

# THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

No.149

April 1988

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) to arrive before the first day of the month prior to publication.

## FORTHCOMING SOCIETY MEETINGS

Thursday, Friday 19-20 May 1988, Cardiff

Friday 17 June 1988, Burlington House

Friday 21 October 1988, Burlington House

Friday 18 November 1988, Royal Society

## REPRESENTATION THEORY OF GROUPS AND RELATED TOPICS

An international conference on Representation Theory of Groups and Related Topics will be held at UMIST, Manchester from 10th to 16th July 1988.

The provisional timetable of main lectures is Monday 11th: J.F. Carlson, G.D. James, J.L. Alperin; Tuesday 12th: A. Turull, G.R. Robinson, E.C. Dade; Wednesday 13th: J.C. Jantzen, J.G. Thompson; Thursday 14th: P.J. Webb, B. Külshammer, M. Broué; Friday 15th: D. Benson, L.L. Scott, R.W. Carter.

The conference is organised by the Mathematics

Departments of Manchester University and UMIST. It will be held on the UMIST campus, which is close to the city centre and Manchester Piccadilly railway station. The conference dinner will be held on the Thursday evening and excursions will be arranged for Wednesday afternoon.

Enquiries should be addressed to RTGRT, Department of Mathematics, UMIST, PO Box 88, Manchester M60 1QD, England. Telephone 061-236-311 ext 2278.

## BRITISH TOPOLOGY MEETING

The next British Topology Meeting will be held in Manchester on Wednesday 21st and Thursday 22nd September 1988. The meeting will begin at 2.00 p.m. and end during the afternoon on the second day; this should allow most people to travel on the days of the conference only, and thus reduce accommodation costs.

The programme will consist of short talks (approximately 40 minutes) mainly on the research of British Topologists, and it is planned to have

a discussion and problem session. It is hoped that the proceedings will be kept as informal as possible and the organiser would be grateful for offers to speak.

Further information may be obtained from Dr A. Baker (Topology Meeting), Department of Mathematics, Manchester University, Manchester M13 9PL.

The meeting is receiving financial support from the London Mathematical Society.

## COMBINATORICS COLLOQUIUM

There will be a one-day Combinatorics Colloquium at Reading University on Wednesday 27th April 1988, from 10.15 am to 5.15 pm. It is expected that there will be about 10 speakers.

The following have so far accepted an invitation to speak: Professor P. Cameron (Queen Mary College), Dr R. Hill (Salford), Mr H.R.F. Hind (Cam-

bridge), Dr J.W.P. Hirschfeld (Sussex), Dr D. Singmaster (Polytechnic of the South Bank), Dr R. Whitty (Goldsmiths') and Dr D.R. Woodall (Nottingham). All are welcome to attend.

The meeting is receiving financial support from the London Mathematical Society.

## NUMERICAL ANALYSIS

The 20th French annual meeting on Numerical Analysis will be held from 16th to 20th May 1988 at Evian, France by Lake Geneva.

Invited speakers are J.M. Ball (Heriot-Watt), R. Glowinski (Houston), J.-L. Lions (Paris), J.-F. Maitre (Lyon), H. Morand (Evry), R. Peyret (Nice), M. Porchet (Lausanne) and P. Sablonniere

(Rennes).

For further information and registration write to F. Murat & O. Pironneau, Laboratoire d'Analyse Numérique, Université Pierre et Marie Curie, Tour 55-65, 5<sup>ème</sup> étage, 4 place Jussieu, 75252 Paris Cedex 05, France. Telephone ((33)) (1) 43 36 25 25 ext 4298.

## ALEXANDER D. IOFFE

Alexander D. Ioffe received permission to emigrate from the Soviet Union and emigrated on 24th

January to Israel. Ioffe is a member of the London Mathematical Society.

