

THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

No. 223

January 1995

FORTHCOMING SOCIETY MEETINGS

Friday-Saturday, 17-18 February 1995, Warwick University

Computers in Mathematics

H. Cohen, J. E. Cremona, D. Gabai, D. F. Holt,

C. R. Leedham-Green, J. W. Milnor, N. Thurston,

Friday-Saturday, 12-13 May 1995, Oxford University

A Hundred Years of Analysis

P.R. Halmos, J-P Kahane, J. Luetzen, S.J. Patterson,

R. Remmert, F. Smithies

Friday 16 June 1995, Burlington House

D. Vassiliev, K. R. Parthasarathy

Friday-Saturday, 20-21 October 1995, Scientific Societies Lecture Theatre

Stochastic Analysis

Friday 17 November 1995, Burlington House

LMS COUNCIL DIARY

On 18 November Council held its last meeting before the election of new members for 1995. We recorded our warm thanks to two departing officers for their outstanding work and skill: John Ringrose (President) and John Wright (Treasurer) - but not until we had picked through John Wright's Annual Accounts for 1993/4. These showed among other things that the LMS paid out £25,000 to support conferences, £4,500 for visiting lecturers, £16,000 for the scheme to support visits to and from the FSU and £6,000 for grants disbursed through the Education Committee. The LMS also made grants of £10,000 to the Isaac Newton Institute in Cambridge and £5,000 to the International Centre for Mathematical Sciences in Edinburgh.

We heard that the year 2000 has been designated World Mathematical Year, but we were not entirely sure by whom. Still, the idea has clear possibilities, and we discussed some.

We received the report of a working group on possible regional activities of the LMS. It produced an energetic debate which split Council into three virtually equal camps: For, Against and Don't Know. The report itself was positive, but some of us wondered whether it had adequately identified either the kind of mathematics involved (research/popular?) or the people with time to make it work. We surely need more advice from the members, particularly those outside London. An article by Don Collins elsewhere in this Newsletter sets out the issues.

We considered the present state of school mathematics and its implications for higher education, and we started to plan our case for a reform of the national curriculum in mathematics when this becomes possible in five years' time.

Wilfrid Hodges

COMPUTERS IN MATHEMATICS - WARWICK, FEBRUARY 1995

Computers are now widely used in mathematics. Although the most common use is still textprocessing and e-mail, there are very varied scientific applications. This is not surprising in applied mathematics, where simulation of real phenomena is obviously essential. Computers have also been used for a long time to investigate phenomena in number theory. One of the first programs ever written for a computer was the Todd-Coxeter coset enumeration process in groups.

But the situation is now suddenly qualitatively different. Whereas computers used to be something of a curiosity in their scientific applications, at least in pure mathematics, they have now invaded virtually every part of mathematics. For example they are used to explore mathematical phenomena, generating pictures and other data, leading to interesting conjectures. Conceivable methods of proof of significant conjectures can be investigated, to see if they would repay more standard types of

investigation. There are now a number of rigorous proofs by computer of significant theorems in a variety of fields.

At the same time, computers are moving mathematicians towards a more profound appreciation of constructive methods in mathematics, affecting our view of mathematical logic and the foundations of our subject.

The London Mathematical Society will be holding a meeting on "Computers in Mathematics" at the Mathematics Institute at the University of Warwick. The meeting starts at 2.20 pm on Friday 17 February 1995 and ends at 1.00 pm on the Saturday. The particular areas of mathematics to be discussed are dynamical systems, 3-dimensional manifolds, group theory, algebraic geometry and algebraic number theory. In all of these areas, constructive methods have played an important role in recent years. We are fortunate in having secured several of the world's outstanding experts who will explain their subjects to a general mathematical audience.

D.J. Collins
D.B.A. Epstein

'INNOVATIONS' IN THE FTP-ARCHIVE

The LMS Education Committee organised over a three year period a survey of Innovations in Mathematics Courses in the United Kingdom. The latest edition of this is now available in the ftp archive of the Society. If any department wants to update its entry please send me a revised entry preferably by e-mail.

To access the ftp archive log in at your computer terminal, type

```
ftp ftp.qmw.ac.uk <return>
```

The terminal will ask you for your Name.

You should reply

```
anonymous <return>
```

The password needed is your e-mail address.

When you get into the archive, type

```
cd/pub/LMS <return>
```

The file innov.text is in the directory 'filestore' so type

```
cd filestore <return>
```

then

```
get innov.tex <return>
```

when the file has been 'got', type

```
quit <return>
```

to get out to your home directory. The file was prepared using LaTeX, so provided your system supports LaTeX type

```
LaTeX innov <return>
```

and proceed as for a usual TeX file.

T Porter
mas013@uk.ac.bangor.clsl

LONDON MATHEMATICAL SOCIETY TWO-DAY MEETING

FRIDAY 17th & SATURDAY 18th FEBRUARY 1995

MATHEMATICS RESEARCH CENTRE
UNIVERSITY OF WARWICK

Computers in Mathematics

FRIDAY

- 2.20 Opening Session
- 2.30 H. Cohen (Bordeaux) "Computation in number fields"
- 3.30 Tea
- 3.50 J.E. Cremona (Exeter) "Computations with modular elliptic curves"
- 5.00 J. W. Milnor (SUNY) "Computation in holomorphic dynamics"

SATURDAY

- 8.45 Coffee
- 9.00 D. Gabai (CalTech) "On the rigidity of hyperbolic 3-manifolds"
- 10.00 N. Thurston (Berkeley) "The search for all narrow 3-manifolds"
- 10.50 Coffee
- 11.10 D.F. Holt (Warwick) "Computing in group theory"
- 12.10 C.R. Leedham-Green (QMW) "Matrix groups over finite fields"

All lectures will be held in ELT 1 adjacent to the Mathematics Institute

A dinner will be held in the Common Room of the Mathematics Institute on Friday evening at 7.00 pm. The cost will be £13.00 per person, inclusive of wine. If you would like to come to this meeting please contact: Elaine Shiels, Mathematics Research Centre, University of Warwick, Coventry CV4 7AL, fax: (01203) 523548; e-mail: es@maths.warwick.ac.uk, who will send you a booking form to be completed and returned. This form asks about your accommodation requirements, and if you would like to attend the dinner. Please indicate your requirements and return the form, and cheque for the dinner, if you wish to attend, made payable to "University of Warwick".

