

# THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

**No.158**

**February 1989**

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## **FORTHCOMING SOCIETY MEETINGS**

**Friday 17 February 1989, Warwick**  
**M. Pollicott, J.-C. Yoccoz**

**Friday 17 March 1989, Scientific Societies Lecture Theatre**

**Thursday, Friday 18-19 May 1989, Liverpool**  
**Representations of Algebras**

**Friday 16 June 1989, Burlington House**  
**Friday 20 October 1989, Burlington House**  
**Friday 17 November 1989, Royal Society**

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## **COUNCIL RETREAT 1989**

Over the weekend of 12th to 14th May 1989, the Council of the Society will be holding an extended meeting at the Isle of Thorns, which will be given over to examining the long-term aims of the Society and the means of attaining them.

The views of the members of the Society are an important part of the information which ought to be available to them in undertaking this review of the Society's activities.

If you have thoughts on directions in which the Society ought to be moving, suggestions of activities in which it ought to be involved, or comments on the way in which the Society operates, please write to the President, Professor J.H. Coates, FRS, Department of Pure Mathematics, 16 Mill Lane, Cambridge CB2 1SB, preferably to arrive before 31st March 1989.

## **GRANTS IN SUPPORT OF PUBLIC UNDERSTANDING OF SCIENCE**

Grants are available for new or continuing activities or initiatives directly concerned with the promotion of the public understanding of science (including mathematics, technology and engineering). Applications should be made as soon as possible on forms obtainable from the Executive Secretary (Ref: CMW), The Royal Society, 6 Carlton House Terrace, London, SW1Y 5AG. Tel: 01-839 5561, ext. 247.

Applicants will be asked to show clearly how their proposal relates to the public understanding of science, to submit a statement of the financial basis of their proposal, to specify any related schemes in the area of the public understanding of science of which they are aware and to give an

assurance that the grant applied for is not for an activity in direct competition or conflict with existing schemes. Successful applicants will be required to submit a brief written report after the event on how the grant has been used.

All applicants must be resident in the UK. The maximum sum available for an individual grant is £2500 and allocations will often be less than this amount. The closing date for applications are 31st March and 31st October each year: late applications will be considered at the next round.

The Council of the Royal Society is advised on suitable recipients for grants by the Committee on the Public Understanding of Science (COPUS).

## **1988 AWARDS**

Amongst the awards under the above scheme made in 1988 was a grant of £2000 to Professor R. Brown, Department of Pure Mathematics, University of North Wales, to establish a touring exhibition entitled 'Mathematics and knots' which will aim to

present real mathematical ideas in a pictorially attractive and comprehensible form, to explain some of the major methods of mathematics and to present mathematics in a cultural and historical context.

# LONDON MATHEMATICAL SOCIETY

## PUBLICATIONS PERSONNEL – 1989

PUBLICATIONS SECRETARY	D.A. Brannan (1986-).
PUBLICATIONS COMMITTEE	D.A. Brannan (Convenor), E.C. Lance, J.C. McConnell, I.N. Baker, G. James, W.D. Evans, J. Wiegold, D.A. Rand, N.H. Bingham, E.B. Davies, E. Rees.
PROCEEDINGS EDITORS	W.D. Evans, J. Wiegold (1986-91); A.C. Sharp (Executive Editor, 1974-).
JOURNAL EDITORS	I.N. Baker, G. James (1989-93); E. Philpott-Kent (Executive Editor, 1980-).
BULLETIN EDITORS	E.C. Lance, J.C. McConnell (1985-89); M.M. Lance (Executive Editor, 1985-).
NONLINEARITY EDITORS	D.A. Rand (L.M.S.) & J.D. Gibbon (IOPPL) (1988-92).
MONOGRAPHS EDITORS	P.M. Cohn (1980-89), H.G. Dales (1988-92).
MONOGRAPHS ADVISERS	G. Mislin, S.J. Patterson, G. Pisier, C. Procesi, T.A. Springer.
LECTURE NOTES EDITOR	J.W.S. Cassels (1983-92).
STUDENT TEXTS EDITOR	E.B. Davies (1983-92).
STUDENT TEXTS ADVISERS	E. Rees, P. Coleman, C. Series, J.L. Alperin, P.J. Cameron, K. Hannabus.
NEWSLETTER EDITOR	S.M. Oakes.
BOOK REVIEWS EDITOR	N.H. Bingham (1982-90).
OBITUARIES EDITOR	J.V. Armitage (1973-92).
RUSSIAN MATHEMATICAL SURVEYS EDITOR	E.J.F. Primrose (1980-91).
TRANSACTIONS OF THE MOSCOW MATHEMATICAL SOCIETY	L.W. Longdon (LMS) (1973-); joint editor.
U.K. PERIODICALS' BACKLOG	W.D. Evans, J. Wiegold (1987-91).
LMS PUBLISHING LTD. BOARD OF DIRECTORS	J.H. Coates (Chairman), C.J. Mulvey, J.D.M. Wright (Treasurer), D.A. Brannan (Secretary; Publications Manager).
LMS PUBLISHING LTD. ADMINISTRATOR	S.M. Oakes.

