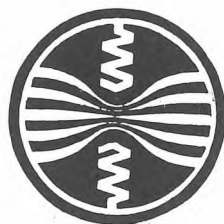


THE BRITISH SOCIETY OF RHEOLOGY

BULLETIN



1983, VOL. 26, NO. 3

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ISSN-0045-3145



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EDITORIAL

This issue brings you items that reflect the wide interest of the science of Rheology - a conference review of "Rheology in Crude Oil Production", a call for papers on "Optical Methods in the Dynamics of Fluids and Solids", the announcement of a new book by two members etc. etc. Promises have been made of articles on members' interests that again underline our very catholic interest. This journal is very much the organ for "news and views" in the wide area of Rheology rather than formal, highly technical research papers, which of course are catered for elsewhere and reviewed in our sister publication "Rheology Abstracts".

The next issue of the Bulletin will include a "bumper" edition of the Diary, kindly compiled by Chris Petrie, giving news of known meetings up to 1985. If you think you have anything to add that would be of interest to members, please let us know.

Conference Report
RHEOLOGY IN CRUDE OIL PRODUCTION
Imperial College, London, 14th - 15th April 1983

The aims of this meeting, the first joint venture between the the British Society of Rheology and the Society of Petroleum Engineers, were outlined by BSR President J.F.Hutton in his welcoming speech to the delegates on the first morning: to bring together rheologists, academics and petroleum engineers working in the field of oil recovery, in the hope that this contact will bring about an increased awareness of the practical problems faced by the field engineer and an appreciation of how rheologists can help solve some of these problems.

These aims were certainly achieved by the conference. About one hundred delegates were present with about half coming from various branches of the oil industry - chemical suppliers, field engineers, contractors and research institutes - while amongst the academics present there were those with a broad interest in all aspects of rheology as well as those with many years of involvement in the problems of oil production. The same breadth was apparent in the contributed lectures. The abstracts of these lectures have already been published in Rheology Abstracts (volume 26, no.1, pp. 40 - 50, 1983), so no attempt will be made here to summarise in detail all the contributions.

In the Opening Address, J.Geertsma began by remarking that, although no particular scientific discipline is favoured by the oil industry, rheology inevitably plays an important role since oil is produced by fluid flow in complex situations. He then proceeded to outline the main areas in which practical rheological problems arise, either through the deliberate use of rheologically-complex fluids - drilling muds, fracturing fluids, foams, polymer solutions - or through multiphase flow in an oil reservoir or pipeline and the formation of emulsions and microemulsions.

All of these topics were raised in the subsequent lectures. About a third of the papers were concerned with the use of

polymer solutions in enhanced oil recovery. Aspects of this technique that were discussed included: the effects of absorption of the polymer (G.Chauveteau, W.M.Jones); extensional flow effects leading to stretching of flexible molecules and increased resistance in both glass-bead packs and rock cores (W.M.Jones, R.H.J.Sellin, J.Heemskerk) and the relation with entrance effects in capillaries and orifices (M.Moun, D.H.Fruman); the effect of mechanical degradation, either during injection (R.S.Seright) or by pre-shearing to improve the rheological characteristics of the solution (J.Heemskerk), and the theoretical modelling of this process (K.S.Sorbie); and a report on a polymer-drive field-test in California (D.L.Kuehne). In his opening address, Geertsma had already mentioned chemical stability of the polymer as one of the main problems in polymer floods, since the polymer may remain in the reservoir for long periods at high temperatures and salinities, and this also seemed to be one of the major difficulties in choosing a polymer for use in channel blocking, where the aim is to cross-link the polymer after injection to reduce flow in that part of the reservoir (T.J.Dyson).

Talking on the topic that he himself pioneered, B.A.Toms discussed the drag-reducing properties of a family of linear polymers all derived from a parent polymer by chemical neutralisation, and thus having the same chain-length distribution. The neutralised polymers with an extended, rod-line structure were found to be more effective drag-reducers than the compact, random-coil parent.

