THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

No. 260 May 1998

FORTHCOMING SOCIETY MEETINGS

Friday-Saturday 22-23 May 1998 - London
Joint meeting with the Irish Mathematical Society
Complex Analysis and Dynamical Systems
Friday 19 June 1998 - London
C. Soulé, J.H. Coates
Friday-Saturday 16-17 October 1998 - London
Harmonic Analysis
Friday 20 November 1998 - London
Annual General Meeting
L.C. Evans, J.M. Ball (Presidential Address)

COUNCIL DIARY

At the end of last month's diary, I mentioned a future expansion of the Society's instructional courses for postgraduates. The LMS is at an advanced stage in discussions with EPSRC with an intention of running up to six courses per year, funded jointly by EPSRC and the Society, with a coordinated management which should make the planning, budgeting and running of the courses much simpler. This is a welcome collaboration, which follows on the success of the EPSRC/LMS MathFIT initiative, and is due largely to the effort of Martin Taylor, who conceived the original scheme for short courses and has been nursing it through infancy since. We can hope that it will be standing on its own two feet by the time he takes over as President next January.

I also rashly promised to say something about the way Council works. The previous diarist wrote: "I sometimes feel that Council operates surrounded by a sea of fog" (albeit with less intended ambiguity than might appear when taken out of context). Although one of the diarist's duties is to penetrate this fog, it is not easy in such a short space. A typical Council meeting lasts nearly 4 hours (with a short but very welcome break for tea), begins with a rapid selection of items from the agenda for discussion, and proceeds thereafter at a formidable pace. Much of the business comes up from the various Society committees (a list of these can be found on the WWW pages), and covers a wide range of themes: the internal management of the Society; its support of mathematical activity through its publications, grant schemes and prizes; outside relations and representation, both with other mathematical bodies worldwide and (increasingly) in response to the continuing changes in the finance and politics of higher education.

The first part of the meeting on 20 March 1998 was spent on practical arrangements for the new building. The first discussion concerned its name, and Council quickly decided that, subject to obtaining the necessary consent, the building should be named "De Morgan House" in honour of the Society's founder. Enormous work had gone into furnishing and wiring enough rooms for the offices to

move on 16 February. However, we had to hold today's meeting in Burlington House again, since the new Council Room, which will double as a room for small meetings and seminars, remains unfurnished. So also is the room for members, with funds from the bequest the Society received last year from the late Professor Verblunsky (reported in the Council Diary for March 1997). The Verblunsky Room will have space to relax as well as a working area, complete with computers. An announcement will be made when the new facilities are available for members' use.

With the discussion of accreditation of university teachers (the proposed Institute for Learning and Teaching in Higher Education) we returned to a familiar theme. The President had, on behalf of the Society, made a constructive response to the present proposals for the Institute. We all would like the voice of the UK mathematical community to be heard more often (and listened to) in the corridors of Whitehall. The President reported on a meeting with the AMS President, Arthur Jaffe, who explained how learned societies across the Atlantic are trying, with some success, to bring science higher up the political agenda. It will be interesting to see if something of the kind can be achieved in Britain.

Tony Scholl

PROGRAMME AND CONFERENCE FUND

Members are reminded that the Society's Programme and Conference Fund is used to provide conference grants, grants to visitors to the UK (Scheme 2), grants to support joint research groups (Scheme 3), collaborative small grants (Scheme 4) and grants for visits from or to the former Soviet Union (fSU Scheme). The fund is administered by the Society's Programme Committee. Information about the various schemes was given in the January 1998 Newsletter (No. 256), and is also on the Society's home page on the world wide web (http:www.lms.ac.uk/grants/). The Meetings and Membership Secretary, Dr D.J.H. Garling, will be pleased to discuss proposals informally with potential applicants and to give advice on submission of an application to the Society. He can be reached at: Department of Pure Mathematics and Mathematical Statistics, 16 Mill Lane, Cambridge CB2 1SB; e-mail: d.j.h.garling@pmms.cam.ac.uk; tel: 01223 337978.

There is a deadline of **31 May 1998** for conference grant applications, and for Scheme 3 and Scheme 4 grant applications; these applications will be considered in June. There are no deadlines for Scheme 2 and fSU Scheme grant applications, but these should be made two to three months before the proposed visits, to allow for consideration by Programme Committee and subsequent publicity in the Newsletter. Please bear in mind, however, that applications for Scheme 2 and fSU Scheme grants which are received after 31 May 1998 will not be considered until September.

PROFESSOR E.F. ASSMUS

Professor E.F. Assmus, who was elected a member of the London Mathematical Society on 15 May 1969, died in March 1998.

PROFESSOR LADY MARY W. WARNER

Professor Lady Mary W. Warner, who was elected a member of the London Mathematical Society on 21 November 1968, died on 1 April 1998.

ROLLO DAVIDSON TRUST

The Trustees of the Rollo Davidson Trust give notice that they have awarded Rollo Davidson Prizes for 1998 to Davar Khoshnevisan (University of Utah) for his work on limit theorems, Brownian motion and local time, and to Wendelin Werner (Université Paris-Sud, Orsay) for his work on stochastic processes, particularly geometric properties of Brownian motion and other processes in continuous time.

