

THE BRITISH SOCIETY OF RHEOLOGY

BULLETIN



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THE BRITISH SOCIETY OF RHEOLOGY
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EDITORIAL

It is a pleasure to report in this issue of the Bulletin of the award to a member of the society of a Silver Jubilee Medal of the British Paper Industry Technical Association.

Also there are reports on the first of the Treloar Memorial Lectures held at UMIST and on the Leeds conference on Deformation in Solid Polymers.

Those who have ambitions to go 'down under' next year - I refer of course to the Xth International Congress at Sydney, Australia - should take note of the Secretary's comments regarding travelling arrangements.

Finally the Secretary would like to remind members that the distinctive and distinguished British Society of Rheology tie, in navy blue with the Society's motif woven in red, is still available from him at the pre-Budget price of £5.50, including postage. This price can only be held whilst stocks last.

Peter Townsend

Peter Townsend



THE LRG TRELOAR MEMORIAL LECTURE

Professor Sir Sam Edwards presented the first Treloar Memorial Lecture at the University of Manchester Institute of Science and Technology on Tuesday, 19th November 1986. The lecture was attended by over one hundred people drawn principally from the faculty and students of UMIST but including a number of delegates from other university and industrial groups: it is a particular pleasure to record the presence in the audience of Mrs. Treloar together with several of her family.

Professor Edwards charted for us the development of the theoretical treatment of Polymer Molecules in the condensed state from the pioneering studies of Professor Treloar to the modern theories of reptation. Those of us who are inexpert in this field were particularly grateful for the lucidity of the physical description which supported this exposition. There were, however, no compromises on the rigour of the treatment and Professor Edwards reminded us that, despite the advances that had been made, there remains a great deal of work to be done before we have a full understanding of the phenomena of deformation in Polymers. The lecture concluded with a period of discussion whose animation was a tribute to the memory of our late colleague Professor Treloar.

F.N. Cogswell

BRITISH PAPER INDUSTRY TECHNICAL ASSOCIATION

SILVER JUBILEE MEDAL

The British Paper Industry Technical Association (PITA) is to award one of the two Silver Jubilee Medals which it will present this year to Dr. Ken Beazley of English China Clays International, St. Austell. The award, which is made in recognition of distinguished services to the Association or of significant contributions to the technology of the industry, has been made in this instance on the grounds of the recipient's published work. This consists of three dozen items dealing mainly with the rheology of clay suspensions or paper coating mixes, and with the mechanics of paper filling.

Dr. Beazley has been a member of this Society for many years, including a lengthy term as a member of council. I'm sure all members of the society will join with me in offering congratulations to Ken on this prestigious award.

Editor

Deformation in Solid Polymers

Leeds University 9-11 September 1986.

The Conference was run jointly with the Polymer Physics Group of the Institute of Physics. The mixture of papers and disciplines sparked off many interesting discussions. Indeed on one occasion the discussions were so lively that the outgoing President, Professor Ian Ward had to curtail his Presidential address on the Creep Behaviour of Orientated Polyolefins, otherwise the delegates would have had to forgo their lunch!

Not all the papers will be described and it is hoped that presenters at the conference will not be offended. Just a few of the papers are summarised to give a flavour of the meeting.

A notable occasion was the paper given by Dr.N.McCrum on the Elimination of Viscoelastic Error from f_e/f Studies of Elastomers. In this paper McCrum questioned the validity of Flory's work since in his opinion the samples used by Flory were not in equilibrium. Question is when is a polymer in equilibrium?

Dr.Mackley presented an interesting paper in which he described a novel technique for producing polyethylene with strengths of the order of 2 GPa and modulus of 100 GPa. The technique involves the drawing of the polymer from a gel made up by dissolving high molecular weight polyethylene in a solvent. Another method is to hot draw the material from a well swollen sample of polymer.

Dr.Alan Windle gave a paper on the orientation of chain segments whilst the polymer was being strained. He suggests that in the condensed phase, an anisotropic segment will tend to orientate in a quadrapolar rather than a dipolar sense.

Professor Parsons gave a very interesting paper on the hydraulic extrusion of polymers, such as linear polyethylene which were subjected to very large plastic deformations as the material was squeezed through the conically converging dies. As a result much molecular orientation occurred in the polymer. This orientation gave rise to increased linear stiffness, strength, and creep resistance.

