
THE BRITISH SOCIETY OF RHEOLOGY



BSR BULLETIN incorporating the 10th Newsletter of the European Society of Rheology 2002, Vol. 45, No. 1 (Summer 2002)

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ISSN 1469-4999

EDITORIAL

This issue marks the 100th anniversary of the birth of George William Scott Blair, who was born on 23rd July 1902 in Weybridge. Scott Blair was a major pioneer in the field of rheology and was one of the three principle founders of the British Rheologists Club, the fore-runner of the British Society of Rheology in 1941. He was President of the British Society of Rheology from 1949-1951 and has also been the Society's major benefactor. He bequeathed his extensive collection of rheological books and papers to the Society, which now forms the Scott Blair Collection.

In this bulletin Dorle Potton recounts her friendship with the Scott Blairs, which began when she came to stay with them as a refugee during the Second World War. I have also reprinted Howard Barnes' excellent biography of Scott Blair given at the opening of the Scott Blair library.

On a sadder note, Vernon Harrison, another of the co-founders of the British Rheologists Club passed away in October 2001. His obituary is printed in this issue.

Oliver Harlen

SUBMISSIONS TO THE BULLETIN

Submissions to the Bulletin may be made by any practical means – post, email, disk, fax, pigeon, donkey, et cetera but electronically is preferred (saves typing...). Most packages supported (Word, TeX, LaTeX, WordPerfect, ASCII, RTF) but always provide a contact name, address, eMail, or telephone number in case of problems.

Copy dates are now fixed at 15 December, 15 May, and 15 September. This should allow me to publish in February, July, and November and, as always, all contributions are gratefully received. Late copy can sometimes be accommodated, however the facilities of the BSR and ESR web sites may also be appropriate. Please contact the Editor for details.

COVER ILLUSTRATION

We are continually looking for colour or black & white pictures (preferably of a rheological nature!) for the front cover of the Bulletin and Rheology Abstracts. Please contact Oliver Harlen (Bulletin Editor), Gary Tucker (Abstracts Editor) or Nick Hudson (Publications Manager). Suggestions are always welcome!

DR VERNON HARRISON

Dr Vernon G.W. Harrison, one of the founders of the Society, died in October 2001 at the age of 89.

The Society owes its origin in 1940 to a similarity between the rheology of printing inks and that of secretions from the uterine cervix of the cow. Dr H.R.Lang, Secretary of the Institute of Physics, arranged for Dr George Scott Blair and Dr Vernon Harrison, who were independently working on methods of measuring the properties of these materials, to meet and discuss common aspects of their work. This is taken as the first meeting of the British Rheologists' Club. The meetings continued and the three of them thought that there might be others who would be sufficiently interested to come to lunchtime discussions on rheological issues. They appointed themselves as a committee and used to meet in Scott Blair's drawing room at Reading, with help from two co-opted members: Mrs Scott Blair to provide encouragement and refreshments and a Bedlington terrier called Wolfgang whose function is not entirely clear from the records, although he sounds a fierce animal and perhaps was necessary to keep order. I remember Harrison coming to an AGM in London in about 1983 and referring to this dog. The British Rheologists' Club was very successful. Sir Geoffrey Taylor FRS was the first President, an inaugural meeting on rheology in industry was held in November 1940 and the first register of members published in December 1941 had 105 names on it.

Thus Harrison was truly a founding father of the Society, and his role was recognised in 1970 when he received the BSR Gold Medal, together with Scott Blair. He seems to have kept out of the limelight since the relevant BSR Bulletin (Vol 13(4), 1970) describes the Autumn Conference, held at Shrivenham, in much detail but merely notes that the highlight of the Dinner was the presentation of the gold medals to the two surviving members of the trio, Lang having died some years previously. There is a

photograph of each recipient being presented with their medal and Harrison looks like the vigorous enthusiast that I remember from his brief appearance at the AGM in 1983, mentioned above. This is followed by a summary of the achievements of Scott Blair, in which the editor hoped to publish a similar article on Harrison in the next issue. Unfortunately no such article ever appeared. I understand that he had a great deal to do with organising the Second International Congress in Oxford in 1953, and edited the Proceedings.

Mrs Harrison recalled to me in a letter from their home of a great many years in Great Bookham, Surrey, that she accompanied her husband to BSR conferences on many occasions and that they were always enjoyable and great fun. More recently they were prevented from attending meetings because Vernon's health deteriorated but he always kept up to date through the Bulletin.

I very much regret being unable to make this note fuller, having pieced it together from the archives and by consulting several long-standing members of the Society, but I would warmly invite any other members to contribute to the Bulletin any memories they may have of Vernon Harrison, to whose vision and enthusiasm we owe so much.

Phil Banfill
July 2002

GEORGE WILLIAM SCOTT BLAIR
MA PhD DSc FRIC FlInstP
(1902-1987)—‘THE MAN AND HIS WORK’



by
Prof. Howard A. Barnes, OBE, DSc, FREng,
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*Extract from a talk given on the occasion of the opening of the
Scott Blair readingroom at the University of Wales Aberystwyth,
Dec. 15th 1999.*

History

Younger rheologists might ask ‘who was this man, Scott Blair, anyway?’. George William Scott Blair was for most of us the quintessential - *if eccentric* - Englishman, but actually, like the Blair of current fame (the British prime-minister), he had Scottish parents. He was born in Weybridge in Surrey in 1902; went to Charterhouse, the famous public school, and then on to Trinity College Oxford in 1920, where he studied Chemistry, with Prof. Sir Cyril Hinshelwood as his tutor. He carried out a one-year research project in colloid chemistry to complete his honours degree, and thereafter found employment for a few years as a colloid chemist with a Manchester firm of Henry Simon. Whilst there he worked on the viscometry of flour suspensions, publishing his first rheology paper in 1927.

He worked next at the government-funded Rothamsted Experimental Station (as it then was) until 1937, studying the flow properties of soils and clays. However, in 1929 came the opportunity to take up a Rockefeller Fellowship at Cornell University in Ithaca, New York state. He worked there on the flow of potter's clay and developed a means of measuring its plasticity. It was during that year that he attended, and indeed chaired, the inaugural meeting of the Society of Rheology in December 1929 in Washington DC—exactly seventy years ago to this very month, and he was only 27 years old! He met all the pioneers of Rheology—Eugene Bingham and Markus Reiner among them, and many became his life-time friends.

After returning to Rothamsted he worked on honey and flour doughs as well on as soils and clays. In 1936 he submitted his Ph.D. thesis to the University of London, and it was examined by Prof. Freundlich, the distinguished German colloid chemist who was working on thixotropy. The same institution later awarded him a D.Sc. for his labours in rheology (probably the first ever rheology D.Sc.)

In 1937 he joined NIRD as head of Chemistry but soon took over the newly formed Physics department and remained in that position until his retirement thirty years later. His own work during that time was on such materials as cheese and butter, but during the war years he became involved in research on plastics, and also moved into the area of what we now know as Biorheology, looking at various mentionable and unmentionable body fluids of cows and then humans. We can summarise what he found, by saying that he was the first person in the world to use a rheometer as a means of birth-control!

Scott Blair had been asked by Eugene Bingham to start a British branch of the Society of Rheology, but this was not taken up. However, during the war, interest in Rheology in the UK grew to a point where some organisation was thought necessary, and Sir Geoffrey Taylor FRS chaired a meeting at Reading for that purpose, with both industrialists and academics in attendance – Scott Blair and Dr F G W Harrison of Farnborough being the main driving force. Out of this came the British Rheologists Club in 1940, with Sir Geoffrey Taylor FRS as president and Scott Blair as secretary. The thinking was that during wartime, forming a British *Society* of Rheology would be—in Scott Blair's own words—'pompous'. However, after much discussion, the club became the BSR in 1950.

Scott Blair was president of the Society from 1949 to 1951, and was awarded its Founders gold medal in 1970. He was similarly honoured by

the German Society of Rheology with the Herbert Freundlich Medal, which—since of course Freundlich had been his PhD examiner—gave him a great deal of pleasure to receive. To complete our discussion of his association with the BSR, we note that annual scholarships in Rheology and Biorheology are awarded in his name by the society. Scott Blair took part in the organisation of the First International Congress on Rheology at Scheveningen, Holland, in 1948, and significantly it was there that he met Al Copley for the first time. Then, he was secretary of the Second International Congress, which was held in his alma mater, Oxford University, in 1953.