IRISH MATHEMATICAL SOCIETY
LONDON MATHEMATICAL SOCIETY

JOINT TWO-DAY MEETING
Friday-Saturday 22-23 May 1998

COMPLEX ANALYSIS AND DYNAMICAL SYSTEMS

Friday

14.15 Linda Keen (CUNY)
Deformations of Kleinian groups

15.30 Anthony G. O'Farrell (National University of Ireland, Maynooth)
Some approximation problems and theorems

16.30 Tea

17.00 Bodil Branner (Technical University of Denmark)
Surgery in holomorphic dynamics

Saturday

9.15 Ricardo Perez-Marco (Orsay and UCLA)
Singular holomorphic dynamics

10.15 Coffee

10.45 Shaun Bullett (Queen Mary & Westfield College, London)
Dynamics of holomorphic correspondences

12.00 Jean-Christophe Yoccoz (Collège de France)
The modular group and the Brjuno function

The meeting will be held at the Scientific Societies Lecture Theatre, New Burlington Place, London W1

All interested are very welcome

A reception and dinner will be held at the Chuen Cheng Ku Restaurant, 17 Wardour Street, London W1 on the Friday evening at 6.30 pm for 7.00 pm. The cost will be £19.00 per person. Those wishing to attend should either inform Miss Susan M. Oakes, London Mathematical Society, 57-58 Russell Square, London WC1B 4HP, enclosing a cheque payable to 'The London Mathematical Society' to arrive no later than **Tuesday 19 May** or (for Irish visitors) consult Dr R.M. Timoney, School of Mathematics, Trinity College, Dublin 2.

There are limited funds available to help research students attend the meeting. Request for support and any other enquiries may be addressed to Richard M. Timoney (richardt@maths.tcd.ie) or to Shaun Bullett (s.r.bullett@qmw.ac.uk).

THE HISTORY OF COMBINATORICS

A one-day conference on The History of Combinatorics, for both combinatorialists and historians of mathematics, will be held at the Open University, Milton Keynes, on Thursday 21 May, starting at 10.25 am. The speakers will be Eberhard Knobloch (Berlin), Harald Gropp (Heidelberg), Ian Anderson (Glasgow), Anthony Edwards (Cambridge), Norman Biggs (London), Keith Lloyd (Southampton), David Singmaster (London) and Terry Griggs (Open University).

Further information about the meeting can be obtained from the Open University Pure Mathematics website (http://mcs.open.ac.uk/combin) or that of the British Society for the History of Mathematics (http://www.dcs.warwick.ac.uk/bshm/). There is no registration fee, but it would be helpful if those planning to attend could e-mail Dr Robin J. Wilson (r.j.wilson@open.ac.uk). The organizers are grateful to the London Mathematical Society, the British Combinatorial Committee and the British Society for the History of Mathematics for financial support.

THE HISTORY OF CRYPTOGRAPHY

The British Society for the History of Mathematics is organising a conference on 'History of Cryptography', to be held at Bletchley Park (Milton Keynes) on Saturday 20 June 1998. The speakers are: Clifford Cocks (Communications-Electronics Security Group, GCHQ) 'The invention of non-secret cryptography'; Professor Donald Davies 'Breaking Enigma with the Bombes'; Dr Whitfield Diffie (Sun Microsystems) 'Technology and cryptography in the 20th century'; Dr Jim Reeds (AT&T) 'Error detection: Mutilation Tables in early 20th-century telegraphic code books'. There will be a guided tour of the collections held at Bletchley Park, including the reconstruction of Colossus. The BSHM is grateful to the London Mathematical Society for its support of this conference.

The fee will be £27 for members of the BSHM, £32 for non-members, and £17 for students. This includes coffee, lunch (with wine) and tea. Further details on the BSHM web site (http://www.dcs.warwick.ac.uk/bshm/) and from J.V. Field, Department of History of Art, Birkbeck College, 43 Gordon Square, London WC1H 0PD (fax 0171 6316107, fax and voice messages 0171 7369198; e-mail: jv.field@hist-art.bbk.ac.uk).

JOINT MEETING WITH THE BELGIAN MATHEMATICAL SOCIETY
Preliminary Notice

A joint meeting of the London Mathematical Society and the Belgian Mathematical Society will be held at the Université Libre de Bruxelles, starting after lunch on Friday 14 May 1999, and ending by lunchtime on Sunday 16 May 1999.

There will be four themes:

- Algebraic geometry and mathematical logic
- Combinatorics and finite geometries
- Differential geometry and mathematical physics
- Stochastic mathematics

There will be two plenary lectures on Saturday morning and two on Sunday morning, with one speaker from each theme. The plenary speakers will be requested to give a survey talk, accessible to all the participants at the meeting. There will be parallel sessions on Friday and Saturday afternoons.

Special hotel rates are available (from BEF 2300 per night for a single room, BEF 2700 for a double room) in central Brussels. There are also rooms at budget prices (BEF 960 to BEF 1460 per person for two nights) in the University Sports Centre.

Further details will be announced later: meanwhile, please makes a note of the dates in your diary.