A number of fascinating talks were given on the topic of two-phase flow. W.Olbricht reported on experiments with liquid drops, in both Newtonian and viscoelastic suspending fluids, flowing through constrictions and glass-bead beds. He has observed a remarkable new phenomenon in the glass-bead beds - local channelling of the flow when the suspending fluid is viscoelastic. With a Newtonian fluid, liquid drops flow through all parts of the bed; with a viscoelastic fluid above a certain flow rate, drops flow only along a small number of

(randomly determined ?) paths in the bed, the drops in the remainder of the bed being completely stationary. He suggested an explanation in terms of extensional flow effects, and his general message was that flow through porous media at the local level is dominated by local strain rates and local fluid properties.

Equally remarkable were the video films shown by R.A.Dawe and L.Coucoulas of the mobilisation by surfactant solutions of residual oil trapped in a two-dimensional micro-network etched on a glass plate (with pore dimensions in the range 30 - 200 μm). Complex multiphase behaviour could be seen, with long filaments of microemulsion extending over several pores, sometimes snaking past oil droplets and sometimes snapping-off and coalescing with the oil or water. Coexistence of water-in-oil and oil-in-water microemulsions was observed in the same pores.

Other contributions on two-phase flow were concerned with: snap-off mechanisms for an oil-drop, with the conclusion that these are unlikely to be effective at a pore constriction (E.J.Hinch); the effect of pore dimensions and displacement speed on the residual phase distribution in core-tests (B.Weinhardt); the numerical modelling of core-tests with miscible fluids (M.Munka); and pipe-line transport of oil-water emulsions (D.H.Fruhman) and shear-thinning materials with added air (R.P.Chabra). D.O.Shah, discussing microemulsion and foam systems, stressed the relationship between interfacial properties and displacement efficiency and breakthrough times.

The third major area concerned the rheology of drilling and fracturing fluids. P.Lundie and N.Johnson emphasised the effect of temperature on the rheology of drilling muds. Experiments were described in which the transfer of drill cuttings for highly deviated wells was simulated (M.Martin) and in which settling velocities in drilling muds were studied (P.A.Reynolds). Chemical aspects of the composition of drilling muds were considered by J.D.Schofield and A.J.Hinton. Talks on fracturing fluids discussed the experimental simulation and theoretical modelling of the settling of proppant in a hydraulic fracture (R.Hartley, standing in for L.P.Roodhart) and the use of

laser-Doppler anemometry to measure velocity distributions (D.Guillot).

In his customary forthright style, J.R.A.Pearson rounded off the meeting with some concluding remarks. He pointed out the immense range of length scales relevant in reservoir flow problems, ranging from molecular effects, through the small-scale structure of gels, foams, emulsions and pores, through small and large-scale geological inhomogeneities, to reservoir dimensions of a kilometre or more. There are difficulties in upgrading data from laboratory tests to reservoir applications; many interesting phenomena may be irrelevant to oil recovery, because they do not scale up or down correctly, while other phenomena may escape attention for the same reason. He also expressed the feeling that the relevant literature is not sufficiently studied by those facing rheological problems in the oil industry.

Maybe this latter point, if it is true, was in the minds of the organising committee when arranging this conference. If so, they must be satisfied with the result. They had the foresight to pick the only sunny period in April to hold the meeting, and the same excellent judgement was reflected in the rest of the organisation. Special thanks must go to T.E.R.Jones, who handled the preparations and local arrangements.

P.K.Currie.

Shell Research
 Rijswijk

TENTH ANNIVERSARY MEETING OF THE SOCIETY OF RHEOLOGY, JAPAN

KYOTO : 13-14 JUNE 1983

Kyoto is the ancient Imperial capital of Japan: A city of a thousand reflections from history which will be well remembered by the delegates to the 1968 International Rheology Congress. Today Kyoto is also the capital city of Rheology in Japan and the natural choice for a Birthday Celebration.

Welcoming the ninety delegates to the meeting Professor Onogi outlined the history of rheology in Japan from the first Reoroji Toronkai in Tokyo in 1951, through the difficult early years of the Society, up to its present flourishing state (the Society has about six hundred members). A copy of the speech by the President is appended.

