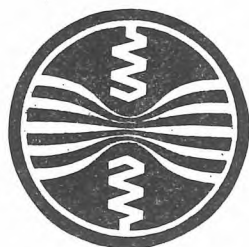


BULLETIN



BRITISH SOCIETY OF RHEOLOGY

1975, Vol. 18, No. 4

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Hon. Editor:

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



OFFICERS AND MEMBERS OF COUNCIL 1975-76

President: PROFESSOR K. WALTERS, Department of Applied Mathematics, University College of Wales, Aberystwyth.

Secretary: MR. F. N. COGSWELL, I.C.I. Ltd., Plastics Division, Welwyn Garden City.

Treasurer: DR. D. R. OLIVER, Department of Chemical Engineering, University of Birmingham, Birmingham B15 2TT.

Membership Secretary: DR. T. E. R. JONES, School of Mathematical Sciences, Plymouth Polytechnic, Plymouth.

Abstracts Editor: DR. D. MARSHALL, Institute of Polymer Science, Loughborough University of Technology, Loughborough.

Bulletin Editor: MR. M. CAMINA, Paint Research Association, Teddington, Middlesex.

Ordinary Members:

DR. K. M. BEAZLEY, 44 Brockstone Road, Boscoppa, St. Austell PL25 3DP.

DR. D. C-H. CHENG, Warren Spring, Laboratory, Stevenage.

MR. T. C. DAVENPORT, B.P. Research Centre, Sunbury-on-Thames, Middlesex.

MR. A. EVANS, Department of Surgery, Royal Victoria Infirmary, Newcastle-upon-Tyne NE1 4LP.

DR. J. FERGUSON, Department of Fibre Science, University of Strathclyde, Glasgow G1 1XW.

DR. J. M. HOBBS, National Engineering Laboratory, East Kilbride, Glasgow.

POLYMER RHEOLOGY AND PLASTICS PROCESSING

September 17th-19th, 1975, Loughborough

This conference jointly organised by the British Society of Rheology and the Plastics and Rubber Institute was attended by 175 delegates drawn from all quarters of the polymer scene. There are four groups working in this field each with its clear banner: the industrialist asks himself is it profitable; the empiricist says does it work; he who measures asks does it differentiate; and the theoretician is concerned with is it true. The casual observer might be excused for thinking that these four groups compete rather than co-operate. It would have been a pleasant duty to report how each group was assisting one another both in achieving their immediate objectives and in formulating the future: there was evidence of such collaboration, but there were also many hard words. The organisers believe that those words needed saying in public and that all parties will have profited by the frank exchange of views.

Mr. Kennaway opened the conference with a succinct account of the view from industry. "Many industrialists" he claimed "remain triumphantly unconvinced of the value of intellect." A hard world indeed where the academic must go more than half way in constructing the economic justification for anything which he proposes. Mr. Maskell, Mr. Gregory and Mr. Smith permitted us more glimpses of facts of life in their discussions of blow moulding, extrusion coating and submarine cable extrusion. The facts of life which Mr. Gasper revealed in summing up for the industrialists were of another kind. The control and operation of processing equipment is becoming ever more sophisticated and the future will belong to those who understand what they are about.

Opening for the theoreticians Dr. Hinch concerned himself with the behaviour of individual molecules. Building from elementary mathematical assumptions he showed how the combination of a low concentration of very long molecules and stretching flows could produce anomalous effects. The very real problems and advantages of a high molecular weight tail in polymer processing was returned to by several authors. Dr. Halmor and Dr. Lindt presented theoretical studies of melting behaviour in single screw extruders—surely the most complicated stage in processing. Dr. Petrie showed that not all theories need to be complicated by considering the distribution of material in a rectangular blow moulding. Finally theory is active in the characterisation of materials. By developing a general description of strain, Dr. Phillips demonstrated how linear viscoelastic response could be used to predict a wide range of flows.

