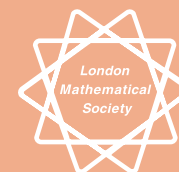


THE LONDON MATHEMATICAL SOCIETY



NEWSLETTER

No. 365 December 2007

Forthcoming Society Meetings

2007

Thursday 6 December
Spitalfields Day
INI, Cambridge
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2008

Monday 7 January
JM Meeting,
San Diego
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Friday 8 February
Mary Cartwright
Lecture, Oxford
R. Peto
V. Beral
[page 3]

Monday 31 March
Northern Regional
Meeting, Manchester

Monday 9 June
Midlands Regional
Meeting, Birmingham

Friday 4 July
London

Monday 15 September
SW & South Wales
Regional Meeting,
Swansea

Friday 21 November
AGM, London

COUNCIL DIARY

19 October 2007

The first Council meeting of the new academic year had a very full agenda, as much had happened over the summer period.

A large part of the meeting was concerned with financial affairs, after the successful audit of the Society's accounts during the summer. Council expressed its thanks to the Treasurer and staff at De Morgan House for their hard work in both managing the Society's finances and preparing the accounts to the satisfaction of the auditors. Council discussed the difficulties in accurately predicting our income, both from investments and publishing, and matching expenditure. As a charity, the Society aims to spend its income, but there is an inherent challenge in being financially prudent at the same time. Council also studied the Trustees' Report, the formal document for the Charity Commission concerning the Society's activities over the past year, and the Annual Report on Activities, a more accessible account, which will be mailed to university mathematics departments and freely available on the Society's website.

Council examined the trends in membership numbers over the past twelve years, and this

prompted a discussion on a number of questions concerned with membership. For example, how can the Society encourage its members to publish their best mathematical research in the Society's journals (and, conversely, how can we encourage those who publish in our journals to become members), and how can we recruit new members, particularly from under-represented areas of mathematics, such as applied mathematics? A related issue is how to encourage greater attendance at Society meetings, and enable our programmes of outstanding speakers to reach the widest possible audiences. Our Regional Organisers facilitate the holding of meetings across the country, and the Society's Programme Committee proposed re-instituting 'LMS representatives' in each department, to work with the Regional Organisers and also foster the local membership.

Council also agreed new guidelines for the process of selecting a new President of the Society, to ensure that the interests of the Society and its members are paramount while the confidentiality of the process is maintained.

Plans were agreed for a Society meeting to be held during the Joint Mathematics Meeting in San Diego in January 2008, taking the form of a recep-

tion at which there will be an opportunity for members to enter their signatures in the Book. The *Journal of Topology* will also be launched during the Joint Meeting.

Council was brought up-to-date with the ongoing business of the Council for the Mathematical Sciences (CMS). Two items may be of particular interest to members. First, the CMS is working with other bodies in science and engineering on how integrated masters' degrees fit into the Bologna Process for the harmonisation of qualifications (see CMS diary in September's *Newsletter*). Second, the CMS will be responding to a consultation on forthcoming reductions in funding for universities to teach students taking a second degree at an equivalent or lower level to their existing qualification.

Finally, at the end of such a full agenda, Council was appreciative of the hard work and commitment of the staff at De Morgan House, without whom the Society could not operate its extensive programme of activities.

Elizabeth Winstanley

LAUNCH OF JOURNAL OF TOPOLOGY

The London Mathematical Society will be holding a reception and meeting for members during the Joint Mathematics Meeting in San Diego from 6–9 January 2008. The event will be held from 6:30 pm–7:30 pm on Monday 7 January to celebrate the launch of the Society's new journal, *Journal of Topology*, which will publish its first issue in January 2008.

LMS members who have not already done so will have the opportunity to include their signatures in the Membership Book which dates back to 1865.

Members who wish to attend the reception should apply for a free ticket to Susan Oakes, the Administrator of the Society (susan.oakes@lms.ac.uk), no later than **Friday 7 December**. The Society hopes to entertain as many as possible of its members, but numbers may be limited by the capacity of the room.

LMS Newsletter

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Charity registration number: 252660.

LONDON MATHEMATICAL SOCIETY

MARY CARTWRIGHT MEETING

Friday 8 February 2008, 4.30 pm

Oxford University Museum of Natural History
Parks Road, Oxford OX1

*Mathematics of medicine:
breast cancer treatment and prevention*

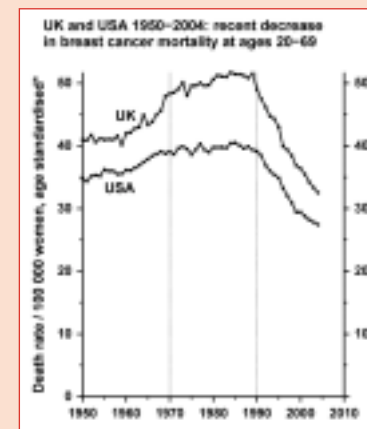
Opening of Meeting

Sir Richard Peto, FRS (Oxford)

and

Valerie Beral, FRS (Oxford) Mary Cartwright Lecture

Valerie Beral and Richard Peto will describe worldwide evidence on the causes and treatment of breast cancer. The evidence comes from large-scale collaborations, where hundreds of researchers from around the world meet regularly in Oxford and contribute, for central review and analysis, information on hundreds of thousands of women with breast cancer. The findings from these international collaborations have changed clinical practice over the last two decades. Consequently, large reductions in mortality from breast cancer are being seen.



There will be tea before the meeting from 4 pm at the Museum.

A reception and dinner will be held after the meeting.

Contact Susan Oakes (susan.oakes@lms.ac.uk) for further information.

There are limited funds available to contribute in part to the expenses of members of the Society or research students to attend the meeting.

Contact Isabelle Robinson (isabelle.robinson@lms.ac.uk) for further information.

LONDON MATHEMATICAL SOCIETY PRIZES 2008

In 2008, Council expects to award the Pólya Prize, the Senior Berwick Prize, the Fröhlich Prize and up to four Whitehead Prizes.

Nominations should be made on the form available to download from the LMS website (www.lms.ac.uk) or obtainable by contacting the Secretary to the Prizes Committee at the Society (tel: 020 7927 0803, email: prizes@lms.ac.uk). Nominations should be received no later than **Friday 25 January 2008**.

The Prizes Committee is keen to increase the number of nominations it receives, and would like to draw attention to the disproportionately low numbers of women nominated for prizes each year. It should be noted that recent changes to the prize regulations replace age restrictions with the concept of 'academic age' in order to take account more fully of broken career patterns. Nominations need not describe in detail the candidate's work, as detailed references for those short-listed will be sought. The 'Case for Award' section of the nomination form should be completed in approximately 500 words.

Brief descriptions of the criteria for each Prize are given below. Council reserves the right not to make an award of any particular Prize in the event that no candidate of sufficient merit is recommended by the Prizes Committee. Nominators should note that, in each case, current Members of Council or the Prizes Committee may not be considered for the prize, and that no-one may be awarded the same prize more than once. A list of previous winners appears in the Handbook and on the LMS website. The full regulations for each prize can be obtained from the Society (contact details as above).

The Pólya Prize is awarded in those years, not numbered by a multiple of three, in which the De Morgan Medal is not available for award. The Prize is awarded in memory of Professor G. Pólya, who was a Member (and later Honorary Member) of the Society for about 60 years. The

Pólya Prize is awarded in recognition of outstanding creativity in, imaginative exposition of, or distinguished contribution to, mathematics within the United Kingdom; it may not be awarded to any person who has previously received the De Morgan Medal.

The Senior Berwick Prize is named after Professor W.E.H. Berwick, a former Vice-President of the Society, and is awarded in even-numbered years. The Senior Berwick Prize for year X can only be awarded to a mathematician who is a member of the Society on 1 January of year X, and is awarded in recognition of an outstanding piece of mathematical research actually published by the Society during the eight years ending on 31 December of year X-1. The Senior Berwick Prize may not be awarded to any person who has previously received the De Morgan Medal, Pólya Prize, Senior Whitehead Prize or Naylor Prize.

The Fröhlich Prize is awarded in even-numbered years in memory of Professor Albrecht Fröhlich (De Morgan Medallist 1992). The Fröhlich Fund for this purpose was based on a generous donation from Mrs Fröhlich, reflecting Professor Fröhlich's great enthusiasm for, and gratitude to, the London Mathematical Society. The Prize is awarded for original and extremely innovative work in any branch of mathematics, and is restricted to mathematicians who, on 1 January of the year of the award, are either (i) normally resident in the United Kingdom of Great Britain and Northern Ireland, or (ii) members of the Society mainly educated in the United Kingdom. The Prize can only be awarded to a mathematician who has fewer than 25 years (full time equivalent) of involvement in mathematics at post-doctoral level, allowing for breaks in continuity, or who in the opinion of the Prizes Committee is at an equivalent stage in their career. The Fröhlich Prize may not be awarded to any person who has received the De Morgan Medal or the Pólya Prize.