Professor John D Ferry, who was honoured by the Society of Rheology, Japan, for his many distinguished contributions presented the keynote address in which he charted the early exploration of the phenomena of viscoelasticity. The triumphs of those early pioneers who wrung the basic laws from unyielding materials and temperamental, but elegant, equipment should long be remembered by those of us who press buttons and read the printout from a computer. Two key features of this opening address were picked up by subsequent authors during the meeting: the importance of the compliance function (creep and recovery under constant stress) as the most definitive rheological experiment; and, the need for any constitutive equation to have physical significance.

Of the remaining eleven lectures no less than seven were allotted to overseas contributors - who else I wonder would have a Birthday Party and allow out of town visitors to have the most of the fun! Amongst these papers the strongest single theme was the study of materials with complex morphology. These materials included: spherulitic polyalpha olefines - Kawai, solutions of block copolymers - Kotaka, polymer blends and crystallising polymers - White, cross-linked polystyrene beads in a polystyrene solution - Berry, polyvinyl chloride, liquid crystal polymers, and fibre reinforced composite materials. One of the major challenges facing rheologists in the years ahead is to integrate the skills of morphology with those of mechanics so that the interaction between flow and structure can be measured directly rather than inferred from experience.

A second theme of growing importance is described as chemo-rheology (being the influence of chemical change on rheological response and of flow history on chemical structure). This theme was explored by Murakami, by Han and by MacIntyre.

Truly there are new and exciting areas of rheology being explored at every turn and the increasing sophistication of materials suggests that this trend can only increase. However more "classical" fields also found their champions.

Knox described an approach to the rheological characterisation of molecular weight distribution in polymers taking as his starting point some work by Professor Griggs on Soil and Rock Mechanics. It is in such interactions between disciplines that we still see the spirit of rheology at its strongest.

Macosko treated us to the latest simple integral equation of state containing only two adjustable parameters, requiring only a minimal experimental characterisation and demonstrated to give an outstanding capability for predicting both shear and extensional flows.

I was pleased to note the rapid developments still continuing in the Doi-Edwards, theory. Takakashi assembled for us a formidable body of data on concentrated solutions of mono disperse polystyrene which supports the theory and includes excellent correlation with the predictions of non-linear response.

Some comparison with the rheology meetings of our own Society may be forgiven. The combination of preprints of papers, a formal approach to the proceedings, and the allocation of ample time for discussion led to a greater degree of discipline amongst the speakers than is always evident at meetings of the British Society. Although there was considerable constructive discussion no real arguments arose: perhaps we have much to learn from the natural courtesy of the host country. But a rheology meeting without argument - it is almost as great as the cultural shock of not being expected to tip taxi drivers!

In closing I would like to thank the Officers and members of the Society of Rheology, Japan for a stimulating meeting and I feel certain that you would wish to join me in wishing them "Many Happy Returns".*

Neil Cogswell

*

ON THE NEXT TWO PAGES WE REPRODUCE A
RESPONSE TO THE BSR'S GOOD WISHES FROM
THE PRESIDENT OF THE SOCIETY OF RHEOLOGY
JAPAN

-EDITOR

GREETING FROM THE PRESIDENT

It is my great pleasure to hold the commemoration today for the tenth anniversary of the foundation of the Society of Rheology, Japan. Let me express my hearty gratitude to the presidents of societies concerned, many guests and members for coming all the way here from various places in Japan and abroad.

Looking back upon the history, rheology has become an independent field in Japan since the first Reoroji Tōronkai (Rheology Symposium) was held at University of Tokyo in November 1951. In 1955, the Committee on Rheology was placed in the Society of Polymer Science, Japan, and in 1959, the Committee on Rheology was also placed in the Japan Society for Testing Materials which is called the Society of Materials Science, Japan at present. Those two committees have worked together to hold a Rheology Symposium every year and served as host organizations for the Fifth International Congress on Rheology held in Kyoto in 1968.

