# THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

## FORTHCOMING SOCIETY MEETINGS

***Friday 28 February 2003 - Edinburgh***
Mary Cartwright Lecture
B. Bollobás, J. Chayes
***Tuesday 11 March 2003 – Manchester***
Northern Regional Meeting
Geometric Representation Theory
***Wednesday 14 May 2003 – Coventry***
Midlands Regional Meeting
Uncertainty Modelling
***Friday 20 June 2003 – London***
J.C. Rickard, M.J. Taylor

## DIARY
### 22 November 2002

The November Council meeting, which preceded the AGM, was a short one.

Nick Woodhouse presented his annual report as Treasurer, his first since he took over from Alun Morris. Nick was unlucky to take over when he did; it is clear that the last year - as the previous year - has not been a good time for investments. The Society's fixed assets are down, but its finances are buoyed up by the continuing excellent income from its publications (brought about through good management and not through excessive profit taking). Expenditure on grants to mathematics (including the ICM, the Mathematical Olympiad and services to members) are up, and expenditure on management and administration is down.

The Executive Secretary reported that Alasdair Rose from EPSRC had approached the Council for the Mathematical Sciences to discuss plans for an International Review of Mathematics in the UK, to provide an independent assessment of the quality of UK research compared with international standards. The EPSRC and the mathematical societies will jointly form a steering committee which will oversee the review and appoint the International Review Panel of overseas mathematicians. Council prepared its response to EPSRC via the CMS, welcoming the review, and seeing the involvement of the mathematical community through its learned societies as crucial. A number of practical points remain to be settled, and these will be discussed at a meeting of the CMS with the EPSRC Chief Executive on 13 December.

The Librarian reported on the first meeting of the new Library Committee. The Committee is looking for ways to make access to the UCL-based LMS library easier for non-Londoners. Currently very few of the active library users are based outside London. The Librarian reported on the new mobile shelving which had been installed in the De Morgan House archive room. In the brief interlude between the end of the meeting and the start of the AGM, those interested were given a guided tour of the room, which will be given a commemorative mathematical name in the future. Council members admired the state-of-the-art equipment and the hand-written reports going way back into the Society's history.

The Education Secretary reported on another joint venture with the IMA and RSS to try to boost recruitment into mathematics and mathematics-related careers. Material is being collected to produce careers information showing the attraction of mathematics qualifications to employers, and the application of mathematics across a very diverse sets of careers.

As the meeting drew to a close, it was time for Trevor Stuart, as President, to thank those whose term on Council was coming to an end. Tony Scholl then ended the meeting by thanking Trevor himself for his service as President. He had taken over the job at very short notice after the tragic death of David Crighton, but had got off to a flying start. From the beginning, his hallmark had been his dedication and his commitment of both time and energy. He had been thoroughly involved with the CMS and became a major force in representing mathematics to the outside world. He had broadened the mathematical perspective of the Society, expanding its involvement in more applied areas, and quietly supporting its women. (Personally I am grateful for the care he has taken to ensure that my own childcare needs at De Morgan House meetings have been met.) The policies already existed, but he had boosted them with enthusiasm. Also he had steered Council meetings with an efficiency that made them noticeably shorter. Council applauded Trevor, and the meeting was closed.

<div align="right">Sarah Rees</div>

## TREASURER'S REPORT TO THE ANNUAL GENERAL MEETING 2002

In the financial year 1 September 2001 to 31 August 2002, the Fixed Assets of the Society decreased in value from £11,180,629 to £9,556,871. The drop is worrying, but is perhaps not surprising given that the Society's portfolio is dominated by UK equities, and that the FTSE 100 share index fell by 21% over this period.

The Printing and Publication Reserve Fund and the Development Reserve Fund are unchanged over the year, and stand at £1,200,000 and £500,000 respectively.

It has been another good year for the Society's publishing activities, which generated a welcome surplus of £616,030, as a result of good management rather than excessive profit taking. The surplus was higher than anticipated earlier in the year, in part because of 110 new subscriptions to the *Journal* and *Proceedings* from China.

The total expenditure of the Programme Committee, Research Meetings Committee, Computer Science Committee, Women in Mathematics Committee, and Education Committee was very much the same as last year at £295,209, but other grants and expenditure in furtherance of the objects of the Society were up from £66,863 to £101,497, largely as a result of grants for the Mathematical Olympiad and the ICM in Beijing.

Total membership remained more or less steady, with a small decrease in ordinary membership from 2374 to 2364, and in associate membership from 52 to 43. Subscription income rose from £45,620 to £47,070; and expenditure on direct services to members rose from £35,955 to £41,302.

Management and Administration costs decreased from £540,293 to £505,972.

I took over from Alun Morris at the beginning of April, and I have a hard act to follow as he left the finances of the Society in very good shape. So far, I fear, I can report little more than the gloomy news that we have suffered in the market turmoil of the past few months. I would like to thank Ephrem Belay, Susan Oakes, and our new Executive Secretary, Peter Cooper, for their tireless work and support.

<div align="right">N.M.J. Woodhouse<br>Treasurer</div>

## PRESIDENTIAL APPRECIATION

At the Annual General Meeting, the President, Trevor Stuart, took the opportunity to express his appreciation of two Honorary Officers and the Executive Secretary, whose terms of office ended and who ceased to attend Council during his period as President.

Alun Morris resigned as Treasurer early in 2002, having served in that capacity for over seven years, during which the LMS prospered wonderfully well in financial and other ways; indeed De Morgan House was purchased during his Treasurership and the LMS support for Mathematics through the programme and conference fund continued strongly. Alun was a very fine and meticulous Treasurer and LMS Council Member who exercised firm financial leadership.

John Pym resigned as Council and General Secretary on 21 June 2002, having served in that capacity for six years. He served earlier as Editor of the *Journal* of the LMS and then as Publications Secretary. As a result of the appointment of an Executive Secretary, John's Secretarial duties changed somewhat, and it is very much to his credit that the transition worked smoothly to the Society's great benefit. As President I found his advice, guidance and perception to be invaluable.

Ben Garling was the first Executive Secretary of the LMS, taking up the position after the move to De Morgan House. During the transition Ben worked well with John Pym, the Council and General Secretary, with other officers, and with Susan Oakes, Susan Hezlet and other staff of De Morgan House; the LMS settled quickly to new modes of operation. Earlier Ben Garling served as Meetings and Membership Secretary. As President, especially one with the privilege of an office in De Morgan House, I found Ben's help, guidance and experience to be essential.

All three deserve the warm-felt thanks of the Society.

J.T. Stuart
LMS President

## LONDON MATHEMATICAL SOCIETY: 2002-2003 COUNCIL

As a result of the annual election, membership of the Council is the following:

| | |
|---|---|
| President | Professor P.G. Goddard FRS (Cambridge) |
| Vice-Presidents | Professor A.G. Chetwynd (Lancaster) |
| | Professor A.J. Scholl (Cambridge) |
| Treasurer | Dr N.M.J. Woodhouse (Oxford) |
| General Secretary | Professor N.L. Biggs (LSE) |
| Programme Secretary | Dr S.A. Huggett (Plymouth) |
| Publications Secretary | Professor E.C. Lance (Leeds) |
| Education Secretary | Dr W.B. Stewart (Oxford) |
| Members-at-Large | Professor I.D. Abrahams (Manchester) |
| | Professor M.R. Bridson (Imperial) |
| | Professor R.T. Curtis (Birmingham) |
| | Professor M.M. Dodson (York) |
| | Professor K.J. Falconer FRSE (St Andrews) |
| | Professor J. Howie FRSE (Heriot-Watt) |
| | Professor M.A.H. MacCallum (Queen Mary) |
| | Dr M. Mathieu (Queen's University of Belfast) |
| | Dr S.E. Rees (Newcastle) |
| | Professor M.A. Reid FRS (Warwick) |
| | Dr F.A. Rogers (King's College London) |
| | Professor I.A. Stewart (Leicester) |

## DAVID CRIGHTON MEDAL

In order to pay tribute to the memory of Professor David George Crighton FRS, the Institute of Mathematics and its Applications and the London Mathematical Society have resolved to institute jointly an award.

