

HISTORY
NOT TO BE REMOVED
FROM
FILE.

THE
BRITISH SOCIETY
OF RHEOLOGY

BULLETIN — No. 2, 1959

Hon. Secretary:

Mr. N. Wookey,
52 Tavistock Road,
Edgware,
Middlesex.

Hon. Editor (Bulletin):

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P.O. Box No. 1,
Chester.

THE BRITISH SOCIETY OF RHEOLOGY



New Members, accepted at Committee on 26th February, 1959

NAME AND ADDRESS.	INTERESTS.
Dr. R. Jones, 83A Falling Lane, Yiewsley, Middlesex.	Vibrational methods of testing materials.
Dr. D. S. Wood, 33 Ambleside Road, Flixton, Nr. Manchester.	Metals—particularly steels. High temp. props.—particularly creep and stress rupture.
Mr. D. Cooper, Mullard Simonstone Works, Blackburn Road, Padiham, Lancs.	Suspensions of graphite powder in aqueous solutions. Measurement of plasticity, etc., particularly with cone and plate viscometers.
Mr. P. E. Knapp, 20 Wayside Avenue, Harrogate, Yorkshire.	High polymers especially fibres.
Mr. R. G. Gosden, 20 Liswerry Drive, Cwmbran, Mon.	Visco-elastic flow. Extrusion and Drawing.
Mr. D. B. S. Berry, Siemens Edison Swan Limited, Research Laboratory, West Road, Templefields, Harlow, Essex.	High Polymers.

News of Members

The President, Professor E. G. Richardson, accepted invitations to give lectures at the Spring meetings of the two Swedish Rheological Societies held in Malmö and Stockholm.

The science of rheology had some welcome publicity on Thursday, 19th March. That evening Dr. A. S. Lodge appeared briefly on the Granada T.V. programme "People and Places" and gave rheological demonstrations. These included the pouring and cutting of an elastic liquid (aluminium laurate in paraffin) and the elasticity and thread-spinning properties of a silicone putty.

A member in Australia, Dr. P. U. A. Grossman of the Division of Forest Products, C.S.I.R.O., 69-77, Yarra Bank Road, South Melbourne, S.C.4, is testing opinion in that country with a view to forming

an Australian Branch. He has sent a circular to various C.S.I.R.O. Divisions and other Government laboratories, universities and industrial laboratories. As Dr. Grossman rightly says in his circular, membership of the B.R.S. would become attractive to Australian scientists if regular meetings were held in Australia. We wish him success in his enterprise.

Recent Meetings

The last meeting of the British Society of Rheology was on "Flow Fatigue and Failure." It was held in the Department of Textile Industries of the University of Leeds on 8th-9th January 1959. The symposium was designed to bring together scientists concerned with the mechanical properties of many different materials, but with a common interest in studying the events preceding their failure in various types of test. Evidence of a wide interest in failure phenomena was shown by the presence of about 100 people at the meeting.

Lengthy summaries of ten of the thirteen papers have appeared in *Rheology Abstracts* (1958), 1, Number 4. Of the remaining papers, that by K. K. Schiller (British Plaster Board (Holdings) Limited) was entitled, "Skeleton strength and critical porosity of set sulphate plasters." It described his investigation of the relationship between composition and strength in set plaster aggregates. It was shown that the critical porosity of these plasters is the same for the tensile, compressive and transverse strengths. Measurements of strength as a function of porosity are consistent if the porosity is regarded as the sum of the void volume and the sand volume. An inconsistency was discussed, in that the greater the sand content, the weaker is the plaster although the stronger is the plaster skeleton.

The paper, "Fracture, fatigue and yielding of materials as a stochastic process," by Takeo Yokobori (Tohoku University) was read by P. Feltham. Yielding is regarded as a stochastic process, and by utilising Cottrell's and Bilby's theory of dislocation locking in iron his approach was shown to give a good interpretation of the temperature dependence of the yield stress and of the incubation period in delayed yielding in steels.

In the last contribution, "The tensile fracture characteristics of some aluminium alloys," C. E. Turner (Imperial College) discussed the load-extension records and tensile fracture characteristics of twelve major aluminium alloys in the light of the occurrence or otherwise of necking prior to fracture. The macroscopic stages of ductile fracture are followed according to the commonly accepted ideas and examination of the test results suggests that the discontinuous nature of the stress-strain records of some light alloys may account in part for the non-occurrence of necking. This paper contained an appendix "Review of the literature on discontinuous stress-strain curves" by Z. J. Doron (Imperial College).