Taking this opportunity, the International Committee on Rheology was officially established. From Japan, the two committees which I mentioned before were allowed to become its members, though it was quite an anomalous treatment. Later, on the main purpose of dissolving such anomaly, there rose a growing tendency toward the establishment of an independent society. In October 1972, it was finally decided in the founder's meeting to establish the Society of Rheology, Japan on January 1 in 1973. This was the origin of this Society.

During the initial three or four years, we had a mountain of problems about acquisition of members, setup of offices, finance, editing and issuance of journal and so forth. Especially at the time of oil crisis, we had a great difficulty in management of the society. Fortunately, Professor Masao Horio, the first President of the Society and the directors have devotedly endeavoured in cooperation with members to overcome the trials and successfully developed the Society to what it is today. Particularly, I would like to express my hearty appreciation to the Society of Materials Science, Japan for their deep understanding

and full support to the setup of offices.

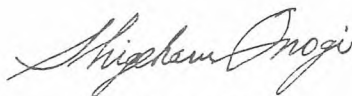
As I already mentioned, this society started in order to relate to the international scientific organization. So we have made special efforts to promote international exchanges. At this tenth anniversary commemorative event, we are greatly honoured to welcome unexpectedly many distinguished guests from the U. S. and England to give us a commemorative lecture or a presentation at the symposium. I would like to say from the bottom of my heart to Professor Ferry and other guests, "Thank you very much".

In commemorating the tenth anniversary, the Society Award System is starting this year. The Society Award and Award for Younger Rheologists will be given to the members for their special accomplishments.

My deep gratitude also goes to many members and supporting members who made a large amount of contribution to conduct a series of commemorative events.

At the end of its initial period of ten years, this Society is about to take a further step toward the higher stage. Now let me conclude my greeting, asking for your further cooperation and encouragement. Thank you very much.

June 13, 1983

A handwritten signature in cursive script, reading "Shigeharu Onogi". The signature is fluid and elegant, with the first name "Shigeharu" and last name "Onogi" clearly distinguishable.

Shigeharu Onogi

MEMBERSHIP NEWS

The following applications for membership were approved at the July Council Meeting:

Miss Maria Luisa CHIRINOS
BP Research Centre
Chertsey Road
Sunbury-on-Thames
Middx TW16 7LN

BSc
feta FJ

Leonidas COUGOULAS
Imperial College
Dept of Mineral Resources
London SW7 2AZ

Dipl.Chem.Eng., MSc
petsa F

Dr Colin KEARY
Dowell-Schlumberger
Craigshaw Crescent
West Tullos
Aberdeen

BSc, PhD
fea BDFGO

Christopher HOOD
Johnson Matthey Research Centre
Blounts Court
Sonning Common
Reading
Berks RG4 9NH

BA
petsa ACDGHI

Joseph MILLER
Dowell-Schlumberger
Phoenix House, Tyseal Base
Craigshaw Crescent
West Tullos
Aberdeen

BSc
feta GH

Michael J ADAMS
Sangamo Transducers
North Bersted
Bognor Regis
W Sussex PO22 9BS

HND
f O

Dr Jan JAWORSKI
Polish Academy of Sciences
Institute of Fundamental
Technological Research
Swietokrzyska 21
00-049 Warszawa Poland

MSc, Dr
fets GHIK

Alistair Stewart TAYLOR
BP Research Centre
Chertsey Road
Sunbury-on-Thames
Middx TW16 7LN

BSc, MSc
fesa F

Dr Marvin A TUNG
University of British Columbia
248, 2357 Main Mall
Vancouver
Canada V6T 2A2

BSA, MSA, PhD
petsa FGLO

Dr Robert H J SELLIN
University of Bristol
Dept of Civil Engineering
Queens Building
University Walk
Bristol BS8 1TR

BSc, PhD, CEng, MICE
pesa D

New Australian Member

J GIBSON
Davis-Fuller Adhesives
98 Cromwell Street
Collingwood
Vic 3066 Australia

RESIGNATIONS

Dr N Laws, Cranfield Institute of Technology, Cranfield, Bedford
G S Low, Royal Melbourne Institute of Technology, Melbourne,
Victoria, Australia

A W Stephenson, Davis-Fuller Adhesives, Collingwood, Victoria,
Australia

HONOURARY MEMBERSHIP

Honourary membership is to be offered to Prof. G V Vinogradov, and

Drs J J Benbow and B A Toms.