Please ensure that all booking forms are returned by Friday 20th January.

1995 LMS PRIZES

The Council proposes to award, in Summer 1995, a De Morgan Medal, a Senior Whitehead Prize, a Junior Berwick Prize, and one or more Junior Whitehead Prizes. Accordingly, it has appointed N.J. Hitchin, A.J. Macintyre, J.T. Stuart, M.J. Taylor and C.T.C. Wall to the 1995 Prizes Committee.

The Council invites members of the Society to submit their views on possible candidates for the award of these Prizes confidentially in writing to any member of the Prizes Committee by 1 March 1995. In each case, nominations should contain explicit reference to the grounds on which the nomination is based. The Prizes Committee would particularly welcome suggestions of possible candidates for the award of the Junior Berwick Prize and the Junior Whitehead Prize(s), in view of the condition (explained below) concerning publication which applies to the former and the age conditions which apply to both. Council reserves the right not to make an award in the event that no candidate of sufficient merit is recommended by the Prizes Committee for a particular Prize.

The De Morgan Medal is to be awarded to a mathematician who is normally resident in the United Kingdom on 1 January 1995. The sole grounds for the award of the Medal is the candidate's contribution to mathematics.

The Senior Whitehead Prize is to be awarded to a mathematician who is normally resident in the United Kingdom on 1 January 1995 in respect of work in, influence on or service to mathematics, or

in recognition of lecturing gifts in the field of mathematics; it may not be awarded to any person who has previously received the De Morgan Medal or the Senior Berwick Prize.

The Junior Berwick Prize is to be awarded to a mathematician who, on 1 January 1995, is a member of the Society, is under the age of forty years, and is not already a Fellow of the Royal Society, in respect of a definite piece of mathematical research work actually published by the Society during the period from 1 January 1991 to 31 December 1994.

The Junior Whitehead Prizes are to be awarded to mathematicians who on 1 January 1995 are normally resident in the United Kingdom or members of the Society mainly educated in the United Kingdom, who are not already Fellows of the Royal Society, and who are under the age of forty years (except that this age restriction may be relaxed when it appears desirable to do so in order to take fair account of broken career patterns). Grounds for the award may include work in and influence on mathematics.

No person may be awarded a given Prize more than once, and the President of the Society and the members of the Prizes Committee are ineligible for any of the awards. The detailed regulations and procedure for the award of each Prize can be obtained from the Administrator, London Mathematical Society, Burlington House, Piccadilly, London W1V 0NL.

R.Y. Sharp
Council and General Secretary

DYNAMICAL SYSTEMS

An international congress on Dynamical Systems will be held from 27 March - 1 April 1995 at Montevideo, Uruguay. The scientific committee consists of: M. Herman, J. Lewowicz, R. Mane, J. Mather, S. Newhouse, J. Palis, J. Sinai.

For further information contact: I.M.E.R.L., Dynamical Systems Congress, CC30 Montevideo, Uruguay; fax: (598-2) 71 54 46; tel: (598-2) 71 44 62; e-mail: dynsys@imerl.edu.uy.

CONFERENCE ON MATHEMATICS AND PHILOSOPHY

There will be a meeting, organized by H.G. Dales and G. Oliveri of Leeds, on this topic in Mussomeli, Sicily 13-21 September 1995. The theme of the conference is "Truth in mathematics". This meeting is intended to be accessible to a wide span of mathematicians and philosophers. The President of the conference is Professor Michael Dummett of Oxford.

Speakers include: D.S. Bridges (New Zealand), Ed Effros (UCLA), D. Isaacson (Oxford), V. Jones (Berkeley), P. Maddy (Irvine), Yu. Manin (Moscow and Bonn), D. Martin (UCLA), P. Martin-Lof (Stockholm), Y. Moschovakis (UCLA), T. Slaman and W. Tait (Chicago), and W.H. Woodin (Berkeley).

It is possible that some financial assistance may be available to UK participants. For further information, please contact H.G. Dales, Pure Mathematics, University of Leeds, Leeds (e-mail: pmt6hgd@gps.leeds.ac.uk) or G. Oliveri, Philosophy, University of Leeds, Leeds (e-mail: oliveri@leeds.ac.uk).

LMS DURHAM SYMPOSIA 1995

There will be one symposium in 1995: Monday 10th to Thursday 20th July 1995. **Mathematical Models of Liquid Crystals and Related Polymeric Systems.** Organisers: Professor F.M. Leslie, Professor T.C.B. McLeish, Dr I.W. Stewart*, Professor K. Walters. Main Speakers: M. Doi (Nagoya), G. Marrucci (Naples), J.M. Piau (Grenoble), J.R. Prost (Paris), A. Saupe (Halle), E.G. Virga (Pisa).

