second-order fluid was obtained, which contained some of the earlier analyses as special cases and which pointed to an improved response due to elasticity. Limitations due to the inherent approximation of the fluid model were overcome by the use of a more versatile fluid model for the case of small eccentricity. In cases where the normal stresses are much larger than the shear stress, an explanation is provided for the improved performance of the polymeric oils. Delegates were thus given chapter and verse for the important concepts introduced in Dr. Walters' earlier review paper.

The first paper on Friday, 7 July, was given by Professor D. Dowson in his usual competent style. Entitled "Bio-Tribology," by D. Dowson and V. Wright, it covered no less than nine subjects ranging from the influence of micro-organisms on lubricants employed in machinery to tribological aspects of endo-protheses and was of absorbing interest.

Like Professor Dowson, Dr. J. Ferguson of the University of Strathclyde is well known for the studies he has made of the performance of human joints, his particular interest being in the behaviour of the synovial fluid with which the joints are lubricated. In the paper "The rheology of a synthetic joint lubricant" by J. Ferguson and G. Nuki the authors reviewed early attempts to simulate the performance of synovial fluid using (Newtonian) silicone oils. Polyvinyl pyrrolidone (PVP), was felt to be a better polymer for this purpose since it possessed the requisite elasticity, thixotropy, etc.

Following extensive tests on a Rheogoniometer a 10 per cent. solution of PVP, irradiated to 1.5 Mrad dose level was found to be a close approximation to natural synovial fluid. After speculating on the significance of peak stresses in joint behaviour the authors described experiments using an Arthrotripsometer—a device for measuring the frictional force generated by oscillation of the joint. PVP again performed well but experiments in vivo with dogs were not so encouraging, little of the substance being retained in the joints after a week.

Two papers on grease rheometry then followed. "The rheometry of lubricating greases" by G. R. Dobson and Anne C. Thompsett and "A limitation on the use of cone-and-plate rheometers for the study of grease rheology" by J. F. Hutton.

There appeared to be a divergence of views between the two sets of authors. The former authors proposed a procedure for the determination of flow curves over a shear rate range of 10^{-3} to 10^4 s⁻¹ using cone and plate geometry but the latter author seemed extremely pessimistic about the employment of this geometry, pointing out how easily misleading results could be obtained and counselling extreme caution.

The final paper of the conference was that of R. F. Pywell, "The improved prediction of lubricating oil viscosity at high pressures." Using the falling weight, high-pressure viscometer developed by Cappi and Bett at Imperial College, the author measured the viscosities of a number of widely differing oils at pressures up to 10,000 bar, for temperatures between 15°C. and 100°C.

From a knowledge of the atmospheric viscosities at two temperatures of an oil and of the proportion of carbon existing in aromatic or naphthenic rings the author claimed a prediction of viscosity to a useful accuracy even at the pressures in highly-loaded contact (where the viscosity might be 10^5 times the atmospheric viscosity). A method of predicting the amount of compression of a mineral oil was also presented.

The conference was very well organised, for which credit is largely due to Mr. C. H. Maynard and his helpers from the Institute of Petroleum and to the indefatigable Mr. T. C. Davenport of BP who chaired three of the sessions. Other able Chairmen were Professors Lamb, Naylor and Dowson.

Delegates left with pleasurable memories of a successful inter-society conference (more please!) and some excellent pre-prints (rare in these days).

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. A member retiring from normal employment after more than 20 years membership is eligible to become an honorary member.

(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.

Auditors

6. *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

7. (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

8. (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

9. (a) Non-members may be admitted to any of the Society's Conferences at the discretion of *Council*. *Council* shall have 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

10. (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

11. (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

12. 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

13. 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

14. *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.

CONFERENCE ON "YIELD, DEFORMATION AND FRACTURE OF POLYMERS"

26-29 March 1973

Corrigendum

It is regretted that inadvertently a list of papers was published in the 1972, No. 1, Vol. 15 issue of the Bulletin under the above heading, from which readers would have inferred that these papers represented the programme for the conference. In fact the list was of papers offered at that time for consideration for inclusion in the final programme and those selected are not likely to be known until October 1972. The Editor regrets any misunderstanding which may have arisen as a result of this premature publication.

CHEMICAL SOCIETY POSTGRADUATE SCHOOL IN INTEGRATED SPECTROSCOPIC TECHNIQUES

2-6 April 1973—University of Sussex

Organiser: Dr. C. N. Banwell, University of Sussex

Following the usual pattern of the Chemical Society Summer Schools, this course will consist of a series of lectures with associated small-group seminars. In view of its wide ranging nature all participants are expected to have knowledge of the subject, although some basic lectures will be given on the first day to assist those unfamiliar with particular topics.

There are to be no practical sessions associated with the course, but it is hoped that some instrument manufacturers will provide demonstration equipment.

A leaflet giving further details and containing an application form can be obtained from Dr. Beazley.

Materials Science Club

THE CHEMISTRY AND PHYSICS OF FIBRES AND FILAMENTS

Manchester, 28-29 June 1973

University of Manchester Institute of Science and Technology
(UMIST)

The aim of the meeting is to review the state of the art and recent developments in fibre science. Contributions are invited on natural

and synthetic polymer fibres, fine metallic wires, filaments and whiskers, glass and ceramic fibres and whiskers, boron and carbon fibres. The meeting will concentrate on aspects which relate the structure of fibres to their principal properties.

The technical sessions will be held in the Reynold Building at UMIST and residential accommodation has been reserved in the nearby Chandos Hall.