## LOGIC AND COMPUTER SCIENCE

The Session, sponsored by the Consiglio Nazionale delle Ricerche and the Ministero della Pubblica Istruzione, will take place under the scientific direction of Professor Piergiorgio Odifreddi (Università di Torino) at Villa "La Querceta", Montecatini Terme, Pistoia, Italy from 20th to 28th June 1988.

The course comprises of 6 lectures in each of the following: Overview of Computational Complexity Theory by Professor Juris Hartmanis (Cornell University, Ithaca), Non-Traditional Logics for Computation by Professor Anil Nerode (Cornell

University, Ithaca), Program Verification by Professor Richard Platek (Odyssey Research Association, Ithaca), Logic and Computer Science by Professor Gerald Sacks (Harvard University, Cambridge) and Type Theory and Functional Programming by Professor Andre Scedrov (University of Pennsylvania, Philadelphia).

Those who wish to attend should apply by 30th April to the Director, Fondazione C.I.M.E., c/o Istituto Matematico, "U. Dini", Viale Morgagni 67/A, 50144 Firenze, Italy.

## GLOBAL GEOMETRY AND MATHEMATICAL PHYSICS

The Session, sponsored by the Consiglio Nazionale delle Ricerche and the Ministero della Pubblica Istruzione, will take place under the scientific direction of Professor Mauro Francaviglia (Università di Torino) and Professor Francesco Gherardelli (Università di Firenze) at Villa "La Querceta", Montecatini Terme, Pistoia, Italy from 4th to 12th July 1988.

The course comprises of 6 lectures in each of the following: String Theory and Riemann Surfaces by Professor L. Alvarez-Gaume (University of Bos-

ton, Massachusetts), Riemann Surfaces and Infinite Grassmannians by Professor E. Arbarello (University of Rome, Rome), The Topology and Geometry of Moduli Spaces by Professor N.J. Hitchin (Oxford University, Oxford), and Differential Algebras in Field Theory by Professor R. Stora (LAPP, Annecy-le-Vieux, France).

Those who wish to attend should apply by 30th April to the Director, Fondazione C.I.M.E., c/o Istituto Matematico, "U. Dini", Viale Morgagni 67/A, 50144 Firenze, Italy.

## DYNAMICS OF NUMERICS AND NUMERICS OF DYNAMICS

There has been a great deal of interest recently in the interaction between numerical mathematics and the theory of dynamical systems. It comprises both the use of numerical algorithms to help understand dynamical systems and the application of dynamical systems to investigate numerical methods.

Much benefit can be obtained from closer links between these two fields. In an aim to foster this interaction a one-day meeting is being organised in Cambridge on Wednesday, 4th May 1988. Leading researchers in both disciplines have agreed to present half-hour talks, including: A.R. Mitchell (Dundee); J. Norbury (Oxford); D. Rand (Warwick) provisional; C.M. Sanz-Serna (Valladolid); A. Spence (Bath) provisional; I. Stewart (Warwick).

The meeting will be of an informal format, allowing for an unhindered exchange of ideas, and it will

include a discussion session.

The meeting will be held in Room 7, Mill Lane Lecture Rooms (opposite the Department of Pure Mathematics and Mathematical Statistics, Mill Lane, off Trumpington Road), Cambridge. It will commence at 10.15 a.m.

There are no registration fees. Although nobody will be turned back, the organisers would welcome notification of intended participation. Further information can be obtained by calling the organisers Chris Budd (0865)-273878 and Arie Iserles (0223)-337891 or by electronic mail, via BUDD at UK.AC.OXFORD.VAX.

The meeting is receiving financial support from the London Mathematical Society and the Numerical Analysis Group at DAMPT, Cambridge.



# LMS MAY MEETING

## THURSDAY-FRIDAY 19-20 MAY 1988

### UNIVERSITY COLLEGE CARDIFF

## NUMBER THEORY

Thursday 19 May.