Durham research symposia are organised under the auspices of the LMS and are supported by Research Grants from EPSRC. There may be a few places available for mathematicians not yet invited. Those interested should write for more information to the organiser marked * at the following address: Dr. I.W. Stewart, Department of Mathematics, University of Strathclyde, Livingstone Tower, 26 Richmond Street, Glasgow G1 1XH, tel: 0141-552-4400 ext. 3665, e-mail: i.w.stewart@strath.ac.uk.

10th BRITISH TOPOLOGY MEETING

The 10th British Topology Meeting will take place on Tuesday 12th and Wednesday 13th September 1995, at Glasgow University. As usual, the talks will take place in the later half of Tuesday and the early half of Wednesday, so that the need for overnight accommodation will be minimised. We are applying for support which would be used to help with participants' expenses, particularly those who are unable to obtain support from their own institutions or grants. However, such support is likely to be limited.

Anyone wishing to be included in the first mailing should contact the organisers, preferably by e-mail, Dr A. Baker, Professor S. Pride and Dr R. Steiner. Address for mailings: British Topology Meeting, Department of Mathematics, University of Glasgow, Glasgow G12 8QW, Scotland. e-mail: btop@maths.gla.ac.uk

MODEL THEORY AND GROUP THEORY

The next meeting in the series of one-day conferences on Models and Groups is to be held at The Queen's College, Oxford on Saturday 4 February 1995. It will commence at 10.30 am (coffee in Peter Neumann's room) for 11.00. Speakers: Simon Thomas (Rutgers and Bilkent Universities), David Evans (University of East Anglia), Emanuela Pantano (University of East Anglia), Tim Gardener (Oxford).

There will be a small registration fee (£5) which will include the cost of refreshments and a sandwich lunch. The visit of Professor Simon Thomas is supported by a Scheme 2 grant from the London Mathematical Society.

All welcome. Please address enquiries to the local organiser, Dr Peter M. Neumann, The Queen's College, Oxford OX1 4AW.

UK NATIONAL MATHEMATICS COMPETITIONS 1994

In 1994 we in the UK had for the first time a range of popular multiple-choice papers for all secondary ages with a total entry of more than 250,000; the 1995 figure should be around 300,000. The two largest events are run by the *UK Mathematics Foundation*, based in Birmingham: the *UK Junior Mathematical Challenge* (for School Years up to 8 - English style) had an entry of 100,000 from 1400 schools; the *UK Intermediate Mathematical Challenge* (for School Years 9-11) had an entry of 105,000 from 1550 schools. Around 1000 schools enter both events. The *National Mathematics Contest* (for School Years 11-13) is run by the *Mathematical Association*, and had an entry of 30,000, from 800 schools. In each event the problems are meant to be *challenging but fun*. The top 40% receive certificates (6% Gold, 14% Silver, 20% Bronze). At each level 500-1000 students have the chance to take a subsequent written paper.

National Mathematics 'competitions' developed originally in Hungary, where they have been going strong for over a 100 years. Hungary now has a range of events, and everyone who is interested in Mathematics can get involved in some way. Most important of all, they started a *problem-solving journal for students* in 1894. This journal - affectionately known by its abbreviation *KöMaL* - is still going strong! The 'competitions', and *KöMaL*, are not just for a few brilliant students; if they were, they could not have survived. Instead they challenge and encourage large numbers of ordinarily bright youngsters. One of the most obvious effects of this Hungarian 'pyramid' is that since 1900 Hungary, with a population of around 10 million, has produced an astonishing number of brilliant mathematicians, and (since a successful system should produce more than just Nobel prize winners!) an equally striking number of very good mathematicians of the second rank.

The Hungarian example was copied by the Soviet Union in the 1930s and by the whole of Eastern Europe after the Second

World War. Each country then developed a system with its own local character.

It is easy for mathematicians to undervalue the problems and the (very modest) rewards. However, the UK events, and the resulting certificates, have a quite unreasonable impact on students' interest in mathematics. I believe the UK mathematical community owes a debt of gratitude to all those who support them - the *British Mathematical Olympiad Committee* (Chair: Professor Fred Piper), the *Mathematical Association* (Contest Committee Chair: Peter Thomas), and the *UK Mathematics Foundation*. Over the last five years the support of Trinity College (Cambridge) for the BMO has made it possible to develop the scale of activities associated with the senior *Olympiads*. Sponsorship (from NatWest, from IBM, and from Sharp) has helped the UKMF events.

In particular, we now have two residential meetings:

- a three day *Olympiad Training Weekend* for 20 students competing for *IMO* team places, held in Trinity College, Cambridge in April, and
- a *Mathematics Summer School* for those in Years 10-11 (plus a few from years 12-13), held in The Queen's College, Oxford in early July.

Each year, in July, students from many different countries meet to take part in the *International Mathematical Olympiad* - or *IMO* as we shall call it. Participating countries can send up to six students. The problems are tough, so most students are in their last year or two at school. This year's event was held in Hong Kong and attracted 385 students from 69 countries - including 6 from the UK: Ed Crane (Colchester RGS), Matt Fayers (Wilson's S), Ben Green (Fairfield GS), Katy Maclean (Harrogate GS), Joseph Myers (Rutlish S), Jacob Shapiro (Westminster S). The UK Leader was Tony Gardiner (Birmingham) and the Deputy Leader was Vin De Silva (Cambridge).

Candidates have to sit two 4 1/2 hour

papers on successive days, with three problems on each paper. Usually only a handful of students manage to solve all six problems, so the very best students might hope to solve each problem in 11/2 - 2 hours. In 1993 the problems were too hard, with the result that medals were awarded to students who had achieved very little. This year the problems were not hard enough! Twenty two participants obtained a perfect score - including Katy Maclean. Joseph Myers also obtained a Gold medal with a score of 40/42. Jacob Shapiro (36) and Ben Green (35) received Silver medals, and Ed Crane (29) and Matt Fayers (24) obtained Bronze medals. The team came seventh, scoring 206 - one point behind the Vietnamese, with the USA (252), China (229), Russia (224), Bulgaria (223), Hungary (221) some way ahead.