The silver gilt medal will be awarded to an eminent mathematician for services both to mathematics and to the mathematical community, who is normally resident in the mathematical community represented by the two organisations on the 1st January of the year of the award.   The award will be considered triennially by the Councils of the Institute and the Society, with the first medal being awarded in 2003.

The medal-winner will normally be presented with the award at a joint meeting of the Institute of Mathematics and its Applications and the London Mathematical Society, and will be invited to give a lecture.

A David Crighton Medal Committee is being established, comprising three members from the LMS and three from the IMA.  The Society's representatives will be Professor Peter Goddard (LMS President), Professor Tony Scholl and Dr Marcus du Sautoy.   The Institute members are Professor John McWhirter (IMA President), Professor Tim Pedley and Professor Steve Reid.  Members of the Society or Institute are invited to submit their views confidentially in writing to members of the Committee by **1 February 2003**.

**LMS Members:**
Professor P.Goddard (president@lms.ac.uk)
Professor A.J. Scholl (a.j.scholl@dpmms.cam.ac.uk)
Professor  M. du Sautoy (dusautoy@maths.ox.ac.uk)

**IMA Members:**
Professor J.G. McWhirter (mcwhirter@signal.qinetiq.com)
Professor T.J. Pedley (tjp3@damtp.cam.ac.uk)
Professor S.R. Reid (steve.reid@umist.ac.uk )


## LONDON MATHEMATICAL SOCIETY
## HARDY FELLOWSHIP 2006

Nominations are sought for a Hardy Fellowship to be held in 2006.

The Hardy Fellow will be a distinguished overseas mathematician who will make a significant contribution to the UK mathematical scene. Young mathematicians are not excluded. The Fellow will be based at an institution (or possibly two institutions) in the UK for an extended period, and during that time will also visit several other places to make mathematical contacts in the UK community.  The Council expects a stay of four months, with around 8 to 10 lectures being given at a variety of locations, including the Hardy Lecture in London in June, but it is prepared to consider minor adjustments to this plan.

The grounds on which the Fellow will be chosen include:

- work in, influence on, and general service to mathematics;
- lecturing gifts;
- breadth of mathematical interests;
- the overall benefit that the UK mathematical community might gain from the visit;
- the possibility of bringing to the UK a mathematician who might otherwise visit rarely or never.

The LMS will pay all travel expenses for the Fellow, together with initial and final travel expenses for a spouse or established partner, and will also offer a suitable stipend.  The host

department(s) will be expected to provide office accommodation and the academic support normally offered to a distinguished visitor.

Nominations must have the support of the host department(s), and must be sent by the head of department to the Society's Executive Secretary at The London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS. In order to give time for a proper consideration of nominees, proposals should arrive by **7 February 2003**. The nominations will be considered by the 2003 Prizes Committee before being presented to Council in May 2003.

Further information can be obtained from the General Secretary of the Society, Professor N.L. Biggs (n.l.biggs@lse.ac.uk) or from the Executive Secretary, Mr P.R. Cooper (cooper@lms.ac.uk).

## ANNUAL LMS SUBSCRIPTION 2002-03

The Society is appreciative of those members who have paid their 2002-03 subscriptions. May we remind those who have not yet paid that subscriptions were due on 1 November 2002. Prompt payment ensures continuity of publications and avoids the need for time-consuming reminders. The Society reserves the right to discontinue the supply of periodicals and the *Newsletter* to members whose subscription remains unpaid by **31 January 2003**. The methods of payment are either by a sterling cheque drawn on a UK bank; a US$ cheque drawn on a US bank, direct debit or credit card. If you have misplaced your renewal of subscription form, contact the LMS office (email: membership@lms.ac.uk; tel: 020 7637 3686; fax: 020 7323 3655).

### Individual Members 2002-03 Rates

| Subscriptions | £ | US$ |
|---|---|---|
| Ordinary | 27.00 | 54.00 |
| Reciprocity | 13.50 | 27.00 |
| Associate | 6.75 | 13.50 |
| European Mathematical Society | 14.00 | 28.00 |

| Publications | £ | US$ |
|---|---|---|
| *Bulletin* Volume 35 | 27.00 | 54.00 |
| *Journal* Volumes 67 & 68 | 54.00 | 108.00 |
| *Proceedings* Volumes 86 & 87 | 54.00 | 108.00 |
| *JCM* (electronic) Volume 6 | free | free |
| *Nonlinearity* Volume 16 - except North America | 42.00 | |
|         - North America | | 105.00 |
| *Journal of Applied Probability* Volume 40 | 41.50 | 83.00 |
| *Quarterly Journal of Mathematics* Volume 54 | 83.50 | 153.00 |
| *Math. Proc. Camb. Phil. Society* Volumes 133 & 134 | 75.50 | 151.00 |
| *Glasgow Mathematical Journal* Volume 45 | 45.00 | 90.00 |
| *Journal of the European Mathematical Society* Volume 5 | 27.00 | 54.00 |

## ORDER OF MERIT

Lord May, President of the Royal Society has been awarded the Order of Merit. Amongst the current holders are Sir Michael Atiyah FRS and Sir Roger Penrose FRS. Membership of the order is limited to 24 people at any one time.

## DE MORGAN MEDAL 2001

The De Morgan Medal for 2001 was awarded to Professor J.A. (Sandy) Green, Emeritus Professor of the University of Warwick; however, owing to illness he was unable to receive the award at the Annual General Meeting on 23 November 2001.

With the active co-operation of the Mathematical Institute of the University of Oxford, it was arranged to present the award at a short LMS Meeting before the Institute's regular Colloquium on Friday, 15 November 2002. Thus the President of the LMS made the presentation to Sandy Green after reading the citation for the award, which had appeared in the LMS *Newsletter* for July 2001. Happily, several members of Sandy's family were present, including Mrs Margaret Green, one son, two daughters and one granddaughter; Sandy's son (Alistair) acted as family photographer!

An added bonus for the LMS was the large number of members who came forward to sign the LMS signature book, which dates from 1865. So the President became still more familiar with the phrase 'On behalf of the London Mathematical Society I hereby admit you a member thereof'!

After the LMS ceremony, Professor Terry Lyons introduced the Colloquium speaker, Professor Peter Sarnak (Princeton University and NYU), who spoke on 'The spectrum of modular surfaces'. Following the lecture a reception was held in the Mathematical Institute in honour of Professors Sandy Green and Peter Sarnak. Later in the evening, a dinner was held at the high table of University College, where Dr Michael Collins presided as the Senior Fellow present.

The London Mathematical Society is deeply indebted to Dr Nick Woodhouse, Chairman of the Mathematical Institute, Professor Terry Lyons, Chairman of the Colloquium, and Dr Michael Collins for their generous co-operation in making these arrangements, which gave great pleasure to Sandy Green and his family and to many LMS members.

Professor J.T. Stuart FRS
President of the LMS 2000-2002

# RECORDS OF PROCEEDINGS AT MEETINGS

## ORDINARY MEETING

held on *Friday 15 November 2002* at the Mathematical Institute, Oxford, during a Colloquium. About 60 members and visitors were present for all or part of the meeting.

The meeting began at 4.30 pm, after the Colloquium had been opened by Professor T.J. LYONS FRS, and was Chaired by the LMS President Professor J.T. STUART FRS.

Twelve people signed the book and were admitted to the Society.

The President, on Council's behalf, presented Professor J.A. Green with the 2001 De Morgan Medal.

The Colloquium then resumed with Professor Lyons in the Chair.

Professor P. Sarnak gave a lecture on 'The spectrum of modular surfaces'.

The meeting was followed by an informal reception.