The Whitehead Prizes are awarded to mathematicians who, on 1 January of the year of the award, (i) are either normally resident in the United Kingdom or members of the Society mainly educated in the United Kingdom, (ii) are not already Fellows of the Royal Society, and (iii) either have fewer than 15 years (full time equivalent) of involvement in mathematics at post-doctoral level, allowing for breaks in continuity, or, in the opinion of the Prizes Committee, are at an equivalent

stage in their career. Grounds for the award may include work in and influence on mathematics. Members are reminded that the scope of the Whitehead Prizes (as of the other Society Prizes to be awarded in 2008) includes all aspects of mathematics, and Council has emphasised that this includes applied mathematics, mathematical physics and mathematical aspects of computer science. A Whitehead Prize may not be awarded to anyone who has won any of the Society's other Prizes.

THE CHRISTOPHER ZEEMAN MEDAL FOR COMMUNICATION OF MATHEMATICS

The Councils of the London Mathematical Society and the Institute of Mathematics and Its Applications are delighted to announce the launch of the first UK award dedicated to recognising excellence in the communication of mathematics, the *Christopher Zeeman Medal*.

The LMS and IMA wish to honour mathematicians who have excelled in promoting mathematics and engaging with the general public. They may be academic mathematicians based in universities, mathematics school teachers, industrial mathematicians, those working in the financial sector or indeed mathematicians from any number of other fields.

Most importantly, these mathematicians will have worked exceptionally to bring mathematics to a non-specialist audience. Whether it is through giving public lectures, writing books, appearing on radio or television, organising events or through an entirely separate medium, the LMS and IMA want to celebrate the achievements of mathematicians who work to inspire others with their work.

The medal will be awarded triennially. Nominations are now invited for the first award which will be made in 2008.

In a joint statement, the Presidents of the LMS and IMA said, "We are delighted to be able to show how much we need and value

mathematicians who can promote their subject successfully. This role is vital to inspiring the next generation of mathematicians as well as helping the wider public to enjoy mathematics."

The award is named after Professor Sir Christopher Zeeman, FRS, president of the LMS between 1986 and 1988. His notable career has been pioneering not only in the fields of topology and catastrophe theory but also because of his ground breaking work in bringing his beloved mathematics to the wider public.

Sir Christopher was the first mathematician to be asked to deliver the Royal Institution Christmas Lectures in 1978, a full 160 years since they began. His *Mathematics into pictures* lectures have been cited by many young UK mathematicians as their inspiration. They also led to the creation of the Ri's Mathematics Masterclasses, weekly lectures delivered to schoolchildren across the UK via a network of 50 centres.

Sir Christopher's skill as a communicator has long been recognised in the wider community. In 1988, he was the third recipient of the Royal Society's Faraday Prize, awarded annually to a scientist or engineer who has excelled in communicating science to public audiences. His award was made "for the con-

tributions he has made to the popularization of mathematics”.

In recognition of both his work as a mathematician and his contribution to the UK mathematics community, Sir Christopher received the LMS-IMA David Crighton Medal in 2006.

To put someone forward for the medal, please contact the LMS (prizes@lms.ac.uk) for a nomination form or by writing to: The Secretary to the Christopher Zeeman Medal, London Mathematical Society, De Morgan House, 57–58 Russell Square, London WC1B 4HS. Forms should be returned by **31 January 2008**.

MATHEMATICS POLICY ROUND-UP

The Mathematics Promotion Unit (MPU) is pleased to welcome Professor Marcus du Sautoy, EPSRC Senior Media Fellow and professor of mathematics at the University of Oxford, onto the steering group of the MPU. As a pure mathematician Professor du Sautoy will bring added breadth to the steering group whose current members are predominantly in applied fields. It is also hoped that his emphasis on the subject rather than the policy or education matters surrounding mathematics will add an extra dimension to the MPU.

The Council for the Mathematical Sciences is responding to a Higher Education Funding Council for England (Hefce) consultation *Withdrawal of funding for equivalent or lower qualifications*. The consultation follows a request from the Department for Innovation, Universities and Skills to withdraw funding for students who are studying for a qualification that is equivalent to, or lower than, a qualification that they have already been awarded and channel this money towards getting more people to study for first degrees. Hefce has said that subjects designated strategically important and vul-

nerable (SIV) – which include mathematics – will be exempt from the withdrawal. The CMS welcomes the withdrawal but calls for clarity in exactly how qualifications’ mathematical content is assessed in deciding if it falls into the SIV category.

The LMS is supporting an award for new writers being run by online mathematics magazine *Plus*. The annual award encourages new writers of any age and from any background (school students, university students and general public) who can explain a mathematical topic or application they think the world needs to know about. The winning essays will be published in the June 2008 edition of the magazine and winners will receive an iPod, an annual subscription to *Nature* magazine and signed copies of popular mathematics books. For more details see: <http://plus.maths.org/competition>. The closing date for entries is **31 March 2008**.

Plus magazine has also launched a new internet forum for mathematics on the Nature Networks website. It aims to provide “a platform for anyone who wants to discuss maths, whether it’s actual maths, maths teaching, the portrayal of maths in the media, or good and bad maths content elsewhere on the internet”. The address is: <http://network.nature.com/group/mathematics>.

The government has announced three new academic diplomas which will be piloted from 2011. These include a science diploma and will go alongside the 14 vocational diplomas already in the pipeline. The first diplomas are to be introduced next year and aim to bridge the gap between academic and vocational training and there is debate as to whether they will actually replace A-levels in the future. All the diplomas have basic skills element, in English, mathematics and information technology, but it is unclear as yet how much mathematics will be involved in the science diplomas.

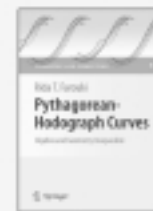
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Cecil King Travel Scholarship

The London Mathematical Society annually awards a £5000 Cecil King Travel Scholarship in Mathematics, to a young mathematician of outstanding promise. The Scholarship is awarded to support a period of study or research abroad, typically for a period of three months.

The award is 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 shortlist of applicants will be selected for interview.

Applicants should normally be nationals of the UK or Republic of Ireland, either registered for or having recently completed a doctoral degree at a UK University.

Applications should be made using the form available on the Society's website (www.lms.ac.uk/activities/cecil_king/index.html) or from Isabelle Robinson at the Society (isabelle.robinson@lms.ac.uk). The closing date for applications is **Friday 22 February 2008**. It is expected that interviews will take place in London in late April or early May.

The Cecil King Travel Scholarship was established in 2001 by the Cecil King Memorial Fund. The award is made by the Council of the London Mathematical Society on the recommendation of the Cecil King Prize Committee, nominated by the Society's Education Committee.

DAVID KENDALL

David George Kendall, who was elected to the London Mathematical Society on 8 February 1940 and served as its President from 1972 to 1974, died on 23 October 2007, in his 90th year.

John Kingman writes: David Kendall was the father of modern probability theory in Britain, and had an enormous influence on two generations of probabilists here and overseas. He was a loyal member of the Society for 67 years, was its Vice-President from 1961 to 1963 before becoming President, and was honoured with the Senior Whitehead Prize in 1980 and the De Morgan Medal in 1989.

David's career is a tale of two cities, Oxford and Cambridge. He read mathematics at The Queen's College before World War II, and during the war was introduced by Maurice Bartlett to statistics and applied probability. When he returned to Oxford in 1946, as a Fellow of Magdalen, he complemented the pragmatic British approach to these subjects by a deep study of the rigorous probability theory of Kolmogorov, Lévy, Feller and Doob. His powerful mathematical technique and scholarly approach enabled him to make significant contributions both to the abstract theory and to the many applications of that theory. For instance, his series of papers (1953-59), some with Harry Reuter, on continuous time Markov processes with a countable state space played a major part in the understanding of those mysterious animals, while his landmark 1951 lecture to the Royal Statistical Society introduced the study of congestion and queueing to the English-speaking world.

The big change came in 1962, when he was tempted away from Oxford college life to the new professorship of mathematical statistics at Cambridge, where he settled for the rest of his long life. The Cambridge Statistical Laboratory was then at the nadir

of its fortunes, but David's enthusiasm and generosity of outlook soon attracted colleagues and research students, and the Laboratory, in new quarters, took on new life. He particularly welcomed students and senior visitors from Eastern Europe, with some of whom he developed lasting collaborations.

In Cambridge his scientific direction also changed. His applications of probability had always been to modelling rather than data analysis, but his side interests in antiquarian and archaeological studies showed him that there were statistical problems in which subtle geometrical or other structures could be exploited to improve the understanding of complex data. In other words, he became a statistician, though of a highly idiosyncratic kind.

For all of these contributions, he was honoured by other societies too. He was elected to the Royal Society in 1964 and received its Sylvester Medal in 1976. The Royal Statistical Society awarded him its Guy Medal twice, in Silver in 1955 and in Gold in 1981. Other distinctions came from across Europe. But what gave him even more pleasure, I believe, was to see those with whom he had collaborated put to good effect the lessons he had taught.

KARL GRUENBERG

Karl W. Gruenberg, Emeritus Professor at Queen Mary, University of London since 1993, who was elected to the London Mathematical Society on 17 December 1953, died suddenly and unexpectedly at the age of 79 on 10 October 2007.

Bert Wehrfritz writes: Karl was born and spent his early life in Vienna. After the Nazis took over, Karl and his parents all escaped from Austria/Germany, but separately in different directions and at slightly different times. Karl reached the UK on a Kindertransport in 1939, where he was

joined later by his mother. After a less than easy transition to the English school system he went on to Cambridge. He did his PhD in group theory under Philip Hall, after which he moved to Queen Mary College, temporarily in 1953 and permanently in 1957. He remained there all his working life apart from many leaves of absence. He was made professor in 1967. He was Head of the Pure Mathematics Department from 1973 to 1978.