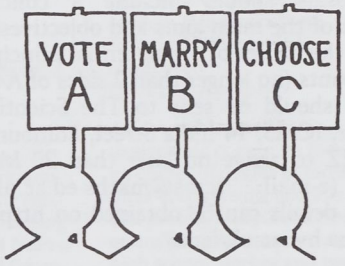
LONDON MATHEMATICAL SOCIETY
1998 POPULAR LECTURES

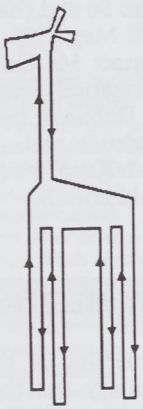
Liverpool University - Wednesday 10th June
Strathclyde University - Tuesday 16th June
Institute of Education, London University - Tuesday 23rd June

Dr Tom Körner

Marrying, Voting, Choosing

'Mathematics cannot tell us how to marry, vote or choose, but it can cast an interesting light on these problems.'





Professor Tim Pedley

Giraffe Blood Flow and Pattern-forming Bacteria

'Why is a giraffe's heart so huge, and why do swimming bacteria form patterns? Biological fluid dynamics has the answers.'

LIVERPOOL Commences at 2.30 pm, refreshments at 3.30 pm, ends at 5.00 pm. Admission is free. Enquiries to Dr I.R. Porteous, Department of Mathematical Sciences, University of Liverpool, Liverpool L69 3BX (tel: 0151 794 4066/4043, e-mail: porteous@liverpool.ac.uk).

STRATHCLYDE Commences at 2.00 pm, refreshments at 3.00 pm, ends at 4.30 pm. Admission is free. Enquiries to Professor A. McBride or Dr P. Davies, Department of Mathematics, Strathclyde University, Livingstone Tower, 26 Richmond Street, Glasgow G1 1XH (tel: 0141 548 3647/3416, e-mails: a.c.mcbride@strath.ac.uk, penny.davies@strath.ac.uk).

LONDON Commences at 7.00 pm, refreshments at 8.00 pm, ends at 9.30 pm. Admission is free, with ticket in advance. Apply by Friday 19 June to Miss S.M. Oakes, London Mathematical Society, 57-58 Russell Square, London WC1B 4HP (e-mail: lms@lms.ac.uk). A stamped addressed envelope would be appreciated.

INTERNATIONAL CENTRE FOR MATHEMATICAL SCIENCES, EDINBURGH
Call for Proposals

The ICMS Programme Committee will next meet in early July 1998. Proposals are invited for research programmes, workshops and courses on any topic in the mathematical sciences, interpreted broadly; particularly welcome are proposals of an interdisciplinary nature.

Proposals should include a concise account of the main aims and objectives as well as the names of the potential principal participants (no longer than 2 sides of A4).

They should be sent to The Scientific Director, ICMS, 14 India Street, Edinburgh EH3 6EZ to arrive no later than **20 May 1998** (e-mail: icms@maths.ed.ac.uk). Further details can be obtained on http://www.ma.hw.ac.uk/icms/.

ICM98: SPECIAL ACTIVITIES RELATED TO WOMEN IN MATHEMATICS

At the International Congress of Mathematicians, Berlin, Germany, 18-27 August 1998, there will be a series of special activities highlighting women in mathematics. These activities have been arranged in cooperation with the European Women in Mathematics (EWM), the Association for Women in Mathematics (AWM) and other groups representing women mathematicians.

- On Friday 21 August, there will be a Panel Discussion on "Events and policies: Effects on women in mathematics". The panel is being organized by the AWM, EWM and the Committee on Women and Mathematics of the European Mathematical Society. For more information, contact Bettye Anne Case (case@math.fsu.edu).
- On Friday 21 August, a film entitled "Women and mathematics across cultures" will be shown. The film briefly introduces EWM and allows four women mathematicians to share their personal experiences about the impact of cultural differences on the status of women in the profession. For more information, consult http://www. math.helsinki.fi/EWM.
- On Saturday 22 August, Cathleen Synge Morawetz, Courant Institute, New York University, will present an Emmy Noether Lecture with the title "Variations on Conservation Laws for the Wave Equation".

General information about the Congress can be found on the ICM98 www-server (http://elib.zib.de/ICM98).

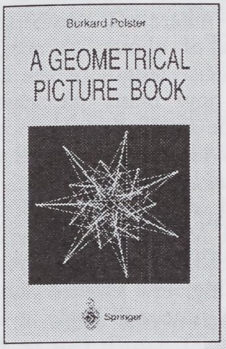
STOKES SUMMER SCHOOL

The Stokes Summer School will be held from 6-10 August 1998 at Skreen, County Sligo, Ireland. It will be a celebration at his birthplace of the many areas of physics and mathematics to which Sir George Gabriel Stokes made major contributions. The organizers are Sir Michael Berry (Bristol University) and Alastair Wood (Dublin City University). The number of participants is limited to 50 and the deadline for applications is 30 May 1998. For further information, contact Ms Carmel Morley, School of Mathematical Sciences, Dublin City University, Dublin 9, Ireland (e-mail: carmel.morley@dcu.ie; tel: +353-1-704-5293; fax: +353-1-704-5786; http://www.dcu.ie/maths/stokes.html).