D.A. Brannan, Publications Secretary.

*We wish to purchase runs and odd Nos of: Sphinx, Revue Mensuelle des Questions Recreatives, Bruxelles, 1931-39 Journal of Recreational Mathematics, 1968-. Recreational Mathematics Magazine, 1961-64, Sphinx-Oedipe, Nancy, 1906-1932. Mathematical Pie, 1950-. All books published in the series "Librairie du Sphinx" Bruxelles, Rouse-Ball, W.W. "Mathematical Recreations and Essays" all editions from the first (1891) to 11th (1939). Also mathematical books of all kinds from very elementary to advanced texts. Also biographies of mathematicians and physicists.*

*We also sell books in this field, indeed, we specialise in mathematics and will be pleased to receive your list of books wanted and to send you our current catalogue sent post free on request.*

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Tel: 01-699-3225



# **LONDON MATHEMATICAL SOCIETY**

**M. Pollicott (Porto)**

Reidemeister torsion, the Parry-Sullivan invariant  
and a problem of Fried

**J.-C. Yoccoz (Paris-Sud)**

Siegel disks for quadratic polynomials

**FRIDAY 17 FEBRUARY 1989**

**at 3.00 p.m.**

**The meeting will be held in  
Lecture Theatre ELT1 which is adjacent to the  
Mathematics Institute at Gibbet Hill  
UNIVERSITY OF WARWICK**

All interested are very welcome  
Tea will be served at 4.00 p.m. in the  
Mathematics Institute Common Room

**PLEASE NOTE EARLY START AT 3.00 pm  
AND VENUE**

## BRITISH MATHEMATICAL COLLOQUIUM

The 41st British Mathematical Colloquium will be held at the University of Nottingham, 3rd to 7th April 1989. The Organising Committee would like to remind you that the closing date for applications is 3rd March 1989.

Further particulars may be obtained from the Colloquium Secretary, Dr D.L. Johnson, Department of Mathematics, University of Nottingham, University Park, Nottingham NG7 2RD.

## L.M.S. PUBLICATIONS

### **The Theory of Evolution and Dynamical Systems by J. Hofbauer and K. Sigmund**

This textbook is an introduction to dynamical systems theory and its applications to evolutionary game theory, mathematical ecology, prebiotic evolution and population genetics. It has been translated from the German by the authors who have taken the opportunity to update and revise it considerably. The book's main aim is to develop the qualitative theory of differential equations by means of examples arising in evolutionary biology. Topics covered include the Lotka-Volterra equations for ecological models, genetic evolution, hyper-cycles, aspects of sociobiology, and mutation and recombination. There are numerous examples and exercises throughout and the reader is led up to some of the most recent developments in the field.

Thus the book will make an ideal introduction to biomathematics for graduate students in mathematics and biology whilst research workers in evolutionary theory will find much of interest here in the application of powerful mathematical techniques to the subject.

LMS Student Texts Series No.7. LMS members' discount price, hard cover £26.25, paperback £8.96.

### **Nonstandard Analysis and its Applications edited by N. Cutland**

This textbook is an introduction to nonstandard (or infinitesimal) analysis and to some of its many applications. Non standard analysis (NSA) is currently an active field of research, both in its own right and as a valuable tool in areas such as topology, probability, functional analysis and mathematical physics.

The book arises from a conference held in July 1986 at the University of Hull, designed to provide both an introduction to NSA through courses of introductory lectures and a survey of the present state of research. The first part of the book is devoted to the introductory lectures on applications; the second part consists of contributions by experts covering recent applications of NSA. Also included is an introduction to Internal Set Theory and syntactical methods in NSA.

Although multi-authored, the book has been designed as a coherent textbook with standard notation; it will consequently be ideal for graduate students and research mathematicians coming to the subject for the first time, wishing to see both a clear exposition of the basic theory of NSA and

the way it is utilised in current research.