After leaving Cambridge he continued his research in abstract group theory into the 1960s but from about 1960 or so his main research interest moved into homological algebra and its applications, particularly to group theory. This led him over the years towards representation theory, especially integral representation theory, and more latterly number theory. He published many research articles both singularly and jointly.

He was a talented and very successful teacher, especially of graduate students, and his many innovative graduate courses were regularly attended by students, visitors and staff from Queen Mary and other London institutions. His books, *Linear Geometry* (1967, an undergraduate text written with Alan Weir), *Cohomological Topics in Group Theory* (1970) and *Relation Modules of Finite Groups* (1976), were all very well received. He continued his research to the end. He published a joint paper with Al Weiss in the *Journal of Algebra* in 2006, was working on further joint work with Al in the summer of 2007 both at Queen Mary and in Canada and was due to address the Queen Mary Pure Mathematics Seminar in December when his death intervened.

As a friend, colleague and researcher Karl will be greatly missed.

JOHN KALMAN

John Arnold Kalman, who was elected to the London Mathematical Society on 13

December 1956, died on 11 June 2007.

David Gauld and John Butcher write: Born in Auckland, John joined the academic staff of the University of Auckland in 1955. His early education was in Auckland, at King's College and the University of Auckland. He studied in the Arts and Law faculties and obtained an MA with first class honours in Mathematics. He then went on to postgraduate studies at Harvard University where he was awarded the PhD in 1955 for his thesis entitled *Some inequalities related to Hölder's inequality and some contributions to lattice theory*. At the University of Auckland he rose rapidly through the ranks and was appointed to the second chair in Mathematics in 1964. Throughout his long and distinguished career in the Mathematics Department, John was noted as a careful and precise lecturer, as a champion of high standards of Mathematical scholarship, and as a kind and unpretentious person. At his retirement in 1993 he was awarded the title Emeritus Professor. John's early research interests included lattice theory, universal algebra and nonclassical logic. Later in his career he became heavily involved with automated reasoning and, in particular, he became an expert on the use of the OTTER software. His book *Automated reasoning with OTTER* appeared in 2001 and was highly acclaimed. He is remembered by his colleagues and by generations of students for his qualities of quiet and unassuming scholarship and his respect for Mathematics and for Mathematicians.

BERLIN MATHEMATICAL SCHOOL

The Berlin Mathematical School (BMS), a joint graduate school of the mathematics departments of the three major Berlin universities is starting into its second academic year. For further information, visit the website at www.math-berlin.de.

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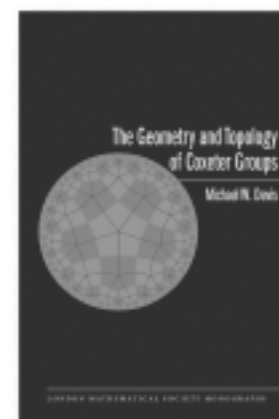
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NOTES ON THE MEETINGS OF THE IMA-LMS JOINT PLANNING GROUP (JPG)

A short report on the meeting of 6 July 2007 appeared in the October issues of *Mathematics Today* and the *LMS Newsletter*. This fuller account includes also a report of the meeting of 17 October 2007 which took place only a short time before the copy deadlines of the two publications.

Working groups

Both meetings considered a number of draft reports prepared by working groups. That on *Vision and Mission* was considered acceptable after a revision between the two meetings. The paper on *Public Benefit* was strengthened between the two meetings to highlight the 'big' issues of the role of mathematics in the quality of life, health and wealth, and to meet new requirements imposed by the Charity Commission under the Charities Act 2006. The *Communications* report was accepted after minor amendment.

Constitution

The paper from the working group on the *Constitution* of a new society focused on the way that the different groups comprising the Council should be identified and elected. Work is proceeding on the basis that the four Vice-Presidents of the new society would each head an 'Activity Constituency' and chair an associated 'Constituency Committee', and that the four Constituencies might be *Learned Activities, Professional Activities, Education, and External Policy and Promotion*.

It was agreed that the Activity Constituencies should be the means of ensuring that the interests of the different activity areas were progressed and maintained. Council and the membership should not, therefore, be able to put forward candidates to stand against those proposed by the Activity Constituency Committees. The latter, however, should be expected to put forward

more than 2 candidates; so that there are more candidates than places. Vice-Presidents should be proposed by the Nominating Committee in consultation with the respective Activity Constituency Committee. The appointment of members of the Activity Constituency Committees themselves should be left undefined, to allow for variation between committees. Membership of committees not directly linked to the Activity Constituency Committees (e.g. statutory, financial, prizes, etc.) would be decided by Council. There will be a further seven seats on Council and candidates for these seats can be nominated by members of the society. There could be a further three co-opted members of Council. All elections will be by the Single Transferable Vote method.

Further points agreed on were the following:

1. The centrality of publishing to the new society's endeavours should be recognised by the Chair of the Publications Committee or equivalent having an *ex officio* place on Council.
2. Changes to the Learned Activities Fund should be deemed to be a constitutional matter, requiring two-thirds majorities in votes at both Council and a General Meeting.

The total number of members of Council would be 23, before any co-options.

Membership

It was agreed that the main grade will be that of Member of the new society, with entry criteria similar to those for membership of the present societies. A Member will have full voting rights. Associate Membership will be open to all who wish to join the society but will carry no voting rights. Fellowship of the society will be an additional designation available to Members who have achieved seniority and

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who satisfy a number of prescribed conditions. Fellowship will confer no additional rights or privileges. Chartered Mathematician will remain as a professional designation.

Timetable

A new outline timetable was agreed, under which a first draft of the JPG's report would be ready for the Council meetings in March 2008, and a final report, addressing any concerns, received by the Councils in June 2008. If accepted, the agreed final report, with appropriate accompanying materials by the two Councils, would then be distributed to members as part of a comprehensive consultation process. That would include meetings around the UK, mechanisms for discussion and feedback and articles in the newsletters. It was reported that so far there had been very little feedback to nsicon-tact@btinternet.com (see below).

New Working Groups

Membership and remits for new working parties were agreed at the July meeting, and some preliminary reports – mainly oral – considered at the October meeting. Work continues on these topics.

- (i) Support for research
- (ii) Finances and financial structures (including property, the Learned Activities Fund, reciprocity agreements with other countries)
- (iii) Publishing (excluding membership newsletters)
- (iv) Administration.

Charles Evans (IMA)
Charles Goldie (LMS)

Comments sought

As this work progresses, members are invited to send views directly to the group and can be assured that all comments received will be brought to the attention of the group at its next meeting. Although the NSI group does not guarantee to reply to all messages it may on occasion choose to do so. The email address to use is nsiconact@btinternet.com.

YORKSHIRE AND DURHAM GEOMETRY DAY

There will be a Yorkshire and Durham Geometry Day on Friday 18 January 2008 from 11:00 am to 5:15 pm in the Department of Mathematical Sciences, Durham University. Tea and coffee will be available from 10:30. Talks will be given by:

- Misha Belolipetsky (Durham)
- Frederic Bourgeois (Brussels)
- Gil Cavalcanti (Oxford)
- Femke Douma (Durham)
- Bruno Simões (Lisbon)

All interested are welcome to attend, although the organisers would appreciate your letting them know if you plan to come. For further information email John Bolton (john.bolton@durham.ac.uk) or Wilhelm Klingenberg (wilhelm.klingenberg@durham.ac.uk) or visit the website www.maths.dur.ac.uk/dma0jb/ydgd.html. The Yorkshire and Durham Geometry Days are supported by a grant from the LMS.

COMBINATORICS MEETING

The 2008 Open University Winter Combinatorics Meeting will be held on Wednesday 30 January 2008 in the Christodoulou Meeting Room 11 (CMR 11) on the Open University campus in Milton Keynes. All are welcome and coffee will be available from 10.15 am. The speakers will include:

- Anthony Hilton (Queen Mary, London)
- James Hirschfeld (Sussex)
- Martin Mačaj (Comenius, Bratislava)
- Gordon Royle (Western Australia)
- Andrew Thomason (Cambridge)

For further information visit <http://pure-maths.open.ac.uk/combin>, or contact Mike Grannell (M.J.Grannell@open.ac.uk) or Terry Griggs (T.S.Griggs@open.ac.uk). The organisers gratefully acknowledge the support of the British Combinatorial Committee.