In the late 1950's, Scott Blair came again into contact with Al Copley, and together they pioneered the area of Biorheology, and later Hemorheology. (They even have a phenomenon named after them—a wall effect in blood flow in small capillaries.) They organised the first-ever conference wholly devoted to blood flow: it was held in 1958 at the Charing Cross Hospital in London, where Copley was Director of Vascular Diseases. They then became joint Editors-in-chief of a new international journal called ***Biorheology***, with its first issue being published in 1962. Much of Scott Blair's efforts hereafter went into this area, and also into the International Society of Biorheology that was subsequently formed in 1966. The second International Conference on Biorheology was held in 1969 at Heidelberg in Germany, at which Scott Blair was presented with that Society's Poiseuille Gold Medal. (The sixth conference was held in 1986, the year before his death.) Because of pressure of work, Scott Blair had to turn down the opportunity to become the founder editor of the ***Journal of Texture Studies***—another subject near to his heart—but he was nevertheless on its editorial board for many years.

Scott Blair combined work on blood flow with his dairy interests, so for instance, in 1965 he published a paper on '*An equation to describe the rate of settling in blood and milk*'. A lot of work was also carried out on blood coagulation with his colleague Burnett, using a U-tube gelometer as first developed by Saunders and Ward. His interest in blood continued past his retirement from NIRD in 1967—at the full age of 65—and he worked part-time at the Oxford Haemophilia Centre in the Churchill Hospital, supported by the British Heart Foundation. Sadly, during most of his retirement he suffered from failing eyesight and eventually became blind. He died peacefully in his sleep, at home, at Grist Cottage, Iffley, Oxfordshire in 1987, in his eighty-sixth year.

He was a true polymath in spirit, with a great interest in the English language, especially its scientific terminology, and in this connection he

was Chairman of the British Standards Institute Committee on Rheological Nomenclature. He was also interested in other languages as they were needed to communicate effectively with fellow scientists before the days of ubiquitous English, so he spoke French, Dutch, German, Hebrew, Russian, Spanish, and he even rose to Icelandic when chairing the first international conference on Biorheology in Reykjavik.

Author

Apart from writing nearly 250 scientific papers (he published his first paper at the very early age of 23, '*Periodic precipitation in dilute gelatin gels*', Phil. Mag. 49, 90-6 (1925)), Scott Blair was responsible for 7 books as author, co-author or editor:

- '*An introduction to industrial Rheology*', P. Blakiston, Philadelphia, 1938,
(German edition, trans. Kauffmann, H., Steinkopff, Dresden & Leipzig, 1940).
- '*A survey of general and applied Rheology*', London, Pitman & Sons, 1944, 2nd edn. 1949.
- '*Foodstuffs: Their Plasticity, Fluidity & Consistency*', GWSB as editor, Elsevier, Amsterdam, 1953.
- '*Measurements of mind and matter*', Philosophical Library, New York, 1956.
- '*Agricultural Rheology*', joint author with Markus Reiner, Routledge & Paul, London, 1957.
- '*Elementary Rheology*', Academic Press, London & New York, 1969.
- '*An introduction to Biorheology*', Elsevier Scientific Publ. Co., Amsterdam; New York, 1974.

Scott Blair's books are always good sources of Rheology history. No book of his was ever written in a detached manner: they were about the work of people whom he knew and had talked with or written to, and his books are full of personal asides and reminiscences. He was not afraid to say that he did not understand things, and he happily referred the reader back to original sources. Unfortunately, some of his books are very difficult for a modern reader to follow, because he made little use of diagrams and the texts are very 'wordy' for today's busy reader. As well as being himself a prolific writer from an early age, Scott Blair was a great collector, as the collection in the reading room demonstrates.

Who still cites Scott Blair's work?

Over the last 25 years, Scott Blair's publications have - according to one large citation data-base – have been cited nearly 300 times in scientific journals. From a more careful analysis, it can be shown that 72 of his most popular papers were published in 32 different journals! Most of them where we might expect them, as see in his 'top ten',

	Journal in which papers were published	Period over which papers were published	Number of times cited in the last 25 years
1	J. Dairy Research	1938 – 1962	61
2	Rheologica Acta	1958 – 1973	28
3	Nature	1940 – 1959	26
4	Biorheology	1963 – 1982	20
5	J. Applied. Physics	1933 - 1960	10
6	J. Texture Studies	1970 – 1978	9
7	J. Physical Chemistry	1929 – 1938	9
8	Laboratory Practice	1957 - 1966	7
9	Adv. Food Research	1958 – 1963	7
10	Proc. Poy. Soc.	1939 – 1947	7

However, his catholic interests are shown in papers that are cited from journals such as

Brit. J. Psychol. (1940), Am. J. Psychol. (1942),
 Brit. J. Philos. Sci.(1950), J. Physiol. (1942),
 Biochemical Journal (1941), Neth. J. Agr. Sci. (1956),
 Theor. Clin. Hemorheol. (1971), etc.

Two of his still-cited papers appeared in the prestigious Proceedings of the Royal Society, (1939 & 1947). During the last 25 years his books were cited as follows,

'Intro. to Biorheology '	(1974)	21 citations
'Elementary Rheology'	(1969)	17 "
'Survey Gen. & Appl. Rheol.'	(1944, 1949)	9 "
'Flow Props. ...Blood '	(1960)	3 "
'Measurement Mind Mat...'	(1956)	3 "
'Foodstuffs Their Plast...'	(1953)	1 "

Conclusions

Like most scientists, Scott Blair's interests were strongly influenced by his circumstances. First, he spent most of his working life at the National Institute for Research in Dairying, and secondly he was happily married to Rita, a (child) psychologist. Add to this his interest in history, and you have the necessary ingredients for many of his later efforts in, for instance, the history of Rheology; in psycho-Rheology and in philosophy. Indeed, some have said of him that he was a frustrated psychologist, and more of an 'arts man' than a scientist, although in his wider professional life he was a Fellow of the Royal Institute of Chemistry and also of the Institute of Physics.

Scott Blair's name had began to disappear from the general rheological literature by the 1970's, and he rarely features today in the reference lists or bibliographies of works on main-stream Rheology, e.g. Macosko, Larson, Benbow & Bridgwater, and even Steffe on Food Processing. Neither the Rheology of what he called high polymers, which dominates the stage nowadays, nor the highly mathematical approach so often used currently, were of great interest to him. However, he has rightly been accorded a prominent place in the Rheology 'hall of fame' drawn up by Tanner and Walters, in their '*Rheology: an Historical Perspective*' published last year by Elsevier. For this reason, the Scott Blair reading room with its unique collection of books and manuscripts, generously supplemented since the original gift of his personal collection, mostly by gifts from society members, should be of great use to people who want to build on a firm foundation in the subject.

Lastly we note that all the areas that were of interest to Scott Blair are still 'hot topics' today, such as

- Dispersion Rheology (at last given the prominence it deserves);
- Soft Solids (the name of a recent EPSRC initiative that I chaired);
- Bio-Rheology (a blooming area, with a thriving society and journal) and
- Industrial Rheology (the EFCE and IChemE have groups).

Scott Blair was indeed a man whose memory as **the** patriarch of British Rheology is worth honouring, and surely, there is no better way of doing so than by naming this attractive reading room after him.

H A Barnes

The Scott Blair Collection

The books and research papers of Scott Blair were donated to the British Society of Rheology and later deposited in the Library of the University of Wales, Aberystwyth in the early 1980's. After the death of his widow in 1988 a legacy of £10,000 was bequeathed to the Society 'for the purposes of maintaining and improving the library facilities enjoyed by the Society in connection with the research papers..."

The Collection of books, pamphlets, journals and reprints is currently housed in room 420 adjacent to the Physical Sciences Library on the fourth floor of the Physical Sciences Building, University of Wales, Aberystwyth. This room was officially dedicated as the home of the Scott Blair Collection on December 19th, 1999 with Professor Sir Sam Edwards performing the opening ceremony. The collection has over 550 books and the aim is to develop this "into an up-to-date library of Rheological literature available to all members". Included in the collection are some of Scott Blair's publications such as Agricultural rheology, An introduction to industrial rheology, Measurements of mind and matter, Elementary rheology and Rheology in relation to pharmacy and medicine. Some of these books are extensively annotated by the author. Rheology abstracts and the British Society of Rheology Bulletin are two journals published by/for the Society, which form an important part of the Collection. There is a manual index to the Reprint Collection whilst the books and journals are catalogued online.