Professor Parnaby advocated a lumped parameter approach to the design and control of machinery and Dr. Worth demonstrated this approach in an empirical study of wall slip and its influence on screw

extruders. Mr. Matthews reviewed the application of rheology in such studies. Dr. Janssen elegantly demonstrated the factors affecting flow in a twin screw extruder and Mr. Glyde discussed the phenomena observed in the calendaring of plastics. Injection moulding was the theme of Mr. Barrie, Dr. Wubken and Dr. Moroni. Mr. Barrie considered the irreversible flow of money, setting targets for growth in this industry. Dr. Wubken was concerned with the possible effects of the energy stored in mouldings because of the elastic nature of the melt while Dr. Moroni presented a "rheotechnical" approach to the mould filling process emphasising that to be useful on the shop floor calculations must also be simple. Summarising the empirical analysis of polymer processing Mr. Powell emphasised the need for data on polymer properties if we are to take full advantage of the computational facilities now available to aid our designing.

A further selection of empirical papers considered some of the unusual phenomena which are encountered in processing. Away from polymer melts Dr. Couzens demonstrated how empirical rheological studies could be exploited by machinery design to improve the properties of P.T.F.E. paste extrusions. Mr. Hanson and Dr. Mackley discussed the problems and opportunities created by crystallisation in flowing melts, and Dr. Marshall emphasised the influence of different kinds of plasticisers on the rheology of P.V.C. With filled polymers of increasing importance Professor Kubat showed how filler particles migrated into fast flowing streams during injection moulding. Even simple flows could produce local variations of filler concentration from 2 to 20 per cent on a nominal 10 per cent volumetric filling. All these are effects as yet imperfectly understood and incompletely exploited.

There are also new developments in measuring techniques. Professor Dealy presented an approach to pictorial representation of the non-linear dynamic response of melts. He also introduced new measurements on elongational flows a theme which was returned to by Dr. Deprez, who reported substantial differences in the qualitative response of linear and branched polyethylenes. Dr. Paul considered the especial problems in making measurements on thermosetting compounds: significant advances have been made thanks to the development of a ram extruder with very short residence time. Those authors were using highly sophisticated rheometers but Mr. Maskell demonstrated how to use relatively simple tests based on the Melt Flow Index test to obtain qualitative information on the shear thinning, elasticity and stretching response of melts.

A special session of the conference was devoted to an open forum about attitudes to research into polymer rheology and plastics processing in universities and in industry. The meeting was being held at a time when the formation of a Polymer Engineering Directorate under the auspices of the Science Research Council is imminent. It is understood that the Directorate is to have substantial funds. The

formation of the Directorate would give a channel for the solution of industrial problems and was welcomed as such although somewhat cautiously by those who foresaw a growth of bureaucratic interference. Mr. Cogswell remarked that nearly all of our plastics processes had been pirated from traditional materials—what we needed was research to develop the true plastics processing methods which would exploit polymer rheology rather than overcome it. Mr. Maskell entered a plea for consumer guidance on the selection of polymers and processing equipment: data on energy consumption, output quality and rates for a range of polymers and machinery is urgently needed in the industry. Supporting the plea for more data Mr. Powell suggested that we may already have done enough research: what is needed is consolidation and exploitation of our present knowledge. As viewed by Professor Pearson it is a lack of knowledge which is the principal problem of the industry, and industry can only gain that knowledge by supporting teaching establishments and attending them: it is the duty of the scholar to read, comprehend, digest and expound. Dr. Challis observed that during the conference both academics and industrialists, both empiricists and theoreticians, had cast out lines to each other: apparently there is more eagerness to cast the line than to take it up. We may perhaps look forward to that as the first task of the new Directorate.

F. N. Cogswell.

MINUTES OF THE 35th ANNUAL GENERAL MEETING

The 35th Annual General Meeting of the Society was held at the University of Technology, Loughborough, on Wednesday, September 17th, 1975. The President, Professor K. Walters, took the chair at 17.35. 23 members were present.

1. *The Minutes of the 34th Annual General Meeting* held at Cambridge, on September 17th, 1974, were read, adopted as a correct record and signed.
2. *Arising from the Minutes* the abstracts of the Salford meeting had not been carried in Rheology Abstracts as a separate item but will appear in due course as the papers are published.
3. *The Secretary* reported that the first President of the Society, Sir Geoffrey Taylor, had died during the year.