The British Society of Rheology

Conference on General Rheology

SECOND CALL FOR PAPERS

11 - 13 APRIL 1984, BIRMINGHAM

The Vale Conference Centre, in which the meeting will take place, is an attractive site in which students' halls of residence surround an artificial lake. Ridge Hall, as the name implies, is set on the elevated east side of the lake, and has a good view in the direction of the University, which is about half a mile away. Lecture rooms, accommodation, eating and bar facilities are available in this hall under one roof.

A provisional booking has been made to take a party round the Austin Metro production line at Longbridge. This is one of the most automated lines in Europe.

The Conference has been deliberately opened to a wide variety of topics in Rheology, in order to find the effect on attendance.

Prospective authors should send a title and short abstract, not later than

1 DECEMBER 1983

to

Dr D R Oliver
Chemical Engineering Department
University of Birmingham
PO Box 363
Edgbaston
Birmingham B15 2TT

**LATEST NEWS OF THE
IXth. INTERNATIONAL CONGRESS
ON RHEOLOGY**

ACAPULCO, GRO. MEXICO

8-13 OCTOBER, 1984

Address for correspondence:

PROF. B. MENA

Instituto de Investigaciones en Materiales

Apdo. Post. 70-360

Ciudad Universitaria

Coyoacán 04510

México, D.F.

MEXICO

INVITED SPEAKERS

A number of distinguished scientists including those listed below, have been invited to lecture on the main topics of Rheology.

G. Astarita	D.F. James	L. Nicolais
R.B. Bird	M.R. Kamal	J.R.A. Pearson
D. Boguer	J. Kubat	R.S. Porter
B. Caswell	L.G. Leal	R.S. Rivlin
M. Crochet	A.Y. Malkin	W.R. Schowalter
H. Giesekus	J. Meissner	R.I. Tanner
I. Herrera	A.B. Metzner	G. Vinogradov

DEADLINES

The closing date for receipt of abstracts is December 1st, 1983. Papers in their final version must reach the committee before March 15 1984, if they are to be included in the proceedings. The importance of this deadline need not be further emphasized.

FEES

The registration fee for participants will be 185 U.S. Dollars if sent before March 15, 1984. Late registration will be 200 U.S. Dollars. The registration fee for students will be 100 U.S. Dollars. The Fee includes:

- Complete proceedings
- Use of the Convention Center facilities (coffee, etc.)
- Welcoming Cocktail
- Mexican Night: A delightful blend of Mexican cuisine, musical entertainment and show in the typical atmosphere of Acapulco's Convention Center
- Ballet Folclórico: A night of Mexican folk dancing by one of the leading companies of Mexico
- Acapulco Bay Cruise: A tour of Acapulco Bay in the pleasant atmosphere of a luxury Yacht
- Closing Banquet.

ACCOMPANYING PERSONS

It is the purpose of the organizing committee to encourage the presence of wives and accompanying persons to improve the social atmosphere of the Congress. Therefore no fee will be required and they are invited to participate in all the social activities free of charge. (Mexican Night, Ballet, Banquet, etc.).

ACCOMMODATION

Acapulco, a year round vacation resort, offers an enormous amount of hotels of multiple price range. Many of these are close to the Convention Center. Recent devaluations of our currency offer an advantageous rate of exchange, thus hotel prices are relatively inexpensive. The committee is at present studying offers of travel agents and hotels. Definite packages will be offered in the third circular. In addition a couple of pre-and post-Congress Tours will be offered to visit Mexico City and/or the main archaeological regions.