Enquiries and offers of contributions:—

M. G. Bader, Department of Metallurgy and Materials
Technology, University of Surrey,
Guildford, Surrey

or Dr. J. W. S. Hearle, Department of Textile Technology,
UMIST, Manchester

Joint Secretaries of the Meeting.

SELECTION OF MATERIALS IN MACHINE DESIGN

PRELIMINARY NOTICE

A meeting on Selection of Materials in Machine Design is to be held at the Institution of Mechanical Engineers, London on 4–5 December 1973. The organisation will be shared between the British National Committee on Materials and the I.Mech.E. Rheologists who wish to submit a paper should communicate with the Secretary, BNC (Materials), 1 Birdcage Walk, London S.W.1.

NEWS OF MEMBERS

With this issue of the Bulletin a familiar name has gone from the cover—that of John Harris, who has made a notable contribution to the Society as Editor since 1968. He has now taken up an appointment for two years in the Department of Mechanical Engineering at the University of Nairobi. We wish him well in his new environment.

Another member who has “gone abroad,” though not in the same sense, is former Secretary Mike Culpin. He is now a lecturer in the Department of Industrial Science at Stirling University. His subject is Integrated Science which, he says, will probably include some chemical engineering and, no doubt, a useful element of rheology! He is most welcome in Scotland.

RECENT ELECTIONS

At the meeting of the Council held on 29 June, 1972, the following applications for membership were received and approved:—

Mr. Jozef Beck
Thomas De Larve International Ltd.
Research Division
Lower Cookham Rd.
Maidenhead
Berks

Dr. Clifford Beevers
Mathematics Department
Heriot-Watt University
Chambers Street
Edinburgh

Mr. Derek Bell
Contraves I.P. Ltd.
Times House
Station Approach
Ruislip
Middlesex

Mr. Robert E. Cohen
23 Spalding Laboratory,
Caltech
Pasadena,
California 91109
U.S.A.

Mr. Alan Frank Cooke
Department Mechanical Engineering
University of Leeds
Leeds 2
LS2 9JT

Mr. Frederick Alan John Dent
Foseco International Ltd.
Long Acre
Birmingham 7

Mr. Robert Wallace Fillers
California Institute of Technology
Pasadena,
California 91109
U.S.A.

Mr. L. P. B. M. Janssen
Technical University
Prins Bernhardlaan 6
Delft (Nederlands)

Dr. L. Gary Leal
Department of Chemical Engineering
California Institute of Technology
Pasadena,
California 91109
U.S.A.

Dr. Ing. Jan Tomas Lindt
Koninklijke/Shell Plastics Laboratory
Delft,
Holland

Mr. Satish C. Sharda,
California Institute of Technology
23 Spalding
Pasadena,
California 91109 U.S.A.

PAPERS FOR REOLOGICA ACTA

Members are asked to note that papers for publication in *Reologica Acta* should be submitted to one of the three British Editors, viz.:

Professor J. G. Oldroyd, Department of Applied Mathematics,
The University of Liverpool.

Professor A. G. Ward, Department of Food and Leather Science,
The University of Leeds.

Dr. K. Walters, Department of Applied Mathematics, University
College of Wales, Aberystwyth.

They will ensure that the paper complies with the requirements of the journal and arrange for suitable referees. If prospective authors have any doubts or difficulties it is recommended that they should seek advice from Dr. Walters who is also a member of Council.

THE 1970 SURVEY OF BRITISH RHEOLOGICAL RESEARCH

At regular intervals the National Engineering Laboratory conducts a survey of rheological research in Britain. The fourth of these surveys, covering work in progress during 1970, was published at the end of 1971 as NEL Report No. 493.

This is a completely new survey, not merely a revision, and contains about 50 per cent more information than its predecessor published in 1969, covering subjects ranging from medical research to plastics technology. It gives details of some 1,031 research projects being carried out in 581 laboratories and includes an index of 1,486 workers active in the field of rheology at the time of its compilation.

Copies of the survey may be obtained from the National Engineering Laboratory, East Kilbride, Glasgow.

DIARY

1972

5-6 October. Conference: Testing of Polymers for Service. Buxton (Plastics Institute).

31 October. BSR Afternoon Meeting on "Linear Viscoelasticity" followed by Annual General Meeting. London—venue to be announced.

29-30 November. 2nd Plastics Institute National Technical Conference (PINTC). London.

1973

8-10 January. 5th Cranfield Conference: Designing to Avoid Failure. (Plastics Institute.)

20-21 February. Conference: Plastics in Bearings. Solihull. (Plastics Institute.)

26-29 March. 2nd Churchill Conference: Yield, Deformation and Fracture of Polymers, Cambridge. (Plastics Institute.)

27 March. Symposium: Rheology of Particulate Systems. (Powder Advisory Centre.)

9-13 April. Postgraduate School in Rheology. School of Pharmacy, University of London.

26-27 April. Joint Meeting with the Dutch Society: "Composites" and "Rheology in Industry". To be held near Utrecht.

OBITUARY

We have recently been notified of the deaths of two members, Mr. T. R. Scott, who was elected to the Society in 1945, and Mr. J. B. Crofts, elected in 1964. We extend to their families and friends our deepest sympathy.

WE WOULD LIKE TO HEAR FROM YOU

B.S.R. members are reminded that the Editor of the *Bulletin* is always interested in receiving informative articles, comments, news and other material which would help to make the *Bulletin* one of the more welcome sights in the flood of reading matter to which most of us are accustomed and resigned.

Suggestions of possible improvements in the *Bulletin* would also be welcome. So if you have a thought and a minute to put pen to paper why not let us hear about it?