The past year had included the successful meeting on Theoretical Rheology at Cambridge (September 1974) organised by Professor Pearson, Professor Walters, Mr. Hutton and Dr. Hinch. The proceedings had been much in demand and were now available. Dr. Cheng had taken the brunt of the organisation for the conference on Experimental Rheology at Shrivenham (April 1975). That meeting, in conjunction with the Italian Society, had been

well supported and an away replay was already being planned.

The present meeting on Polymer Rheology and Plastics Processing was organised in conjunction with the Plastics and Rubber Institute. The meeting was particularly timely coinciding with the formation of the S.R.C. Polymer Engineering Directorate. Dr. Marshall was to be congratulated on the smooth running of the local arrangements.

April 8th-9th, 1976 would see a joint meeting with the Faraday Society in Bristol on Colloid Rheology. Dr. Warburton and Mr. Camina were our representatives on the organising committee. The VIIth International Congress would be held at Gothenburg from August 23rd-27th, 1976. A package tour had been arranged and details were available in the Bulletin. Professor Kubat anticipated that the forthcoming meeting would be smaller than its immediate predecessors. Present submissions of papers were heavily weighted to the theoretical side and Professor Kubat was anxious to obtain more practical contributions. In reply to a question from the chair, Professor Kubat said that he hoped to offer Research Students a significant reduction in Conference fee. Professor Smith proposed and Dr. Jones seconded that the Society should make available £150 to assist with the travelling expenses of research students attending the Congress. The proposal was carried without dissent: details will be worked out in Council.

The Autumn meeting in 1976 would take the form of an afternoon scientific meeting on "Future Developments in Rheology" on October 1st, 1976. The meeting would be followed by a dinner. It is hoped that Spring 1977 will bring a joint meeting with the Italian and Dutch Societies in Italy.

The Secretary invited members who felt that their particular interests were not being served by existing conferences to advise him accordingly. All that was needed was a title, a nucleus of papers and a willing organiser.

During the past year Council had investigated several proposals for extending or modifying the Society's activities. Their conclusion had been that the present balance was about right but they would welcome advice from members on this point.

The Secretary was indebted for the discreet guidance of Dr. Beazley in coming to terms with the Society's correspondence and organisation.

4. *The Treasurer* reported that the Society had had another good year financially. Despite rapidly escalating costs and £392 for the new membership list, we had made a gain of £708 over the year. The gains from conferences set a record largely due to the successful meeting with the Italian Society: of the £803 gain from the Shrivenham meeting £213 had been passed to the Italian Society.

Income from subscriptions had increased due to the recovery of overdue payments from Australia, from the activities of Dr. Kearsley in collecting American subscriptions and from some members taking advantage of the opportunity to pay £10 for five years' membership. Investment income was £321 and Dr. Oliver was taking steps to improve this. Our share of the profits from Rheology Abstracts was disappointingly low at £335 but following new arrangements with Pergamon this was expected to increase. Council expenditure had risen partly as a result of increased travelling expenses but also because the financial year had included four meetings instead of two in the previous year. Council had held a lunch this year to mark its 200th meeting at a cost of £32. A copy of the full account is appended.

Dr. Wherlow asked if those members who had taken advantage of the five-year subscription should be recorded as creditors. Dr. Oliver accepted the point but reported that this was not the case—the auditors had accepted this procedure.

Dr. Wherlow proposed and the Treasurer seconded that Alfred Simmons and Co. be appointed auditors for the coming year.