JOINT MEETING

The first joint meeting of the American Mathematical Society and the Australian Mathematical Society will take place at the University of Melbourne, Australia, in the period 12-16 July 1999. The programme will include 8-10 plenary lectures by distinguished mathematicians from the US and from Australia. It will also include a number of special sessions on a wide range of mathematical topics. Further information can be obtained from the AMS Associate Secretary, Susan Friedlander at susan@math.uic.edu or from the AMS web site (http://www.ams.org/meetings/).

Geometry - plane and fancy



B. Polster

A Geometrical Picture Book

1998. Approx. 300 pp.
335 figs., 8 in color.
(Universitext)
Hardcover £ 37.50
ISBN 0-387-98437-2

Pictures is what this book is all about; original pictures of everybody's favorite geometries such as configurations, projective planes and spaces, circle planes, generalized polygons, mathematical biplanes and other designs which capture much of the beauty, construction principles, particularities, substructures and interconnections of these geometries. You will enjoy the author's very original and comprehensive guided tour of small finite geometries and geometries on surfaces which include lots of sterograms of the spatial models, games and puzzles and instructions on how to construct your own pictures and build some of the spatial models yourself.

G. Toth

Glimpses of Algebra and Geometry

1998. Approx. 335 pp.
126 figs., 18 in color.
(Undergraduate Texts in Mathematics)
Hardcover £ 39.95
ISBN 0-387-98213-2

One of the few undergraduate texts to explore the subtile and sometimes puzzling connections between Number Theory, Classical Geometry and Modern Algebra in a clear and easily understandable style. Over 160 computer generated images *accessible to readers via the World Wide Web*, facilitate an understanding of mathematical concepts and proofs even further. The text is divided into subtexts of four levels (indicated by the card symbols in Bridge) according to the readers aptitude. Highlights of GLIMPSES include dicussions of: Rationality, Elliptic Curves and Fermat's Last Theorem, Fundamental Theorem of Algebra, M buis Geometry, Hyperbolic Geometry and Riemann Surfaces, Platonic Solids, Topology of Surfaces, The Four Color Theorem and The Fourth Dimension. Material from this volume can be taught the traditional way using slides, or interactively in a computer lab or teaching facility equipped with a PC or a workstation connected to an LCD-panel.

R. Bix

Conics and Cubics

A Concrete Introduction to Algebraic Curves
1998. Approx. 300 pp.
148 figs. (Undergraduate Texts in Mathematics)
Hardcover
ISBN 0-387-98401-1

An accessible introduction to algebraic curves. Its focus on curves of degree at most three keeps results tangible and proofs transparent. Theorems follow naturally from high school algebra and two key ideas, homogeneous coordinates and intersection multiplicities. By classifying irreducible cubics over the real numbers and proving that their points form abelian groups, the book gives readers easy access to the study of elliptic curves. It includes a simple proof of Bezout's Theorem on the number of intersections of any two curves without common factors. The only prerequisite is first-year calculus.

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GRANTS FOR ATTENDING ICM98

Mathematicians from the UK who attended International Congresses have in the past often obtained grants through the Royal Society. The LMS used to supplement the Royal Society's funds to enable more grants to be made, but a new system is now in operation and that is no longer possible. Instead, Council has set aside a sum of money to be used in making grants. These will be awarded on the criteria used by the Royal Society.

Applications for LMS grants may be made by three categories of people.

(a) Those who applied for Royal Society grants but were unsuccessful may simply submit copies of their Royal Society applications.

(b) Anyone who obtained a Royal Society grant but considers it very inadequate may submit a copy of the original application together with a case for the LMS supplementing it (but applicants should realise that neither the Royal Society nor the LMS grants are likely to cover the whole cost of attending the ICM).

(c) Those who were ineligible for Royal Society grants may apply on forms obtainable from the address below.

Applications should be sent to The Administrator, The London Mathematical Society, 57-58 Russell Square, London WC1B 4HP to arrive before **11 May**. They will be considered by a Council Subcommittee and results should be known by 14 June.

J.S. Pym
Council and General Secretary

STATMECH-14

The one-day conference in Statistical Mechanics (STATMECH-14) and a satellite conference on Stochastics, Dynamics and Complexity will be held on 25-26 June in Lecture Theatre 2C (Main Building), King's College London, Strand, London WC2R 2LS. This conference will be similar in format to STATMECH-13. On Thursday 25 June there will be three invited lectures: Professor G. Parisi (Rome) (winner of the Boltzmann Medal) title to be announced; Professor A. Martin-Lof (Stockholm) "Large Deviations Entropy Estimates in Applied Probability"; Professor J. Keating (Bristol) "Random Matrix Theory and the Statistics of the Riemann Zero's". There will also be short contributed talks of about 20 minutes duration. The precise length of the talks will depend on how many participants wish to speak. The satellite conference on Friday 26 June will consist of talks of a more mathematical nature.