AMERICAN MATHEMATICAL SOCIETY






Linear Algebra in Action 
Harry Dym, *Weizmann Institute of Science, Rehovot, Israel*
 User-friendly information on basic and advanced techniques of linear algebra from the perspective of a working analyst
Graduate Studies in Mathematics, Volume 78, 2007, 541 pages; Hardcover; ISBN: 978-0-8218-3813-6; List US\$79; AMS members US\$63; Order code GSP178

Ricci Flow and the Poincaré Conjecture
John Morgan, *Columbia University, New York, NY*, and **Gang Tian**, *Princeton University, NJ*, and *Peking University, Beijing, China*
 Full details of a complete proof of the important Poincaré Conjecture, using geometric arguments presented by Grigory Perelman
 Titles in this series are co-published with the Clay Mathematics Institute (Cambridge, MA).
Clay Mathematics Monographs, Volume 3, 2007, 521 pages; Hardcover; ISBN: 978-0-8218-4328-4; List US\$69; AMS members US\$55; Order code CMP13

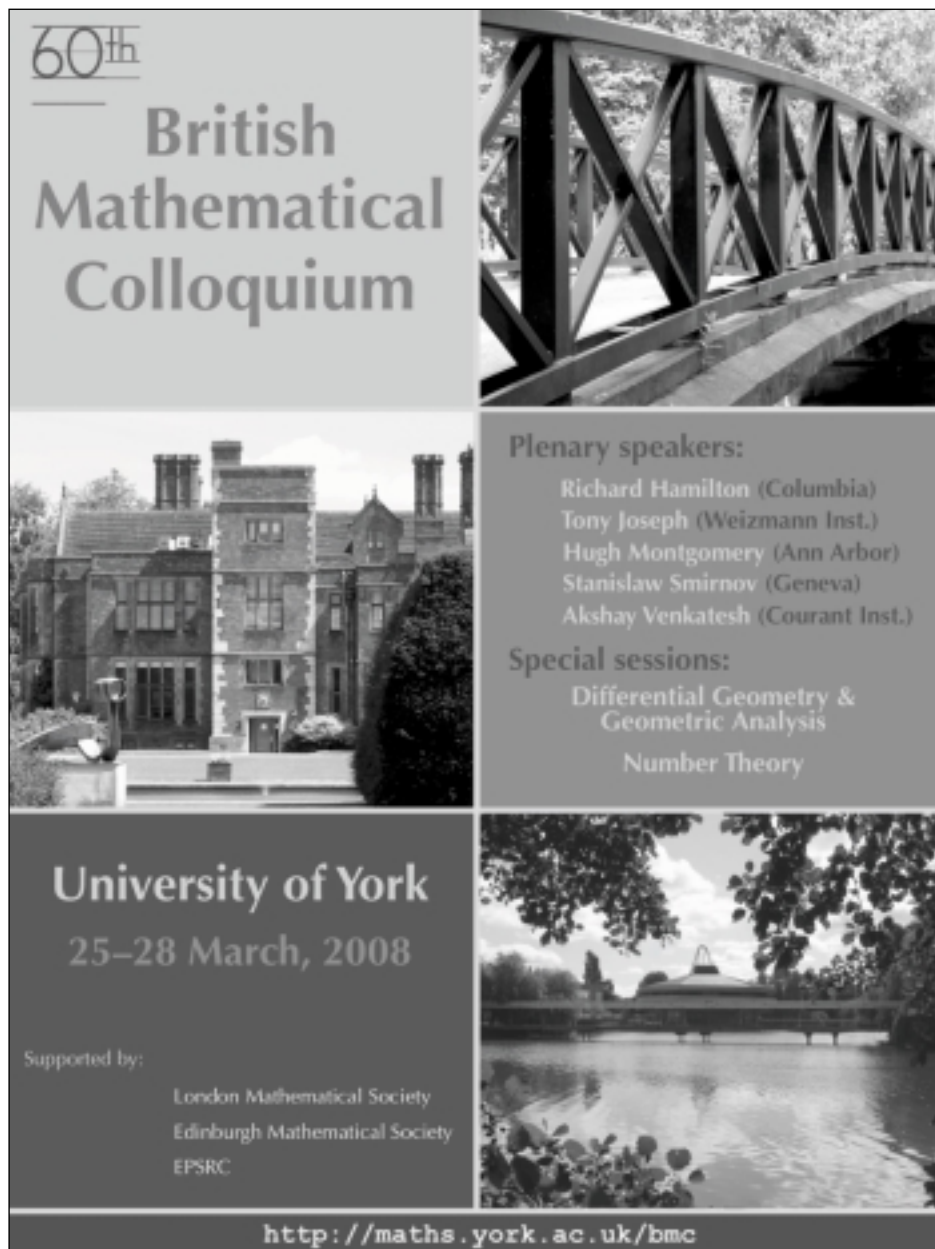
Systolic Geometry and Topology
Mikhail G. Katz, *Ber Ilan University, Ramat Gan, Israel*
 A presentation of the systolic geometry of manifolds and polyhedra, from classical inequalities to new results
Mathematical Surveys and Monographs, Volume 137, 2007, 222 pages; Hardcover; ISBN: 978-0-8218-4177-8; List US\$69; AMS members US\$55; Order code SLR071137

**Galois Theory for Beginners
A Historical Perspective**
Jörg Bewersdorff
 Translated by David Kramer
For those with minimal exposure to undergraduate mathematics, the book would make for some formidable reading. ... it provides excellent historical and mathematical context.
 —S. J. Colley, *Oberlin College for CHOICE Reviews*
Student Mathematical Library, Volume 35, 2006, 186 pages; Softcover; ISBN: 978-0-8218-3817-4; List US\$35; AMS members US\$28; Order code STM135

Contact the AMS: 1-401-455-4000 (worldwide); fax: 1-401-455-4046; email: cust-serv@ams.org
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60th
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Plenary speakers:
Richard Hamilton (Columbia)
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Hugh Montgomery (Ann Arbor)
Stanislaw Smirnov (Geneva)
Akshay Venkatesh (Courant Inst.)

Special sessions:
Differential Geometry &
Geometric Analysis
Number Theory

University of York
25–28 March, 2008

Supported by:
London Mathematical Society
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<http://maths.york.ac.uk/bmc>

ICM 2010

Section descriptions

The Programme Committee of the next International Congress of Mathematicians (Hyderabad, India, 19–27 August 2010) has decided – based on the scientific programmes of former ICMs and suggestions from mathematicians the world over – on the structure of the scientific programme of ICM 2010. The structure of the programme of the Congress, as decided by the Programme Committee at its October 2007 meeting, is as follows:

- The total number of one hour plenary lectures will be 18–20, plus at most seven lectures by the winners of the Fields medals, the Rolf Nevanlinna prize, the Gauss prize, and the Chern medal.
- The number of 45-minute invited lectures will be approximately 160, distributed over 20 sections (defined below). In addition there will be the Emmy Noether lecture.
- There is the possibility of shared lectures among sections.
- The Organizing Committee is encouraged to arrange for the possibility of short communications and poster sessions, as well as less formal scientific events of broad interest during the congress. The latter could address ICM participants and/or the general public.
- The Organizing Committee is requested to facilitate, in consultation with the AWM (Association for Women in Mathematics), an activity regarding women. It should be scheduled either the day before or the day after the Noether Lecture with not too many parallel events.

Descriptions and the number of lectures to be given in each section are shown below. The total number of lectures (including panel discussions) is 150–176.

- Logic and foundations (4–5 lectures)
- Algebra (6–7 lectures)
- Number theory (10–12 lectures)
- Algebraic and complex geometry (9–11 lectures)
- Geometry (10–12 lectures)
- Topology (10–12 lectures)
- Lie theory and generalizations (8–10 lectures)
- Analysis (7–8 lectures)
- Functional analysis and applications (5–6 lectures)
- Dynamical systems and ordinary differential equations (9–11 lectures)
- Partial differential equations (9–10 lectures)
- Mathematical physics (10–12 lectures)
- Probability and Statistics (12–13 lectures)
- Combinatorics (7–8 lectures)
- Mathematical aspects of computer science (6–7 lectures)
- Numerical analysis and scientific computing (5–6 lectures)
- Control theory and optimization (6–7 lectures)
- Mathematics in science and technology (8–10 lectures)
- Mathematics education and popularization of mathematics (3 lectures +)
- History of mathematics (3 lectures)

The Programme Committee will finalize the descriptions in the spring of 2008 and invites comments from the Adhering Organizations and mathematicians interested in helping make the ICM 2010 programme as attractive as possible.

All Adhering Organizations and interested individuals are invited to submit proposals for changes to Hendrik Lenstra, chair of the ICM 2010 Programme Committee, by the end of January 2008. Email your suggestions to: hwlicm@math.leidenuniv.nl.

Martin Groetschel
IMU Secretary

Science from Oxford

OXFORD
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Flips for 3-folds and 4-folds
Alessio Corti
Aimed at graduates and researchers in algebraic geometry, this collection of edited chapters provides a complete and essentially self-contained account of the construction of 3-fold and 4-fold flop flips.
OXFORD LECTURE SERIES IN MATHEMATICS AND ITS APPLICATIONS No. 35
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The Factorization Method for Inverse Problems
Andreas Kirsch and Natalia Grinberg
The 'factorization method', discovered by Professor Kirsch, is a relatively new method for solving certain types of inverse scattering problems and problems in tomography. The text introduces the reader to this promising approach and discusses the wide applicability of this method by choosing typical examples.
OXFORD LECTURE SERIES IN MATHEMATICS AND ITS APPLICATIONS No. 36
216 pages | December 2007
978-0-19-921353-5 | Hardback | £45.00

For more information and ordering details,
please visit www.oup.co.uk/academic/science

ALAN BEARDON RETIREMENT MEETING

On Wednesday 5 December 2007 there will be a one-day meeting of mathematicians to mark the retirement of Alan Beardon. The meeting will be held in the Centre for Mathematical Sciences in the University of Cambridge. Speakers to include:

- Dov Aharonov (Technion, Haifa, Israel)
- Shigeyasu Kamiya (Okayama, Japan)
- Lisa Lorentzen (Trondheim, Norway)
- Patrick Tuen Wai Ng (University of Hong Kong)
- Samuel J. Patterson (Göttingen, Germany)

The meeting will consist of short talks on Wednesday morning and afternoon, a buffet lunch, and a celebratory meal at King's College in the evening. For further details contact John Parker j.r.parker@durham.ac.uk and Ian Short ims25@cam.ac.uk or see the webpage www.maths.nuim.ie/staff/ishort/personal/BeardonMeeting.html. The organisers are grateful to the LMS for a Scheme 1 conference grant towards this meeting.