LMS Student Texts Series No.10. LMS members' discount price, hard cover £20.63, paperback £7.46.

### **Undergraduate Algebraic Geometry by M. Reid**

Algebraic geometry is the study of locuses defined by polynomial equations; it occupies a central position in mathematics and in modern applications to mathematical physics. This clear and concise introduction to algebraic geometry will be ideal for all undergraduate mathematicians coming to the subject for the first time.

With the minimum of prerequisites, Dr Reid introduces the reader to the basic concepts of algebraic geometry, including: plane conics, cubics and the group law, affine and projective varieties, and non-singularity and dimension. He is at pains to stress the connections which the subject has with commutative algebra as well as its relation to topology, differential geometry, and number theory. The book arises from an undergraduate course given at the University of Warwick and contains numerous examples and exercises illustrating the theory.

LMS Student Texts Series No.12. LMS members' discount price, hard cover £15.00, paperback £5.63.

### **Operator Algebras and Applications. Volume 1: Structure Theory, K-Theory, Geometry and Topology. Volume 2: Mathematical Physics and Subfactors by D.E. Evans and M. Takesaki.**

These two volumes consist of papers and articles that arose from an international symposium, spread through an academic year, held at the University of Warwick.

The volumes explore operator algebras, their applications and their connections with topology, geometry, mathematical physics and topological dynamics. Papers have both research and expository aspects, and the volumes will be essential to all those interested in this field.

LMS Lecture Note Series No.135 and No.136. LMS members' discount price (each volume) £13.13.

These books have recently been published and are available from Cambridge University Press, Customer Services, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU. Payment should be sent with your order quoting Account Number 089 4900 001.



### IDA W. BUSBRIDGE

Dr Ida Winifred Busbridge, one of the pioneers of teaching mathematics to women undergraduates at Oxford University, died on 27th December 1988.

Dr Busbridge was elected a member of the London Mathematical Society on 14th December 1933.

### MELVILLE R. HOPKINS

Dr Melville R. Hopkins, who was elected a member of the London Mathematical Society on

20th June 1946 died on the 13th December 1988.

### MATHEMATICAL PHYSICS GROUP

The Mathematical Physics Group of the Institute of Physics will be holding their Annual Reviews Meeting on the afternoon of Monday 10th April 1989 at Imperial College, London. There will be five talks at the meeting, and the programme will be: Mathematical models of high- $T_c$  superconductors, M. Long (Bath), J.D. Jackson (Oxford);

Quantum groups, A.J. Macfarlane (Cambridge); Braid groups in statistical mechanics, P.P. Martin (Birmingham); Quantum gravity, J.B. Hartle (UCSB) to be confirmed.

For further details, write to Dr K.P. Tod, Mathematical Institute, 24-29 St Giles, Oxford OX1 3LB.

### OPERATOR ALGEBRA WORKSHOP

An informal workshop on recent progress in non-self-adjoint operator algebras will be held at the University of Lancaster on the 12th and 13th April 1989, with partial financial support from the London Mathematical Society. The principal speakers include Professor K.R. Davidson

(Waterloo), Professor R.E. Mercer (Wright State University), Dr J.L. Orr (Lancaster) and Dr S.C. Power (Lancaster). Interested participants should write to Dr S.C. Power, Department of Mathematics, University of Lancaster, LA1 4YL, England, Tel. (0524) 65201 Ext. 4425.

### ROYAL SOCIETY MICHAEL FARADAY LECTURE

The Royal Society Michael Faraday Lecture on 'The Dynamics of Darwinian Evolution' will be given by Professor E.C. Zeeman, FRS, Principal of Hertford College, Oxford, and immediate Past President of the LMS, on Tuesday 14th February 1989 at 5.30pm at the Royal Society, 6 Carlton House Terrace, London. All are welcome to attend

and admission is free, but tickets will not be issued and seats cannot be guaranteed. The lecture is given by the winner of the Michael Faraday Award, given annually by the Council of the Royal Society to encourage scientists to promote the public understanding of science.

### MICHEL LAZARD

The family of the late Professor Michel Lazard of the University of Paris wishes to dispose of his collection of mathematics books and papers. This consists of a wide variety of topics in Pure Mathematics, in English, French, German and Russian.

Enquiries may be made to M. Francois Lazard, 5 Rue Fourier, Paris 75013, France, or to Mrs K.M. Gruenberg, 85 Grantchester Meadows, Cambridge, CB3 9JN U.K.