There is now a website for the collection at

<http://users.aber.ac.uk/matacc1/SBCHome.html>

Amongst other items the site contains a catalogue of the collection and instructions on using the online catalogue. There is also gallery of photographs of the Scott Blair collection and past winners of the BSR Gold Medal and Annual Award.

Friendship with George and Rita Scott Blair

**by
Mrs Dorle Potten**

It was 1937, and I was 13 when I arrived at number 6, East Common, in Harpenden. The original plan was to stay for a week with the Scott Blair family to improve my English, but George and Rita Scott Blair were to become an important part of my life for the next 51 years. George worked at Rothamsted Experimental Station, and Rita was a District Councillor.

They had contacted my Aunt's school for refugee children, and they were expecting to receive a boy. However, owing to an error in the office of the League of Nations Union monthly magazine, and to their annoyance, I was sent instead. A year later, George and Rita were sent a young man, 18-year old Charles Spitzer, a physics student from Vienna, who won a scholarship to Yale the following year. He became a scientist at NASA and, unlike me, a source of great satisfaction and pride for George and Rita. My English was basic, and I recall learning useful sentences like "Let's play Indians, Frank, I'll be your squaw", and "Rheology is the science of flow and deformation of matter".

The family moved later in 1937 to Lyndhurst Grange in Shinfield, near Reading. The house was small and uncomfortable, without electricity, but close to the National Institute for Research in Dairying (NIRD) where George was to head the Chemistry Department. He was relieved when this became transmuted to the Physics Department, as he considered himself a physicist rather than a chemist. Meanwhile Rita had become involved in bringing Jewish refugees to Britain. She was a founder-member of the Reading Refugee Committee, and formed herself into a registered employment agency to find families willing to employ domestic staff. This was one of the ways of helping refugees to get permission to come to Britain.

I spent my school holidays at Lyndhurst Grange, and lived there during the first 3 years of the war. Both Rita and George were Anglo-Catholics and active in their church community. Rita was a member of the parochial church council in Reading and later in Iffley. Rita's concern of the fate of Jews in Germany was firmly based on her devotion to her Christian religious faith. However busy he was with research, George taught English at the Wednesday meeting of Reading's refugees, held at the Quaker Meeting House. He was very anxious that we should acquire a good accent, which for him meant his own Scottish public-school manner of speech.

In 1940 the British Rheologists Club was formed. The committee consisted of Dr Harrison, Sir Geoffrey Taylor, and George Scott Blair. I recall they met each month in the living room of Lyndhurst Grange. I served the coffee.

Among my other coffee-serving memories are the talks by Sir Richard Acland. He had just published a Penguin Special (a popular series of the time) entitled 'Commonwealth', and was by choice a private soldier, rather than an officer, at the nearby Arborfield army camp. He was very tall, and an enthralled audience sat on the floor and literally at his feet. In his spare time from training he wrote the sequel to 'Commonwealth' which I think was called 'What it will be like'. As his fellow soldiers disliked the clatter of his typewriter, this was written in our dining room. At that time, Sir Richard and his wife were about to give to the nation their estate in the West of England.

One of the interests of George and Rita was then an organisation called 'Federal Union', and the meetings near Shinfield were at the house of Norman and Barbara Oliver. Although everyone was very busy with wartime work, and peace in Europe seemed a very way off, some people had the foresight to think about the future. Federal Union stood for a united Europe with a central administration.

George had a good singing voice and belonged to the Shinfield Singers, which gave concerts in the neighbourhood, and were conducted by JG Davies, one of George's fellow scientists at the NIRD. I recall 'Trial by Jury', and a local NIRD production called 'The Whey of the World'. 'The Mikado' had to be abandoned at the onset of hostilities.

The rheologist Markus Reiner was a special friend and one of George's research collaborators. For a short time his family lived in Reading where

I became the baby-sitter. His family included his wife and three children, but all of them had a different nationality and passport. This proved to be a major difficulty to a family who travelled, during the War and afterwards, to America, Palestine and Britain.

I was able to note George's way of working. He felt that he could not draw very well, and so he constructed and proved his novel apparatus using Meccano. When he was satisfied with its performance he had this prototype copied by a local engineering firm. This included apparatus he used for studies of psycho-rheology, by which he aimed to capture the judgement used intuitively by experienced manual workers, e.g. in the manufacture of cheese.

After the war, George and Rita were able to travel extensively, and enjoyed many conferences. They made visits to Israel to stay with the Reiners, and to look at religious sites. On one journey they took the writer Jean Scott Rogers. She was a cousin of George, who became one of my best friends, and whose recent death at 93 ended my connection with the Scott Blair family. Throughout their marriage, Rita had her own profession as an educational psychologist. She was much missed in the Oxfordshire schools when she retired to spend her remaining years with George.

As an undergraduate at the University of Oxford, George suffered what may have been a form of viral hepatitis, which prevented him from sitting some of his final-year papers. Consequently he did not gain the first class honours degree predicted by his tutor, Professor Cyril Hinshelwood. In his later years he would wonder whether this was the reason that he was unable to become a Fellow of the Royal Society (FRS), or whether his chances had been diminished by the outspoken socialist views of his early years.

After retirement in 1967 the couple moved to Grist Cottage in Iffley, near Oxford, and George started part-time work at the Churchill Hospital. He became interested in the rheology of blood, and he became co-editor with Professor Al Copley of the journal *Haemorheology*. Al's wife came from Iceland, and meeting her allowed George to add Icelandic to his stock of languages in time for a conference in Reykjavic. After a road accident, George's health and sight deteriorated, and he spent the last decade of his life in a wheelchair, even at home. Pergamon Press and Robert Maxwell personally were very supportive at this time, and provided an excellent secretary who coped with his eccentric filing system and still copious

correspondence. It was due to her that George was able to prepare his library for transfer to Aberystwyth.

George's last conference was at Queen Elizabeth College in 1981. This gave Rita some time in London where we looked at churches for which she had embroidered vestments and kneelers in former years. Although by now George could not take in much new information, he was able to give an interesting overview of the history of rheology. However, the decline of his faculties made him seem vague and apparently unfriendly. The period 1987-88 was unhappy for the Scott Blairs and also for me. The death of George in November 1987 was followed by that of my husband Alan, and Rita began to suffer from Alzheimer's disease. On her behalf I attended the BSR Annual Conference at Royal Holloway and Bedford New College in September 1988, and Rita died in the November of that year.

I hope this personal recollection provides an interesting account of George Scott Blair, and of those around him, during much of his professional life and his retirement years.

Please direct any correspondence to Mrs Potten via GH Meeten, Schlumberger Cambridge Research, High Cross, Madingley Road, Cambridge CB3 0EL, meeten@cambridge.scr.slb.com, tel 01223 325 204.

BSR NEWS

Commentary on 305th BSR Council Meeting Lake Vyrnwy Hotel, 27 March

Some fifty or so rheologists had gathered at Lake Vyrnwy, Powys, North Wales to attend the annual International Conference of the University of Wales, Institute of Non-Newtonian Fluid Mechanics, 25th to 27th March 2002. The subject matter of the conference was that of “Process Modelling”, one close to the heart of many rheologists today. Those who attended the conference were of international status, drawing upon contributions from North and South America, Australia, Korea, and various parts of Europe. This offered the opportunity to hold the second of three BSR annual Council meetings. After some most stimulating interchange, the Conference proceedings were drawn to a close, prior to lunch on the third day, and the council meeting was convened. It was hosted in a meeting hall of the hotel, in a glorious setting and convivial surroundings, overlooking the Lake itself. The weather was calm and it was a fine sunny day – ideal for Council members to pay due consideration to BSR matters and the issues of the day.