- |           |                         |  |
|-----------|-------------------------|--|
| 2.15 p.m. | Opening Session         |  |
| 2.30 p.m. | Professor R.C. Vaughan: | Waring's problem and sums of $k$ th powers.          |
| 3.30 p.m. | Tea                     |  |
| 4.00 p.m. | Professor H. Cohen:     | $q$ -identities for Maass waveforms.                 |
| 5.00 p.m. | Dr D.R. Heath-Brown:    | The fractional moments of the Riemann zeta-function. |

Friday 20 May

- |            |                            |                                      |
|------------|----------------------------|--------------------------------------|
| 9.30 a.m.  | Professor H.L. Montgomery: | The asymptotics of partitions        |
| 10.30 a.m. | Coffee                     |                                      |
| 11.00 a.m. | Professor N.M. Katz:       | (Title to be announced)              |
| 12 noon    | Professor G. Tenenbaum:    | Hooley's $\Delta$ -function – Survey |

The lectures will be held in Room G03 of the Mathematics Institute, Senghennydd Road, Cardiff. All interested are very welcome.

A dinner will be held in the Staff Dining Club, University College, Cardiff, on the evening of Thursday, 19th May at 7.30 for 8.00 p.m. Those wishing to attend should inform Dr G.R.H. Greaves, Department of Pure Mathematics, University College, Cardiff, P.O. Box 78, Cardiff CF1 1XL, enclosing a cheque for £15 per person, payable to University College, Cardiff, to arrive by 29th April. No bookings can be made after that date.

A list of some of the hotels in Cardiff with approximate prices and estimated distances from the Mathematics Institute can be obtained from Dr G.R.H. Greaves at the above address. Participants will be expected to contact the hotels directly for reservations.

# ANNOUNCING

## Volume 1 • 1988

### Journal of the American Mathematical Society

#### Editors

Michael Artin  
H. Blaine Lawson, Jr.  
Richard Melrose  
Wilfried Schmid  
Robert E. Tarjan

The new Journal of the American Mathematical Society will be published quarterly beginning in January 1988. It will contain research articles of the highest quality in all areas of pure and applied mathematics. Selected articles scheduled to appear in Volume 1 include: *Homology of the zero set of a unipotent vector field on a flag manifold* by C. De Concini, G. Lusztig, and C. Procesi; *Reduced Hausdorff dimension and the concentration-cancellation law for 2-dimensional incompressible flows* by Ronald J. DiPerna and Andrew Majda; *Extremals for the Sobolev inequality on the Heisenberg group and the CR Yamabe problem* by David Jerison and John M. Lee; *p-adic Hodge theory* by G. Faltings; *Flip theorem and the existence of minimal models for 3-folds* by Shigefumi Mori; *Zero-one laws for sparse random matrices* by Saharon Shelah and Joel Spencer; and *Arithmeticity of holonomy groups of Lie foliations* by Robert J. Zimmer.

ISSN 0894-0347

Quarterly, Volume 1, 1988

1988 subscription price:

List \$100\*

Institutional Member \$80\*

Individual Member \$60\*

Order code: 88JAMS/L



\* Add for postage: Surface delivery to destinations outside the U.S. and India — \$8; to India — \$18; Expedited delivery to destinations in North America — \$12; elsewhere — \$15.

Note: Subscriptions to AMS journals are sold only on a calendar year basis (January–December). Split year and multiple years subscription orders are not accepted. Subscription cancellations from nonmembers will not be accepted after March 1 of the subscription year. Cancellation refunds are computed by deducting an \$8 cancellation fee, and the price of each issue already shipped, from the price paid.

**TO ORDER:** Prepayment required in U.S. funds.

Mail to: American Mathematical Society, Annex Station,  
P.O. Box 1571, Providence, Rhode Island, 02901-9930 USA



## ISRAEL N. HERSTEIN

Professor Israel N. Herstein who was elected a member of the London Mathematical Society on

16th April 1982 died on 9th February 1988.

## KURT MAHLER

Professor Kurt Mahler, FRS, who was elected a member of the London Mathematical Society on 30th January 1938 died on 25th February 1988. In

1950 he was awarded the Berwick Prize and in 1971 the De Morgan Medal.