5. *The Membership Secretary* reported that our membership remained constant at 570. Two-thirds of our members were domiciled in the United Kingdom but only one-third of new applicants were. A recruiting exercise via the N.E.L. survey on Rheology in Britain had been unsuccessful.
6. *The Editor of the Bulletin* apologised for the delays which had affected this year's Bulletins. Dr. Hobbs thanked those who had contributed news items, notices and reports during the year. He felt that there was a shortage of brief technical contributions for which the Bulletin could provide a useful early publication.
7. *The Editor of Rheology Abstracts* had maintained both the same strength on his abstracting team and the same number of abstracts. However at present we had no abstractor for food journals (volunteers please). Following a renegotiation with Pergamon by which the Editor would supply camera-ready copy we should improve the profitability of Rheology Abstracts to the Society. This change would mean substantial additional work for the Editor and the Abstracts would no longer be quite so neat (the right hand register would be lost). It was proposed to try the new system for two years.
8. *The President* thanked all officers for their service and particularly Dr. Ferguson and Dr. Hobbs who were surrendering their posts as Membership Secretary and Editor of the Bulletin respectively, and to Dr. Marshall, the Editor of Abstracts, for undertaking additional work on behalf of the Society.

9. *The Election of Council for 1975-76.* There were no nominations for Council additional to those suggested by the retiring Council. The following members were therefore declared to be elected to serve:

<i>President</i>	Professor K. Walters
<i>Secretary</i>	Mr. F. N. Cogswell
<i>Treasurer</i>	Dr. D. R. Oliver
<i>Membership Secretary</i>	Dr. T. E. R. Jones*
<i>Editor Abstracts</i>	Dr. D. E. Marshall
<i>Editor Bulletin</i>	Mr. M. Camina*
<i>Ordinary Members</i>	Dr. K. M. Beazley
	Dr. D. C-H. Cheng
	Mr. T. C. Davenport*
	Mr. A. Evans
	Dr. J. Ferguson*
	Dr. J. M. Hobbs*

* indicates a new appointment.

There being no further business the meeting closed at 18.20.

F. N. Cogswell (23.9.75)

REPORT OF THE HON. TREASURER FOR THE YEAR 1974-75

We have had another good year financially, but the pattern has changed somewhat. We made a gain of £708.21 over the year, despite the cost of printing a new membership list (£392.00).

The Conference Account broke records, largely due to the highly successful joint meeting with the Italian Society of Rheology at Shrivenham in April. Various unknown factors, including the cost of placing excess participants in hotels, needed to be allowed for, but all turned out well in the end, the gain to us being £802.77 (with £213.33 paid to the Italian Society). The Cambridge meeting of Autumn 1974 was also successful, with many papers of high standard. This made a gain of £46.42, with £430 already set aside for the publication of the Proceedings.

The Subscriptions and Entrance Fees show a significant rise, assisted by £114 from the Australian members of the Society. Several members took advantage of the offer to pay £10 for a five-year period of membership; this has given a temporary boost to the takings. The Membership Secretary is complimented on his assiduous debt-collecting!

The Investment Income has reached the total of £321.48, but this could be increased and the Treasurer is taking the appropriate steps.

Under "Expenditure", Council expenses show a big rise, but four full meetings were held during the year compared with two in 1974 (Council costs were £239 in 1974 and £271 in 1973). A lunch for the Council was held this year to mark the 200th meeting, the cost being £32.40.

Expenditure appears to show a big rise, but without the one-off printing of the Membership list, is £1,546.19 compared with £1,128.35 in the previous year.

Our share of the profits from the publication of Rheology Abstracts is disappointingly low at £334.93 (not yet received on July 11th, 1975). The Treasurer had felt there was always a danger of such a fall, since we have no direct contact with Pergamon Press prior to the presentation of accounts. Our share of the takings has fallen from 17.8% in 1967 to 6.6% in 1975. The Treasurer and Abstracts Editor have an appointment with Pergamon Press in late July.

The overall impression conveyed by the Accounts is of cautious optimism.