# **UNIVERSITY OF EDINBURGH**

## **DEPARTMENT OF MATHEMATICS**

### **Lectureship in Mathematics**

Applications are invited for a LECTURESHIP IN MATHEMATICS in the above Department. The appointment will commence on 1st October 1989 or at a date to be decided between the Department and the successful candidate.

This position is to replace a Lecturer in Global Analysis and the Department would prefer to appoint someone with interests in this broad area who could interact fruitfully with one or more of its existing research groups. However, strong candidates in any area of pure mathematics will be seriously considered. Recent appointments have been made in the following areas: pure and applied dynamical systems, geometry and stochastic analysis.

It might be possible in appropriate cases to arrange that the individual has a reduced load in the initial years to enable him to consolidate his research.

Applications (7 copies), including curriculum vitae and the names and addresses of three referees should be lodged with the Secretary to the University, University of Edinburgh, Old College, South Bridge, Edinburgh EH8 9YL, not later than 16th February 1989, except later applications from overseas, which may be considered. Only one copy of the application need be supplied by overseas candidates.

**Please quote the reference number 1405.**

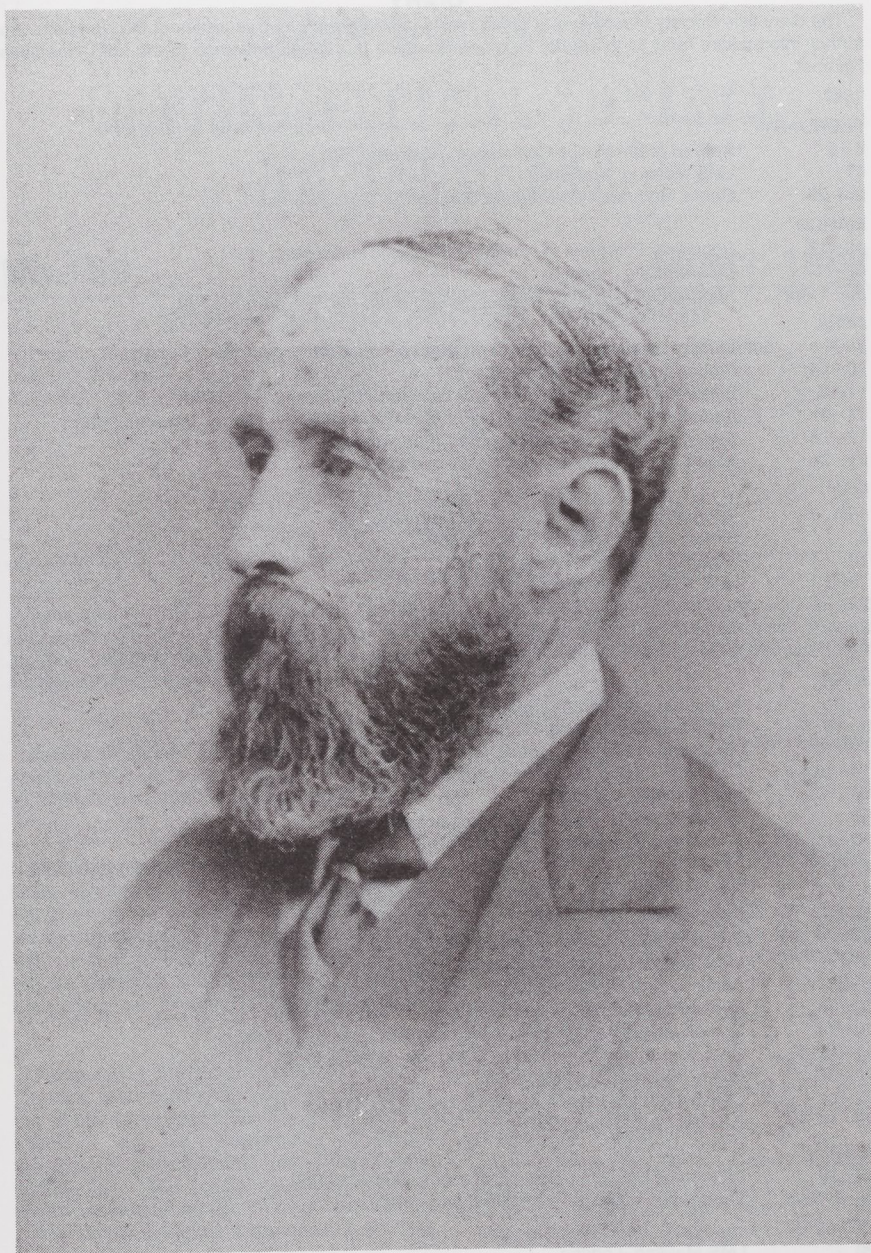
## **ROYAL SOCIETY**

### **University**

### **Research Fellowships**

The Royal Society invites applications for about 30 Fellowships in science, including mathematics, tenable from 1 October 1989 for up to 5 years, with the possibility of renewal for up to another 5 years. Applicants must be aged between 26 and 33, have a PhD or the equivalent and be a British Citizen (of the UK). The Fellowship must be held in a UK university or polytechnic. The closing date for applications is 13 February 1989 (no applications received after 4 p.m. on that date will be considered). Application forms and further details can be obtained from Ms U.M.A. Maunsell, The Royal Society, 6 Carlton House Terrace, London SW1Y 5AG.





John James Walker (1825-1900) came from an Irish mathematical family and graduated well from Trinity College, Dublin, in 1849. For fifteen years he worked as a private tutor before coming to London and teaching at University College School, where he remained until his retirement in 1888. His enthusiasm was for applied mathematics, which he believed was the source of much progress made by pure mathematics. Elected an FRS in 1883, he was the Society's thirteenth President, from 1888-1890.