Nine Council members were able to attend this, the 305th Council meeting, at which some important future policy decisions were discussed. The tone was one of an up-beat nature. The meeting focussed around discussion on topics ranging from handling publications and communications with the Society, to miscellaneous issues relating to Society activities. Much attention was focussed upon interfacing to modern technology, in particular dealing with and taking advantage of www communication. So, the Council discussed aspects such as availability and distribution of Rheology Abstracts, to whom, in what format and through what mechanism. All were mindful throughout of our services and role, both as a Society to the wider public as well as to our own members. In dealing with electronic publications and the BSR www-site, other issues arose covering, BSR official business, database and services, both for council and the membership. So, for example, membership subscription, “that old chestnut” was addressed. This was causing some current difficulties in rationalising income, apportioning to particular financial year, streamlining and simplifying subscription procedures. The timing of AGM and the setting of the financial year were both considered. First, it was agreed to look carefully at streamlining the

subscription process, then to consider alternative strategies once this had settled down. Shifting the financial year and AGM was seen as less attractive, as this would cause a knock-on effect for subsequent years and particular difficulties with switch in acting council officers. At this point, we must note and thank the current Treasurer, Rhodri Williams, for his careful eye to BSR financial dealings, our projections for the future, and in particular for raising awareness and implications of membership and electronic business transactions.

Security of the www-site (password/encryption), abstract provision (format/mechanisms), membership subscription forms were considered. Chris Petrie, as Web-officer, agreed to investigate such matters, as well as to take a fresh look and overhaul the BSR site. The ESR site was raised, communication by Professor Jean-Michel Piau, news of other Societies, exchange with the Canadian Society and Polish Abstracts discussed. Re European matters, European annual Rheology Conferences were discussed, and it was felt that these would be well received in the BSR calendar.

Past minutes were reviewed and accepted, prior to dealing with matters arising. The BSR officers duly presented their respective reports to Council. The President, Eirian Jones, and Secretary, Phil Banfill, dealt with miscellaneous communication with learned Societies and individuals. Also, a request had been received from Ellis Horwood for suggestions of a suitable person to

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update the Worlock Rheology text. Some recommendations were proposed for the Secretary to follow up on. Phil Banfill, on behalf of the Membership secretary, Geoff Brownsey, presented the case of application for four new members. These were warmly received by all present. The Treasurer, Rhodri Williams, presented the current state of the financial accounts to Council. The Abstracts Editor, Gary Tucker, and Publication Manager, Nick Hudson, addressed the issues of publications. A draft agreement with the Canadian Society of Rheology was placed before Council and duly considered. Job Specification for the Publication Manager was produced (with breakdown and remuneration), in addition to three Service Providers Agreements concerning publication production.

Sadly, the death of BSR founding member, Veron Harrison, was noted. The Bulletin editor, Oliver Harlen, also reminded us that July marks the 100th Anniversary of the birth of George William Scott Blair, another of the BSR founding members. Such a fact is to be recognised in a special article for the Bulletin.

The correspondent had to leave the meeting prior to coverage of additional issues relating to scientific meetings, grants and awards, and memorandum matters. The activities of the BSR were held to be in a healthy and thriving state, due to the industrious and conscientious efforts of the Council members. The officers are to be commended accordingly.

Mike Webster

British Society of Rheology

Minutes of the 61st Annual General Meeting

held at Ashburne Hall,
University of Manchester.
on Thursday, August 30th 2001, starting at 5.00 pm

1. Present

The President, the Hon. Secretary and 13 members.

2. Apologies for absence

Received from P.C. Anderson, R. Buscall, W.J. Frith, P. Haxell, M. Mackley, G.C. Maitland, C.J.S. Petrie and M.F. Webster.

3. Minutes of the 60th AGM

These were agreed as a true record of the meeting and signed by the President.

4. Matters arising

There were none.

5. Reports of the Officers

5.1. President

Professor Eirian Jones presented his report of the year, alluding to the success, both scientific and financial of the ICR2000, and the satisfactory attendance at the two scientific meetings, on food processing rheology at Plymouth and on soft matter at Manchester. He noted the proposals from the ESR for annual meetings instead of the present biennial conferences, which would pose scheduling problems for our meetings in the calendar. He reported on continuing development of the Scott Blair Collection at Aberystwyth, where there will be a computer terminal for online searching and a display case for the Society's small collection of artefacts. Following the pilot scheme of supplying Rheology Abstracts electronically to the Canadian Society of Rheology and the availability of the CD-ROM of back issues, he looked forward to an increasingly electronic delivery of services, which will require us to know the email addresses of members. After mentioning the Annual Award made to Professor Howard Barnes, he looked forward to handing over to his successor, President elect Geoff Maitland, in 2002, and concluded by

thanking the members of Council for their hard work and support over the past year.

5.2. Treasurer

Professor Rhodri Williams presented his report noting that the accounts were in draft form only, due to the difficulty in getting them scrutinised in time. He reported that the profit from the International Congress was £12k and this resulted in the Society ending the year with a credit balance of this sum. However, he noted that there was about £4k owing to the Society in unpaid invoices, generally for advertising, and that some of this was in dispute.

5.3. Secretary

Professor Phil Banfill briefly presented his report to avoid duplicating what the President had said. He noted that the Society had made two travel grants to students to attend meetings but was still awaiting a nomination for a Scott Blair scholarship. The possibility of publishing an annual review of non-Newtonian fluid mechanics was being explored. Future scientific meetings include a joint meeting on engineering rheology in Spain in April 2002. He concluded by thanking the Council and in particular Derek Bell and Malcolm Mackley who are standing down after their four year term.

5.4. Membership Secretary

Dr Geoff Brownsey reported that at the start of the year there had been 586 members on the books. Having sent out receipts to members paying to renew their subscription, he had reached 340 by June and gained a further 60 in response to a reminder. With new members joining the total was now 414, with a further 191 “don’t knows”. As predicted at last year’s meeting it was taking some time to track everyone down.

5.5 Bulletin Editor

Dr Paul Doody presented his report and noted that his four year term was now ended. Bulletin is now published three times a year, two issues of which are European ones. Over his period of office the Bulletin had changed in appearance and style and he hoped that it was to the liking of members. Advertising was making a strong contribution to publishing costs, with typically £1800 per issue, but there had been some problems with unpaid and disputed invoices. In response to a question from the floor about the quality of photographic reproduction, he said that this was dependent on the quality of the scanning process and was under investigation. He concluded by thanking Eirian Jones and Nick Hudson

for the specific help with the timing of publication and in his turn the President formally thanked Paul for his hard work over the last four years. This was supported with acclamation.

5.6. Abstracts Editor

Dr Nick Hudson showed a graph of the steady increase in the number of abstracts being published and noted that about half of the total papers with any rheology content published worldwide are now abstracted and he thanked the loyal band of abstractors who provide him with material. The decline in subscriptions from libraries has stopped and the service to members has now been enhanced by the move to CD-ROM with an archive of back issues now available. The latter are selling healthily. The Society is now supplying Abstracts to the Canadian Society electronically in bulk for onward distribution. His aim is to get them on the web site, suitably passworded for protection, and also available to subscribing libraries. He concluded with his annual invitation to new abstractors. The President formally thanked him for his hard work over the last four years and this was supported with acclamation.

6. Officers and Council members

The nominations circulated with voting papers were approved by postal and electronic voting. In addition Gary Tucker was proposed by Rhodri Williams and seconded by David Binding for the office of Abstracts Editor. With the President casting votes on behalf of those members who had appointed him as proxy, the Council for 2001-02 was elected as follows:

Hon. Secretary	Professor Phil Banfill
Hon. Treasurer	Professor Rhodri Williams
Membership Secretary	Dr Geoff Brownsey
Bulletin Editor	Dr Oliver Harlen
Abstracts Editor	Mr Gary Tucker

Ordinary Members of Council

Dr David Binding
Dr Paul Doody
Dr Bill Frith
Dr Nick Hudson
Professor Chris Petrie
Professor Mike Webster.

7. Any other business

In response to a question from the floor about the timetable for the electronic society, the President replied that the aim was to have systems in place by September 2002, the end of his term of office

There being no other business the meeting closed at 6.15 pm.

PFG Banfill
Hon. Secretary

TER Jones
President

September 12th 2001

AIMS OF THE SOCIETY

The way liquids flow and solids deform affects all aspects of life.

Extraction and processing of crude oil, moulding of plastics, use of toothpaste, spreading of margarine, painting and the lubrication of joints in the human body are all examples of processes depending upon rheological behaviour. Rheology is defined as the science of the deformation and flow of matter.

If your work is concerned with rheology in any way, then you have much to gain by joining the British Society of Rheology - publications, conferences and access to fellow members who, while working in a different discipline or industry, may be facing similar problems to yours.

The Society is non-profit making and is registered as a charity.