## EPSRC PUBLIC COMMUNICATION TRAINING FUNDS

The EPSRC has introduced Public Communication Training Funds (PCTFs) as an additional option for all research grant proposals made to EPSRC from April 2002. The new funds will be available for courses which cover the skills required for effective communication via the broadcast or written media, and for presentations, lectures, demonstrations or debates for the general public and schools audiences. The PCTFs provide £500 for a research grant holder or member of their research team to use specifically for such training.

The aim of the PCTF initiative is to enable EPRSC-supported research teams to achieve greater public awareness of their research and its possible implications for society. It underlines the EPSRC's endorsement of the influential House of Lords report 'Science and Society' (2000) which strongly recommended an expansion of such training for scientists and engineers.

A recent survey of 600 EPSRC-supported researchers showed a substantial demand for public communication training. Over 76% of the sample were interested in taking up PCTFs, while only 21% had already received some form of training in communicating with the public.

Proposers of projects for EPSRC's main research programmes will be able to add PCTFs to their bid for a grant by requesting the fund on the EPSRC proposal from.

Further information is available from Dr Kerry Leslie (tel: 01793 444209, email: kerry.leslie@epsrc.ac.uk).

## FRANK SMITHIES

Dr Frank Smithies FRSE, who was elected a member of the London Mathematical Society on 15 December 1938, died on 16 November 2002, aged 90. Dr Smithies served as Secretary of the London Mathematical Society from 1948-51 and as Vice-President from 1951-52. He was a Fellow of St John's College Cambridge and Emeritus Reader in Functional Analysis at Cambridge University.

## VISIT OF PROFESSOR L. VOLEVICH

Professor Leonid Volevich (Russian Academy of Sciences) will visit Imperial College London during February 2003, supported by an LMS Scheme 2 grant. He will give talks at Imperial College, Heriot-Watt University and the University of Bath. For further information contact Dr Michael Ruzhansky, Department of Mathematics, Imperial College, 180 Queen's Gate, London SW7 2BZ (tel: 020 75948500, fax: 020 75948517, email: ruzh@ic.ac.uk).

## MENTORING FOR EUROPEAN WOMEN IN MATHEMATICS

A new EU-funded website for women in mathematics to find mentors is now live (http://ewm. brookes.ac.uk). Please have a look and consider signing up as a mentor (both female and male mentors are welcome). If you are a female postgraduate student, postdoctoral student, or have recently started your career as a lecturer you may also wish to sign up to get a mentor. Please draw this to the attention of other colleagues if you think they would be interested in the scheme.

Dr Cathy Hobbs
Oxford Brookes University

## ROBERT HOOKE COMMEMORATION 2003

Hooke's life and work is being commemorated in 2003, the tercentary of his death. It was in Oxford that his prodigiously inventive career began when he entered as a member in 1653. The commemoration will be in the form of a Symposium open to members of the public on Thursday 2 October 2003 from 10.30 am until 4.30 pm with luncheon in the hall at Christ Church, Oxford. The Symposium meetings are to be in the Examination Schools, High Street, Oxford.

Speakers will include Dr Allan Chapman, Professor Michael Cooper, Dr Ellen Tan Drake, Professor John Enderby (Secretary of the Royal Society), Sir Roger Penrose, Sir Martin Rees (Astronomer Royal) and Sir Christopher Zeeman.

Admission will be by ticket (numbers limited by space). Those interested in attending should contact the Secretary, Mrs M. Molloy, Development Office, Christ Church, Oxford OX1 1DP (tel: 01865 286854, fax: 01865 286587, email: margaret.molloy@chch.ox.ac.uk). Visit the website (http://hooke.chem.ox.ac.uk) for further details.

Hooke's memory is also being honoured at a conference to be held in London, 7-9 July 2003, at the Royal Society under the auspices of Gresham College. Details are available from the Secretary, Mrs J. Jones, 7 Court Road, Letcombe Regis, Oxfordshire OX12 9JH (tel: 01235 762744, email: julie.jones6@btinternet.com, www.gresham.ac.uk).

## 19TH  BRITISH COMBINATORIAL CONFERENCE

The 19th British Combinatorial Conference will be held at the University of Wales, Bangor, from 29 June to 4 July 2003. The main themes of the conference are the topics within 05 Combinatorics of the Mathematics Classification Scheme 2000, as well as linked topics in other areas.

The nine invited speakers are:

- Lars Andersen (Aalborg)
- Simon Blackburn (Royal Holloway)
- Alexandre Borovik (UMIST)
- Pavol Hell (Simon Fraser)
- Dieter Jungnickel (Augsburg)
- Imre Leader (Cambridge)
- Arun Ram (Wisconsin-Madison)
- Anne Street (Queensland)
- Günter Ziegler (Berlin)

who will contribute survey articles to the conference book "Surveys in Combinatorics, 2003". This conference is organised by the British Combinatorial Committee and is receiving financial assistance from the London Mathematical Society. Further details are available from the local organiser, Chris Wensley (bcc2003@informatics.bangor.ac.uk) or from the conference website (www.informatics.bangor.ac.uk/public/math/bcc2003/).

## ROYAL SOCIETY UNIVERSITY RESEARCH FELLOWSHIPS 2003

The Royal Society is inviting applications for about 40 Royal Society University Research Fellowships. These fellowships provide outstanding scientists in the natural sciences including agriculture, mathematics, technology, medical and engineering sciences) with the opportunity to build an independent research career.

Applicants must have a PhD or equivalent research experience and at least two and not more than seven years' full-time postdoctoral experience by 1 October 2003. These fellowships are

open only to European Union citizens who are either currently employed in the UK or, if not employed, have at some time been resident in the UK for a continuous period of three years other than for the sole purpose of receiving full-time education. Persons holding a permanent post in a European Union university will not be considered.

These research fellowships must be held in a UK university. They are available from 1 October 2003 for a period of five years in the first instance (possibly renewable in instalments up to a maximum of 10 years) and provide funding for salary on the non-clinical academic and academic-related staff (Lecturer A and B) scale and annual research expenses.

**Contact**: Research Appointments, The Royal Society, 6-9 Carlton House Terrace, London SW1Y 5AG (tel: 020 7451 2545, email: ukresearch.appointments@royalsoc.ac.uk, web: www.royalsoc.ac.uk).

**Deadline**: 10 January 2003.

## ISAAC NEWTON INSTITUTE
### Call for Proposals

The Institute now invites new proposals for programmes for 2005 onwards. A choice of six-month or four-month programme is available and short programme of four weeks' duration are invited for July/August each year. These short programmes are intended for more narrowly focused topics or for subjects that may be at an embryonic stage of development, and for which a longer programme might not be as yet justified.

Proposers should state whether they would prefer a four-month, six-month or four-week programme. The Institute is pleased to receive proposals at any time. Proposals for consideration at the next meeting of the Scientific Steering Committee (May 2003) should be received by **31 January 2003**. Proposals should be addressed to the Director, Sir John Kingman, Isaac Newton Institute, 20 Clarkson Road, Cambridge CB3 0EH. Information is available on the web (www.newton.cam.ac.uk/callprop.html).

## GAZA LIBRARY PROJECT

The GLP (sponsored by Sir Eric Ash FRS, Sir Michael Atiyah FRS, H.H. Rosenbrock FRS and Sir Magdi Yacoub FRCS) is a UK charity which collects and dispatches books and periodicals to academic and professional libraries in Gaza and the West Bank. Accordingly the GLP is asking for books, continuous long runs of journals and money to help shipment costs. This notice is to urge mathematicians to organise collections in their departments. (Books should be in fairly good condition and can range from A-level to research level. Please do not use this as an opportunity to get rid of books which nobody will read.) Donors should pack books in strong cardboard boxes (university main libraries or bookshops usually have plenty) and then seal them with parcel tape.

It would also be helpful if colleagues could identify individuals in other departments who may be willing to organise collections in their own subjects.