## CHARLES L. KISH

Mr Charles L. Kish who was elected a member of the London Mathematical Society on 17th Jan-

uary 1975 died on 24th April 1987.

## AUSTRALIAN BICENTENNIAL CELEBRATIONS

As part of the Australian Bicentennial Celebrations, a National Mathematical Sciences Congress will be held at the Australian National University, Canberra, 16th to 20th May 1988. On the evening of Wednesday 18th May the London Mathematical Society will hold a reception for attending members and their guests.

Members of the Society who will be attending the Congress and would like to attend the LMS reception should write to Professor R.W. Richardson, Department of Mathematics, The Australian National University, GPO Box 4, Canberra, A.C.T. 2601 for further information.

## THE INSTITUTE OF MATHEMATICS AND ITS APPLICATIONS

The following conferences and symposia of the IMA are being held in 1988: Applications of Statistics in Medicine, University College Cardiff, 11th-12th April; Recent Developments in Applicable Mathematics, Dundee, 3rd May; Workshop - Parallel Processors/Desktop Top Supercomputers, Downing College, Cambridge, July; Applications of Matrix Theory, University of Bradford, 5th-8th July; Inverse Problems and Imaging Associated with Pattern Recognition, University of Strathclyde, 11th-13th July; Mathematical Structures for Software Engineering, Manchester Polytechnic, 13th-15th July; Mathematics - Particle Physics Interface, University of Oxford, 12th-14th September;

Control Theory Conference, University of Strathclyde, 14th-16th September; Mathematics of Surfaces Conference, Keble College Oxford, 19th-21st September; Mathematics in Signal Processing, University of Warwick, 13th-15th December; Mathematics and Computation of Deforming Surfaces, University of Cambridge, 19th-20th December.

For further information contact Miss Shirley Wardle, Conference Officer, The Institute of Mathematics and its Applications, Maitland House, Warrior Square, Southend-On-Sea, Essex SS1 2JY.

## LMS SPITALFIELDS LECTURES

The 3rd Spitalfields Lectures will be given on Friday, April 22nd, 1988, at the University of Manchester. These are colloquium style lectures intended to be accessible to a general mathematical audience. They will be delivered by members of the Symposium on Representation Theory of Groups and Related Topics, which is being held in Manchester during January-July 1988.

The lectures are: 11.30 a.m. P.A. Linnell (Virginia), 2 p.m. R. Stöhr (East Berlin), 3 p.m. J. Carlson (Georgia), 5 p.m. J.L. Alperin (Chicago). Coffee will be served from 10.30. There will be a programme of more specialized lectures on April 21st and the morning of April 23rd. Speakers are expected to include G. Cliff, J. Thévenaz, R.M.W.

Wood, A. Weiss.

All lectures will be held in the Mathematics Tower, University of Manchester. A buffet lunch will be available in the Mathematics Tower at 12.30 p.m. (£2 per head) and there will be a dinner at about 7 p.m. (£6 per head). Bookings and cheques (payable to MUMDCC) should be sent to Miss J. Minshull, Department of Mathematics, University of Manchester, Manchester M13 9PL, by 13th April. Late bookings cannot be accepted. Accommodation is available in a Hall of Residence and can be reserved by writing to Miss J. Minshull at the above address. Further information can be obtained by contacting the organizer Professor B. Hartley.

## PROFESSOR P. deBARTOLOMEIS

Professor P. deBartolomeis of the University of Florence will be making a scheme 2 visit in May. He will be lecturing at a Leeds Differential Geometry Day on Tuesday 3rd May (see below) and at the University of Bath on Friday 6th May. The latter talk entitled "Kaehlerian Twistor Spaces" will take place at 2.15 in Room 1E3.9.