STATMECH-14 will begin at 10.30 and end around 17.30. Morning coffee will be available between 10.00 and 10.20 in Room 521, Strand Building. The satellite conference on Friday 26 June will begin at 9.00 and end about 16.00. Lunch can be purchased in one of the College restaurants.

If you would like to offer to give a talk at STATMECH-14 or the satellite conference please do so either via the STATMECH-14 homepage or by contacting the conference secretary (see below). The deadline for offers of talks is Friday 15 May. There is a registration fee for STATMECH-14 of £15 (reduced to £5 for students). Cheques should be made payable to 'King's College London'. There is no fee for the satellite conference. The organisers gratefully acknowledge financial support of the London Mathematical Society. For further information updates see the STATMECH-14 homepage (http://www.mth.kcl.ac.uk/~tcoolen/sm14/sm14.html).

The organiser of STATMECH-14 is A.C.C. Coolen (0171-8732235, tcoolen@mth.kcl.ac.uk), the organiser of satellite conference is R.F. Streater (0171-8732220, ray.streater@kcl.ac.uk) and the Conference Secretary is Miss R. George (0171-8732217, maths@kcl.ac.uk).

QMW PRINCIPAL

Professor Adrian Smith, currently Head of the Department of Mathematics and Professor of Statistics at Imperial College, has been appointed as Principal of Queen Mary and Westfield College with effect from 1 September 1998.

RANDOMISED ALGORITHMS AND STOCHASTIC SIMULATION

The Warwick Randomised Algorithms and Stochastic Simulation Tutorial and Workshop (WRASS) will be held on 26-30 July 1998 at the University of Warwick. This workshop builds on the growing interaction between probability/statistics and algorithmics/computer science. The workshop focuses specifically on randomised algorithms based on exact simulation of Markov chains and on randomised algorithms for contention resultion (which can be viewed as Markov chains, and for which questions of stability are fundamental). The WRASS tutorial/workshop is aimed at providing an introduction to these two areas on the interface of computer science, statistics, and probability which will enable researchers at PhD student level and above to move right to the rapidly developing edge of current research.

The tutorial will take place over Sunday 26 - Monday 27 July and will include lectures by Peter Green, David Wilson, Richard Tweedie and Leslie Goldberg. The workshop will run from Monday 27 July through Thursday 30 July and will include lectures by Martin Dyer, Guy Fayolle, Jim Fill, Alan Frieze, Peter Green, Saul Jacka, Mark Jerrum, Torgny Lindvall, Phil MacKenzie, Michael Mitzenmacher, Jesper Moller, Dan Naiman, Gareth Roberts, Richard Tweedie, Eli Upfal, Dominic Welsh, David Wilson and Henry Wynn.

The tutorial/workshop is coordinated with an immediately preceding summer school "Random Walks and Sampling Algorithms" to be given by L. Lovasz at University College London. For further details see page 16 of this Newsletter or contact Imre Leader (i.leader@ucl.ac.uk). The tutorial and workshop is supported by the EPSRC/LMS MathFIT initiative with further help from ESPRIT LTR Project 20244, ALCOM-IT and the University of Warwick Departments of Computer Science and Statistics. For further details and a registration form visit the website http://www.dcs.warwick.ac.uk/~leslie/WRASS.html, e-mail leslie@dcs.warwick.ac.uk, or write to the Secretary (WRASS registration), Department of Computer Science, University of Warwick, Coventry CV4 7AL. Because of MathFIT funding we are able to offer a limited number of bursaries to PhD students, covering accommodation and registration fee (but not travel). For details, see the website. The organisers are Leslie Goldberg, Wilfrid Kendall and Mike Paterson (Warwick).

NEEDS98

The 12th International Workshop "Nonlinear Evolution Equations and Dynamical Systems" (NEEDS) will be held at Tetley Hall in Leeds, from Sunday 21 June (arrival day) to Sunday 28 June 1998 (departure day). The previous 11 workshops of this series have taken place in Kolymbari (Crete) in 1980, 1983, 1989 and 1997; in Gallipoli (Italy) in 1985, 1991 and 1993; in Balaruc-les-Bains (France) in 1987; in Dubna (Russia) in 1990 and 1992; in Los Alamos (USA) in 1994.

The Workshop will, as usual, be interdisciplinary in character, focusing on integrable, near-integrable and non-integrable dynamical systems (nonlinear ODEs, PDEs, integral equations, maps, automata, etc.), both on their theory and on applications in classical and quantum physics (condensed matter, fluids, plasmas, elementary particles, statistical mechanics, etc.) and in other fields (oceanography, biophysics, population dynamics, etc.). The methods discussed will range from pure mathematics and numerical computations to applicable theories and experiments.

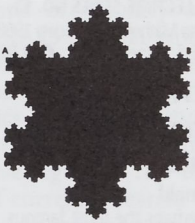
This workshop has been supported by the LMS. Full details can be found on the web page (http://www.amsta.leeds.ac.uk/events/needs98). For any enquiry you may contact the organisers: A.P. Fordy (allan@amsta.leeds.ac.uk) or A.V. Mikhailov (sashamik@amsta.leeds.ac.uk), Applied Mathematics Department, University of Leeds, Leeds, West Yorkshire LS2 9JT; fax: 44-113-242 9925.