LOTTERY SCRATCHCARD

From the *Manchester Evening News* 3 Nov 2007
A Lottery scratchcard – the Cool Cash game – was taken out of shops yesterday after some players failed to grasp whether or not they had won.

To qualify for a prize, users had to scratch away a window to reveal a temperature lower than the figure displayed on each card. As the game had a winter theme, the temperature was usually below freezing. But the concept of comparing negative numbers proved too difficult for some. Camelot received dozens of complaints on the first day from players who could not understand how, for example, -5 is higher than -6.

Tina Farrell, from Levenshulme, called Camelot after failing to win with several cards. The 23-year-old, who said she had left school without a maths GCSE, said: "On one

of my cards it said I had to find temperatures lower than -8. The numbers I uncovered were -6 and -7 so I thought I had won, and so did the woman in the shop. But when she scanned the card the machine said I hadn't. I phoned Camelot and they fobbed me off with some story that -6 is higher – not lower – than -8 but I'm not having it. I think Camelot are giving people the wrong impression – the card doesn't say to look for a colder or warmer temperature, it says to look for a higher or lower number. Six is a lower number than 8. Imagine how many people have been misled."

A Camelot spokeswoman said the game was withdrawn after reports that some players had not understood the concept.

LIEGRITS WORKSHOP

The final workshop of the European RTN training research network *Flags, Quivers and Invariant Theory in Lie Representation Theory* (LieGrits, MRTN-CT-2003-505078) will take place at the Mathematical Institute of the University of Oxford from 3 January 2008 (arrival day) to 9 January 2008 (departure day). There will be instructional and other lectures on categorification and cluster theory, and also some other main lectures.

Speakers for these will include: A. Buan, J. Chuang, B. Keller, R. Marsh, V. Mazorchuk, M. Reineke, I. Reiten, R. Rouquier, J. Schröer, W. Sörgel, A. Zelevinsky. There will also be shorter lectures and so far the following have accepted to speak: K. Baur, P.A. Bergh, G. Berczy, R. Bocklandt, C. Gonzalez-Martinez, S. Goodwin, D. Juteau, D. Madsen, V. Miemietz, S. Oppermann, I. Yudin.

The organizers are: K. Erdmann, K.C. Hannabuss, A. Henke, F. Kirwan and the scientific advisers: R. Marsh, R. Rouquier. For further information, contact liegrits@maths.ox.ac.uk, or see the website www.maths.ox.ac.uk/notices/events/liegrits-workshop.

BACHELIER FINANCE SOCIETY

The Fifth World Congress of the Bachelier Finance Society will take place from 15–19 July 2008 in London. Plenary speakers are:

- Tomas Björk (Stockholm School of Economics)
- Jakša Cvitanović (CALTECH)
- Philip Dybvig (Washington Univ, St Louis)
- Marco Frittelli (University of Milan)
- Jim Gatheral (Merrill Lynch, New York)
- Lars Peter Hansen (University of Chicago)
- Dmitry Kramkov (Carnegie Mellon)
- Alex Lipton (Merrill Lynch, London)
- Philip Protter (Cornell University)
- Steven Shreve (Carnegie Mellon University)
- Nizar Touzi (Ecole Polytechnique, Paris)

In addition S.R.S. Varadhan, 2007 Abel Prize laureate, will give a special guest lecture. The conference will begin on the afternoon of Tuesday 15 July with registration and two plenary talks held at the Royal Geographical Society, followed by a Reception. On the following days, plenary talks will be held at the Royal Geographical Society and contributed talks in parallel sessions at Imperial College. The conference concludes with a Banquet on the evening of Saturday 19 July.

The Bachelier Finance Society is the main professional society for Mathematical Finance. Its objectives are to further the development of the subject and related areas of stochastic analysis, optimisation, statistics and computational methods, and to foster strong links between the academic and practitioner communities. The Society was founded in 1996 and held its first World Congress in Paris in 2000, the centenary of the publication of Louis Bachelier's famous thesis *Théorie de la spéculation* which initiated the use of probabilistic methods in finance.

Authors are invited to submit papers for presentation at the Congress. Details of the submission process will be found at the

Congress website www.bfs2008.com. The closing date for submissions is 25 January 2008. The Congress Organizers are Mark Davis (Imperial College) and Lane Hughston (King's College London).

LMS SPITALFIELDS DAY REPORT

On Monday 8 October a Spitalfields Day event on *Gauge Theory, String Theory and Unification* was held at the Isaac Newton Institute (INI), Cambridge, as part of the six-month *Strong Fields, Integrability and Strings* programme taking place there. The audience of 70, drawn both from INI programme participants and visitors for the day, heard four talks from leading researchers in particle physics theory, reviewing our prospects for learning about fundamental physics at the smallest scales, via both collider experiments and recent progress in the mathematics underlying gauge field theory and string theory.

Nick Evans of Southampton University opened proceedings by previewing CERN's Large Hadron Collider – “the greatest experiment on Earth” – due to start taking data at CERN next year and offering the best chance for fundamental discovery in a generation. He was followed by Mikhail Shifman from the University of Minnesota, who explained supersymmetry (SUSY), viewed by many particle theorists as the most elegant solution to several outstanding problems such as the large separation between electroweak and Planck energy scales, and the origin of ‘dark matter’. Should SUSY be discovered at LHC, Professor Shifman stressed the tremendous breakthrough in understanding that would result – the universe would have to be rethought in terms of extra ‘quantum dimensions’.

After tea, Niall MacKay made a short presentation on behalf of a much-missed colleague whose memory is celebrated via the

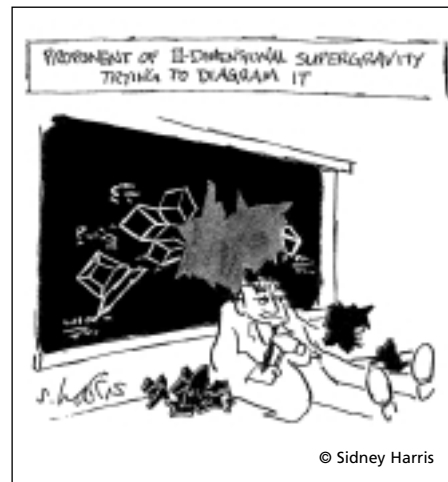
Andrew Chamblin Memorial Lecture Fund (www.damtp.cam.ac.uk/user/gr/about/andre-w-chamblin.html), before introducing Alexander Gorsky of the Institute for Theoretical and Experimental Physics, Moscow, who reviewed the remarkable role

integrability is playing in our understanding of many quantum systems including quantum gravity, topological field theory, and SUSY Yang-Mills theory.

Simon Hands
Swansea University



The audience for Professor Gross's lecture



© Sidney Harris



Sir David Wallace, director of the INI, introduces David Gross

LONDON MATHEMATICAL SOCIETY

Spitalfields Day

in association with the Isaac Newton Institute for
Mathematical Sciences programme entitled *Phylogenetics*

Yggdrasil: Reconstructing the Tree of Life

Thursday 6 December 2007, Isaac Newton Institute

- 13:00 – 14:00** Peter Lockhart (Massey University, New Zealand)
Phylogenetic models and the origins of chloroplasts
- 14:00 – 15:00** Tandy Warnow (University of Texas at Austin, USA)
Algorithm design for large-scale phylogenetic analysis
- 15:00 – 15:30** Tea
- 15:30 – 16:30** John A. Rhodes (University of Alaska, Fairbanks, USA)
Phylogenetic models and algebra
- 16:30 – 17:30** Andreas Dress (Chinese Academy of Sciences, China)
Phylogenetic combinatorics: analysing branching patterns in evolutionary trees
- 17:30 – 18:30** Wine Reception

The talks are aimed at final year undergraduate/beginning postgraduate students in biology, mathematics, and computer science, and will address the problems and challenges of reconstructing evolutionary relationships from molecular sequence data. The interdisciplinary nature of phylogenetic studies – biological, computational, and mathematical problems arise naturally – will be highlighted.

Anyone interested is welcome to attend; talks will be aimed at a general mathematical audience. Please let Tracey Andrew at the Institute know by **Friday 30 November** if you intend to come: telephone (01223) 760992; fax: (01223) 330508; email: t.andrew@newton.cam.ac.uk.

There are limited funds available to assist research students to attend, please apply by **Friday 30 November** to Tracey Andrew by email (t.andrew@newton.cam.ac.uk) or post at the Newton Institute, 20 Clarkson Road, Cambridge, CB3 0EH.

Scientific enquiries may be addressed to Elizabeth Allman (e.allman@uaf.edu) or Vincent Moulton (vincent.moulton@cmp.uea.ac.uk).