On the whole, the conference was dominated by papers on the deformation of polymers rather than on the deformation of polymer melts. It was noticeable that many of the papers used phenomenological equations to describe the behaviour of their systems. Curve fitting in this way is acceptable for predicting the characteristics of the polymer for say engineering needs. These analyses, however do very little to advance our understanding of the processes occurring when polymers are subjected to various stresses. It was a little disappointing that there were not more papers giving us a mechanistic description of polymer behaviour.

On the social side, the highlight of the conference was the donation of no less than three awards. Dr. Malcolm Mackley was awarded the Beil Medal on behalf of the Faraday Section of the Royal Society of Chemistry. The Medal was presented by Neil Cogswell our current President. The Annual award was given to Dr. Toms of the Tom's Effect fame, and the Gold Medal was awarded to Professor Pearson. These acclamations were presented by Professor Ian Ward.

The accommodation and the food at Devonshire Hall was excellent, and the conference proceeded smoothly. Congratulations are due to Steve Aldhouse and Ian Ward for running such a successful meeting.

MEMBERSHIP NEWS

The following applications for Membership of the British Society of Rheology were approved at the Council Meeting on the 12th December 1986.

Dr. John Alan BARNES
Imperial Chemical Industries PLC,
PO Box 90, Wilton
Middlesbrough,
Cleveland

B.Eng., Ph.D.

peta B

Mr. Roger Peter BROWNING,
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Times House, Ruislip
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B.Sc.

fetsa FGJM

Mr. Ahmed DALWAI,
Croda Resins Ltd.,
Crabtree Manorway,
Belvedere,
Kent, DA17 6BA

B.Sc. (Hons.)

feta BCDGHK

Dr. Richard Alan DUCKETT,
Department of Physics,
University of Leeds,
Leeds, LS2 9JT

B.Sc., M.Sc., Ph.D.

fetsa BC

Mr. Robin Emile EVANS,
Department of Mathematics,
University College of Wales,
Penglais, Aberystwyth,
Dyfed.

M.Sc.

fesa CDF

Mr. Kevin George GOUGH,
Contraves Industrial Products,
Times House, Ruislip,
Middlesex, HA4 8LH

C.Chem, MRSC

petsa DFGJM

Dr. Margaret L. GREEN,
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Shinfield,
Reading, RG2 9AT

M.A., Ph.D.

fesa L

Dr. Julian HOLLOWAY,
Thos. de la Rue,
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Maidenhead,
Berks., SL6 8LA

B.Sc., M.Sc., Ph.D., MRSC, C.Chem.

pea DFGJ

Mr. David Michael JONES,
Department of Mathematics,
University College of Wales,
Penglais, Aberystwyth,
Dyfed.

B.Sc., M.Sc.

fesa D

Miss Sarah Helen JONES,
Department of Mathematics,
University College of Wales,
Penglais, Aberystwyth,
Dyfed.

NDD, HNC.

fesa DFLM

Dr. Gary Peter MARTIN,
Department of Pharmacy,
Brighton Polytechnic,
Moulescoomb,
Brighton, BN2 4GJ

B.Pharm., Ph.D., MPS.

pesa FGM

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Dow Chemicals (Nederland) B.V.,
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HOLLAND.

B.Sc., Ph.D.

fetsa CDG

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Essex, CM20 2AH

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Kilfrost Ltd.,
Albion Works, Haltwhistle,
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Ph.D., C.Chem., MRSC

feta D

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University of Technology,
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B.A., Ph.D.

fetsa ACI

Mr. Philip TAYLOR,
Contraves Industrial Products,
Times House, Ruislip,
Middlesex, HA4 8LH

HNC

feta O

Dr. George T.Y. WAN,
FMBRA,
Chorleywood,
Rickmansworth, Herts.,

B.Sc., Ph.D., DIC

fesa FGJL

Mr. Paul J. WEAVER,
Royal Ordnance Explosives Division,
Sewardstone Road,
Waltham Abbey, Essex.

fetsa CDE

Resignations.

Dr. Alan White, Middlesex Polytechnic, London. Joined in 1967.

Mr. R.C.Frost, Water Research Centre, Stevenage. Joined in 1979.

Movements.

Martyn Barker has moved from ICI, Billingham to ICI Europa Ltd., Kortenberg, Belgium.

Dr Richard A. Worth has moved from the Manchester Polytechnic to the Polytechnic in Gabarone, Botswana, Southern Africa.