Service Science et Technologie
AMBASSADE DE FRANCE EN GRANDE BRETAGNE

London Mathematical Society

THE SCIENTIFIC DEPARTMENT OF THE FRENCH EMBASSY
PRESENTS

A FRACTAL WORLD



The Von Koch snowflake

Travelling exhibition

- - -

with the kind support
and
in the new premises of

The Sierpinski gasket. Dimension: 1,58

THE LONDON MATHEMATICAL SOCIETY
57-58 Russell Square - London WC1B 4HP

From the 19th to 22nd May - and from 26th to 29th May 1998
Opening hours : 10 a.m. to 4.30 p.m.

- - -

The exhibition "A Fractal World" is designed to lead visitors to start out with a conventional view of the subject to the heart of what is happening in mathematics today. This path toward abstraction is facilitated by fractal images, whose beauty and fascinating character foster intuitive comprehension. Fractal images show us that apparently regular objects are not the only ones that are mathematically conceivable. While the moon brings to mind the geometrically "perfect" form of a circle, the rugged profile of a mountain chain reveals another form of regularity to us, one which is hidden in the heart of the mechanism that produces its image.

- - -

Created by Atelier EcoutezVoir / Scientific Management by Adrien Douady, Université, Paris XI, France. Presented at : Institut Français de Prague - Université, Paris-Sud à Orsay - Maison Française d'Oxford - Institut Français d'Ecosse à Edimbourg.

BOOK REVIEW

Five Golden Rules: Great Theories of 20th-Century Mathematics - and why they matter by John L. Casti. 235 pp, £9.99, ISBN 0-471-00261-5, John Wiley and Sons, 1996.

One form of Degree course, not uncommon in some Universities of the world and not only in mathematics, is to have a succession of sub-courses, each given by a whizz-kid who does not know what the previous whizz-kid did, nor what the next one will do. For the students, the whizz is lost in a sea of mere technical noises. To counter such foolishness (I speak as a parent) this book should be read by all Mathematics lecturers. Why? Because they can learn so much by observing the task which the author has set himself, and the way in which he has "solved" it.

The formal teaching of Mathematics is not the author's concern; his purpose is to bring to a wide audience a view of what is described in his sub-title. Thus, he has picked five Theorems which have become organising centres for significant theories and writes a chapter on each one. They are: Minimax and Game Theory, Brouwer's fixed point Theorem and consequences, the Morse Lemma and Singularity Theory, the Halting Theorem and the Theory of Computation, and the Simplex Method with Linear Programming. For each Main Theorem, there is an introduction through well-chosen, unhackneyed examples (like the Battle of the Bismarck Sea [Game Theory], ranking football teams [fixed points and Perron-Frobenius] and paper-folding [singularity theory]), which he attributes to various people. Then he gives a "plausible" proof of the Theorem, followed by descriptions of the later theory (some of it quite recent) that grew from it. As he remarks, each Theorem belongs to the first half of our Century, so it has had time to become influential; more recent theorems might be even greater, but they haven't been around long enough for us to tell. He admits, too, that being a Mathematical Modeller by trade, he has been influenced by the practical utility of his choices. This trade leads him to add interesting thoughts on the philosophy underlying the application of the theories, as for example his remarks on moves to non-linearity (including a non-linear treatment of Gropius's design of flats in Vienna), or on Catastrophe modelling and the associated controversies. Undoubtedly, greater representation of Pure Mathematics will be preferred by some readers, but can they justify its inclusion in a programme like the author's?

His prose style is very readable, aimed at a reader who is not necessarily technically skilled, but "sophisticated", in the sense of being able to appreciate concepts and chains of reasoning. A knowledgeable reader will see ambiguities that are invisible to others (e.g. in topological descriptions). He does not avoid writing down formulae, but there are few formal definitions. Once the reader's interest in detail has been aroused, reference is made to the Bibliography, which includes a brief guide to each text there. Indeed the material could be fleshed out into a very interesting degree course, which would have the merit of giving a coherent view of an important part of Mathematics, rather than the chimera of "what every Mathematician ought to know". And much of the material would require students to be able to find answers to meaningful problems, rather than learning theorems that mean nothing to them.

"Popular" books on Mathematics are extremely difficult to write, contrary to the dogma of some academics that have never tried the exercise. Thus while reading the material on Turing's test for deciding if a machine was "thinking", the thought occurred to me that a machine might be set the task of popularising a piece of mathematics (or even to understand the problem). The task is so difficult that it is doubtful whether any popular exposition is ever satisfactory for (or even read by) a lay audience. Personally, however, I have found several such works to be very useful organisers of my thought when I already knew most of the mathematics. For this reason I recommend this enjoyable book to readers of this Newsletter.

Brian Griffiths
Southampton University

RANDOM WALKS AND SAMPLING ALGORITHMS

LÁSZLÓ LOVÁSZ (Yale University and Eötvös University)

An EPSRC-LMS MathFIT Summer School

A series of ten lectures on random walks and some of their recent applications in mathematics and computer science will be given by Professor László Lovász, of Yale University and Eötvös University, from 20-24 July 1998 in the Department of Mathematics, University College London.