When boxes are ready for dispatch you should contact Michael Payne (secretary to the trustees) at the following e-mail address: 106141.2003@compuserve.com, who will arrange for collection and transport. Further information about the GLP can be found at its website (www.brunel.ac.uk/~emstksh/gaza).

To encourage you, at Warwick more than 500 books (not including journals) have been collected and packed in less than three weeks.

Bill Parry
Warwick University

## G. DE B. ROBINSON PRIZE

The Canadian Mathematical Society annually awards a prize for outstanding papers in either the *Canadian Journal of Mathematics* or the *Canadian Mathematics Bulletin*.   This year the committee considered papers that had appeared in the *Canadian Journal of Mathematics* in 2000 or 2001. The selected winner is Chinburg, T.; Kolster, M.; Snaith, V. P. 'Comparison of *K*-theory Galois module structure invariants' *Canad. J. Math.* **52** (2000), no. 1, 47-91. Professor Victor Snaith (University of Southampton) is a member of the London Mathematical Society.  Information on the G. de B. Robinson Prize can be found on the web (www.cms.math.ca/Prizes/info/gbr.html).


## VIENNA WINTER SCHOOL ON THE MATHEMATICAL FOUNDATIONS OF COMPUTATIONAL SCIENCES

The Vienna Winter School on the Mathematical Foundations of Computational Sciences will be held from 26 January – 8 February 2003 at the Vienna University of Technology, Austria.

Almost all kinds of engineering applications involve numerical simulations to guarantee their quality, durability or safety.  Behind the most frequently employed software packages lies a discretization of a PDE, often a finite element method. In all those cases, there exists a discretization error which can be small or large, of minor or dominating significance.

It is the aim of the Vienna Winter School on the Mathematical Foundations of Computational Sciences to provide a direct introduction to reliable and efficient computation and error control in numerical simulations.  The topics range from elementary functional analysis (in the first week) to advanced adaptive finite element techniques and applications (in the second week).  Amongst the invited lecturers are:

- Carsten Carstensen (Vienna University of Technology, Austria)
- Simon Shaw (Brunel University, UK)
- John R. Whiteman (Brunel University, UK)
- Willy Dörfler (Karlsruhe University, Germany)
- Stefan A. Funken (FEMLAB, Germany)
- Klaus Hackl (Bochum University, Germany)
- Kerstin Weinberg (Caltech, USA)

Contact the organizer Dirk Praetorius (email: dirk.praetorius@tuwien.ac.at, tel: 43 1 58801-115-36, fax: 43 1 58801-115-99) for any assistance with your travel arrangements, accommodation reservations in Vienna, or any further questions.  The website (http://gamm.tuwien.ac.at/winterschool2003/) provides a tentative time table and maintains the latest information.

## KCL POSTGRADUATE OPEN DAY

The Mathematics Department of King's College London is holding an Open Day for all prospective MSc, MPhil and PhD students on Friday 14 February. Areas of possible supervision at King's include specialities within Analysis and PDO, Number Theory, Geometric Lie Theory, Geometric Index Theory, Theoretical Physics, Theory of Disordered Systems and Neural Networks, Financial Mathematics and Applied Probability. Taught MSc courses are also available in Pure Mathematics and Mathematical Physics, Financial Mathematics and in Information Processing and Neural Networks. Full details and a registration form can be found on the web (www.mth.kcl.ac.uk/postgraduate/openday2003). These details, an application form and an information booklet 'Postgraduate Mathematics at

King's' may also be obtained from Miss Rebecca Cullen, Mathematics Department, King's College, Strand, London WC2R 2LS (tel: 020 7848 2107, email: pg.maths@kcl.ac.uk).

**BOOK REVIEW**

**A Gardner's Workout: Training the Mind and Entertaining the Spirit** by Martin Gardner (A.K. Peters Ltd, 2001) ISBN 1-56881-120-9, 319 pp., £25.00

Martin Gardner has produced so many books that it is getting difficult to find appropriate titles for them!  This is a review of his latest work, *A Gardner's Workout: Training the Mind and Entertaining the Spirit*, whose title and subtitle made me think it was going to be a collection of problems, but it is actually a collection of 41 of his recent, post *Scientific American*, articles.  The Preface indicates this follows on from the 15 collections of his *Scientific American* articles, but there have been three other collections of his essays and three collections of his articles in *The Skeptical Inquirer*, not to mention many other books and his works on magic and philosophy.  It is impossible to imagine how this modest and private individual can produce so much high quality writing.  This collection differs from his previous collections in that the articles cover a much wider range than before – pieces come from 21 sources, ranging from *Mathematics Magazine* to the Mathematical Calendars of Rome Press to the *Washington Post* – and the subject matter includes a polemic on mathematical education (Fuzzy New New Math), book reviews, reports on recent research on primes in arithmetic progression, a lengthy article (coauthored with Ron Graham and Fan Chung) on Steiner trees on a chessboard, as well as the more usual pieces on word play, card magic, magic squares, dissections, etc.  As with all of Gardner's work, it is a pleasure to read and a greater pleasure to be stimulated by some of the many unsolved problems – some are left to the reader, but others have no known answer.  In a short review, one can only pick a few tit-bits, so here are two.

Chapter 19 deals with the Ant Problem of the noted Japanese recreational mathematician Yoshiyuki Kotani.  Consider an ant which walks on the surface of a cuboid.  What point is furthest away for the ant from a given starting point?  Even for an ant at the corner of a  1 x 1 x 2  cuboid, the answer is different than almost everyone predicts.  If the box edges are along the axes, with the long dimension vertical, and the ant starts at  (0, 0, 0), then his antipodal point is at  (3/4, 3/4, 2).  There are four geodesic paths, two of which are reflections of the other two, and two of which travel over three faces of the cuboid.  More generally, which two points are furthest apart for the ant?  From the centre of one square end to the centre of the other requires paths of length 3, but Richard Hess has found that there are points whose distance apart is slightly more than  3.01.

The Opaque Cube (Chapter 1) is the three dimensional analogue of the opaque square problem.  Gardner invented the three dimensional version: Find the minimal area of opaque surfaces inside a transparent cube which will render it opaque, i.e. such that no beam of light can pass through it in any direction.  Painting five of the faces would have the desired effect, but taking the 12 triangles formed by the edges and the centre of the cube is a substantially smaller area.  Gardner conjectured this was minimal, but Kenneth Brakke improved it slightly, and a large amount of work has been done on the two- and three-dimensional problems in the last decade.

Any reader who knows Gardner's work will need no urging to get this book.  If any reader does not know Gardner's work, this is a fine book to start with.

David Singmaster

## LONG-STANDING MEMBERS

The following is a list of mathematicians who have completed fifty years or more of membership of the London Mathematical Society.