Enquiries to J.C. Wood, School of Mathematics, University, Leeds LS2 9JT, phone 0532-335106 and for Bath talk, F. Burstall, School of Mathematics, University, Bath BA2 7AY, phone 0225-826999 or G. Parry, same address, 0225-826988.

## LEEDS DIFFERENTIAL GEOMETRY DAY

A Differential Geometry Day will be held in the School of Mathematics, University of Leeds on Tuesday 3rd May. There will be four talks as follows:

- |            |   |
|------------|---|
| 10.45 a.m. | W. Kendall (Strathclyde) Brownian motion and harmonic maps.                     |
| 11.50 a.m. | J. Rawnsley (Warwick) (1,1) geodesic maps.                                      |
| 2.15 p.m.  | N. Hitchin (Oxford) Minimal tori.   |
| 3.45 p.m.  | P. deBartolomeis (Florence, see above) Differential geometry of twistor spaces. |

Coffee will be available from 10.15 a.m. outside the Mathematics staff common room, level 9, Mathematics. Enquiries to J.C. Wood, School of Mathematics, University, Leeds, LS2 9JT, phone 0532-335106. A further Differential Geometry Day is planned for Tuesday 24th May, details will appear in the May newsletter.

## VECTOR BUNDLES IN ALGEBRAIC GEOMETRY

An international conference on Vector Bundles in Algebraic Geometry will be held at the University of Liverpool from Tuesday 10th May to Friday 13th May 1988 with financial support from the London Mathematical Society. Invited participants include S.K. Donaldson, N.J. Hitchin, G. Horrocks, F.C. Kirwan, H. Lange, J. Le Potier, M. Maruyama, M.S. Narasimhan, M. Reid, M. Schneider, A.N. Tyurin

and P.M.H. Wilson.

The conference fee will be £5, and prospective participants should write to the organiser, Dr P.E. Newstead, Department of Pure Mathematics, University of Liverpool, PO Box 147, Liverpool, L69 3BX.

## VISITS OF PROFESSORS M. MARUYAMA AND M.S. NARASIMHAN

Professors M. Maruyama and M.S. Narasimhan will be visiting England between 8th May and 20th May 1988 with support from the London Mathematical Society in the form of scheme 2 grants. Both will be attending the Liverpool Conference on Vector Bundles in Algebraic Geometry from 10th May to 13th May. They will also be giving lectures elsewhere as follows: Professor M. Maruyama at

Warwick 9th May, Oxford 16th May and Cambridge 18th May. Professor M.S. Narasimhan at Oxford 9th May, Warwick 16th May and Newcastle-Upon-Tyne 18th May.

For further information, contact Dr P.E. Newstead, Department of Pure Mathematics, University of Liverpool, PO Box 147, Liverpool, L69 3BX.

## ChiWriter

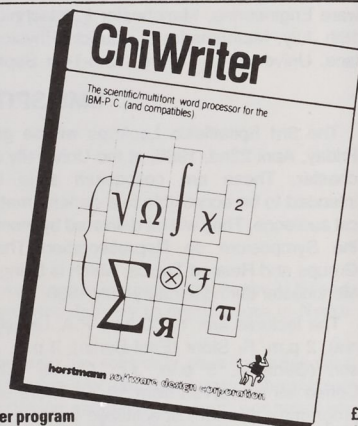
### Powerful Scientific/Multifont Word Processing at a Reasonable Price.

ChiWriter is a powerful word processing program, designed especially for scientific and foreign language text. ChiWriter is ideal for typing manuscripts, reports, lecture notes, exams, even books. Best of all, ChiWriter is completely 'what-you-see-is-what-you-get'. Even typing complicated formulas is easy because the screen display corresponds exactly to the printout.

ChiWriter is a complete word processor. Its features include: Cut and paste, margin justification, search and replace, automatic pagination, footnotes and variable headers and footers. In addition, ChiWriter contains commands especially designed to make formula editing easy and intuitive.