The British Society of Rheology
Public Lecture and Annual General Meeting

*SCI International Headquarters,
14/15 Belgrave Square, London, SW1X 8PS, UK*

at 4pm Thursday, 17th September 2002

**" The role of interfaces in the rheology of
two-phase systems "**

presented by:

Professor JAN MEWIS

Catholic University of Leuven, Belgium

to be followed by the

**62nd Annual General Meeting
of the
British Society of Rheology**

Dr William J Frith,
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CONFERENCE REPORTS

EURORHEO 2002-01

Joint meeting of British, Italian, Portuguese and Spanish Rheologists.

Torremolinos – Málaga (Spain)

April 24-26, 2002

Although the tourist season was not at its peak, and the mercury in the thermometer had not yet climbed over 30°C, the Joint Meeting of British, Spanish, Portuguese and Italian Rheologists was still well situated in the shadowed and air-conditioned conference suite of the 'Hotel Amaragua'. It was attractively located on 'La Carihuella' beach washed by the Mediterranean Sea in Torremolinos which welcomed all participants with lots of kinds of entertainment and with its rather holiday atmosphere. More than 150 of them were accommodated at the Congress place and two hotels located within walking distance along the beach.

This meeting followed the good reputation of previous meetings promoted by the European Society of Rheology (ESR), and indeed provided a great opportunity for all the participants for a profound exchange of scientific and technological knowledge in Rheology. The conference itself was preceded by the 8th European School of Rheology, organised by the Spanish Rheology Group (GER) and the British Society of Rheology (BSR), under the auspices of the ESR.

The technical program of the conference started on Wednesday morning with an excellent keynote lecture from K. Walters of the University of Wales on 'Contraction Flows involving highly-elastic liquids: experiment and simulation'. He presented challenges encountered by numerical simulation of the flow of highly-elastic polymer solutions in a contraction, specially of the phenomenon of 'vortex enhancement'. Other no less interesting keynote lectures were presented through the three days and given by J.-M. Piau on 'Physical gels rheology: minefield or gold mine?', H.H. Winter on 'Rheology at early stages of polymer crystallization', H.A. Barnes with a title 'The rheology of filled polymer systems: A review', A.C. Diogo with revised lecture on 'The rheology of liquid foams', P.A. Santamaría with 'Flow split of polymer melts during capillary extrusion', H.M. Laun on 'Combined effect of dissipative heating and pressure dependent viscosity in capillary rheometry', R. Lapasin on 'Critical changes in the rheological properties of PTFE

dispersions' and last but definitely not least J. Mewis on 'Suspensions in liquid polymers'.

Oral presentations of other participants were delivered in two parallel sessions on: biopolymers and gels, electro- and magnetorheology, fluid mechanics and numerical simulation, food rheology, polymer rheology, rheometry, suspensions, surfactants, emulsions and foams. They were all very interesting and informative and it was sometimes hard to choose between the two sessions. There were also two poster presentations held with a high number of contributions.

Most of the presented lectures were included in the book of proceedings titled 'Progress in Rheology Theory and Applications', kindly edited by F.J. Martínez Boza, A. Guerrero, P. Partal, J.M. Franco and J. Muñoz and published by Grupo Español de Reología.

The highlight of the prepared social programme was a guided excursion to the most visited place in southern Spain, 'La Alhambra' in Granada, on Friday afternoon after the conference. To see this palace in a warm sunset with the background of a still snowy mountain range must have been an unforgettable experience for most of the delegates. The official banquet in Granada with many delicious courses made an excellent end to this conference.

I would like to express my gratitude to the British Society of Rheology for financial support, which allowed me to attend the conference.

Michaela Štolbová
University of Strathclyde, Glasgow

PROCESS MODELLING

25-27 March

Lake Vyrnwy, Wales



Past and present presidents of the BSR at Lake Vyrnwy. From the left Ken Walters (74-76), John Hutton (82-84), Howard Barnes (94-96), Eirian Jones (00-02), Ralph Oliver (92-94), Peter Townsend (96-98).

The Lake Vyrnwy hotel set in the heart of the beautiful countryside of north Wales once again provided an idyllic setting for the latest Institute of Non-Newtonian Fluid Mechanics meeting. The weather was uncharacteristically warm and sunny for mid-Wales and only the occasional low flying aircraft disturbed the tranquil rural scene.

There were over 50 participants, mostly from academia, with a very strong international presence including several notable rheologists from the USA, Korea and Australia as well as a good representation from Europe.

There were 23 papers presented during the conference, the majority of which were concerned with numerical simulation of the flow of polymeric materials. While the well established Phan-Thien Tanner model remained the most popular choice for the constitutive equation, Baajens, Harlen and Keunings all discussed simulations using new tube based constitutive equations, while Laun and Collis both used integral models.

Several speakers discussed various forms of flow instability that can occur during processing including; fountain flow (Baajens), film casting (Hyun), film blowing (Baird) and extrusion instabilities (Piau).

Not all talks were concerned with polymeric materials. Christansen gave an interesting insight into the rheology of stone, while Fuller described experiments on monolayer films. Cross described simulations of metal casting as illustration of the use of his flexible modelling software.

Boger and Nigen both used high speed video to capture the break-up and impact of drops. In his presentation Boger suggested that the modelling community should turn its attention to considering low viscosity systems, where there is an interaction between viscoelasticity and inertia.

The meeting was run in workshop mode allowing plenty of time for discussion. This included a lively debate on the degree to which the field had progressed recently. Significant strides have been made in the modelling of viscoelastic fluids in past ten years. Robust computational algorithms have been developed and are now available in commercial CFD codes. However, there remain several fundamental flow problems such as the prediction of pressure drops in contraction and die swell where there is still a considerable lack of agreement between theory and experiments. The response of the numerical modellers was to blame the constitutive models. While progress has been made in this area, particularly in the development of molecularly based models for polymer melts derived from tube theory, the constitutive model remains the weak link in the chain.

Oliver Harlen

AUTHORS REUNITED



Ken Walters, John Hutton and Howard Barnes at Lake Vyrnwy

The recent meeting of the University of Wales Institute of Non-Newtonian Fluid Mechanics at Lake Vyrnwy provided an opportunity for Barnes, Hutton and Walters to meet each other again and talk about the continued success of their book 'An Introduction to Rheology'. The book was first published in 1989, and is now into its fifth reprint with around 5,500 copies sold! It is still Elsevier's best-seller in the scientific area, and it must also be one of the best-selling books in the field of Rheology. The authors' original intention to write something to last seems to have succeeded. For the arithmetically minded, we can reveal that the respective authors are ten years older than each other, with a current combined age of 204 – try puzzling that out!



**6th European Conference on Rheology
September 1-6, 2002
Erlangen, Germany**

The 6th European Conference on Rheology (eurheo 2002), organised by the Institute of Polymer Materials (LSP) in collaboration with the German Society of Rheology (DRG), is held in the tradition of the International Conferences on Rheology and is intended to be a meeting place for everybody working in the different fields of rheology.

The conference will cover the following topics:

- * Molecular modelling, numerical simulations and microstructural modelling
- * Pharmaceuticals, cosmetics and food
- * Colloidal and non-colloidal suspensions
- * Polymer melts and solutions
- * Extensional rheology
- * Metallocene polymers and long chain branching
- * Rheology of Solids and composites
- * Rheometry
- * Experimental studies and numerical simulations of flow instabilities
- * Rheology and processing
- * Foams, emulsions, and surfactants
- * Non-Newtonian fluid mechanics
- * Miscellaneous

Plenary and keynote lectures will introduce the topics of the individual symposia. Contributions to the meeting are accepted as oral and poster

10TH NEWSLETTER OF THE EUROPEAN SOCIETY OF RHEOLOGY

presentations. The following rheologists have kindly agreed to present plenary and keynote lectures:

Plenary lectures

- * Dr. N. El Kissi (University of Grenoble, France)
- * Prof. Dr. O. Hassager (University of Denmark, Denmark)
- * Dr. G. Peters (Technical University of Eindhoven, The Netherlands)
- * Dr. N. Willenbacher (BASF AG, Germany)

Keynote lectures

- * Prof. Dr. I. Emri (University of Ljubljana, Slovenia)
- * Prof. Dr. K. Koyama (Yamagata University, Japan)
- * Dr. P. Lomellini (Enichem Research Center, Italy)
- * Prof. Dr. M. Mackley (University of Cambridge, UK)
- * Prof. Dr. T.C.B. McLeish (University of Leeds, UK)
- * Prof. Dr. J. Mellema (University of Twente, The Netherlands)
- * Prof. Dr. J. Mewis (University of Leuven, Belgium)
- * Prof. Dr. M. Renardy (University of Virginia, USA)
- * Prof. Dr. E. Windhab (ETH Zürich, Switzerland)

In addition to the scientific sessions a social program with sightseeing tours for the accompanying persons, an excursion for all attendants, a banquet dinner and a church concert will be organised.