(We are indebted to Drs. M. F. Culpin, P. Feltham, and A. Jobling for these outlines of the papers).

The Deutsche Rheologische Gesellschaft E. V. held a symposium on 11th–13th May 1959 at the Bundesanstalt für Materialprüfung (B.A.M.), Berlin.

The following papers were presented.

“The creep of strain gauges as a rheological problem,” by C. Rohrbach and N. Czaika (B.A.M., Berlin).

“The glueing of metals. Important factors for junction strength,” by H. Schwarz (Zentralinstitut f. Schweisstechnik, Halle).

“Relaxation measurements on peat bales,” by D. Schüring (Torf-Institut, Hanover.)

“Soil mechanics and rheology,” by H. L. Jessberger (Inst. f. Grundbau u. Bodenmechanik, Munich).

“Useful application of hydrodynamic lubrication theory to mass-produced, pre-fabricated bearings,” by O. Gersdorfer (Caro-Werk, Vienna).

“Transition phenomena between the regimes of linear-elastic and plastic deformation” by M. Matschinski (Société Française de Géochimie, Paris).

“On the theory of transport processes in liquids,” by R. Eischitz (Queen Mary College, London).

“The state of aggregation of high polymeric materials in the light of their mechanical behaviour,” by F. R. Schwarzl (Centraal Laboratorium—T.N.O., Delft).

“On a similarity rule for the relaxation behaviour of solids,” by J. Kubát (Svenska Träforskningsinstitutet, Stockholm).

“Activation energy in the flow of polyelectrolyte solutions,” by D. Bourgoin (Institut Pasteur, Paris).

“On the proof of the St. Venant principle,” by M. Matschinski.

“A method for the measurement of the complex shear modulus of visco-elastic materials in the form of thin films,” by W. Pechold, A. Engel and G. Ammon (Physikalisches Institut, T. H., Stuttgart).

“On the validity of Casson’s flow rule for suspensions used in coating technology,” by W. Heinz (Gebr. Haake K.G., Berlin and Dusseldorf).

“On the deformation properties for drawing and rolling of deformable materials with solid and hollow cross-sections,” by M. Vater (Technische Universität, Berlin).

“The calibration of rotational viscometers,” by K. Edelmann (Inst. f. Faserstoff-Forschung, Teltow-Seehof).

"On the foamability of solutions," by K. Kirschke. (B.A.M. Berlin.)

"Friction and lubrication in machines, especially with colloidal graphite as additive," by I. U. Augustin (Technische Universität, Berlin).

"Fine structure of oiliness agents in lubricating oils with particular reference to the solid lubricant molybdenum disulphide," by A. Bartel (Molykote K.G., Munich).

"Wear research and rheology," by G. Salomon (Centraal Laboratorium, T.N.O., Delft).

"On the viscosity—pressure properties of lubricating oils" by E. Kuss (Inst. f. Erdölforschung, Hannover).

"Laboratory test procedures for high quality lubricants," by Maria Tillwich (Fa. Herbert Tillwich, Sindelfingen).

"Some investigations of oil performance in bearings," by R. Bosma, ("Shell" Research Ltd., Chester).

"Contribution to the problem of plug flow with lubricating greases," by W. H. Kara (Deutsche "Shell" A.G., Hamburg).

One of the papers presented at the three-day April, 1959 Meeting of the Society of Glass Technology was entitled, "Anelasticity of Glass," by Mohy ud Din and R. W. Douglas (Dept. of Glass Technology, University of Sheffield).

In Stockholm on 5th May, 1959, the Rheology Section of the Swedish National Committee for Mechanics held a conference at which Professor E. G. Richardson was guest speaker. The following papers were presented.

"Aspects of the properties of coarse grained substances," by T. Kallstenius and J. Osterman (Statens Geotekniska Institut, Stockholm).

"Particle orientation and anisotropy in the fabrication of hard plastic goods," by G. Fant (ASEA, Västerås).

"Rheology of disperse systems," by E. G. Richardson.

"Elastic liquids and gels," by E. G. Richardson.

"Comparison of subjective and objective methods of determining consistency—with special reference to foodstuffs," by B. Drake (Svenska Institut för Konserveringsforskning, Gothenburg).

"Some anomalies in viscometry," by R. Lindgren, (Tekniska Högskolan, Stockholm).