REVIEWS

King of Infinite Space – Donald Coxeter, the Man Who Saved Geometry by Siobhan Roberts, with an introduction by Douglas R. Hofstadter, Profile Books Ltd, paperback 400 pp, November 2007, £14.99, ISBN-13: 1846680077

"Donald would love this!" said Eve at the *Frontiers of Chaos* exhibition of the Peitgen & Richter pictures of the Mandelbrot set at Liverpool's Albert Dock in 1985. 'Donald?' I asked. "My brother Donald Coxeter", she replied. "Any relation of H.S.M.?" "He is H.S.M.!"

Now for many of my generation, including certainly John Conway, the name H.S.M. Coxeter would be first encountered during one's school-days as the Editor of the 3rd edition of Rouse Ball's *Mathematical Recreations and Essays*, a truly stimulating mixture of art and maths. In Siobhan Roberts' marvellous account of Donald's life, from his early friendship with John Petrie to his Indian, or rather Hungarian, Summer in 2002, we learn that he went ahead with this edition in 1935, despite being told by his peers that such dabbling would adversely affect his career. But it is for Donald's love of

the beauty of Mathematics, and of higher-dimensional Geometrical

the death of

Donald's wife after a long illness, he plans to travel the world again and is already booked to go to Sweden. He must lecture in Cambridge and Liverpool on his way home." This he duly did in 2001, renewing his Fellowship at Trinity, and following his Liverpool colloquium lecture with a session with youngsters the following morning. Then the next year, though gravely ill, he made a triumphant visit to a conference in Hungary. He died in 2003, aged 96.

This book starts and finishes with that Bolyai bicentenary celebration in Budapest, and in between recreates the man we knew and loved. There is much about his early years, and the influence of his family, followed by Trinity, Cambridge, and then Toronto, Canada. And there is much about his mathematics as well, especially his fascination with reflection groups, that he called kaleidoscopes, that are central to much of modern Singularity Theory, and related areas of Mathematics. Fleshing out the narrative, there are eight Appendices and over 70 pages of Endnotes. John Conway recalls words of Walter Pater, describing art and poetry: *To burn always with this hard, gem-like flame, to maintain this ecstasy, is success in life.* "Somehow", Conway said, "that always makes me think of Donald Coxeter".

Siobhan Roberts knew Donald in his final years, and has also talked with many of those who knew him well. A journalist, she won an award for her profile of Donald in *Toronto Life*.

Buy this book (the *British* edition, as corrections have been made to the American one), and give it as a Christmas present to any youngsters that you may know starting out on the road to become mathematicians, for it will inspire them and encourage them in their journey.

Ian Porteous
University of Liverpool



Mathematical Mind-Benders by Peter Winkler, A K Peters Ltd, 2007, paperback 160 pp, £11.50, ISBN 978-1-56881-336-3

Four years ago, Winkler published *Mathematical Puzzles: a Connoisseur's Collection*. This follow-up contains a hundred or so problems aimed at entertaining puzzle lovers, both by the context offered, and the twists and surprises in their solutions. Most of them are entirely mathematical, but some, even aside from the word game that the author co-invented while at high school, rely on verbal dexterity. Pleasingly, a potted history of each problem's genesis is given where possible, and the bibliography will enable readers to chase up omitted details. The website www.math.dartmouth.edu/~pw/fender-benders.pdf contains extra information on some of the material, as well as a (small) glossary of glitches.

Books with similar titles vary greatly in the depth of the mathematics required. The puzzles within any chapter here are of comparable complexity, ranging from the straightforward to the fiendishly difficult. Indeed, the final chapter solves one problem that was open in Winkler's previous collection, and offers nine others for which complete solutions are still sought.

All the descriptions of the problems are within the vocabulary of an A-level student, and most of the solutions given will be understood by mathematics undergraduates. But that is a long way short of

expecting those apprentice mathematicians to construct the solutions! Considerable ingenuity is often required, with many answers counter-intuitive. I particularly enjoyed the demonstration that, as $x \uparrow 1$, the series $f(x) = x - x^2 + x^4 - x^8 + \dots$ has no limit. Hardy proved this in 1907, but regretted the lack of a completely elementary proof – now we have such a proof, thanks to the use of computing power to locate some convenient value c ($c = 0.995$ works) such that $f(c) > 1/2$. This example is quite suitable for a first analysis course. Algebra teachers might ask their students to prove that, if the rows of a matrix are sorted, and then the columns, the rows *remain sorted*; geometers could request the six configurations of four points in a plane that determine just two inter-point distances; and did you realise that you could determine the form of an arbitrary polynomial, with non-negative integer coefficients, by learning its value for just two carefully chosen integers? Probabilists will find many testing teasers, and there are also variations on the well-known problem in which prisoners will be executed unless they can deduce the colour of the hat they wear.

Winkler has a keen eye for a good mindbender: the solution should be pleasing, neither too easy nor too difficult to find, and invoke some generally useful mathematical idea. This collection offers both stimulation and enlightenment; and if it provokes sufficiently many readers to send him their own favourites, we can look forward to him completing a trilogy.

John Haigh
University of Sussex

The Essay, Marcus du Sautoy, 29 October – 1 November 2007, BBC Radio 3

This was a series of four fifteen-minute essays by Marcus du Sautoy on the links between music and mathematics.

The first essay *Counter-culture* looked at numbers and rhythm, from Steve Reich's *Clapping Music* whose shifting rhythms overlap and diverge, to the remarkable virtuosic

rhythmic structures of Nitin Sawhney's *The Conference*, Messiaen's use of prime numbers in the *Quatour pour la Fin du Temps*, and Jem Finer's use of mathematics to create a 1000-year long piece *Longplayer*. Marcus quoted Bach's friend Mizler, who said that music is "the art of sounding mathematics", but also noted the reverse influence in the musical questions inspired the astonishing mathematics of the Kerala School in 14th–16th century India.

The second programme *The Music of the Spheres* examined the mathematics of intonation, with a lucid explanation of the Pythagorean comma and various mathematical attempts to resolve the problem that a power of two is never a power of three and hence tuning can never be entirely satisfactory. Marcus told us about Nicolas Mercator's proposed 53-note scale (previously used by Chinese musicians), just intonation, and the mathematically-based equal temperament that is widespread today: An extract from Britten's *Serenade for tenor, horn and strings* helpfully illustrated the composer's use of the specific instrumental timbre of the natural horn.

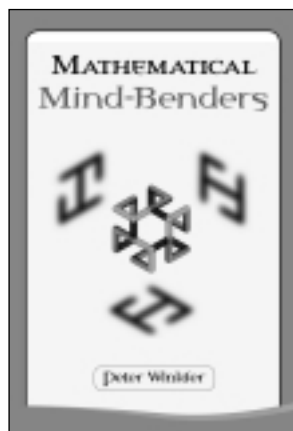
Theme and Variation looked at symmetry and symmetry-breaking: Marcus made a fascinating connection between Bach's *Goldberg Variations* and the deliberate imperfect symmetry in a Japanese Buddhist temple. He looked at the permutations underlying bell-ringing changes, and generated a random piece from the musical dice-game attributed to Mozart.

Composing with Numbers, the fourth programme, was particularly fascinating: it presented (in necessarily brief extracts) three twentieth-century compositions based on mathematical structures. Schoenberg's *Variations for Orchestra* uses the symmetries of the rectangle, Xenakis's *Nomos Alpha* uses two spinning cubes to determine its properties, and, remarkably, we concluded with Messiaen's *Ile de Feu 2* which implicitly uses the Mathieu group M_{12} .

Marcus concluded with a rhapsodic account of the delights of doing mathematics, arguing that similar qualities of "beauty, elegance and surprise" are found in maths and in music. His series was valuable not just in showing how mathematics can be found in music but in bringing out the reverse connections too, from Indian mathematicians studying the mathematics of rhythm to Chinese musicians using the properties of numbers to devise microtonal scales.

This series, together with Robin Wilson's recent appearance on *Private Passions* (BBC Radio 3) and the unlikely success of Complicite's *A Disappearing Number*, both reviewed in the October Newsletter, has done a wonderful job in communicating to diverse audiences the nature of mathematics and the joys of mathematical creativity. Such ambassadors do an important service to mathematics in countering its popular reputation as a dry technical subject.

Tony Mann
University of Greenwich



LMS INVITED LECTURES 2008

Professor Andrei Okounkov *Random Surfaces*

7–11 April 2008

The 2008 LMS Invited Lectures will be given by Professor Andrei Okounkov (Princeton) on *Random Surfaces*. The Lectures will take place at the Institute for Mathematical Sciences, Imperial College London from 7–11 April 2008.

There will also be lectures by Nekrasov, Szendrői and others. For further information contact Richard Thomas (richard.thomas@imperial.ac.uk) or visit the website www.ma.ic.ac.uk/~rpwt/LMS.html.



Quittner, R., University of Bratislava, Slovakia /
Souplet, P., Université Paris XIII, France

Superlinear Parabolic Problems

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This book is devoted to the qualitative study of solutions of superlinear elliptic and parabolic partial differential equations and systems. This class of problems contains, in particular, a number of reaction-diffusion systems which arise in various mathematical models,

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The book is self-contained and up-to-date, it has a high didactic quality. It is devoted to problems that are intensively studied but have not been treated so far in depth in the book literature. The intended audience includes graduate and postgraduate students and researchers working in the field of partial differential equations and applied mathematics.