The lectures will be addressed to mathematicians and computer scientists, and will be accessible to researchers and research students in a wide range of areas such as combinatorics, probability and the theory of algorithms. The aim is to examine recent developments in the theory of random walks on graphs: while once studied for their own sake, there is now a huge range of exciting and remarkable applications to many seemingly unrelated problems in computer science. The lectures will stress the tight links that this is creating between mathematics and computer science.

To register, or for more information, contact: Dr I.B. Leader, Department of Mathematics, University College London, Gower Street, London WC1E 6BT; tel: 0171-504 2838; fax: 0171-383 5519; e-mail: i.leader@ucl.ac.uk or visit the web page (http://www.ucl.ac.uk/Mathematics/randomwalks).

Accommodation will be available in a nearby hall of residence. Some limited financial support for travel will also be available.

The Summer School is part of the MathFIT project of the Engineering and Physical Sciences Research Council and the London Mathematical Society, whose financial support is gratefully acknowledged.

The Summer School is linked with the University of Warwick MathFIT conference, the Warwick Randomised Algorithms and Stochastic Simulation Tutorial and Workshop, to be held from 26-30 July 1998, which will be of interest to many people attending the UCL lectures. For more information, visit http://www.dcs.warwick.ac.uk/~leslie/WRASS.html.

WORKSHOP ON THE HELE-SHAW PROBLEM

A workshop will be held in Oxford, from 24-26 August 1998, on the Hele-Shaw problem and related issues. Sponsorship from the London Mathematical Society and the European Journal of Applied Mathematics is gratefully acknowledged. The Hele-Shaw free boundary problem has provided continuing mathematical and physical interest for more than 50 years. It is a fascinating problem in its own right, and it is an important special case of the Stefan problem as well as occurring in other contexts such as groundwater flow, electro-chemical machining, inverse gravitational potential and solar wind modelling. The meeting is devoted to all aspects of the Hele-Shaw problem, as well as to its relationship with other areas such as Stokes flow. Topics for discussion include:

- Complex variable methods and exact solutions
- Theoretical analysis
- Regularised models: surface tension, kinetic undercooling
- Approximate methods: exponential asymptotics and selection mechanisms
- Numerical methods
- Extensions of the basic model, for example non-Newtonian flows
- Experiments
- Related problems such as free boundary problems in Stokes flow

The workshop takes place 100 years after H.S. Hele-Shaw's paper in *Nature*, after which the problem is named. Some historical material will be presented.

The following have confirmed their participation: R. Almgren, M. Ben-Amar, J.F. Blowey, S.J. Chapman, R. Craster, L.M. Cummings, J.N. Dewynne, I. Eames, V.M. Entov, J. Escher, B. Gustafsson, V. Hakim, M. Gunn, E.J. Hinch, Yu.E. Hohlov, G.M. Homsy, T.Y. Hou, C. Huntingford, E. Kelly, M. Kimura, A.C. King, J.R. King, A.M. Meirmanov, K. Kornev, A.A. Lacey, B.J. Matkowsky, A. Maxworthy, M. Mineev, H.K. Moffatt, Y. Pomeau, C. Pozrikidis, G. Prokert, M. Pugh, M. Reissig, J-F Rodrigues, L. Schwartz, H. Shapiro, M. Siegel, T.J. Singler, J-L Vazquez, J.J-L Velazquez, G. Vasconcelos, S.D.R. Wilson.

The workshop will be held in Christ Church. It will begin at 9 a.m. on Monday 24 August and end after lunch on Wednesday 26 August. Accommodation will be in single bedrooms with shared bathroom facilities and is available from Sunday 23 August. All meals will be provided, beginning with dinner on Sunday and ending with lunch on Wednesday. There will be a drinks reception in Christ Church Picture Gallery. The cost for full board and lodging as above is £225.00; there is no further registration fee. Rooms with en suite facilities may be available at an extra charge of £15.00 per night. Some accommodation may be available immediately before and after the workshop; contact the organisers for details. The organisers are Drs S.D. Howison and J.R. Ockendon (Oxford), with Professor C.M. Elliott (Sussex). Please direct all enquiries to Dr S.D. Howison, Mathematical Institute, 24-29 St. Giles, Oxford OX1 3LB (e-mail: howison@maths.ox.ac.uk, fax 01865 270515, tel: 01865 270500).

INSTITUTE FOR LEARNING AND TEACHING

You may have heard about the proposal for an Institute for Learning and Teaching (ILT), first put forward in the Dearing Report and since fleshed out in the Booth Report (which should still be available on http://www.cvcp.ac.uk/consult.html). There is now to be a second round of consultation and a final report to appear by the end of June.

Some of the proposals are reasonable enough: that every new lecturer should have some form of training and that there should be national accreditation of the training, that there should be research into teaching and learning in Higher Education and that there should be support for innovation. What is less attractive is the structure that is being proposed to handle this. There is to be a new Institute with four grades of membership. Every university

teacher will have to be a member and this will not just be a matter of initial training: everyone will be expected to devote 5-8 days per year to "continuing professional development" - which means that the ILT will cost 2% of the entire salary bill for academic staff in UK universities, even before we take into account all the costs associated with accreditation and maintaining the central bureaucracy.