Further information can be obtained from the internet page <http://www.lsp.uni-erlangen.de/eurheo2002> which will be updated regularly.

Contact: eurheo 2002, Institute of Polymer Materials, Department of Materials Science, Martensstr. 7, 91058 Erlangen, Germany,
email: erc2002@ww.uni-erlangen.de, Tel ++49 (0)9131 8527749



European Society
of Rheology



German Society
of Rheology



Institute of Polymer
Materials

Annual European Rheology Conference 2003, AERC 2003

The Portuguese Society of Rheology and the Department of Polymer Engineering of the University of Minho are pleased to announce the organisation of the first Annual European Rheology Conference 2003, AERC 2003, to take place in Guimarães, Portugal, in the period September 11-13, 2003.

AIMS AND SCOPE

The aim of AERC 2003 is to contribute to the advancement of Rheology in Europe, by bringing together researchers from both within and outside Europe, in a meeting of broad scientific scope but focussed on the presentation of novel, recent high-quality scientific results. Special attention will be given to fostering fruitful discussions between participants and promoting the participation of young researchers.

CONFERENCE FORMAT

The AERC 2003 will have a 3-day duration and will be split into topical Symposia, focussed either on mainstream or upcoming areas of Rheology. Each Symposium will have two Chairpersons, who will be renowned experts in the field, and will be in charge of organising its scientific programme (selection of mode of presentation, organisation of sessions, etc.).

The conference will have Plenary, Oral (in parallel sessions) and Poster contributions, paper submission and registration being done electronically over the WWW.

The confirmed list of Plenary speakers is the following:

H. M. Laun , R. Keunings, G. Marrucci,
M. M. Denn, E. Windhab, T. Sridhar,
I. Emri

The deadline for abstract submission will be kept very close to the conference (see below for details). Also, in order to promote the presentation of high-quality results, special issues of both *Rheologica Acta* and *Journal of Non-Newtonian Fluid Mechanics*, containing contributions selected from each Symposium by the respective Chairpersons, will be edited after the conference.

10TH NEWSLETTER OF THE EUROPEAN SOCIETY OF RHEOLOGY

LOCATION

Guimarães is an attractive city in the north of Portugal, located about 50 km from the Francisco Sá Carneiro International Airport in Oporto and directly linked to it by motorway (A3 and A7). It is located in the verdant region of Vale do Ave, in the heart of the province of Minho, 40 Km away from the beautiful National Park of Gerês and 50 km away from the Atlantic Ocean and its beaches.

In the twelfth century, when the nation was founded, Guimarães was the first capital of Portugal, and today it still maintains the Historic Centre, which has been duly rehabilitated and represents the principal cultural and tourist attraction of the city, having been awarded the status of World Heritage of Humankind by UNESCO on December 13, 2001.

In mid-September the weather conditions in the region are usually mild, with sunny weather and average daytime temperatures between 20 °C to 30 °C.

IMPORTANT DATES

Activation of WWW page and of Pre-registration: July 15th, 2002

Deadline for submission of Oral presentations: May 15th, 2003

Notification of acceptance: June 15th, 2003

Deadline for submission of Poster presentations: July 15th, 2003

CONTACTS

For more information, please contact:

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News from Other European Societies

GRUPE FRANÇAIS DE RHEOLOGIE (GFR)

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Meeting of Young Rheologists

The fourth “Meeting of Young Rheologists” was held in Rouez en Champagne close to Le Mans, from May 13th to 15th, 2002. It was organized by Jean-François Tassin (Université du Maine, Polymères Colloïdes et Interfaces, Avenue Olivier Messiaen, 72085 Le Mans Cedex). It brought together 18 young rheologists, 3 invited speakers (Dr. G. Bossis, Nice; Dr. J. L. Doublier, INRA Nantes; Dr. B. Ernst, Atofina) and the organizers Dr. L. Benyahia and Dr. J. F. Tassin. I think everyone has enjoyed the nice atmosphere of the Cistercienne Abbey, as well as high level talks, many informal discussions and good traditional “home made” food.



Participants enjoying the sunshine

Understanding rheology - From blood circulation to cement hardening

This is a collective publication of the French Group of Rheology, with a preface by J.M. Piau, President of the European Society of Rheology. This book, published in french, offers for the first time an overview, accessible to undergraduate students, of the basic rheological concepts through to its various applications such as biology, civil engineering, food, plastics or cosmetic industry, geology, etc. Each chapter is written by a group including both academic and industrial researchers. They systematically emphasize the physico-chemical origin of macroscopic (mechanical) behaviour of materials, and show how such knowledge may be useful for improving industrial processes or understanding and controlling natural flows.

P. Coussot and J.L. Grossiord (Eds.), 224p., EDP Sciences (www.edpsciences.org), Paris, 2001

Upcoming activities

The 37th GFR annual conference will be held in Saint Etienne 9-11 October 2002. It is organised in association with the German Society of Rheology around the topic "Rheology, Morphology, Structure".

As in previous years, the 2002 conference will at the crossing between physics, mechanics, chemistry, biology, mathematics in order to investigate the themes of structure and complex fluids morphology. The interaction between morphology, rheological behaviour and processing, will be at the heart of the problems considered. The objective is to develop exchanges and collaborations between academic scientists and centres of industrial study (polymers, chemistry, biomedical, geology, civil engineering...) on these problems. The conference will be centred on the following main topics :

Heterophased systems (polymer blends and filled polymers, suspensions, pastries and emulsions, biologic fluids).

Mixing, formulation and processing, flow structure.

Flow simulation, constitutive equations.

Structure and morphology characterisation in situ, on-line and off-line.

Plenary lectures will be given by:

Manfred Wagner: "Constitutive equations for linear and long-chain branched polymer melts."

Jan Vermant: "Effects of flow on the microstructure of concentrated dispersions."

Jean-François Palierne: "Rheologie et thermodynamique du modèle de réseaux transitoires de Green-Tobolsky, Yamamoto et Tanaka-Edwards"

More information can be found on the conference website at the following address <http://www.univ-st-etienne.fr/gfr2002>. Additional inquiries can be obtained through gfr2002@univ-st-etienne.fr

Jacques Bouton

GFR International Delegate

BOOK OFFER TO BSR AND ESR MEMBERS

20% DISCOUNT ON PUBLISHED PRICE OF

COMPUTATIONAL RHEOLOGY

R G Owens (*Ecole Polytechnique Fédérale de Lausanne, Switzerland*)
& T N Phillips (*University of Wales, Aberystwyth, UK*)

Computational Rheology traces the development of numerical methods for non-Newtonian flows from the late 1960's to the present day. It begins with broad coverage of non-Newtonian fluids, including their mathematical modelling and analysis, before specific computational techniques are discussed. The application of these techniques to some important rheological flow problems of academic and industrial interest is then treated in a detailed and up-to-date exposition. Finally, the reader is kept abreast of topics at the cutting edge of research in computational applied mathematics, such as adaptivity and stochastic partial differential equations.

Contents:

- Introduction
- Fundamentals
- Mathematical Theory of Viscoelastic Fluids
- Parameter Estimation in Continuum Models
- From the Continuous to the Discrete
- Numerical Algorithms for Macroscopic Models
- Defeating the High Weissenberg Number Problem
- Benchmark Problems I: Contraction Flows
- Benchmark Problems II
- Error Estimation and Adaptive Strategies
- Contemporary Topics in Computational Rheology

Please send orders by email directly to Mr Fan Hin Chen at World Scientific Publishing and Imperial College Press fhchen@wspc.com.sg, including the reference "FH20/25". Additional discounts are available if the book is used as course textbook. 30% discount purchases of two or more titles from the fluid mechanics series.