Mathematicians develop in many different ways. Some blossom early and need to be stretched. However, most talented mathematicians only begin to really blossom between the ages of 18 and 25, so they may not stand out at school in quite the same way. However they can still benefit from the experience of grappling with hard *Olympiad* problems, at national or international level.

The future While one can feel satisfied in some ways with what we have managed to establish so far, the future

is far from secure. In particular the large *UK Mathematics Foundation* events may cease after 1996 unless they can find a permanent institutional home. The main problem is not financial, but lies in the considerable amount of administrative work, which may be tedious, but which has to be done intelligently and accurately. Those who wish to reach the masses cannot charge commercial rates; thus one has to operate on very narrow margins, and must work efficiently, quickly and very accurately (every error or misunderstanding when dealing with 2000 schools creates havoc). A dedicated staff of two or three might suffice in the first instance. Those currently involved would be happy to continue working and advising on the 'creative' side (generating problems, running summer schools, etc.), but cannot continue carrying the burden of running the whole show single-handed. I would be interested in hearing from any group or institution which would like to help find a way of keeping this very valuable show on the road.

I would be happy to supply copies of this year's papers (please specify which!) and any other supplementary information: write to Tony Gardiner, School of Mathematics, University of Birmingham, Birmingham B15 2TT.

THE ATLAS 10 YEARS ON

Preliminary announcement

A conference to mark the tenth anniversary of the publication of the 'ATLAS of Finite Groups' will be held at the University of Birmingham from 2 pm on Monday 10th until 12.30 pm on Thursday 13th July, 1995. Its main aim is to highlight the contribution of the 'ATLAS' to finite group theory and its applications, and to study the influence of group theory in other branches of mathematics. Thus the lectures will cover various topics, but will have finite groups as the common theme.

Speakers who have already accepted invitations include: R.W. Carter, J.H. Conway, J.G. Thompson, C.M. Campbell, D.F. Holt, J.F. Humphreys, G.D. James,

M.W. Liebeck, P.M. Neumann, S.P. Norton, R.A. Parker, W. Plesken, P.J. Rowley, L.H. Soicher and F. Zara.

There will be a nominal registration fee of £25, and accommodation will be available at £21.20 for bed and breakfast, plus £8 for evening meal.

Further information, including an up-to-date list of expected participants, can be obtained from the organisers: Dr R.T. Curtis and Dr R.A. Wilson, School of Mathematics and Statistics, The University of Birmingham, Edgbaston, Birmingham B15 2TT, e-mail: R.T.Curtis@bham.ac.uk, R.A.Wilson@bham.ac.uk.

THE UK TeX USERS' GROUP

Unfortunately, the notice in the November Newsletter omitted one line. The second two paragraphs should have read as follows.

The Group sells software to members at cost price. There are complete sets of floppy discs of TeX-ware for the PC and also for the Macintosh. There is also a bumper CD-ROM full of TeX goodies.

Many books about TeX and related systems can be bought at a discount through the Group: for example, Norman Walsh's 'Making TeX Work' published by O'Reilly, and 'The LaTeX Companion' by Michel Goossens, Frank Mittelbach and Alexander Samarin, published by Addison-Wesley, as well as the original five books about TeX itself by Donald Knuth.

LMS.STY FOR LaTeX

There have been some teething problems with this. A revised and updated version of the LMS.STY style-file, has now been placed in the Society's electronic archives at Queen Mary & Westfield College, and in the CUP archive (for full details of how to access these, see the November Newsletter, No. 221).

These archives include a note explaining whom to contact in the event of users discovering any bugs. I am sorry for any inconvenience that members may have experienced as a result of these teething problems. I will gladly pass on suggestions, queries etc from members to those developing the style-file (but please send them by e-mail rather than snail-mail, for simplicity and convenience).

David A. Brannan
Publications Secretary
d.a.brannan@open.ac.uk

BRITISH APPLIED MATHEMATICS COLLOQUIUM

This meeting, which will incorporate the 37th British Theoretical Mechanics Colloquium, will be held from 10-13 April 1995 at the University of Birmingham. It is open to all with interests in the applications of mathematics. It will highlight the interaction of mathematics with exciting new areas of application in science, industry and commerce, while also featuring the traditional strengths of British applied mathematics. Invited speakers are: W. Eckhaus (Utrecht), J.R.A. Pearson (Schlumberger Cambridge Research), T.J. Pedley (Leeds), P.H. Roberts (UCLA) - Stewartson Memorial Lecturer, P. Wilmott (Oxford and Imperial College). Scheduled minisymposia: Mathematical Biology, Mathematics in Industry, Stability and Asymptotics, Mathematics in Finance.

For further information contact: School of Mathematics and Statistics, The University of Birmingham, Edgbaston, Birmingham B15 2TT; tel: 0121 414 6587; fax: 0121 414 3389; e-mail: bamc95@bham.ac.uk.

ICTMT

The International Conference on Technology in Mathematics Teaching will be held from 4 -7 September 1995 at Napier University. This is the eighth in a series of annual conferences about the role of technology in mathematics education at school, college and university. The conference fee will be £80 and will include the cost of lunches, coffees, teas and a free bus service to the city centre at the end of each day. Further details may be obtained from: Mr T.D. Scott, Conference Secretary, ICTMT 1995, Department of Mathematics, Napier University, 219 Colinton Road, Edinburgh EH14 1DJ; tel: 031 455 4378, fax: 031 455 7122, e-mail: td.scott@uk.ac.napier.central.