D. R. Oliver, *Hon. Treasurer.*

BRITISH SOCIETY OF RHEOLOGY

BALANCE SHEET as at June 30th, 1975

	£	£
ASSETS		
Brentwood U.D.C. 7% Bond		1,500.00
Trustee Savings Account		1,471.21
Debtors	15.75	
	334.93	
		350.68
Cash at Lloyds Bank		
Deposit Account	2,221.54	
Current Account	156.69	
		2,378.23
		<u>£5,700.12</u>
<i>Less</i>		
CURRENT LIABILITIES		
Sundry Creditors	23.71	
	430.00	
	27.50	
		481.21
		<u>£5,218.91</u>
NET ASSETS		
Represented by:		
General Fund as at July 1st, 1974	4,394.65	
Add Excess of Income over Expenditure for year	708.21	
Add Trustee Savings Bank Interest	116.05	
	<u>£5,218.91</u>	
 CONFERENCE ACCOUNT		
Gain on Autumn 1974 (Cambridge) Meeting		46.42
Note: Includes assumed £430 for publication Proceedings		
Gain on Spring 1975 (Shrivenham) Meeting		756.35
Note: A sum of £213.33 was also paid to the Italian Society of Rheology		
		802.77
<i>Less</i> Cash Float for Autumn 1975 (Loughborough) Meeting		20.00
Net Income shown in Revenue Account		<u>£782.77</u>

D. R. Oliver, *Hon. Treasurer*
July 11th, 1975

Alfred Simmons & Co., *Auditors*

BRITISH SOCIETY OF RHEOLOGY

REVENUE ACCOUNT for year ended June 30th, 1975

1974			1975	
£	£		£	£
		EXPENDITURE		
		Committee Expenses (mainly travel)		
226		Council	475.79	
13		B.N.C.M.	5.93	
239				481.72
615		Bulletin Production Costs		686.67
85		Abstracts Production Costs		104.36
		Expenditure by Officers		
19		Secretary	56.30	
11		Treasurer	14.84	
117		Membership Secretary and Circulation	160.05	
147				231.19
27		Professional Fees		27.00
16		Miscellaneous Expenses <i>e.g.</i> Insurance		15.25
—		Printing Membership List		392.00
				1,938.19
872		Excess of Income over Expenditure for year		708.21
				<u>£2,646.40</u>
		INCOME		
1,009		Annual Subscriptions and Entrance Fees		1,255.46
666		Publisher—Rheology Abstracts		334.93
5		Bulletin Subscriptions		13.00
15		Advertising in Bulletin		—
—		Sale of Membership List		50.00
		Investment Income		
71		Bank Deposit Account Interest		101.48
103		Brentwood Bond		103.95
129		Conferences—net gain		782.77
2		Miscellaneous Income		4.81
				<u>£2,646.40</u>

July 11th. 1975

PERSONAL NOTES

At this time of year it is my duty to bid farewell to retiring members of Council and to welcome new ones. This year, as a result of some exchanged roles, we are losing only one member—Dr. P. Sherman, and we are grateful for his contributions to the Society during this term of office.

The duties of Membership Secretary have now fallen upon the broad shoulders of Dr. Jones who has lost no time in filing all our names and addresses on a computer.

From the next issue of the *Bulletin* the editor's blue pencil will be in the capable hands of Mr. M. Camina.

So as not to waste valuable experience, Drs. Ferguson and Hobbs continue to serve on Council as ordinary members. They are joined by our new man Mr. J. C. Davenport, to whom we extend a hearty welcome.

Tom Davenport graduated in Physics at U.C.W. Aberystwyth in 1948. Since then he has been employed in British Petroleum. He worked for three years at a refinery and was then transferred to their Research Centre where until 1970 he worked on the Rheology of fuel oils and crude oils. During this time he was involved in the rheological design work for major crude oil pipelines in India, Libya and Alaska. He is now Manager of the Applied Physics Branch at the Research Centre. He has been a member of the B.S.R. since 1960 and is a Fellow of the Institute of Physics.

His hobbies are caravanning and taking a broad interest in nature and the environment.

CONFERENCE QUOTES—LOUGHBOROUGH 1975

"Many industrialists remain triumphantly unconvinced of the value of intellect."—A. Kennaway.

"I never remember which way up it goes."—G. A. R. Matthews on the Deborah Number.

"An over zealous secretary shredded the programme."—B. S. Glyde.

"It is the duty of the scholar to read, comprehend, digest and expound."—J. R. A. Pearson.

"The Scientist does what he can: the technologist does what he has to."—A. A. L. Challis.

"Explosive crystallisation."—M. R. Mackley.