Diary of Meetings

- 9-10 April 1987** Rheology of Suspensions and Particulate Solids, Bath.
Contact: **T.A.Strivens.**
- 7-11 June 1987** The Fifth Workshop on Numerical Methods in
Non-Newtonian Flow, Lake Arrowhead, California.
Contact: **L.G.Leal.**
- 2-4 Sept. 1987** Joint Meeting with the Belgian Rheology Society, Canterbury.
Contact: **C.J.S.Petrie.**
- 18-12 Jan. 1988** International Conference on Extensional Flow, Chamonix,
France.
Contact: **K.Walters** or **J.Ferguson.**
- April 1988** Flow Processes in Composite Materials.
Contact: **F.N.Cogswell.**
- 7-11 Aug. 1988** The *Xth* International Congress on Rheology, Sydney,
Australia
Contact: See separate announcement in this issue.

Xth INTERNATIONAL CONGRESS IN RHEOLOGY

Sydney, August 1988

The First Announcement for the Xth International Congress in Rheology was circulated with the last edition of the Bulletin. Although this meeting, to be held on 14th-20th August next year, is some time away, it would be very useful to get some idea of those interested in attending so that advantageous travelling arrangements can be made. Qantas have been nominated the "official carriers" for the meeting, and we have appointed a travel agent to co-ordinate travelling for UK delegates. The travel agent is:

**Ray Smith Travel
535 Hertford Road,
ENFIELD,
Middlesex**

**Telephone: 01-804-4326
Telex: 8954272**

For my sins, I've been nominated as the "UK Conference Contact", whatever that means, so please let either Ray Smith Travel or myself know if you are interested in attending this meeting. Depending on numbers, we will then endeavour to take advantage of any discounts available for parties.

**Roy Carter
Honorary Secretary**

Announcement

International Conference on Extensional Flow

A conference on Extensional Flow will be held in Chamonix, France from January 18 - 22nd, 1988. The conference is sponsored by the E.E.C. in association with the Universities of Strathclyde, Wales (Aberystwyth), Brest, Haut Alsace and Grenoble.

Attendance is limited to 65 participants. Further details may be obtained from:

**Professor K Walters, Department of Mathematics,
University College of Wales, Penglais, Aberystwyth,
Dyfed SY23 3BZ, U.K.**

or

**Dr J Ferguson, Department of Chemistry, University of
Strathclyde, Thomas Graham Building, 295 Cathedral
Street, Glasgow G1 1XL.**

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Teaching Staff:

Dr. H.A. Barnes
(Unilever Research)

Dr. D.C.-H. Cheng
(Warren Spring)

Dr. J. Ferguson
(University of Strathclyde)

Mr. J. Hutton
(Consultant)

Prof. K. Walters
(University College of Wales,
Aberystwyth)

Dr. R. Buscall
(ICI Runcorn)

Prof. M.F. Edwards
(Bradford University)

Dr. J. Goodwin
(University of Bristol)

Dr. T.E.R. Jones
(Reader in Rheology,
Plymouth Polytechnic)

Fees: £240 (member), £290 (non-member), £120 (student)

Contact: Ms. L.A. Hart, Royal Society of Chemistry,
30 Russell Square, LONDON WC1B 5DT

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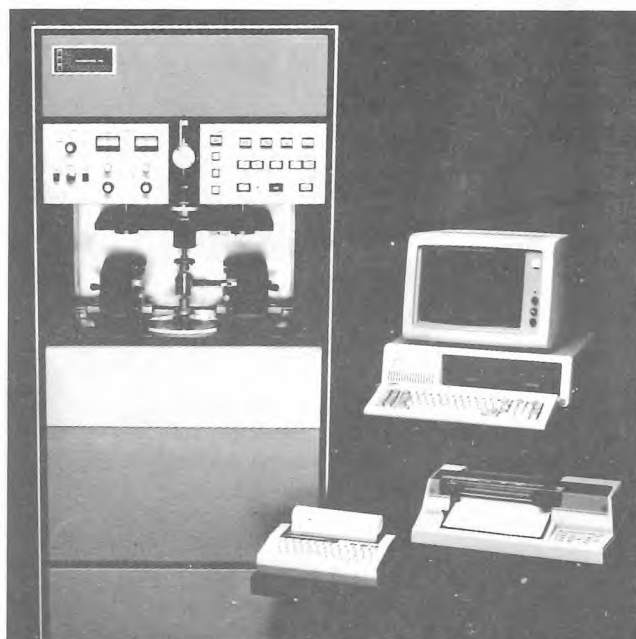
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