University of Bristol Chair in Pure Mathematics

Applicants from all areas of Pure Mathematics are invited for this newly-founded Chair. Informal enquiries may be made to Professor A. Schofield (phone: 0117-9287972, e-mail: Aidan.Schofield@bristol.ac.uk).

For further details: telephone 0117-9256450 or 44-117-9256450 (from outside the UK) (ansaphone after 5.00pm), or minicom 0272 288894 or write to the Personnel Office (EO), Senate House, Bristol BS8 1TH, UK, (fax: 0272-259473). Please quote reference D96.

Closing date for applications is **28th February 1995**.

An Equal Opportunities Employer

VISIT OF PROFESSOR ARISTIDES KATAVOLOS

Professor Aristides Katavolos of the University of Athens will be visiting the United Kingdom in January 1995. His visit is supported by a Scheme 2 grant from the London Mathematical Society. He will give lectures as follows: Thursday 12 January at King's College London (contact J.A. Erdos), Monday, 16 January at the University of Edinburgh (contact A.M. Sinclair), Tuesday 17 January at the University of Leeds (contact J.R. Partington) and Wednesday 18 January at the University of Lancaster (contact S.C. Power). At King's College and at Lancaster he will talk on "Spaces of operators generated by compacts" and at Edinburgh and Leeds his title will be "Algebras of bi-analytic operators". Overall contact for this visit is J.A. Erdos, King's College, Strand, London WC2R 2LS (e-mail: j.erdos@uk.ac.kcl.cc.bay) from whom any further details may be obtained.

VISIT OF PROFESSOR KAREN E. SMITH

Professor Karen E. Smith of the Massachusetts Institute of Technology will be visiting the UK in February. It is planned that she will give the following lectures: Friday 17 February, 4.00 pm, University of Edinburgh, "Tight closure: what is it and what is it good for?"; Monday 20 February, 3.45 pm, University of Leeds, "Tight closure, differential operators and rational singularities"; and Wednesday 22 February, 2.30 pm, University of Sheffield, "Prime characteristic techniques in the study of algebraic varieties over the complex numbers". Professor Smith's visit is partially supported by a Scheme 2 grant from the London Mathematical Society. Further details may be obtained from Professor R.Y. Sharp, Pure Mathematics Section, School of Mathematics and Statistics, The University, Sheffield S3 7RH (e-mail: r.y.sharp@sheffield.ac.uk).

LONDON MATHEMATICAL SOCIETY 1994 COUNCIL ELECTIONS

At the Annual General Meeting on 18 November 1994, the following members were elected to Council: N.J. Hitchin (President); D.G. Crighton and E.G. Rees (Vice-Presidents); A.O. Morris (Treasurer); R.Y. Sharp (Council and General Secretary); D.J. Collins (Meetings and Membership Secretary); D.A. Brannan (Publications Secretary); J.A. Erdos (Librarian); R.A. Bailey, A.R. Camina, A. Gardiner, J.D.S. Jones, J.F. Toland, C.T.C. Wall (Members-at-Large, 2-year terms); W.A. Hodges, U. Martin, J.C. Robson, M.J. Taylor (Members-at-Large, 1-year terms). K.A. Brown and P.T. Saunders are Members-at-Large whose terms expire in 1995.

R. Y. Sharp
Council and General Secretary

ANNUAL LMS SUBSCRIPTION

The Society is appreciative of those members who have paid their 1994/95 subscriptions. May we remind those who have not yet paid that subscriptions were due on 1 November 1994. The Society reserves the right to discontinue the supply of periodicals and Newsletters to members whose subscription remains unpaid by 31 January 1995. The methods of payment are either by a sterling cheque drawn on a UK bank; direct debit; a US\$ cheque drawn on a US bank, Eurocheque quoting your card number on the reverse or by Giro. If you have misplaced your renewal of subscription form, contact the Assistant Administrator, Harvinder Lotay at the LMS office, telephone: 0171 437 5377, fax: 0171 439 4629, e-mail: lms@uk.ac.kcl.cc.bay.

EWM 95

The Seventh Congress of European Women in Mathematics will be held in Madrid, Spain from 4-9 September 1995. The programme will include:

1. Explanatory mathematical talks on the following topics: (i) Dynamical systems in the complex plane. (ii) Classification in algebraic geometry. (iii) Mathematical topics in quantum field theory and statistical physics.

Talks will be complemented by working sessions for participants. Speakers: Bodil Branner (Copenhagen), Nuria Fagella (Boston/Berkeley), Tan Lei (Lyon), Mireille Martin-Deschamps (Paris), Margarida Mendes Lopes (Lisboa), Emilia Mezzetti (Trieste), Flora Koukiou (Paris), Alice Rogers (London), Claire Voisin (Paris).

2. Family versus career for women mathematicians. Report and discussion introduced by science historian Eulalia Perez Sedenio (Berkeley).

3. General assembly of EWM.

For further details contact the organisers: Dr Capi Corrales, Departamento de Algebra, Facultad de Matematicas, Universidad Complutense de Madrid, 28040 Madrid, Spain, e-mail: capi@emducm11.sim.ucm.es; tel: 34-1-3944657; fax: 34-1-3944607, or Dr Rosa Maria Miro Roig, Facultad de Matematicas, Departamento d'algebra i geometria, Universidad de Barcelona, Gran Via de les Corts Catalanes 585, 08007 Barcelona, Spain, e-mail: miro@cerber.ub.es, tel: 34-3-4021101, fax: 34-3-4021601. Closing date for applications: 1 May 1995.