| | | | | | |
|---|---|---|---|---|---|
| 12/12/29 | Wright, E.M. | 19/12/46 | Higman, G. | 16/02/50 | Lehner, J. |
| 04/02/32 | Potter, H.S.A. | 19/12/46 | Ruston, A.F. | 23/03/50 | Ponting, F.W. |
| 13/12/34 | Meyler, D.S. | 16/01/47 | Macbeath, A.M. | 15/06/50 | Ackroyd, R.T. |
| 16/12/37 | Pitt, H.R. | 20/02/47 | Hay, G.E. | 14/12/50 | Patterson, E.M. |
| 20/04/39 | Spencer, D.C. | 20/03/47 | Hayman, W.K. | 19/04/51 | Chen, D.L.C. |
| 08/02/40 | Kendall, D.G. | 22/05/47 | Ghaffari, A. | 17/05/51 | Roth, K.F. |
| 09/05/40 | Willmore, T.J. | 19/06/47 | Cassels, J.W.S. | 14/06/51 | Jackson, M. |
| 17/12/40 | Good, I.J. | 27/11/47 | Hilton, P.J. | 14/06/51 | Ledermann, W. |
| 17/03/43 | Dyson, F.J. | 18/03/48 | Burkill, H. | 20/12/51 | Dowker, Y.N. |
| 15/06/44 | Williams, A.E. | 18/03/48 | Isaacs, G.L. | 20/12/51 | Herszberg, J. |
| 16/11/44 | Kneebone, G.T. | 18/03/48 | Reade, M.O. | 17/01/52 | Boyd, A.V. |
| 25/01/45 | Collard, K. | 17/06/48 | Bateman, P.T. | 17/01/52 | Wilson, D.H. |
| 25/01/45 | Ollerenshaw, K. | 18/11/48 | Mullender, P. | 14/02/52 | Utz, W.R. |
| 17/05/45 | Henstock, R. | 13/12/48 | Fishel, B. | 15/02/52 | Shephard, G.C. |
| 28/06/45 | Tropper, A.M. | 20/01/49 | Borwein, D. | 20/03/52 | Bonsall, F.F. |
| 13/12/45 | Rogers, C.A. | 17/03/49 | Kilmister, C.W. | 20/03/52 | Swinnerton-Dyer, H.P.F. |
| 25/04/46 | Goldie, A.W. | 28/04/49 | Austin, M.C. | 20/11/52 | Knight, A.J. |
| 25/04/46 | Rothman, M. | 17/11/49 | Northcott, D.G. | 18/12/52 | Reeve, J.E. |
| 23/05/46 | Huppert, E.L. | 15/12/49 | Godwin, H.J. | 18/12/52 | Taunt, D.R. |
| 23/05/46 | Rees, D. | 19/01/50 | Shepherdson, J.C. | | |

# LMS INVITED LECTURES SERIES

The Society's Invited Lectures series consists of meetings at which a single speaker gives a course of about ten expository lectures, examining some subject in depth, over a five day period (Monday to Friday) during a University vacation. The meetings are residential and open to all interested. It is intended that the texts of the lectures given in the series shall be published. In addition to full expenses, the lecturer is offered a fee of £1250 for giving the course and a further fee of £1500 on delivery of the text in a form suitable for publication. Recent lecturers in the series have been P.F. Baum (1995), F.J. Almgren (1996), J. Alperin (1997), D. Zagier (1998), A. Mielke (1999), B. Dubrovin (2000), T. Goodwillie (2001), P. van Moerbeke (2002).

The 2003 Invited Lectures Series will be given at the University of Wales Swansea by M. Fukushima.

For the 2004 meeting, proposals are now invited from any member who, in addition to suggesting a topic and lecturer, would be prepared to organize the meeting at the member's own institution or a suitable conference centre. Enquiries about this series should be directed to the Executive Secretary, Mr Peter Cooper at the Society (web: www.lms.ac.uk; email: cooper@lms.ac.uk; tel: 020 7637 3686, fax: 020 7323 3655). Programme Committee expects to make a decision on Friday 20 June 2003.

# LONDON MATHEMATICAL SOCIETY

# MARY CARTWRIGHT LECTURE

Friday 28 February 2003

National e-Science Centre,
15 South College Street, Edinburgh

**3.30 – 4.00**    **Professor Belá Bollobás (Memphis/Cambridge)**
*Models of Large-Scale Real-World Networks*

**4.30 – 5.00**    **Tea/Coffee**

5.00 – 6.00    Mary Cartwright Lecture
Jennifer Chayes (Microsoft Research)
*A Model of Directed Scale-Free Graphs*

**6.00 – 7.00**    **Reception**

**7.00 - 9.00**    **Dinner**

Immediately following this event, there will be a dinner at the Chapterhouse Restaurant, to which participants are invited. The cost will be approximately £23, to be paid at the restaurant.

If you would like to attend this meeting, please register online (http://umbriel.dcs.gla.ac.uk/NeSC/general/esi/events/154/index.html). On-line registration will close on **21 February**. Thereafter registration enquiries should be made direct to the conference administrator (adminteam@nesc.ac.uk).

The e-Science Institute is less than 15 minutes' walk from Waverley rail station, and from St Andrews Square bus station. It is approximately 20 minutes by taxi from Edinburgh airport (40 minutes by bus). Visit the website for a map of the area (www.nesc.ac.uk).

There are limited funds available to contribute in part to the expenses of members of the Society or research students to attend the meeting. Requests for support may be addressed to the Programme Secretary at the Society (http://ww.lms.ac.uk; email: grants@lms.ac.uk). Requests should include an estimate of expenses and a very brief *curriculum vitae*; research students should include brief letters of endorsement from their supervisors.

# LONDON MATHEMATICAL SOCIETY NORTHERN REGIONAL MEETING AND WORKSHOP

## Geometric Representation and Invariant Theory

### University of Manchester
### Meeting 11 March – Workshop 12-15 March 2003

The Northern Regional Meeting of the London Mathematical Society will be held on the afternoon of Tuesday 11 March. The speakers will be Victor Ginzburg (University of Chicago) and Jens Carsten Jantzen (Aarhus). There will be a dinner in the evening.

This will be followed by a Workshop from 12-15 March inclusive on 'Geometric Representation Theory'. Expected speakers include:

| | |
|---|---|
| Jacques Alev (Reims) | George McNinch (Notre Dame) |
| Henning Haar Andersen (Aarhus) | Ivan Mirkovic (UMASS) |
| Ivan Arzhantsev (Moscow State) | Dan Nakano (Georgia/Oxford) |
| Ken Brown (Glasgow) | Dmitri Panyushev (Moscow) |
| Ranee Brylinski (Penn State) | Patrick Polo (Paris) |
| Bill Crawley-Boevey (Leeds) | Claus Michael Ringel (Bielefeld) |
| Alexander Elashvili (Tbilisi) | Serge Skryabin (Kazan/Hamburg) |
| Iain Gordon (Glasgow) | Helmut Strade (Hamburg) |
| Ian Grojnowski (Cambridge) | Donna Testerman (EPFL, Lausanne) |
| Steffen Koenig (Leicester) | Michel Van den Berg (Limburgs) |

The scientific organiser is Alexander Premet (University of Manchester, email: sashap@ maths.man.ac.uk). The organising committee consists of the scientific organiser and the LMS regional organisers, Mike Prest (University of Manchester, email: mprest@maths.man.ac.uk) and Ted Voronov (UMIST, email: voronov@ma.umist.ac.uk). The conference secretary is Francesca Moss (tel: 0161 275 5899, email: francesca@maths.man.ac.uk, web: www.maths.man.ac.uk/lmsconf/).

Some funds available to contribute in part to the expenses of members of the Society or research students who wish to attend the Society Meeting on 11 March. Request for support should be addressed to the Programme Secretary at the Society (grants@lms.ac.uk). Requests should include an estimate of expenses and a very brief *curriculum vitae*; research students should include brief letters of endorsement from their supervisors.

The workshop is supported by the London Mathematical Society and EPSRC.

For further information visit the conference website (www.ma.man.ac.uk/lmsconf).

# LONDON MATHEMATICAL SOCIETY MIDLANDS REGIONAL MEETING AND WORKSHOP

# Uncertainty Modelling

## Meeting 14 May – Workshop 15-17 May 2003

### Room AS130, Armstrong-Siddeley Building, Priory Street, University of Coventry

The Midlands Regional Meeting of the London Mathematical Society will be held on the afternoon of Wednesday 14 May 2003. The speakers will be Olaf Wolkenhauer (UMIST) *Mathematical Modelling of Cellular Dynamics a*nd Robert Babuska (Delft) *Fuzzy Systems*. There will be a reception afterwards and a dinner in the Lanchester Restaurant at 7.00 pm.