2007. XI, 584 pp.
Hardcover, GBP 54.00
ISBN 978-3-7643-8441-8
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Lynch, S., Manchester Metropolitan University, UK

Dynamical Systems with Applications using Mathematica®

This book provides an introduction to the theory of dynamical systems with the aid of the Mathematica® computer algebra package. The book has a very hands-on approach and takes the reader from basic theory to recently published research material.

Emphasized throughout are numerous applications to biology, chemical kinetics, economics, electronics, epidemiology, nonlinear optics, mechanics, population dynamics, and neural networks. Theorems and proofs are kept to a minimum. The first part of the book deals with continuous systems using ordinary differential equations, while the second part is devoted to the study of discrete dynamical systems. Exercises are included at the end of every chapter.

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MATHEMATICIANS VISITING THE UK IN 2007/2008

Bath University

Alvarez Caudevilla, P. (University of La Laguna, Spain) *Heterogeneous competitions*, 18 Sep 07 – 1 Sep 08

Baldi, P. (SISSA, Italy) *Variational methods, small divisors*, 1 Oct 07 – 30 Sep 08

Lilli, M. (University of Augsburg, Germany) *Bifurcation theory, Nonlinear analysis*, 1 Feb 07 – 1 Jan 08

Plotnikov, P. (Lavrentyev Institute for Hydrodynamics, Siberia) *Theoretical hydrodynamics*, 1 Nov 07 – 1 Jul 08

Cambridge University (DAMTP)

Erramilli, S. (Boston University) *Experimental biological physics*, Oct 07 – Sep 08

Guba, P. (Comenius University, Bratislava) *Solidification*, Jan – March 08

Hong, M.K. (Boston University) *Experimental biological physics*, Oct 07 – Sep 08

Kazuto, U. (Nagoya University, Japan) *Solidification*, Jan 08 – Mar 08

Mariani, C. (École Polytechnique Universitaire de Marseille, Provence) *Fluid dynamics*, Feb – July 08

Marino, B. (Instituto de Fisica Arroyo Seco, Universidad Nacional del Centro, Argentina) *Fluid dynamics*, Jan – Feb 08

Redondo, J. (Polytechnic University of Catalonia) *Fluid dynamics*, Summer 08

Solari, C.A. (University of Buenos Aires) *Experimental biological physics*, Feb – Mar 08

Thomas, L. (Instituto de Fisica Arroyo Seco, Universidad Nacional del Centro, Argentina) *Fluid dynamics*, Jan – Feb 08

Van Heijst, G. J. (University of Eindhoven) *Fluid dynamics*, 1 Oct 07 – 2 Nov 07

Yuan, Y. (Chinese Academy of Sciences) *Numerical analysis, Nonlinear optimization, Computational biology*, 9 Oct 07 – 30 Sep 08

Cambridge University (DPMMS)

Abouzaid, M. (MIT) *Symplectic topology and mirror symmetry*, 1 Jan – 2 Apr 08

Fukaya, D. (Keio University, Japan) *Number theory*, 26 Feb 06 – 25 Feb 08

Grambsch, P. (University of Minnesota) *Biostatistics*, 1 Jan – 31 Dec 07

Miklos, D. (Rényi Institute, Budapest) *Combinatorics*, 15 Jan – 15 Jul 08

Simonovits, M. (Rényi Institute, Budapest) *Combinatorics*, 20 Oct – 30 Nov 07

Taqi, A. (Kuwait University) 1 Sep 07 – 31 Aug 08

Wicker, F. (The Aerospace Corporation, CA) *Statistics*, 12 Sep – 30 Sep 07

Durham University

Auchybur, N. (Mauritius) *Statistics*, 7 Jan – 7 May 08

Bognor, C. (University of Mainz) *Pure mathematics*, 1 Sep – 31 Dec 07

Dai, B. (Shanghai University of Finance & Economics) *Statistics*, 12 Aug 07 – 12 Feb 08

Haslett, J. (Trinity College, Dublin) *Statistics*, Jan – Apr 08

Hillman, J. (Sydney, Australia) *Pure mathematics*, Michaelmas term 08

Rej, A. (MPI Bonn) *Pure mathematics*, 16 Aug 07 – 15 Jan 08

Samiou, E. (Grey Fellow, Nicosia, Cyprus) *Pure mathematics*, Epiphany term 08

Skulj, D. (Ljubljana, Slovenia) *Statistics*, Easter term 08

Souderes, I. (Paris VI) *Pure mathematics*, 1 Sep 07 – 31 Jan 08

Edinburgh University

Feichtinger, H. (University of Vienna) *Numerical analysis*, 15 Jan – 30 Jun 08

Guillermo, M. (University of Mannheim) *High performance and special purpose computing*, 28 Oct – 19 Dec 07

Hanigk, S. (Technical University of Munich) *Efficient parallel matrix operations utilising space-filling curves and high performance interconnects*, 29 Oct – 22 Dec 07

Lyall, N. (University of Georgia, USA) *Harmonic analysis*, 5 Jan – 30 Jun 08

Pott, S. (Glasgow University) *Harmonic analysis and special theory*, Jan – Dec 08

Waecken, K. (University of Heidelberg) *Dynamics of asteroids*, 29 Nov – 15 Dec 07

Zadora, G. (Institute of Forensic Research, Krakow, Poland) *Forensic statistics*, 17 Nov – 14 Dec 07

Glasgow University

Bondi, A.L. (University of Palermo, Sicily) *Environmental statistics*, 2 Jul – 2 Dec 07

Hall, P. (University of Melbourne) *Statistics*, 11 Oct 07 – 12 Dec 07

Martin, R.M. (University de Castilla-La Mancha) *Optimum experimental designs*, 15 Oct 07 – 20 Feb 08

Imperial College London

Abouzaid, M. (Massachusetts Institute of Technology, USA) *Symplectic geometry*, 1 Jan – 31 Mar 08

Chan, Y.M. (University of Hong Kong) *Geometric analysis*, 24 Jan 06 – 31 Feb 08

Fernandez, M.G. (Consejo Superior de Investigaciones Cientificas Serrano, Spain) *Differential geometry*, 15 Jul – 15 Nov 07

Garcia-Fernandez, M. (Consejo Superior de Investigaciones Cientificas Serrano, Spain) *Differential geometry*, 15 Jul – 15 Nov 07

Hindberg, H. (University of Tromsø, Norway) *Statistics*, 1 Jan – 30 Dec 07

Huybrechts, D. (Universität Bonn, Germany) *Algebraic geometry*, 1 Sep 07 – 1 Apr 08

Ito, A. (Indiana University-Purdue University, USA) *Mathematical physics*, 24 Sep 07 – 24 Sep 08

Kassabov, M. (Cornell University, NY) *Combinational algebra and Kazhdan's property T for discrete groups*, 20 Oct – 6 Nov 07

Menhardt, S. (University of Bonn, Germany) *Algebraic geometry*, 20 Oct 07 – 30 Mar 08

Luo, J.S. (Tianjin University, China) *Theoretical and computational fluid dynamics, hydrodynamic instability and transition*, 22 Sep – 8 Dec 07

Maad, S. (Stockholm University, Sweden) *Partial differential equations*, 3 Sep – 31 Dec 07

Parrella, F. (Università degli Studi di Genova, Italy) 24 Sep 07 – 9 March 08

Stoppa, J. (University of Pavia, Italy) *Algebraic geometry*, 1 Sep 07 – 1 Apr 08

King's College London

Takeda, K. (Tokyo Institute of Technology) *Disordered systems in physics and statistical physics*, June 07 – March 2008

Leeds University

Hooda, B.K. (Haryana Agricultural University, India) *Variables selection in high dimensional multivariate data analysis*, 15 Sep 07 – 14 Mar 08

Ilie, M. (Lakehead University, Ontario, Canada) *Harmonic analysis, Fourier algebra*, 18 Apr – 9 May 08

Spronk, N. (University of Waterloo, Canada) *Functional analysis and abstract harmonic analysis*, 25 March – 8 May 08

Yousefi, M.S. (Tarbiat Madares University, Tehran) *Functional analysis*, Jan – Jun 08

Liverpool University

Bogaevski, I. (Independent University, Moscow) *Singularity theory*, 1 Jan – 2 May 08

Guo, X. (Zhongshan University, China) *Operational research (Markov decision process), controlled Markov chains*, 1 July – 31 Aug 08

Loughborough University

Motygin, O. (Institute for Problems in Mechanical Engineering, Russia) *Uniqueness in wave diffraction problems*, 1 Aug – 31 Dec 07

Oshemkov, A. (Moscow State University) *Integrable systems*, 17 Nov – 16 Dec 07

Zheng, Z.H. (Institute of Applied Mathematics, Academia Sinica, China) *Random dynamical systems*, 1 Nov 07 – 31 Oct 08

Nottingham University

Borichev, A. (University of Marseille, France) *Analysis and functional analysis*, 1 Jan – 31 Jan 08

Kurokawa, N. (Tokyo Metropolitan University, Japan) *Number theory*, 1 – 31 Aug 08