### Equipment Requirements.

ChiWriter's equipment requirements are surprisingly modest. The program runs on an IBM PC or compatible with 256k memory, a graphics card, two floppy disk drives or a hard disk, and a printer. A hard disk is not essential. The ChiWriter program includes manual and font designer and support for the IBM colour graphics adaptor and most popular 9 pin printers, including the IBM Proprinter, the Epson MX/FX series and compatibles. The Hi-Res disk supports Hercules, Olivetti, EGA and VGA displays. The 24 pin printer disk supports IBM Proprinter XL, Epson LQ and Toshiba series. The laser printer disk supports HP LaserJet Plus/II and Postscript.

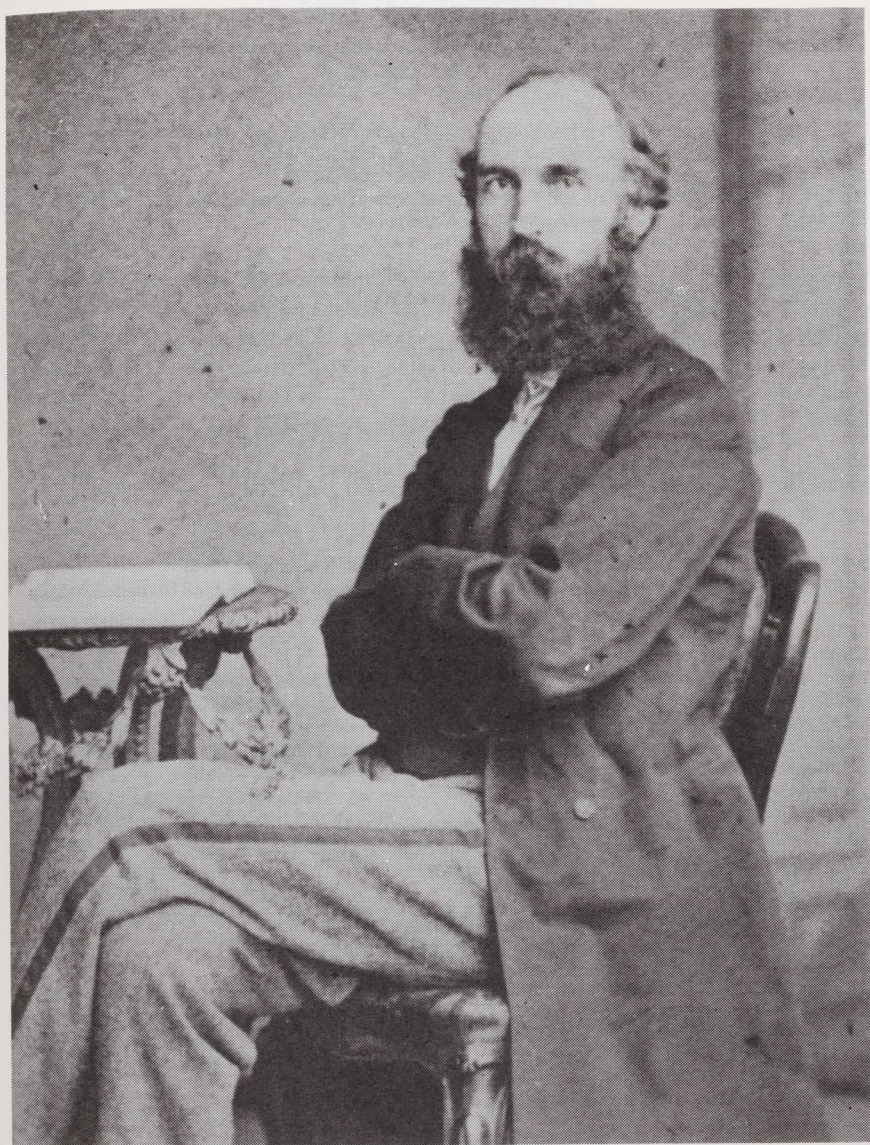


ChiWriter program	£69.95
Hi-res screen support disk	£19.95
24-pin printer support disk	£19.95
Laser printer support disk	£44.95
Chemistry font set	£34.95
Wordperfect to ChiWriter converter	£34.95
International keyboard support	£14.95

Prices include VAT but exclude postage and packing.