This will be followed by a Workshop on 'Uncertainty Modelling' from 15-17 March inclusive. It is intended that there will be two strands to the workshop, one oriented to control engineering/systems theory and one towards applications in the biological domain. Both events should be of interest to mathematicians working in the field of fuzzy logic. Invited speakers who have accepted include:

| | |
|---|---|
| R. Babuska (Delft) | E. Ryan (Bath) |
| M. French  (Southampton) | S. Townley (Exeter) |
| D. Pearson (St. Etienne) | A. Zinober (Sheffield) |

For further details, including opportunities to contribute to the Workshop, please contact the organiser, Dr Helen Robinson (tel: 024 7688 8586, email: Robinson@coventry.ac.uk). Coventry University is about 10 minutes walk from the station.

Both of the above events are supported by the London Mathematical Society.

There are limited funds available to contribute in part to the expenses of members of the Society or research students to attend the Society Meeting on 14 May. Requests for support may be addressed to the Programme Secretary at the Society (web: http://ww.lms.ac.uk; email: grants@lms.ac.uk). Requests should include an estimate of expenses and a very brief *curriculum vitae*; research students should include brief letters of endorsement from their supervisors.

# CECIL KING TRAVEL SCHOLARSHIP 2003

The Cecil King Memorial Foundation in 2001 established a Cecil King Travel Scholarship in Mathematics to the value of £5000, to be awarded annually to a young mathematician of outstanding promise, to support a period of study or research abroad for a typical period of three months, to enhance his or her studies and further his or her career development. The Scholarship will normally be awarded to a UK or Irish National under the age of 25 years, either registered for or having recently completed a doctoral degree at a UK University.

The award will be competitive and based on a written proposal describing the intended programme of study or research abroad and the benefits to be gained from such a visit, a short presentation and an interview.

The award will be made by the Council of the London Mathematical Society on the nomination of the Cecil King Prize Committee, whose members will be nominated by the Society's Education Committee.

The initial application should include:

1. A completed application form.
2. A short proposal (4 pages maximum) indicating the proposed programme of study abroad, the benefit of such an opportunity in advancing the candidate's studies, and an indication of the Institute that the candidate wishes to visit.
3. A letter of support from the Head of Department, or from the candidate's Research Supervisor.

The initial applications will then be considered by the Cecil King Prize Committee, which will select up to six candidates for interview. Selected candidates will be asked to approach the intended research institution or research leader to be visited, to confirm that a visit would indeed be welcomed if an award were made. They will then be invited to make a brief presentation to the Cecil King Prize Committee on their proposed research and the benefits to be gained from the visit abroad.

Final ratification of the award will require formal confirmation from the institution/person to be visited, indicating their willingness to welcome the visit and to provide whatever supervision and research facilities might be needed. Any supervision or other fees will be paid from the Prize.

At the end of the visit, the student will be expected to write a short report to the Cecil King Memorial Foundation, indicating the activities and benefits gained from the visit.

Application forms may be obtained from the Executive Secretary, Mr Peter Cooper, The London Mathematical Society, De Morgan House, 57-58 Russell Square, London WC1B 4HS (email: cooper@lms.ac.uk) or from the Society's website (www.lms.ac.uk/ activities/cecil_king/index.html). The closing date for applications is **Friday 7 February 2003**. It is hoped that the Scholarship will be awarded before the end of March 2003.

# BRITISH APPLIED MATHEMATICS COLLOQUIUM 2003

## Faculty of Mathematical Studies
## University of Southampton
## 7-10 April 2003

This meeting, from 7-10 April, will be hosted by the applied mathematics group of the Faculty of Mathematical Studies at the University of Southampton. This year the programme reverts to the traditional format, covering any and all aspects of applied mathematics.

**Plenary speakers**

| | |
|---|---|
| Ronald Boisvert (NIST) | Joseph Keller (Stanford) |
| Michael E Cates (Edinburgh) | Barbara Keyfitz (Houston) |
| Paul Clavin (CNRS, Marseille) | James Sethian (Berkeley) * |
| Oliver Jensen (Nottingham) | Jean-Marc Vanden-Broeck (UEA) † |

\* IMA Lighthill Lecturer
† Stewartson Memorial Lecturer

**Minisymposia will include**
Mathematical challenges in optoelectronics
Mathematical modelling of food technology
Novel applications of numerical hyperbolics
Transition to turbulence in a pipe
Computational methods for high frequency scattering
Mathematics education and the LTSN

The banquet will be held on the gun deck of HMS Warrior, in Portsmouth Naval Dockyard (all transport provided). A choice of en suite and standard accommodation is available. The closing date for registrations is **28 February 2003**. The website, electronic registration and further details can be found at: www.maths.soton.ac.uk/bamc/

**Paper registration form**
BAMC'03, Faculty of Mathematical Studies, University of Southampton, Highfield, Southampton SO17 1BJ (fax: 023 8059 5147, email:bamc@maths.soton.ac.uk).

**Organising Committee BAMC'03**
Professor Adam Wheeler (Chair)
Professor Alistair Fitt (Secretary)
Dr Christopher Howls (Treasurer)

# LONDON MATHEMATICAL SOCIETY

## in association with the Isaac Newton Institute

## Spitalfields Day

### Monday 10 February 2003

## MATHEMATICAL ASPECTS OF THE DYNAMICS
## OF PHASE TRANSITIONS

Organiser: C.M. Dafermos (Providence) and P.G. LeFloch (Ecole Polytechnique)

10:30 – 11:00    **Coffee**

11:00 – 12:00    J. Knowles (Pasadena)
*Some applications of continuum-mechanical kinetic relations*

12:30 – 13:30    **Lunch**

14:00 – 15:00    T.J. Pence (East Lansing)
*Kinetic relations in finite elastic anti-plane shear and their effect on phase boundary motion, reflected and transmitted waves, and energy dissipation*

15:00 – 15:30    **Tea**

15:30 – 16:30    L. Truskinovsky (Minneapolis)
*Kinetic relations generated by lattice models*

16:30 – 17:30    G. Friesecke (Coventry)
TBA

17:30 – 18:30    Wine Reception

Anyone interested is welcome to attend. Please let Tracey Andrew at the Institute know by **31 January 2003** if you intend to come, to help us plan for lunch (Isaac Newton Institute, 20 Clarkson Road, Cambridge CB3 0EH, tel: 01223 335984; fax: 01223 330508; email: t.andrew@newton.cam.ac.uk).

There are limited funds available to assist research students to attend, please apply by **31 January 2003** to Tracey Andrew at the Institute. Scientific enquiries may be addressed to Professor P.G. LeFloch (email: lefloch@cmap.polytechnique.fr).

# TEACHING IN LONDON EVENT (TILE) 2003

## 26 & 27 January 2003
## Olympia 2, London

(Part of the Job Scene and Graduate & Professional Recruitment Fair in association with The Evening Standard and the Teacher Training Agency)

**Those who can, teach…in London**

Teaching is a challenging career and it offers a level of job satisfaction that cannot be matched by other professions. You can choose to follow several career paths, from specialist teaching roles to senior management. And it all starts here…

**The Event**

**Training Courses:** London teacher training providers will be on hand to discuss training options with undergraduates who are making their career choice and graduates/career changers looking for somewhere to train.

**Teaching Posts:** Local Education Authorities will be available to discuss job opportunities in London with current PGCE students including how they should apply and the attractive packages on offer. Qualified teachers who have taken time out from teaching and are now thinking of returning to the profession will also be able to find out how to get back into the classroom.

**Further Information:** TILE 2003 will provide a comprehensive insight into teaching in London. As well as the specific education and employment facts, the event will provide opportunities to talk to teachers about what the job is really like. There will be a seminar programme running throughout both days and opportunities to obtain one-to-one advice on the various aspects of training and teaching in London today.

**Priority Subjects:** TILE 2003 is particularly aimed at those people who have an expertise in priority subjects such as: mathematics, modern foreign languages, R.E., English, the sciences, geography, engineering and computer science.