## DIARY

The diary lists Society meetings and other events publicised 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.

### 1989

#### FEBRUARY

- 5-9 Applied Mathematics Conference, Australia (155)
- 17 LMS Meeting, Warwick.
- 24-25 Galois Modules, Manchester (157)

#### MARCH

- 13-17 Regularity Problems in Nonlinear Elasticity, Heriot-Watt (157)
- 17 LMS Meeting, London
- 30-1 Apr Approximation Theory and Numerical Linear Algebra, U.S.A. (155)

#### APRIL

- 3-7 British Mathematical Colloquium, Nottingham (156)
- 10-14 Probability Theory, Edinburgh (157)
- 11-13 British Colloquium for Theoretical Computer Science, Surrey (156)
- 17-21 Algebraic and Analytic Geometry Aspects of Singularity Theory, Warwick (153)
- 17-28 Hyperbolic Geometry and Ergodic Theory, Italy (152)
- 21-22 Atiyah's 60th Birthday Meeting, Oxford (155)

#### MAY

- 1-31 Geometry of Loop Spaces, West Germany (156)
- 6 History of Mathematics, Bristol (156)
- 12-13 Groups in Galway, Ireland (157)
- 18-19 LMS Meeting, Liverpool
- 22-25 Dublin Differential Equation, Ireland (156)
- 23-27 Computing and Information, Canada (153)
- 31-2 Jun Blow-up and Extinction for Parabolic and other Systems, Heriot-Watt (157)

#### JUNE

- 5-9 Mathematical Analysis, Spain (157)
- 8-16 Probability Conference, Singapore (155)
- 12-17 Geometry of Banach Spaces, Austria (154)
- 14-16 Nonlinear Control Systems Design, Italy (150)
- 16 LMS Meeting, London
- 30 LMS Evening of Popular Lectures, London
- 30-11 Jul L-functions in Arithmetic, Durham (156)

#### JULY

- 2-7 Gregynog Symposium on Differential Equations (156)
- 3-7 British Combinatorial Conference, East Anglia (146)
- 3-7 Annual Meeting of the Australian Mathematical Society, Australia (157)
- 3-7 International Category Theory, Bangor (157)
- 3-21 Séminaire de Mathématiques Supérieures, Canada (156) (157)
- 10-14 Dynamics, Bifurcations and Singularity Theory, Warwick (153)
- 10-14 Combinatorial Mathematics and Computing, Australia (152)
- 11-21 Geometry of Low-dimensional Manifolds, Durham (156)
- 21-31 Image analysis, Durham (156)
- 27-29 Cauchy and the French Mathematical World, France (152)
- 29-12 Aug Groups, St Andrews (156)

#### AUGUST

- 13-19 Differential Equations and Applications, Bulgaria (148)
- 28-8 Sept Variational Problems in Analysis, Italy (152)

#### OCTOBER

- 20 LMS Meeting, London

#### NOVEMBER

- 17 LMS Meeting, London

The Newsletter is published monthly except in August. Items and advertisements for inclusion in the Newsletter should be sent to the Editor, Susan Oakes, London Mathematical Society, Burlington House, Piccadilly, London W1V 0NL (telephone 01-437 5377, fax 01-439 4629), to arrive before the first day of the month prior to publication.