The ILT is being pushed ahead very rapidly, and LMS members should make sure that every university has a full discussion of the proposals and conveys its views to the planning group. Here are two items that might inform your discussion.

1) In February, the DfEE held a press conference to mark the publication of the Dearing Report. When Baroness Blackstone was asked whether universities were not meeting the standards the public has a right to expect of them, she replied: "I don't think our universities are in any way failing ... However, there is always room for improvement". Our masters seem to be going to a great deal of expense to fix something even they think ain't broke.
2) Roger King, Vice-Chancellor of the University of Lincolnshire and Humberside and the chairman of the planning group, wrote in the THES (20 March) that as a real professional body, the ILT ought to be funded primarily from individual membership subscriptions and the sale of services. He considered the possibility that there should be institutional subscriptions, but came down against this on the grounds that "further mandatory raids on declining funds in colleges and universities to help pay for the ILT will not curry favour". It does not seem to have occurred to him that there could be any objection to mandatory raids on the declining funds of staff in colleges and universities to help pay for the ILT.

Peter Saunders
King's College, London

J. von Neumann
Honorary Member 1952

DIARY

The diary lists Society meetings and other events publicized in previous issues of the Newsletter. For further information, refer to the figure in brackets, which is a cross reference to the LMS Newsletter number.

MAY 1998

8 Edinburgh Mathematical Society Meeting, Aberdeen University (252)

20 One-day Combinatorics Colloquium, Reading University (259)

21-23 Groups in Galway '98, Galway (258)

22-23 London Mathematical Society and Irish Mathematical Society Joint Meeting on Complex Analysis and Dynamical Systems, London

25-26 North British Functional Analysis Seminar, Edinburgh University (259)

JUNE 1998

4-10 Advances in Homotopy Theory Euroconference (BCAT), Barcelona, Spain (257)

5 Edinburgh Mathematical Society Meeting, St Andrews University (252)

7-19 Arithmetic and Geometry of Algebraic Cycles NATO ASI, Alberta, Canada (255)

16-17 Numerical Analysis and Computers: 50 Years of Progress, Manchester University (259)

21-27 Astrophysical Discs, EC Summer School, Isaac Newton Institute, Cambridge (258)

22-26 Groups of Finite Morley Rank Conference, Greece (255)

22-26 Positivity in Applications Meeting, Ankara, Turkey (256)

22-27 European Consortium for Mathematics in Industry (ECMI 98), Göteborg, Sweden (252)

JULY 1998

2-3 European Women in Mathematics Workshop on Moduli Spaces in Mathematics & Physics, Oxford (256)(257)

3-6 Teaching of Mathematics Conference, Samos, Greece (257)

5-9 Mathematics Colloquium, Victoria University of Wellington, New Zealand (254)

13-24 Symplectic Topology Workshop, Warwick University (255)

19-25 Galois Representations in Arithmetic Geometry Meeting, Crete (256)

20-24 Dimensions and Dynamics Conference, Miskolc, Hungary (254)

20-24 Domain Decomposition Methods Conference, Greenwich University (254)

23-31 Computation and Geometric Aspects of Modern Algebra, ICMS Worshop, Heriot-Watt University (258) (259)

27-7 Aug Nonlinear Analysis, Differential Equations and Control Seminar, Montreal, Canada (254)

AUGUST 1998

13-16 Commutative Algebra Conference in Honour of David Rees's 80th Birthday, University of Exeter (257)

18-28 International Congress of Mathematicians, Berlin, Germany (238) (242) (253)

27-31 Discrete Groups and Conformal Geometry Conference, Malardalen University, Sweden (259)

30-5 Sept Algebraic Number Theory and Diophantine Analysis Conference, Graz, Austria (249)

31-5 Sept Representation Theory of Algebras, University of Bielefeld, Germany (258)

SEPTEMBER 1998

6-11 British Association for the Advancement of Science Festival, Cardiff (257)

7-11 Infinite Length Modules, University of Bielefeld, Germany (258)

10-11 Meeting to Mark the Retirement of Geoffrey Horrocks, Newcastle upon Tyne University (259)

14 Physical Interpretations of Relativity Theory, Imperial College London (258)

OCTOBER 1998

16-17 Two-day London Mathematical Society Meeting - Harmonic Analysis

NOVEMBER 1998

20 London Mathematical Society Meeting - Annual General Meeting

DECEMBER 1998

16-22 Symmetry and Perturbation Theory Workshop, Rome, Italy (258)

JULY 1999

5-9 International Congress of Industrial and Applied Mathematics (ICIAM 99), Edinburgh (252)

12-16 British Combinatorial Conference, Kent University (254)

JULY 2000

17-22 International Congress of Mathematical Physics, Imperial College, London (257)

The Newsletter is published monthly except in August. Items and advertisements for inclusion in the Newsletter should be sent to the Editor, Susan Oakes, by e-mail, fax or post to the LMS office (addresses below), to arrive before the first day of the month prior to publication.

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