Ricotta, G. (Bordeaux, France) *Number theory*, 1 Dec 07 – 31 Aug 08

Suzuki, M. (University of Tokyo, Japan) *Number theory*, 1 Nov 07 – 29 Feb 08

Sivatski, A. (St Petersburg Electrotechnical University City) *Quadratic forms & central simple algebras*, 15 Jan – 15 Feb 08

Yamashita, G. (Rims, Kyoto, Japan) *Number theory*, 1 Apr – 31 Oct 08

Oxford University

Barrio, R.A. (Mexico) *Mathematical biology*, 1 Oct 07 – 30 Sep 08

Ebert, J., (Germany) *Topology of moduli spaces*, 1 Mar 07 – 28 Feb 08

Geris, L.L.J. (Belgium) *Mathematical biology*, 7 Sep – 15 Dec 07

Guzman, T.H. (Mexico) *Differential geometry*, 1 Jan – 31 Mar 08

Jiang-Gang, Y. (Shanghai) *Stochastic analysis*, 28 Jan – 21 Mar 08

Kulasiri, D. (Canterbury, NZ) *Mathematical biology*, 1 Jan – 30 Jun 08

Kurtzmann, A. (Switzerland) *Stochastic analysis*, 1 Sep 07 – 31 Aug 08

Li, S. (PRC) *Mathematical biology*, 1 Sep 07 – 1 Sep 08

Moreo, P. (Spain) *Mathematical and computational modelling*, 5 Sep – 28 Dec 07

Pappas, P. (Vassar, NY) *Model theory & algebra*, sometime during academic year 07 – 08

Scheerlinck, N. (Belgium) *Mathematical and computational modelling*, 26 Sep 07 – 15 Apr 08

Shaowen, L. (PRC) *Mathematical biology*, 1 Oct 07 – 1 Oct 08

Simon, P. (ENS Paris) *Mathematical logic*, 1 Sep – 15 Dec 07

Tagne Wafo, R. (Cameroun) *Mathematical physics, General relativity*, 15 – 31 Jan 08

Trewenack, A. (Melbourne) *Mathematical biology*, 22 Oct – 30 Nov 07

Ueda, K. (Kyoto) *Reaction-diffusion systems*, 24 Oct – 21 Dec 07

Plymouth University

Trinidad, J.L.B. (University of Extremadura, Spain) *Dynamical systems*, 11 Feb – 30 Apr 08

Queen Mary, University of London

Kazanidis, P. (University of the Philippines, Diliman) *Combinatorics*, 4 Sep 07 – 31 Aug 08

Santos, N. (UERJ, Rio de Janeiro) *General relativity*, 1 Aug 06 – 31 Dec 07

Simonovits, M. (Rényi Institute, Budapest) *Extremal graph theory*, 21 Sep – 21 Oct 07

Royal Holloway, University of London

Lin, X. (Sun-Yat-Sen University, Taiwan) *Pairings*, Sept 07 – Aug 08

Okamoto, T. (Tsukuba University Japan) 1 Aug 07 – 10 Mar 08

Sheffield University

Smith, L. (Göttingen) *Invariant theory, Algebraic topology, Commutative algebra*, Oct – Dec 07

Southampton University

Chen, H. (Shanghai University) *Statistics*, Aug 07 – Mar 08

Huang, Y. (Xuzhou Institute of Architectural Technology) *Operational research*, 1 Jan – 1 Mar 08

Xie, S.D. (University of New South Wales) *Operational research*, 18 Oct – 31 Dec 07

Surrey University

Hamad, M. (Assiut University, Egypt) *Symmetry methods for differential equations*, 3 Sep 07 – 31 May 08

Scheel, A. (University of Minnesota) *Dynamics of PDEs, Pattern formation, Nonlinear waves*, mid Jan – mid Mar 08

Warwick University (Statistics)

Balakrishna, N. (Cochin University of Science & Technology, India) 1 May – 31 Jul 08

York University

Zhukov, M. (Rostov State University, Russia), *Applied mathematics, Fluid dynamics, Electrophoresis*, 5 Oct – 31 Dec 07

ISAAC NEWTON INSTITUTE FOR MATHEMATICAL SCIENCES
COMBINATORIAL AND PROBABILISTIC INEQUALITIES

23–27 June 2008

in association with the Newton Institute programme entitled
Combinatorics and Statistical Mechanics (14 January to 4 July 2008)

Workshop organisers: Dave Wagner (Waterloo) and Graham Brightwell (London School of Economics)

Theme of workshop: The workshop will be concerned broadly with combinatorial and probabilistic inequalities and their applications to problems arising in combinatorics, probability theory, and the analysis of statistical mechanics models. Examples of such inequalities include those of Fortuin-Kasteleyn-Ginibre, of Ahlswede-Daykin, of van den Berg-Kesten-Reimer, other inequalities expressing positive or negative correlations, inequalities on higher moments, isoperimetric inequalities, eigenvalue inequalities, upper or lower bounds on asymptotic growth rates, critical exponents, or critical probabilities, and so on. Such inequalities are applied to questions on the combinatorics of graphs, matroids, and partial orders, and to probabilistic and statistical mechanical models such as percolation, Potts models and random cluster models, lattice gases, exclusion processes, random matrix models, and so on.

The workshop will provide a venue for some of the leading researchers in these fields to share recent ideas and to collaborate on approaches to many of the unsolved problems in this area. It will also feature some survey lectures intended to provide a snapshot of the current state of the art for younger researchers interested in these subjects. The topics will be of interest to combinatorialists, probabilists, mathematical and theoretical physicists, and computer scientists.

Keynote speakers will include: Rob van den Berg (CWI), Béla Bollobás (Cambridge, Memphis), Jeff Kahn (Rutgers), Alan Sokal (NYU, UCL) and Dominic Welsh (Oxford).

Further information and application forms are available from the web at: www.newton.cam.ac.uk/programmes/CSM/csmw05.html. Completed application forms should be sent to Tracey Andrew, Programme & Conference Secretary, Isaac Newton Institute, 20 Clarkson Road, Cambridge CB3 0EH or via email to: t.andrew@newton.cam.ac.uk.

Closing date for the receipt of applications is **29 February 2008**.

CALENDAR OF EVENTS

This calendar lists Society meetings and other events publicised in the *Newsletter*. Further information can be obtained from the appropriate LMS *Newsletter* whose number is given in brackets. A fuller list of meetings and events is given on the Society's website (www.lms.ac.uk/newsletter/calendar.html).

DECEMBER 2007

- 1 Belfast Functional Analysis Day, Queen's University Belfast (364)
- 5 Alan Beardon Retirement Meeting, Cambridge (365)
- 6 Yggdrasil: Reconstructing the Tree of Life, LMS Spitalfields Day, INI, Cambridge (364)
- 7 Edinburgh Mathematical Society Meeting, Strathclyde (363)
- 10-14 Integrability and the Gauge/String Correspondence INI Workshop, Cambridge (358)
- 15-17 Recent Advances in Mathematics and its Applications International Symposium, Calcutta (360)
- 17-18 Random Matrix Theory Workshop, Brunel University (364)
- 17-21 Future Directions in Phylogenetic Methods and Models INI Workshop, Cambridge (358)
- 18-20 Cryptography and Coding Conference, Cirencester (362)

JANUARY 2008

- 3-9 Flags, Quivers and Invariant Theory in Lie Representation Theory Workshop, Oxford (365)
- 7-11 Contemporary Frontiers in High-Dimensional Statistical Data Analysis, INI Workshop, Cambridge (359)
- 7-11 Algebraic and Symplectic Geometry UK-Japan Winter School, Warwick (362)
- 16 Squaring the Circle and Other Impossibilities, Gresham College Lectures, London (362)
- 18 Yorkshire and Durham Geometry Day, Durham (365)

- 18 Edinburgh Mathematical Society Meeting, Edinburgh (363)
- 21-25 Zeros of Graph Polynomials INI Workshop, Cambridge (361)
- 30 Combinatorics Meeting, Open University (365)

FEBRUARY 2008

- 6 A Millennium of Mathematical Puzzles, Gresham College Lectures, London (362)
- 8 LMS Mary Cartwright Lecture, Oxford (365)
- 15 Edinburgh Mathematical Society Anniversary Meeting, Edinburgh (363)
- 27 From Hilbert's Problems to the Future, Gresham College Lectures, London (362)

MARCH 2008

- 9-12 Mathematics and its Applications in Information Technology, Lahore, Pakistan (362)
- 14 Edinburgh Mathematical Society Meeting, Dundee (363)
- 25-28 BMC, York
- 25-28 Markov-Chain Monte Carlo Methods INI Workshop, Cambridge (363)
- 31 LMS Northern Regional Meeting, Manchester
- 31-4 Apr BAMC, Manchester
- 31-4 Apr High Dimensional Statistics in Biology INI Workshop, Cambridge (363)
- 31-4 Apr New Scaling Limits and Other Recent Developments in Probability Conference, Warwick University (364)

APRIL 2008

- 7-11 LMS Invited Lectures, A. Okounkov, Imperial College London (365)
- 7-11 Combinatorial Identities and Their Applications in Statistical Mechanics INI Workshop, Cambridge (364)
- 25 Edinburgh Mathematical Society Meeting, Aberdeen (363)

MAY 2008

- 1 Cancer can give you Maths!, LMS-Gresham College Lecture, London (364)

A. COCKSHOTT
LMS member 1876-1912



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