"Money talks, technology whispers, theories are beautiful—but silent."—I. T. Barrie.

"My job is telling other people how to do their jobs."—J. R. A. Pearson.

As with any quotation out of its original context the above lose much of their original impact. However, it is to be hoped that they may remind those who attended of some of the moments and give those who did not attend some of its flavour.

VIIth INTERNATIONAL CONGRESS ON RHEOLOGY

Travel Grants for Students

At the last Annual General Meeting it was decided that the Society should make a sum of money available to assist students engaged on research in rheology to attend the VIIth International Congress. Members of the Society, who are full-time students, may apply in writing to the Secretary to be considered for an award and that application should be endorsed by the student's supervisor. The amount and number of the awards will be at the discretion of Council. Applications should be made as soon as possible and not later than March 1st, 1976.

Publication—"POLYPROPYLENE FIBRES IN TEXTILES"

Papers presented at the Polypropylene fibres in textiles conference, organised by the Plastics and Rubber Institute, on September 30th and October 1st are now available from the P.R.I.

In the light of rapidly increasing polypropylene usage, the conference programme set out to consider in detail all aspects of polypropylene fibre technology and the current status of the industry, and then to assess its future role especially for textile fibres. Sessions on:

- (a) Floor coverings—backing fabrics and yarns, and face fibre;
- (b) Industrial fabrics and other textile application;
- (c) Raw materials and additives;
- (d) Processing and properties—fibre/yarn production (film based/melt spinning) and fibre/yarn processing;
- (e) Marketing aspects;

were covered and the programme concluded with a general forum which discussed future prospects for polypropylene fibre manufacture, processing and usage.

Bound volumes of all 41 papers presented can now be purchased from the Plastics and Rubber Institute, 11 Hobart Place, London SW1W 0HL, price £11.00 (P.R.I. members) and £17.00 (non members) including postage and packing (surface mail overseas)—*payment with order please.*

LECTURE SERIES AT THE VON KARMAN INSTITUTE INTRODUCTION TO RHEOLOGY

February 16th-20th, 1976—Brussels, Belgium

Lecturers

Professor K. Walters, University College of Wales.

Dr. J. Hinch, University of Cambridge.

Mr. J. Hutton, Shell Research Ltd., Thornton Research Centre.

Professor J. R. A. Pearson, Imperial College.

Dr. D. R. Oliver, University of Birmingham.

The course will be given in English. Further information may be obtained from:

Professor M. CARBONARO,
von Karman Institute for Fluid Dynamics,
Chaussée de Waterloo 72,
1640 Rhode-Saint-Genèse,
Belgium.

RESEARCH PROJECTS IN REINFORCED PLASTICS

February 18th-19th, 1976, London

The Reinforced Plastics Group of the Plastics and Rubber Institute is to hold its fourth conference on "Research projects in reinforced plastics" at the City University, London EC1V 4PB. The aim of the conference is to bring together all active research workers in the field of reinforced plastics to discuss present and continuing research in universities, government and industry.

RHEOLOGY OF COLLOIDS

A two-day joint meeting of the B.S.R. with the Colloid and Interspace Science Group of the Faraday Division of the Chemical Society will be held at the University of Bristol on April 8th and 9th, 1976.

Further information from Dr. J. W. Goodwin, School of Chemistry, University of Bristol, Bristol BS8 1TS.

EFFECTS OF THERMAL HISTORY ON PLASTICS PROPERTIES

May 1976, in London

The Polymer Properties Group of the Plastics and Rubber Institute is organising a meeting entitled "Effects of thermal history on plastics properties" which will be held in London in May 1976.

Purpose

Advances in plastics processing and a greater appreciation of thermal effects have resulted in a significant increase in the understanding of the relevant changes in polymer properties. This meeting will aim to consider and discuss the nature of polymeric changes and suggest means by which they may be circumvented or controlled.

Programme

The programme will consist of three sessions: engineering, packaging and processing. The topics under discussion include impact, organoleptics, barrier properties, stress cracking, flex life, distortion, creep, ageing, processing and control systems.