OTHER RHEOLOGICAL ANNOUNCEMENTS

CONFERENCES



THE AMERICAN SOCIETY OF MECHANICAL
ENGINEERS

Flows in Manufacturing Processes

July 6-10, 2003, Honolulu, Hawaii

The Fluid Mechanics Technical Committee (FMTTC), the Coordinating Group in Computational Fluid Dynamics (CGCFD), and the Fluids Applications and Systems Technical Committee (FASTC) of the Fluids Engineering Division of the ASME are jointly sponsoring a symposium on Flows in Manufacturing Processes. Papers enhancing our understanding of the fluid dynamics of such processes, via analytical, experimental and numerical simulations, are sought. Studies of all types of manufacturing processes involving Newtonian or non-Newtonian fluids under isothermal and non-isothermal conditions are welcomed.

Prospective authors are requested to submit an abstract to one of the organizers listed below. A full manuscript is to be submitted for review according to the attached schedule. Accepted final manuscripts will be published in the Proceedings of the 2003 FEDSM, and have to be prepared according to the ASME standard format for a conference paper.

DEADLINE SCHEDULE

Abstract due:	Passed
Full length draft manuscript due:	November 2, 2002
Author notification/Instructions:	January 4, 2003
Camera-ready papers due to organizers:	February 22, 2003

ORGANIZER

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**UNIVERSITY OF WALES
INSTITUTE OF NON-NEWTONIAN FLUID MECHANICS**

CONFERENCE ON RHEOMETRY

Miskin Manor Country House Hotel, Cardiff, Wales U.K.

April 14 – 16, 2003

Programme

The conference will commence at 12 noon on Monday April 14th, 2003 and finish at lunchtime on Wednesday April 16th, 2003.

The emphasis will be on advances in rheometrical theory, experimentation, instrumentation and the treatment and interpretation of data. The conference will include an instrument exhibition and the programme will feature a general debate on the current status of “the yield stress”, led by Professors Barnes and Boger. A Special Issue of the Journal of Non-Newtonian Fluid Mechanics will be devoted to the Proceedings, with the Organizing Committee, Prof. Ken Walters, F.R.S. and Prof. P. Rhodri Williams, as Guest Editors.

Plenary speakers include Prof. G H McKinley (M.I.T.), Prof. G G Fuller (Stanford), Prof. H A Barnes (Unilever Research), Prof. D V Boger (Melbourne), Prof. T E R Jones (Plymouth).

Venue

The meeting will be held at the Miskin Manor Country House Hotel, which is set in 22 acres of countryside, 15 minutes from Cardiff and 25 minutes from Cardiff (Wales) Airport. The hotel offers excellent dining, accommodation and conference facilities. The conference fee includes access to the hotel’s health club. Early registration for accommodation at Miskin Manor is advised due to high anticipated demand. Alternative accommodation (with local transport to and from the conference) will be provided at the nearby Copthorne Hotel.

Costs

The total cost of £350 includes full-board accommodation from Monday lunch to Wednesday breakfast. An accompanying person, sharing a room with a conference delegate, will be required to pay £100.

RECRUITMENT OPPORTUNITIES

A range of opportunities may be found at <http://www.bsr.org.uk/>
For example:

Research Engineer

The Central Research Laboratory of Lafarge (world leader in building materials), located at L'Isle d'Abeau, close to Lyon (France), recruits a research engineer. As a physicist, he has obtained a PhD or equivalent, and he is a recognized expert in fluids rheology. The candidate has proved his competency in academic or industrial research through an experience of a few years (typically 2 to 5 years). Complementary skills in processes engineering or colloidal physico-chemistry will be appreciated.

The candidate will initially be responsible for parts of research projects. In the medium term, he will be responsible for research projects dealing with topics aimed at improving the understanding of process-product interactions for "fresh" building materials. The capacity to manage research projects and to animate scientific teams is one of the qualities necessary for this position.

Fluent French is desirable but not imperative. The current practice of English is necessary. An international experience is desirable.

More info:

Pierre-Henri Jezequel

LAFARGE Laboratoire Central de Recherche

Pole Techniques de Mise en Oeuvre

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Information dated 7th June 2002.

INDUSTRY NEWS

BOHLIN INSTRUMENTS –RHEOLOGY SAMPLE CONTRACT AND RHESOURCE® OUTSOURCED TESTING

Bohlin Instruments are now offering two rheology contract testing services on a confidential basis. Many of Bohlin's 'blue chip' clients find that these services are cost effective and augment their existing in-house test resources. These may be lacking in capacity due to varying workloads, personnel or certain pieces of equipment.

Firstly, Bohlin offers a full contract test facility at its international headquarters in Cirencester, UK where a complete range of both rotational and capillary rheometers and viscometers, together with all accessories, is available. This service is available at short notice with rapid sample 'turn around' and is charged for on a daily basis.

Secondly, Bohlin have now introduced an outsourced rheology testing service, RheSource®, to corporate clients who for strategic reasons, might not want to maintain a full in-house facility for routine measurements. Both services are carried out by a team of experienced rheologists with a depth of knowledge in experimental rheometry.

Several large UK based organisations have already availed themselves of these services since they were introduced in late 2001.

BOHLIN INSTRUMENTS INTRODUCES THE NEW GEMINI RHEOMETER

Bohlin Instruments has introduced Gemini, an advanced rheometer system incorporating a new Rotonetic drive. Gemini is the first Bohlin rheometer featuring Bohlin's patent pending Rotonetic technology, an adaptive control technology which is optimised for both strain controlled and stress controlled operation.

Key technical features include a broad torque range which extends to 200mNm and makes the Gemini suitable for a wide range of applications in research and product development. A new high resolution torque mapping system applied to Bohlin's inherently low bias air bearing technology allows low torques to be set extremely accurately.

The Gemini system is available with the full range of Bohlin's EasySwap® temperature controllers which include peltier devices, a forced gas oven with optional liquid nitrogen cooling, electrical heating and a range of fluids circulators. This allows the Gemini to be quickly and easily configured to allow testing on a full range of materials and applications including polymer melts, composites, fluids and semi-solids.

The Rotonetic drive enables testing in all conventional strain and stress controlled modes including stress relaxation, creep and viscometric modes. Oscillation testing is available in either direct strain or stress controlled modes. Direct strain operation of oscillation allows preset strain amplitudes to be imposed upon the test sample without iteratively adjusting the stress on a cycle-by-cycle basis. A new feature, partial wave sampling, also enables rheological data to be gathered using just part of a full oscillation cycle. When used in conjunction with direct strain control, partial wave sampling makes low frequency testing far less time consuming and therefore more practical.

THERMO HAAKE – RHEOSTRESS 600

Rheological characterization of substances as an integral part of the research and development process has always proved a challenging and complex task. Thermo Haake now supplies a new answer for these requirements in the form of their new top-of-the-range, research-grade rheometer, the RheoStress 600.

The RheoStress 600 combines unsurpassed technical specifications with many of the latest design features already successfully implemented with other Thermo Haake rheometers – e.g. innovative construction materials, attractive instrument design etc. The result is a high-end research-grade rheometer which excels due to easy handling and the outstanding operating software RheoWin.

The highlights of the new RheoStress 600 include:

- The powerful, dynamic and extremely fast VC-motor.
- Normal Force. The RheoStress 600 can not only measure normal forces during shear experiments but also apply a normal force during sample loading.
- CD-Mode. The Controlled Deformation mode is available for rotational (strain-jump) as well as oscillatory measurements.
- Fast Data Recording.

- Modularity. The RS600 setup can be quickly adapted to suit a wide range of requirements due to its modular design with regard to temperature control, special measuring sensors and other options.
- Display/control unit
- RheoWin software. Measurement, evaluation and data export via Drag-&-Drop. RheoWin can be adapted to suit individual user requirements via special modules e.g. Snapshot, the automatic characterization of unknown samples, RheoWizard® etc. Barcode control for workflow optimization (GLP) and SAP interface for data exchange.

NEW BROOKFIELD YIELD RHEOMETER

Brookfield introduces the revolutionary YR-1 Yield Rheometer, a simple-to-operate, low-cost alternative to complicated, laboratory rheometers. The YR-1 is ideal for measuring the yield stress behavior of most materials. Brookfield designed the YR-1 to be used in the QC lab or even right on the production floor. Simple, push-button operation gives production technicians the ability to make quick, repeatable QC tests with minimal training. Test results are displayed as a single yield stress number.