CALL FOR PAPERS

I U T A M SYMPOSIUM

on

Optical Methods in the Dynamics of Fluids and Solids

September 17 - 21, 1984

Castle Liblice near Prague, Czechoslovakia

Symposium will be devoted to the problems of the dynamic phenomena in the mechanics of fluid and solid phases studied by optical methods. Papers dealing with optical visualization and measuring methods in the following subject areas are particularly invited for submission:

1. experimental fluid dynamics

- compressible fluid flow
- transition, non equilibrium processes
- interaction of fluid flow with solid boundaries and bodies
- high temperature flow

2. experimental mechanics of solids

- wave propagation in shock loaded bodies
- phenomena connected with the fracture mechanism
- nonstationary vibrations of elements and parts of systems
- nonstationary strains in the structures and materials.

Prospective authors are requested to submit three copies of abstracts in English suitable for direct printing (neatly typed on a A4 page/297 x 210 mm/about 200 words). The contents of the abstracts will constitute the basis for acceptance of the paper for presentation.

Deadlines:

Final date for receipt of abstract	December 1, 1983
Authors informed concerning acceptance	March 15, 1984
Author-prepared camera-ready mats	June 30, 1984

Further information can be obtained from the Symposium Chairman

Prof. Ing. Miroslav Píchal, DrSc.
Institute of Thermomechanics
Czechoslovak Academy of Sciences
Puškinovo n.9
CS 160 00 Prague 6, Czechoslovakia

Warren Spring Laboratory

A Teach-In on Thixotropic Measurement
29 September 1983

The Teach-In will introduce delegates to the techniques involved in the measurement of thixotropic properties. An outline will be given of the theoretical background and of measurement techniques. Viscometers and rheometers, particularly commercial instruments, will be described, leading to examples of measurement results. The use of thixotropic data will be discussed. An introduction will be given on materials showing both thixotropic and viscoelastic properties.

The lectures and discussion will be led by Drs D C-H Cheng and N I Heywood. Each participant will be supplied with supporting material which will serve as a source for future reference.

The seminar fee is £60 + VAT which includes lunch and refreshments at the Laboratory. For the registration form or further information: contact Miss P Madhvi.

Training Course in Fluid Rheology
14-18 November 1983

The Training Course is tenth in a series and approved by the British Society of Rheology. It is aimed at the practising rheologists, physicists, chemists and engineers who have responsibility for product formulation, quality and process control, process plant design, selection and operation. But it should also be useful for the newly-appointed rheologist who wishes to be brought quickly up-to-date on information and know-how relevant to his/her job.

This Course consists of lectures on the physical and chemical bases of dispersion rheology and high-solids content materials, molecular aspects of polymer rheology and effect of processing on rheological properties; on viscometry (co-axial cylinders, cone and plate, parallel plate, rotating disc, tube and falling sphere) and measurement of thixotropic and viscoelastic properties (normal stresses, dynamic moduli and elongational viscosities); and on industrial applications in product formulation, quality and process control, pipeline design, stirrer agitation and mixer design, and roll-coating

processes. The Training Course will give first hand experience on the wide range of viscometers and rheometers available commercially during Practical Periods when engineers from the major instrument manufacturers will be in attendance with their latest models. Samples brought to the Course by participants can be tested. A comprehensive Course Manual will be supplied.

The Course fee is £690.00 (inclusive of VAT), which covers accommodation and meals. For further information contact Mrs C A Moules.

Status Report on PROCESS CONTROL VISCOMETERS: Current applications and future needs. Publication April 1984

A report to be made available to current and potential users or manufacturers of process control viscometers to aid more effective viscometer application in industry, to identify new applications and markets, and to define the need for new instruments for use on the more "difficult" materials.

It will survey commercial and home made instruments, including visits to users, and review the literature. Modern approaches to process control will be covered, with particular emphasis on the use of microprocessors. It is aimed to give recommended procedures for setting up viscosity process control systems based on best current practice and to suggest research requirements for future work.

The report will be assembled by experts from WSL's Applied Rheology and Control Engineering groups, under the leadership of Dr D C-H Cheng.

The report is available only to UK registered companies, at £1000 (for up to five copies) to companies that sell viscometers, and £200 (first copy) to companies that use or are considering using process control viscometers. Additional copies: £10 each. Companies that order the report now can attend progress review meetings during the preparation of the report. Comments made at these meetings will be taken into account in the finished report.