For more information about other EWM activities and membership please contact: EWM Office, Riitta Ulmanen, Secretary, Department of Mathematics, University of Helsinki, PO Box 4 (Hallituskatu 15), SF-00014 Finland; e-mail: ulmanen@Sophie.helsinki.fi; fax: 358 0 191 3213. To join the EWM e-mail network, contact sarah.rees@newcastle.ac.uk



University of Canterbury

NEW ZEALAND

Chair in Pure Mathematics

Applications are invited from suitably qualified persons for the above continuing (tenured) position in the Department of Mathematics and Statistics at the University of Canterbury.

The minimum qualification on appointment is the PhD degree or equivalent. The successful applicant will have a distinguished record at the international level in research in any branch of Pure Mathematics and must possess demonstrated academic leadership. A strong background of undergraduate teaching and postgraduate supervision would also be required. The Department has an establishment of 30: 28 academic staff, 1 Programmer/Analyst and 1 Programmer/Technician. Current research areas include algebra, analysis, combinatorics and geometry.

The salary for Professors is within the range NZ\$80,000 to NZ\$100,000 per annum.

Preliminary enquiries of an academic nature may be made to Dr. P F Renaud, Head, Department of Mathematics and Statistics (Tel. [64 3] 364 2696, Fax [64 3] 364 2587, email: p.renaud@math.canterbury.ac.nz).

Applications close on **31 March 1995**.

Further particulars and Conditions of Appointment may be obtained from Appointments (43480), Association of Commonwealth Universities, 36 Gordon Square, London WC1H 0PF, UK (tel. 0171 387 8572 ext. 206; fax 0171 383 0368; email: appts.acu@ucl.ac.uk). Applications, quoting Position No. MT29, must be addressed to:

**Mr A W Hayward, Registrar,
University of Canterbury, Private Bag 4800, Christchurch, New Zealand.**

The University has a policy of equality of opportunity in employment.

THE BRITISH COMBINATORIAL CONFERENCE STIRLING 1995

The fifteenth British Combinatorial Conference will be held at the University of Stirling from Monday 3 to Friday 7 July 1995. Accommodation and meals will be available in the University from Sunday evening until Saturday morning. Nine invited lectures have been arranged: C. Godsil (Waterloo) *The Euclidean Geometry of Distance-Regular Graphs*, R. Hill (Salford) *Searching with Lies*, F. Jaeger (Grenoble) *Spin Models for Link Invariants*, M.R. Jerrum (Edinburgh) *Computational Pólya Theory*, L. Lovász (Budapest & Yale) *Mixing of Random Walks and other Diffusions on a Graph*, A. Lubotzky (Jerusalem) *Cayley Graphs: Eigenvalues, Expanders and Random Walks*, A. Rosa (McMaster) *Large Sets of Steiner Triple Systems*, E. Spence (Glasgow) *Construction and Classifications of Combinatorial Designs*, J. Spencer (Courant Institute) *Modern Probabilistic Methods in Combinatorics*.

The invited lectures will be published by Cambridge University Press, and will be available at the conference. Sessions of contributed talks, on all branches of Combinatorics, will be arranged. Contributed papers will be published in *Discrete Mathematics*, subject to acceptance by the Editors and appropriate referees. One day of the conference will be designated Kirkman Day, with talks related to the achievements of the Rev. T. P. Kirkman, who died in 1895.

The Conference is organised by the British Combinatorial Committee. For further information and registration forms, please contact the local organisers: Dr F.F. Bell and Dr P. Rowlinson, Mathematics & Statistics, University of Stirling, Scotland FK9 4LA; e-mail: f.k.bell@stirling.ac.uk, p.rowlinson@stirling.ac.uk; tel: 01786 467462/4; fax: 01786 464551. Registration forms (available in January) should be returned by 30 April 1995.

REPORT OF THE TREASURER 1994

This is my final report to the AGM, after eight years service as Treasurer. The size and complexity of the Society's operations has increased considerably. The General Fund has grown from £1,232,927 in 1986 to its present level of £4,212,912.

When items such as the Printing and Publications Reserve Fund and other reserve funds are added in, the total assets of the Society now stand at £5,460,764 compared with £1,391,267 in 1986. The net increase in Investments and Cash last year was £707,353.

The Council of the Society accepted my recommendation to set aside £350,000 to initiate a Building and Development Reserve Fund. It was deemed prudent to make provision for the possibility that the Society might be unable to remain in Burlington House indefinitely and might, at some future date, need to be able to buy its own premises.

On the seventh of November the Society had 2,118 members, virtually the same as last year. Total income from members subscriptions was £26,177.

The cost of printing and distributing the Newsletter was £19,496 but this

was ameliorated by advertising receipts of £6,204.

In the seventies, during an exceptionally difficult period of high inflation, the Society had the good fortune to have its finances under the brilliant and innovative guidance of Ioan James. His successor, and my predecessor, Rolph Schwarzenberger also exercised wise and fruitful stewardship of the Society's finances.

The Treasurer works closely with the Publications Secretary. The Society, and its Treasurer, are fortunate in having, in David Brannan, a Publications Secretary of exceptional energy and talent.

During my last nine years on Council I have had the pleasure of serving under five outstanding Presidents, Professor James, Sir Christopher Zeeman, Professor Coates, Sir John Kingman and Professor Ringrose. It is a pleasure to thank them all for their unflinching support.

The new Treasurer, Alun Morris, is a former Vice-Principal of Aberystwyth and comes with wide financial and administrative experience. I wish him every success in the years ahead.