Brookfield's new "EZ-Yield" Software is included with the YR-1. "EZ-Yield" features a simple menu that allows the operator to set up 10 different test programs. Streaming data can be viewed when connected to a PC. Test data - torque vs. time and stress vs. strain - can be displayed in both tabular and graphical formats. Test parameters include: test number and name, spindle #, immersion mark, pre-shear (rpm), wait time before test start-up, run time, run speed (rpm), and low and high yield control limits (Pa).

The YR-1 is available in a variety of torque ranges: RV for low viscosity liquids HB for sauces, ointments 5xHB for pastes, spreads, greases, etc. A temperature probe is also included.

PAAR SCIENTIFIC - NEW PRODUCT MANAGER FOR RHEOMETRY

Steve Goodyer has recently joined Paar Scientific in London to help promote their range of rheometers and viscometers in UK. Steve has a degree in Applied Physics and has worked in the field of rheometry for over 13 years. During this time he has gained a great deal of experience in measuring a wide range of materials including coatings, foods, pharmaceuticals, petrochemicals, polymers and household goods.

CONFERENCES

You are also advised to visit the BSR home pages where an extensive list of conferences is maintained by Chris Petrie: <http://www.bsr.org.uk/>

2002	
18-22 Aug Cracow, Poland	International Symposium on Electrokinetic Phenomena Jerzy Haber E: ncadamcz@cyf-kr.edu.pl Info: akropolis.pol.lublin.pl/users/ekp2002/index.htm
1-6 Sep Erlangen Germany	6th EUROPEAN CONFERENCE ON RHEOLOGY Prof. Dr. H. Münstedt, Institute of Polymer Materials, -eurheo 2002-, University of Erlangen-Nürnberg, Martensstr. 7, D-91058 Erlangen, Germany. T: +49-9131-8528593 F: +49-9131-8528321 E: erc2002@ww.uni-erlangen.de Info: www.lsp.uni-erlangen.de/eurheo2002/
9-11 Sep Edinburgh UK	Faraday Discussion 123: Non-Equilibrium Behaviour of Colloidal Dispersions University of Edinburgh Info: www.chemsoc.org/CFCONF/alldetails.cfm?ID=6413
17 Sep London UK	BSR Lecture: The role of interfaces in the rheology of two-phase systems by Professor Jan Mewis. SCI, 14/15 Belgrave Square, London. For info contact Bill Frith T: 01234 222574 F: 01234 222757 E: bill.frith@unilever.com
24-27 Sep Lyon France	3rd World Congress on Emulsions CME (Scientific Committee) 50, Place Marcel Pagnol 92100 BOULOGNE-BILLANCOURT FRANCE T: + 33 1 47 61 76 89 F: +33 1 47 61 74 65 E: alain.lecoroller@wanadoo.fr Info: www.cme-emulsion.com
24-26 Sep Cachan France	4th international conference on Materials Processing Defects Luc Chevalier, LMT-Cachan, 61, avenue du Président Wilson, 94 235 CACHAN CEDEX (FRANCE) T: +33 1 47 40 21 76 or 1 47 40 53 33 F: (33) 1 47 40 22 40 E: mpd4@lmt.ens-cachan.fr Info: tuchan.lmt.ens-cachan.fr/mpd4/
25-26 Sep London UK	Slow Dynamics in Soft Matter: Common Structures in Diverse Systems , Royal Society Discussion Meeting, Info: www.royalsoc.ac.uk/events/disc_mee_02.htm E: discussion.meetings@royalsoc.ac.uk
30Sep –2Oct Berlin Germany	Polydays 2002 Info: www.polydays2002.tu-berlin.de E: polydays@tu-berlin.de
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2002	

9-11 Oct Saint- Etienne France	37th National Conference of the French Group of Rheology Info: www.univ-st-etienne.fr/gfr2002 E: gfr2002@univ-st-etienne.fr
13-17 Oct Minneapolis USA	74th Annual Meeting of The Society of Rheology Info: www.rheology.org/sor/annual_meeting
20-23 Oct Naples Italy	Times of Polymers (TOP) Info: fidabs.ing.unibs.it/top E: damore@bsing.ing.unibs.it
3-8 Nov Indianapolis USA	AICHE Annual Meeting Info: www.aiche.org/annual
17-22 Nov New Orleans USA	ASME Advances in Materials Processing Science Info: www.asme.org/congress T: 1 316 978-3400, F:1 316 978 3853 E: signer@engr.twsu.edu
17-22 Nov New Orleans USA	ASME Rheology and Fluid Mechanics of Nonlinear Materials Info: www.asme.org/congress T: 1 316 978-3400, F:1 316 978 3853 E: signer@engr.twsu.edu
2003	
9-13 Feb Zurich Switzerland	3rd International Symposium on Food Rheology and Structure Info: www.isfrs.ethz.ch E: secretary@isfrs.ethz.ch
14-16 Apr Cardiff Wales	Rheometry II Dr Rhodri Williams E: p.r.williams@swansea.ac.uk
4-7 June Lausanne Switzerland	XIIIth International Workshop on Numerical Methods for non-Newtonian Flows Robert Owens, LMF-IE-FSTI, Ecole Polytechnique Fédérale de Lausanne, CH 1015 Lausanne, Switzerland. T: +41 21 693 3589 F: +41 21 693 5307. Info: lmfwww.epfl.ch/IWNMNF2003 E: wkshop2003@epfl.ch
T: Telephone; F: Facsimile; E: Email; Info: WWW URL	

2003	
22-26 June Sofia Bulgaria	12th European Conference on Clinical Hemorheology E: antonova@imbm.bas.bg Info: www.12ECCH.primasoft.bg
6-10 July Honolulu USA	FLOWS IN MANUFACTURING PROCESSES Advances in Materials Processing Science Info: www.engr.twsu.edu/DrSiginer/asmehawaii.htm T: 1 316 978-3400, F: 1 316 978 3853 E: siginer@engr.twsu.edu
7-10 July Melbourne Australia	PPS-19 POLYMER PROCESSING SOCIETY Info: www.pps19.nwww.com.au E: pps19@rmit.edu.au
11-13 Sep Guimaraes Portugal	AERC 2003 Annual European Rheology Conference Info: www.rheology-esr.org/AERC2003 E: jmaia@dep.uminho.pt
2004	
22-27 Aug Seoul Korea	XIV INTERNATIONAL CONGRESS ON RHEOLOGY
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COURSES

2002	
11-15 Nov Glasgow UK	PROCESS RHEOLOGY Dr NE Hudson, Dept P&A Chemistry, University of Strathclyde, 295 Cathedral Street, Glasgow, UK T: +44(0)141 5482162; F: +44(0)141 5484822 E: n.e.hudson@strath.ac.uk
11-12 Nov Malmö SE	INTRODUCTION TO ADVANCED RHEOLOGY Presented by Annika Sahlström, MSc Calmia AB, Box 2161, SE-220 02 Lund, Sweden T/F: +46 (0)46 211 00 20 E: calmia@calmia.se Info: www.calmia.se
18-19 Nov Malmö SE	EMULSION SCIENCE AND TECHNOLOGY Presented by Prof Tharwat Tadros Calmia AB, Box 2161, SE-220 02 Lund, Sweden T/F: +46 (0)46 211 00 20 E: calmia@calmia.se Info: www.calmia.se
20-21 Nov Malmö SE	NANOEMULSION AND MICROEMULSIONS Presented by Prof Tharwat Tadros Calmia AB, Box 2161, SE-220 02 Lund, Sweden T/F: +46 (0)46 211 00 20 E: calmia@calmia.se Info: www.calmia.se
20-21 Nov Malmö SE	PARTICLE CHARACTERIZATION Presented by Dr Terence Allen Calmia AB, Box 2161, SE-220 02 Lund, Sweden T/F: +46 (0)46 211 00 20 E: calmia@calmia.se Info: www.calmia.se
2003	
2-6 Jun Glasgow UK	THEORETICAL, EXPERIMENTAL AND INDUSTRIAL ASPECTS OF RHEOLOGY Dr NE Hudson, Dept P&A Chemistry, University of Strathclyde, 295 Cathedral Street, Glasgow, UK T: +44(0)141 5482162; F: +44(0)141 5484822 E: n.e.hudson@strath.ac.uk
10-14 Nov Glasgow UK	PROCESS RHEOLOGY Dr NE Hudson, Dept P&A Chemistry, University of Strathclyde, 295 Cathedral Street, Glasgow, UK T: +44(0)141 5482162; F: +44(0)141 5484822 E: n.e.hudson@strath.ac.uk
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