The meeting should be of interest to those working in polymeric fields in commercial, industrial, Government and research establishments, and to materials suppliers and designers.

For further information, please contact Miss S. M. Keeble, Executive Officer (Meetings), The Plastics and Rubber Institute, 11 Hobart Place, London SW1W 0HL. (Telephone 01-245 9555.)

SEVENTH INTERNATIONAL CONGRESS ON RHEOLOGY

Gothenburg, 23rd-27th August, 1976

The latest information available indicates that the number of contributed papers to the congress is now in the vicinity of 260, which is about the same as in Lyon. In addition to this are the 25 or so invited or otherwise longer papers. The number of delegates who are not presenting papers is about 500.

B.S.R. ANNUAL MEETING

1st October, 1976

"FUTURE DEVELOPMENTS IN RHEOLOGY"

Because of the International Congress on Rheology the B.S.R. Autumn Meeting will comprise a half-day scientific session during which the President and Mr. Davenport will speak. Other leading figures in Rheology will also be invited to contribute. The A.G.M. will be held after the scientific session and finally a dinner will be arranged at a venue yet to be decided.

APPLICATIONS FOR MEMBERSHIP

Mr. H. Coster f,et,sa,D.	Borg—Warner Chemicals, P.O. Box 8122, Amsterdam—1017, Netherlands.
Mrs. M. A. Dewis, B.Sc., GRIC. f,e,a,D,E.F.G.	British Sidac Ltd., Wigton, Cumbria, CA7 9BG.
Dr. D. Eagland, B.Sc., Ph.D., A.R.I.C. f,et,sa,D,G,M,	School of Pharmaceutical Chemistry, University of Bradford, Bradford, BD7 1DP.
Mr. C. Koen, Diploma of Tech. University (Delft) p,e,a,D,F,G,H,J,L.	2 Rue du 4 Septembre, 78750 Mareil—Marly, France.
Mr. J. M. Rallison, B.A. f,t,s,D,F,G.	D.A.M.P.T., Silver Street, Cambridge, CB3 9EW.
Dr. M. G. El-Sherbiney, B.Sc., M.Sc., Ph.D. p,et,sa,A,B,C,F,G,J,N.	Dept. of Trans. Tech., University of Technology, Loughborough, Leicester, LE11 3TU.
Mr. M. Jensen, Mech.Eng., B.Com., M.Sc. f,e,a,D.	Teknologisk Institut, Bronshøjvej 17, D.K.—2700, Bronshøj, Denmark.
Dr. H. Muenstedt, Dr., Diplom- Physiker f,e,sa,D,G.	B.A.S.F. Aktiengesellschaft, W.H.M., G 201, D—67 Ludwigshafen/Rhein. Germany.
J. G. Evans, B.Sc. f,t,s,D,G.	D.A.M.P.T., Silver Street, Cambridge, CB3 9EW.

RESIGNATIONS

Mr. P. T. Galvin	Physics Dept., Surrey University.
Miss H. S. Yalabik	Chelsea College, London University.

DIARY

1976

- 16-20 February.** "Introduction to Rheology", Von Karman Institute, Brussels.
- 18-19 February.** "Research Projects in Reinforced Plastics", City University, London.
- 9 March.** "New Processing Techniques for Polymers", Hotel Leofric, Coventry.
- 5-6 April.** "Microscopy of Organic Sediments", Oxford University (Royal Microscopical Society).
- 7-9 April.** "Pneumotransport 3", Bath (Vol. 18 No. 3).
- 8-9 April.** "Rheology of Colloids", Bristol.
- 8-9 April.** "Hydraulic Cement Pastes", Tapton Hall, Sheffield University (Vol. 18 No. 3 for details).
- 5-16 July.** "Modern Microscopy, Photomicrography and Materials Microscopy", Brunel University (Royal Microscopical Society).
- 23-27 August.** VIIth International Congress on Rheology, Gothenburg, Sweden.
- 13-17 September.** "MICRO '76", Wembley Exhibition Centre, London.
- 1 October.** "Future Developments in Rheology", B.S.R. Autumn Meeting, A.G.M. and Dinner, London.