J D M Wright
Honorary Treasurer

INVITED LECTURES 1995

As previously announced in the July 1994 Newsletter, the LMS Invited Lecturer for 1995 is Professor Paul F. Baum of Pennsylvania State University, U.S.A. The topic of the Invited Lectures is 'Trees, buildings, symmetric spaces and K-theory for group C^{*} algebras'. The lectures will take place in the period 18 - 22 April 1995 and will be given at Dalton-Ellis Hall, University of Manchester which is a university hall of residence located about a mile south of Manchester city centre. The first lecture will be at 2.00 pm, Tuesday 18 April 1995, followed by a second lecture at 4.00 pm. Thereafter there will be two lectures per day concluding with lectures at 10.00 am and 12.00 noon on Saturday 22 April.

The lectures will begin with examples of groups acting on trees, followed by an introduction to K-theory and K-homology. The Baum-Connes conjecture will then be stated and the connections with geometry-topology and with the representation theory of Lie groups and p-adic groups explored.

Participants are asked to arrive on Tuesday morning in good time for the first lecture and will be expected to depart on the Saturday afternoon. Accommodation and meals will be available in Dalton-Ellis Hall and further particulars can be obtained from Professor R.J. Plymen, Mathematics Department, University of Manchester, Oxford Road, Manchester M13 9PL (e-mail: roger@ma.man.ac.uk).

The University of Nottingham

Department of Mathematics

Professor of Pure Mathematics

Applications are invited for appointment to a Chair of Pure Mathematics within the Department of Mathematics. The appointment is to a newly-created post, that is expected to be taken up on, or before, 1 September 1995.

The creation of the new Chair is part of the University's strategy to enhance its research, and to strengthen research leadership in pure mathematics. The successful candidate will have a strong research record. Preference may be given to a candidate in Analysis whose research could interact with that of existing analysts within Pure Mathematics and that of members of the Mathematical Physics group within Applied Mathematics, or in some other research field which would provide a focus by interacting with existing research interests within the Department.

Informal enquiries may be addressed to the Head of Department, Professor A O'Hagan, tel: 0115 9514920, Email: aoh@maths.nott.ac.uk; to Professor DA Burgess, tel: 0115 9514940, Email: dab@maths.nott.ac.uk; or to Professor R L Hudson, tel: 0115 9514930, Email: rlh@maths.nott.ac.uk.

Further details and application forms, returnable not later than 31 January 1995, from the Personnel Office, The University of Nottingham, University Park, Nottingham NG7 2RD. Tel: 0115 9515780. Fax: 0115 9515205. **Ref No 1873.**



REGIONAL LMS ACTIVITY

At its meeting in November, LMS Council considered the report of a working party on the possible development of regional activity by the Society. The working party had been set up in response to the discussion at the LMS Forum held at the 1994 BMC, where the point was made that pressures of time and expenditure make it difficult for members to attend meetings in London. As the Council Diary indicates, views at Council of the recommendations of the working party were varied and after discussion it was felt that it was advisable to seek opinions from members on the subject before proceeding. This article summarises the main proposals made by the working party and asks for views from members on the proposals.

The aim is to set up a flexible and unbureaucratic system which could make available to regions of the UK some resources, and the authority to use these resources, for the promotion of mathematical activity. The intention is not to try to impose such activity on regions but rather to offer a new kind of opportunity for the use of the Society's resources. In more detail this would involve:

- the establishment within the UK of specified regions, perhaps at most eight or nine in total, such a region being defined rather loosely as a set of university mathematics departments;

- the establishment of small regional committees, each to administer a grant in the range £3000 - £6000 per annum from LMS central resources for the support of appropriate activities.

By Charity Law, LMS funds must be used in accordance with purposes of the Society as specified in its Charter - principally the promotion and extension of mathematical knowledge - but within this constraint, the intention is that a region should have freedom to determine the nature and extent of its activities. (In particular, the question of any LMS regional activity in Scotland or Northern Ireland would be a matter for consultation with, respectively, the Edinburgh Mathematical Society and the Irish Mathematical Society.)

The LMS Council is anxious to know whether or not members believe that the Society should proceed along the lines indicated above. Any member who has views on the subject is most welcome to communicate these to the Meetings and Membership Secretary either directly or via the Society's office at the following addresses: Dr D.J. Collins, School of Mathematical Sciences, Queen Mary and Westfield College, Mile End Road, London E1 4NS, (d.j.collins@qmw.ac.uk); London Mathematical Society, Burlington House, Piccadilly, London W1V 0NL (lms@uk.ac.kcl.cc.bay).

SIZE OF THE LMS PROCEEDINGS

LMS Council has been concerned for some time about the pressure on space in its periodicals. It is obviously undesirable either to increase the periodicals' backlogs beyond a certain length or to impose a moratorium on submissions. Council has therefore decided to increase the number of pages per issue of the 'LMS

Proceedings' from 224 pp per issue to 240 pp per issue, with effect from the January 1995 issue.

There will be NO corresponding increase in price. Council has also been concerned at the large price increases imposed by certain journal publishers.