Future Meetings

The next meeting of the British Society of Rheology will be held on 14th and 15th September, 1959, at Imperial College, London. This will be a joint conference with the Physical Society. The subject: "The Glassy State and the Properties of Liquids." Programmes and registration forms will shortly be sent to Members.

On September 23rd and 24th 1959, a joint meeting of the British Society of Rheology and the Colloid and Biophysics sub committee of the Faraday Society will be held in Oxford. The meeting will discuss informally "Flow Properties of Blood and Other Biological Fluids." The first day will be devoted to blood and will include a period for practical demonstrations, exhibitions of apparatus and short films. The second day will be devoted to other fluids of animal origin such as cervical fluids, synovial fluids, mucus, milk, muscle, collagen etc. It is hoped that Dr. A. S. Lodge will give an introductory general lecture. Enquiries about the first session (23rd September) should be addressed to Dr. G. Stainsby, The British Gelatine and Glue Research Association, 2a Dalmeny Avenue, Holloway, N.7., and the second session (24th September) to Dr. A. L. Copley, Medical Research Laboratories, Charing Cross Hospital, 8 Exchange Court, Strand, London, W.C.2.

The Thirtieth Anniversary Meeting of the Society of Rheology (U.S.A.) will be held at Lehigh University, Bethlehem, Pa., on 4th to 6th November, 1959. Those wishing to present papers should notify Mr. James T. Bergen, Research Laboratories, Armstrong Cork Company, Lancaster, Pa. A special Adhesion Symposium is being organised by Dr. R. R. Myers of the Chemistry Dept., Lehigh, to whom prospective participants should correspond directly.

Transactions of the Society of Rheology

Members who have read the interesting first (and so far only) volume (1957) of the *Transactions* of the American Society will no doubt have wondered whether the good work was to be carried on. The *Transactions* contain the proceedings of the Annual Meeting; Volume I being the proceedings of the 1956 meeting. There have been two meetings since. We have just learned that there will be further volumes, and that the delay in publication has been caused through editorial and publishing difficulties. Happily, these difficulties are being overcome. Volumes II and III containing the proceedings of the 1957 and 1958 meetings respectively, should both be published by the middle of this year.

"Rheology of Disperse Systems"

Pergamon Press, London, recently announced the forthcoming publication of *Rheology of Disperse Systems*. This book of 240 pages contains the proceedings of the 1957 Swansea meeting of the British

Society of Rheology. Mr. C. C. Mill is the Editor. The price will be about 70/-. The papers fall into two groups. In one the dispersions studied were dilute or composed of non-interacting particles and experiments were designed to test hydrodynamic theory. In the other group concentrated suspensions as used industrially, mainly in various forms of surface coating, were studied with the object of relating performance to rheological properties.

The contents are: "*Complicated rheological properties*," by J. G. Oldroyd, "*The behaviour of suspended particles in laminar shear*," by S. G. Mason and W. Bartok, "*The viscous flow of disperse suspensions in tubes*," by R. L. Whitmore, "*The viscosity of stable suspensions of spheres at low rates of shear*," by G. F. Eveson, "*A flow equation for pigment-oil suspensions*," by N. Casson, "*Some measurements on pigment—plasticiser dispersions*," by E. Bantoft. "*Some observations on dilatancy and thixotropy*," by A. Jobling and J. E. Roberts, "*Rheological measurements on lutings*," by W. A. Dukes, "*The rheology of molten chocolate*," by E. H. Steiner, "*Rheology and other factors involved in starch-clay coating mixes*," by R. S. Lenk, "*Density separation in gaseous fluidised beds*," by T. C. Daniels. Discussion.

"The National Engineering Laboratory"

The name of the "Mechanical Engineering Research Laboratory" (D.S.I.R.) has been changed to the "National Engineering Laboratory." The laboratory will continue to carry out research in mechanical engineering and provide services to industry. Enquiries are welcomed and should be sent to the Director, East Kilbride, Glasgow.

Ex-committee member of the British Society of Rheology, Dr. L. Grunberg has been promoted to Senior Principal Scientific Officer. Dr. Grunberg is in charge of the Lubrication and Wear Division of the N.E.L.

Abstractors required

The Hon. Editor of *Rheology Abstracts*, Dr. J. C. Vernon, would be pleased to hear from Members who are willing to abstract one or two journals regularly. Abstracting papers from journals devoted to his special interests is a service every rheologist performs for himself. Making a second copy of an abstract on a form and sending it to Dr. Vernon involves very little extra work, but is invaluable for the continuing success of *Rheology Abstracts* and its service to Members.

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