Order from  
**Scientific Text Processing Ltd**  
 53 Westridge Road, Portwood  
 Southampton SO2 1NH, ENGLAND  
 Tel: (0703) 557632





William Spottiswoode (1825-1883) graduated from Oxford in 1845 and joined his father's firm of Eyre and Spottiswoode; he remained occupied with the Queen's Printing Office until his death. His mathematical work was marked by his virtuosity with symbolic methods, in which spirit he wrote an influential treatise on determinants in 1851. He wrote two articles on the mathematical methods of Indian astronomy based on readings of original texts, and spoke several European and Oriental Languages. He was active in many scientific committees, notably the Royal Society, of which he had been the President for five years when he died of typhoid. He was the Society's fourth President, from 1870-1872.



## DIARY

The diary lists Society meetings and other events published in previous issues of the Newsletter.

### 1988

#### APRIL

- 11 Mathematical Physics Group Annual Review Meeting, London (148)
- 11-15 British Theoretical Mechanics Colloquium, London (146)
- 12-14 British Mathematical Colloquium, Exeter (145 and 148)
- 27 The Pythagoreans and Their Modern Consequences, London (148)
- 27-5 May Number Theory and Applications, Canada (147)

#### MAY

- 4 Euler and an Open Question, London (148)
- 11 The Twentieth Century Computer London (148)
- 19-20 LMS Meeting, Cardiff (148)
- 26-28 Groups in Galway 88, Ireland (147)
- 31-4 June Numerical Methods, Singapore (147)

#### JUNE

- 6-24 Seminaire de Mathematiques Superieures, Canada (146)
- 17 LMS Meeting, London
- 20-24 Bail V Conference, China (141)
- 30-10 July Dynamical Systems, LMS Durham Symposia, Durham (145)

#### JULY

- 1 LMS Evening of Popular Lectures, London
- 5-8 Theory of Ordinary and Partial Differential Equations, Dundee (144)
- 5-15 Spinors, Twistors and Complex Structure in General Relativity, LMS Durham Symposia, Durham (145)
- 11 LMS Evening of Popular Lectures, Liverpool
- 13-20 1988 St Andrews Colloquium (138 & 145)
- 17-27 IXth Congress of the International Association of Mathematical Physics, Swansea (138)
- 18-28 Model Theory and Groups, LMS Durham Symposia, Durham (145)
- 24-30 Radicals - Theory and Applications, Japan (143)
- 25-30 Computational and Applied Mathematics, Belgium (142)
- 27-3 Aug ICME-6 1988, Hungary (144)

#### AUGUST

- 9-12 Henstock Real Analysis Symposium, Ireland (148)
- 21-27 International Conference on General Algebra, Austria (145)
- 22-16 Sept ICPAM Summer School, France (148)

#### SEPTEMBER

- 16-19 Physical Interpretation of Relativity Theory, London (143)
- 19-23 International Colloquium on Differential Geometry, Spain (146)
- 25-30 René Thom - International Symposium, France (147)

#### OCTOBER

- 19-20 Fractals in the Natural Sciences, The Royal Society, London (144)
- 21 LMS Meeting, London

#### NOVEMBER

- 18 LMS Annual General Meeting, London

#### DECEMBER

- 8-9 Physics and Mathematics of Strings, The Royal Society, London (144)

### 1989

#### JULY

- 3-7 British Combinatorial Conference, East Anglia (146)

#### AUGUST

- 13-19 Differential Equations and Applications, Bulgaria (148)

For further information, refer to the figure in brackets, which is a cross reference to the LMS Newsletter Number.

N.B. Please note that the British Combinatorial Conference in East Anglia is July 1989 and not 1988 as previously stated.