For the order form or further information: contact Mr A Townsend.

Warren Spring Laboratory
Gunnels Wood Road
Stevenage
Herts SG1 2BX

Telephone No (0438) 313388
Telex No 82250

NEW BOOK

The Rheology of Fresh Concrete

G H Tattersall

MSc, PhD, FlntP, FlCeram
Department of Building Science
University of Sheffield

P F G Banfill

BSc, PhD, CChem, MRSC
Department of Building Engineering
University of Liverpool

£32.50

ISBN 0 273 08558 1

This book provides positive and practical information on the complex and elusive property of concrete known as 'workability'.

This no-nonsense work will be of great use to all those engineers, contractors and research workers who need to understand the relation between theoretical and practical aspects of fresh concrete.



Pitman Advanced Publishing Program
BOSTON · LONDON · MELBOURNE

DIARY

- 19-23 September LONDON, ENGLAND. Engineering Rheology
(BSR, DRG - European Meeting)
- Contact: Dr G C Maitland, Department of Chemical Engineering, Imperial College,
Prince Consort Road, London SW7 2BY, U.K.
- 26-30 September BLAGOEVGRAD, BULGARIA. 11nd National School-Seminar on Rheology of Structurized Disperse Systems
- Contact: Dr Ya Ivanov, Central Laboratory of Physico-Chemical Mechanics, Bulgarian Academy of Sciences, Acad. G. Bontchev Str., IVkm, B1.1, Sofia 1113, Bulgaria.
- 2-5 October TORONTO, CANADA. 33rd Chemical Engineering Conference
(Canad. Soc. Chem. Eng., sessions on polymer characterization, properties and processing.)
- Contact: Professor D E Cormack, Department of Chem. Eng. and Applied Chem., Univ. of Toronto, 200 College Street, Toronto, Ontario M5S1A4, Canada.
- 16-20 October KNOXVILLE, TENNESSEE. 55th Annual Meeting
(Society of Rheology)
- Contact: Professor D C Bogue, Department of Chemical Engineering, University of Tennessee, Knoxville, Tennessee 37916, USA.
- 13 October LONDON, ENGLAND. Elasto-plasticity and Creep
- Contact: Dr T K Hellen, Berkeley Nuclear Laboratories, Glos. GL13 9PB.
- 4 November READING, ENGLAND. One-Day Course in Biomechanics
(A course for managers)
- Contact: Dr Julian Vincent, Department of Zoology and Engineering, University of Reading, Whiteknights, Reading.
Tel: Reading 875123, Ext. 7605.
- 15-17 November LIÈGE, BELGIUM. Rheometry Workshop (B.G.R.)
- Contact: Dr J M Rigo, University of Liège, Institut du Génie Civil, Quai Banning, 6, B-4000 Liège, Belgium.

30 Nov. - 2 Dec.

PARIS, FRANCE. Methodes et Appareils de Mesures
Rheologiques (G.F.R.)

Contact: M. Stéphane Richemond, CERMaC, ENPC,
28 rue des Saints-Pères, 75007, Paris,
France.

8-9 December

CAMBRIDGE, ENGLAND. Molecular and Microstructural
Basis of Viscoelasticity

Contact: Dr M Lal, Unilever Research, Port Sunlight
Laboratory, Bebington, Wirral, L63 3JW, UK.

THIS OTHERWISE BLANK PAGE ALLOWS THE
FOLLOWING REPRINT FROM AN EARLIER
BULLETIN- VOL.18(3),P.51,1975

CHAPTER AND VERSE

From time to time members write in frustration that they have not been allowed to claim their membership dues against tax. Now a routine investigation of the more dusty of the Society's files has revealed a letter signed by the Senior Principal Inspector of Taxes (do they come any greater) which approves the British Society of Rheology for the purposes of Section 16 of the Finance Act of 1958 and that the whole of the annual subscription paid by a member will be allowable as a deduction. If that is not enough then please quote

Your ref: C.I./SUB/872 10th September 1959

and if you are due for any relief that you have not been allowed then you should apply to your tax office for form P358.