Time:          Sunday 26 January, 11 am to 5 pm and
                 Monday 27 January, 10 am to 4 pm

Location:     Olympia 2, Hammersmith Road, London W14

Nearest tube:  Kensington Olympia

Entry:        Admission Free

For more information visit the website (www.canteach.gov.uk/tile2003) or call the Teaching Information Line on 0845 6000 991 or email (ttatile@hillandknowlton.com).

# A BRIEF HISTORY OF THE DE MORGAN MEDAL

Most mathematicians would recognise the name Augustus De Morgan, if only through an acquaintance with 'De Morgan's Laws' in logic and set theory. But to LMS members, the name has an extra significance because of the key role he played in the Society's foundation. When the LMS held its inaugural meeting on 16 January 1865, he was its first President, and was to remain an enthusiastic member during its formative years. Not long after his death in 1871, a meeting was held to discuss an appropriate testimonial in his memory. One of the resolutions of the resulting "De Morgan Memorial Committee" was the proposal "to establish a De Morgan medal, to be awarded annually by the [London] Mathematical Society to the writer of the most original mathematical treatise".

Although the decision to commemorate De Morgan with the award of an LMS medal had not been initiated by the Society itself, its members quickly endorsed the idea. But the inauguration of the commemorative medal was to take far longer than anticipated, for a variety of reasons. For example, it took several years to agree on a precise design. Eventually it was decided that one side of the medal should feature De Morgan's "Zodiac of Syllogism". This was a drawing of which De Morgan had been especially proud, incorporating notation used in his work on symbolic logic with the initials ADM to form a symmetrical pattern, which he had used as his personal motif. For the medal's reverse, it was agreed that a profile of De Morgan would be appropriate, and this was taken from a posthumous bust sculpted by the artist Thomas Woolner, which is housed today in the University of London Library.

> ### *INSERT HERE THE PHOTOGRAPHS OF THE DE MORGAN MEDAL*

By 1882, subscriptions from LMS members had raised sufficient funds to enable the Society to endow the award of a medal, worth £10, at intervals of three years. (In 1942, this initial endowment was augmented by a bequest of £250 to the Society by the applied mathematician Sir Joseph Larmor.) The medal was to be made of 22-carat gold, but it would appear from the Society's records that this was not the only metal used. Minutes from June 1920 reveal that the Council agreed that "the De Morgan Medallist in future be given the choice either to receive the medal in bronze only, or in gold only, or in both as hitherto usual". Actual evidence of this practice came to light in the summer of 2002, when the Society obtained William Burnside's 1899 De Morgan Medal cast in bronze.

The first medal was awarded at the Society's annual general meeting on 13th November 1884. After much discussion, it had been agreed "that there should not be any special competition for the medal but that it should be granted by the Council of the L. Math. Society for distinguished services in the advancement of Math. Science". Given this criterion, it is perhaps not surprising that the inaugural medal went to the man who was arguably Britain's finest pure mathematician of the time, Arthur Cayley. Subsequent medallists included the algebraist James Joseph Sylvester, the analyst G.H. Hardy, and the philosopher Bertrand Russell.

Although it was originally intended "that the Medal be open to Mathematicians of any country", the majority of its 40 recipients have in fact been British. Despite the award of the fourth medal to the German Felix Klein, in the medal's early days it was more common for foreign nominees (who included Weierstrass, Hermite, Poincaré and Veblen) to be unsuccessful. More recently, those recipients such as Mordell, Besicovitch, Mahler and Roth, who were born overseas, all spent the majority, if not all, of their careers in the United Kingdom. But irrespective of nationality (at birth or otherwise), it is the calibre of De Morgan medallists over the past 118 years that has resulted in its becoming arguably the highest honour available to mathematicians in Britain, whether they be British or not.

## De Morgan Medallists 1884-2001

| | | | |
|---|---|---|---|
| 1884 | Arthur Cayley | 1944 | Sidney Chapman |
| 1887 | James Joseph Sylvester | 1947 | George Neville Watson |
| 1890 | Lord Rayleigh | 1950 | Abram Samoilovitch Besicovitch |
| 1893 | Felix Klein | 1953 | Edward Charles Titchmarsh |
| 1896 | Samuel Roberts | 1956 | Geoffrey Ingram Taylor |
| 1899 | William Burnside | 1959 | William Vallance Douglas Hodge |
| 1902 | Alfred George Greenhill | 1962 | Maxwell Herman Alexander Newman |
| 1905 | Henry Frederick Baker | 1965 | Philip Hall |
| 1908 | James Whitbread Lee Glaisher | 1968 | Mary Lucy Cartwright |
| 1911 | Horace Lamb | 1971 | Kurt Mahler |
| 1914 | Joseph Larmor | 1974 | Graham Higman |
| 1917 | William Henry Young | 1977 | Claude Ambrose Rogers |
| 1920 | Ernest William Hobson | 1980 | Michael Francis Atiyah |
| 1923 | Percy Alexander MacMahon | 1983 | Klaus Friedrich Roth |
| 1926 | Augustus Edward Hough Love | 1986 | John William Scott Cassels |
| 1929 | Godfrey Harold Hardy | 1989 | David George Kendall |
| 1932 | Bertrand Russell | 1992 | Albert Fröhlich |
| 1935 | Edmund Taylor Whittaker | 1995 | Walter Kurt Hayman |
| 1938 | John Edensor Littlewood | 1998 | Robert Alexander Rankin |
| 1941 | Louis Joel Mordell | 2001 | Sandy Alexander Green |

*PHOTOGRAPH OF CAYLEY*

## ARTHUR CAYLEY
## DE MORGAN MEDALLIST 1884

Extract from the President's address on 13 November 1884: "It would be an impertinence for me to say much in praise of Professor Cayley's work. He has invented and worked out the Theory of Invariants, and, in steady life-long work, connected it with nearly every branch of Mathematics, enriching everything he touches. The council, in selecting Professor Cayley as the first recipient of the De Morgan Medal, and thus doing homage to his genius, did so, not so much with the idea that it could add honour to his name, as that they might add honour to the Medal, by connecting his great name with it."

## Deadlines Reminder

| | |
|---|---|
| **10 January** | Royal Society University Research Fellowships 2003 applications |
| **17 January** | Polya, Senior Whitehead, Berwick and White Prizes nominations |
| **31 January** | LMS annual subscription payments |
| **31 January** | Isaac Newton Institute Call for Proposals |
| **1 February** | David Crighton Medal nominations |
| **7 February** | Hardy Fellowship 2006 nominations |
| **7 February** | Cecil King Travel Scholarship applications |

**SIXTH INTERNATIONAL CONFERENCE ON INFORMATION FUSION**

The sixth International Conference on Information Fusion will be held from 8-11 July 2003 at the Radisson Hotel, Cairns, Queensland, Australia.

FUSION is an annual conference aimed at scientists and engineers working in all aspects of information and data fusion. Authors are requested to submit contributions on both the theory and application of information fusion, with submissions on non-traditional topics being encouraged. At least two reviewers will review all submitted papers. Accepted papers will be published in the conference proceedings, to be available at the conference site. The conference will also feature plenary talks and tutorials on topics of interest.

Further information can be obtained from the Chair, Dr Jean Dezert (Jean.Dezert@onera.fr), or the Co-Chair, Professor Florentin Smarandache (smarand@unm.edu). Information is also available from the website (www.fusion2003.org).

**STRUCTURAL THEORY OF AUTOMATA, SEMIGROUPS, AND UNIVERSAL ALEGBRA CONFERENCE**

A conference on Structural Theory of Automata, Semigroups, and Universal Alegbra (SMS-NATO ISI) will be held at the Université de Montréal, Canada, from 7 – 18 July 2003.

Main speakers to include: J. Almeida (Porto), J. Dassow (Magdeburg), R. Freivalds (Riga), J. Jezek (Prague), A. Krokhin (Oxford), V.B. Kudryavtsev (Acad. Sci. Moscow), A. Letichevsky (Acad. Sci. Kiev), R. McKenzie (Vanderbilt), I. Rosenberg (Montreal), L.N. Shevrin (Ural State), M. Steinby (Turku), M.V. Volkov (Ural State).

The application deadline is 21 February 2003. Further information and an application form can be obtained from the website (www.dms.umontreal.ca/sms) or email (sms@dms.umontreal.ca).

### 'SO WORK THE HONEY BEES….BUILDING ROOFS OF GOLD'
#### The Story of Sophie Bryant

The first paper written by a woman member of the London Mathematical Society was published in 1884. The author, Sophie Bryant, had been elected to membership in 1882; she had been preceded first by Charlotte Angas Scott, an algebraic geometer, in 1881 and then by Christine Ladd Franklin, a mathematical logician, also in 1881. However, it appears that of the three earliest women members of the Society, Bryant was the only active member. Christine Ladd Franklin was an American and Charlotte Angas Scott later moved to Bryn Mawr in the USA.

Being the 'first woman' was not unusual for Bryant. She was the first woman to receive a DSc in England, her subject being mental and moral philosophy, she was one of the first three women to be appointed to a Royal Commission, the Bryce Commission on Secondary Education in 1894-95, and she was one of the first three women to be appointed to the Senate of London University. While on the Senate she advocated setting up a Day Training College for teachers which eventually became the Institute of Education. Later in 1904, when Trinity College Dublin opened its degrees to women, Bryant was one of the first to be awarded an honorary doctorate. She was also instrumental in setting up the Cambridge Training College for Women which eventually became Hughes Hall, the first postgraduate college in Cambridge. She was, it seems, one of the first women to own a bicycle.

It was fortunate for Bryant that she was able to learn mathematics and other subjects together with her five siblings in a very natural way from their father, the Rev WA Willock DD who

was a keen educationalist. He had been a Fellow and Tutor of Trinity College Dublin and had gained high honours in mathematics and mental sciences.

When she was about thirteen her family moved to England and her private education continued until she attended Bedford College (at that time a ladies' college similar to Queen's College) where she was awarded the Arnott scholarship for science at in 1866. She sat the Cambridge Local Examination for Girls in 1867 and was the only one to be placed in the first class of the senior division. It was while she was sitting these examinations that she first encountered Frances Buss the Head Mistress and founder of North London Collegiate School (NLCS) founded in 1850, the year of Bryant's birth.

In 1869 Bryant married Dr William Hicks Bryant, only to be widowed the following year when her husband, a surgeon and only 30 years old, died of cirrhosis.

After a short interval she returned to her studies. She arranged to meet Buss who, in 1875, invited her to teach mathematics at NLCS and encouraged her to take a training course as well. In 1878 London University opened its degrees to women. As Bryant had not had a conventional education she had to learn sufficient Latin to matriculate and biology before she could sit for her degree. In 1881 she took a BSc degree, first class in mental and moral science and second class in mathematics. In 1884 she received her science doctorate and the NLCS, where she had continued to teach, presented her with scarlet doctoral robes. The imposing portrait of Bryant which hangs in the entrance of the school shows her in these robes. Bryant was influential in improving the education system and introducing a scheme of enlightened and serious study. In 1885 Buss died and Bryant became the Head Mistress.

Bryant was interested in Irish politics, wrote books on Irish History and ancient Irish law, was an ardent Protestant Irish nationalist and helped found a Home Rule pressure group. She wrote on women's suffrage in 1879 but later advocated postponement until women were better educated in politics. She enjoyed mountain climbing and she had climbed the Matterhorn twice. Her death in 1922 was both tragic and unexpected; she was lost on a mountain hike near Chamonix only four years after she had retired.

Bryant's published paper for the LMS was ambitious. In *The ideal geometrical form of natural cell structure* she takes a logical and descriptive but not very mathematical (by today's standards) look at the phenomenon of the honeycomb. This was not an unusual approach at that time; indeed abstract proofs, so essential to us in the twentieth century and beyond, were not as common as general discussion of mathematical phenomena. Bryant's paper assumes Kepler's Conjecture: that no packing of balls of the same radius in three dimensions has density greater than the face centred cubic packing, the cannonball packing. Although this has appeared obvious for centuries it was not finally proved until as recently as 1998 by Hales and Ferguson and then only with the aid of computers. Bryant explains how the complex and beautiful honeycomb shape could be produced by the natural activity of bees. All that was needed was for each bee to excavate his own cell at approximately the same rate as the others and use the excavated material to build up the walls of its cell. Bryant's conclusion that elongated rhombic semi-dodecahedra are the natural form of honeycomb cells had been observed by Kepler. In the eighteenth century it was believed that the honeycomb was the most efficient possible, but this is now known not to be the case. In 1964 Fejes Tóth discovered in a paper entitled *What the bees know and what they do not know*, that there are more efficient cell shapes and that the most economical has yet to be determined.

Bryant read another paper for the LMS entitled *Logarithms in general logic*, but it was not printed by the Society. However, a note of the *Proceedings* of 1885-86 records that a 'long discussion ensued' in which Sylvester (who was at that time President), Bryant and two others members took part.

She was ambitious too in other papers that she wrote. In a paper published in 1884 in 'Mind', *The double effect of mental stimuli; a contrast of types*, Bryant attempts to analyse the effect of a mental event. She considers both a reflex action which does not cause a change in consciousness but clearly is a mental event, and contrasts it with a conscious mental event. She grapples with what is a contemporary problem: the understanding of consciousness. Unfortunately her arguments are too diffuse to shed much light on the problem.

In 1885 she published a paper in the *Journal of the Anthropological Institute* entitled, "Experiments in testing the characters of school children". This study, undertaken at the suggestion of Francis Galton, produced an early account of the use of open-ended psychometric tests to deduce personality types. Bryant claimed that her results agreed with the observations of teachers familiar with the children but did not provide any supporting evidence. In spite of incomplete analysis, this was a pioneering study.

Although Bryant's direct contribution to scholarship may not have been substantial, her influence as a teacher and educationalist was immense. Many of the next generation of teachers and headmistresses succeeded as a direct result of her endeavours; and her work continues to spread throughout subsequent generations.

<div align="right">

Patricia Rothman
University College London
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## DIARY

**JANUARY 2003**
**26-27** Teaching in London Event, Olympia 2, London (311)
**26 – 8 Feb** Vienna Winter School on the Mathematical Foundations of Computational Sciences, Vienna University of Technology, Austria (311)

**FEBRUARY 2003**
**10** Mathematical Aspects of the Dynamics of Phase Transitions LMS Spitalfields Day, INI, Cambridge (311)
**14** Postgraduate Open Day, King's College London (311)

**JUNE 2003**
**29 – 4 July** British Combinatorial Conference, University of Wales, Bangor (311)

**JULY 2003**
**8-11** Information Fusion Conference, Queensland, Australia (311)
**7-18** Structural Theory of Automata, Semigroups, and Universal Algebra Conference, Montreal University, Canada (311)
**22** LMS/Edinburgh Mathematical Society Joint Meeting, Hodge Centenary, Edinburgh

**OCTOBER 2003**
**2** Robert Hooke Commemoration Symposium, Oxford (311)
**24** LMS South West and south Wales Regional Meeting, Southampton University

**NOVEMBER 2003**
**21** LMS Annual General Meeting and Naylor Lecture, London

*Change (310) to (311)*
**28 February 2003** LMS Mary Cartwright Lecture, Edinburgh (311)

*Change (296) to (311)*
**7-10 April 2003** BAMC 2003, Southampton University (311)

*Change 11 March 2003 LMS Northern Regional Meeting, Manchester University to*
**11-15 March 2003** LMS Northern Regional Meeting & Workshop, Geometric Representation Theory, Manchester University (311)

*Change 14 May 2003 LMS Midlands Regional Meeting, Coventry University to*
**14-17 May 2003** LMS Midlands Regional Meeting & Workshop, Uncertainty Modelling, Coventry University (311)