D.A. Brannan
Publications Secretary



Walter de Gruyter Berlin • New York

de Gruyter Expositions in Mathematics

S.A. Nazarov / B.A. Plamenevsky *Volume 13*

Elliptic Problems in Domains with Piecewise Smooth Boundaries

1994. 17 x 24 cm. VII, 525 pages.
Cloth DM 278,- ISBN 3-11-013522-1

R. Schmidt *Volume 14*

Subgroup Lattices of Groups

1994. 17 x 24 cm. XVI, 576 pages.
With 26 figures.
Cloth DM 248,- ISBN 3-11-011213-2

A.I. Kostrikin / P.H. Tiep *Volume 15*

Orthogonal Decompositions and Integral Lattices

1994. 17 x 24 cm. X, 535 pages.
With 4 figures and 12 tables.
Cloth DM 218,- ISBN 3-11-013783-6

M.C. Beltrametti / A.J. Sommese *Volume 16*

The Adjunction Theory of Complex Projective Varieties

1994. 17 x 24 cm. XX, 396 pages.
Cloth. In preparation. ISBN 3-11-014355-0

A. D. Bruno *Volume 17*

The Restricted 3-Body Problem: Plane Periodic Orbits

Translated from the Russian by Balint Erdi
1994. 17 x 24 cm. XIV, 362 pages.
With 93 figures and 12 tables.
Cloth DM 248,- ISBN 3-11-013703-8

H. Leptin / J. Ludwig *Volume 18*

Unitary Representation Theory of Exponential Lie Groups

1994. 17 x 24 cm. X, 200 pages.
Cloth DM 198,- ISBN 3-11-013938-3

de Gruyter Studies in Mathematics

F. Altomare / M. Campiti *Volume 17*

Korovkin-type Approximation Theory and its Applications

With two appendices by
F. Beckhoff and M. Pannenberg
1994. 17 x 24 cm. XI, 627 pages.
Cloth DM 248,- ISBN 3-11-014178-7

V.G. Turaev *Volume 18*

Quantum Invariants of Knots and 3-Manifolds

1994. 17 x 24 cm. X, 588 pages. With 206 figures.
Cloth DM 228,- ISBN 3-11-013704-6

M. Fukushima / *Volume 19*

Y. Oshima / M. Takeda

Dirichlet Forms and Symmetric Markov Processes

1994. 17 x 24 cm. IX, 392 pages.
Cloth DM 168,- ISBN 3-11-011626-X

W.R. Bloom / H. Heyer *Volume 20*

Harmonic Analysis of Probability Measures on Hypergroups

1994. VI, 601 pages.
Cloth DM 248,- ISBN 3-11-012105-0

PROGRAMME AND CONFERENCE FUND

The Society's Programme and Conference Fund is used to give financial support to various mathematical activities in the UK. Grants will be made under five main headings, which are set out in summary form below.

Type of grant	General Purpose	Amount	How to apply (normal deadlines)
Conference	Support of conferences within the UK. The grant may be either a substantial contribution to a small meeting or a small contribution to a large meeting	Up to £2500	Application form (31 January, 31 May and 31 August)
Scheme 1	Support for a foreign visitor who will speak at an LMS meeting and give lectures at three places in the UK	Return travel to UK and living expenses in London	1-2 page letter with academic case, places to be visited and estimated costs (at least one year before visit)
Scheme 2	Support for a foreign visitor who will give lectures at three places in the UK	Return travel to UK up to a limit of £300	1-2 page letter with academic case, places to be visited and estimated costs (at least 3 months before the visit)
Scheme 3	Support of incidental costs for collaborative work by research groups from different places	Travel or other costs up to £1000 for one year	(up to) 3-page letter giving participants, activities and budget (31 January and 31 August)
fSU Scheme	Support of visits to UK by fSU mathematicians and support of visits to fSU by UK mathematicians	Basic travel and living expenses up to £1000	1-2 page letter with academic case, place(s) to be visited and estimated costs (at least 3 months before the visit)

Full information on the different types of grant has been published in the Society's Newsletter (see July 1994 and December 1994). It is also available by e-mail either from the Meetings and Membership Secretary (d.j.collins@qmw.ac.uk) or the Society's Office (lms@uk.ac.kcl.cc.bay), or from the Society's ftp archive which can be reached via [ftp ftp.qmw.ac.uk](ftp://ftp.qmw.ac.uk)

General advice and information on the award of grants can be obtained from the Meetings and Membership Secretary, Dr D.J. Collins, School of Mathematical Sciences, Queen Mary and Westfield College, Mile End Road, London E1 4NS (tel: 071-975-5480, e-mail: d.j.collins@qmw.ac.uk). Applications for conference grants must be submitted

on the appropriate form - obtainable from either the Society's Office, the Meetings and Membership Secretary or from the Society's ftp archive (ftp ftp.qmw.ac.uk). In all other cases a suitable letter of application will suffice.

Recent grants are:

Conference	Awardee	Grant
New Developments in Homotopy Theory	I.M. James	£2000
British Mathematical Colloquium	J. Howie	£1000
British Mathematical Colloquium	J. Howie	£2000
Nonlinear Coherent Structures in Physics and Biology	J.C. Eilbeck	£2000
Sieve Methods, Exponential Sums and their Application to Number Theory	G. Harman	£1000
3rd International Conference on Finite Fields and Applications	S.D. Cohen	£2000
Mathematics of Neural Networks	S. Ellacott	£2000
18th Research Students Conference in Probability	J. Carpenter	£625
Topological Defects in Cosmology	T.W.B. Kibble	£900
Erasmus Intensive Programme in Algebra	T. Lenagan	£1360
Warwick British Visitors Fund	T.O. Hawkes	£5000
Arthur Cayley 1821-1895	R.J. Wilson	£650
Scheme 2 Visitor	Awardee	Grant
S. Thomas (Turkey)	P.M. Neumann	£340
K. Smith (MIT / Finland)	R.Y. Sharp	£300
L.L. Avramov (Purdue)	R.Y. Sharp	£300
A. Katavolos (Athens)	J.A. Erdos	£300
D. Rolfsen (Zürich)	R.A. Fenn	£223
J.A. Hillman (Frankfurt)	C.B. Thomas	£250
R. Parimala (Tata Institute / Besancon)	A. Ranicki	£300
FSU Visitor	Awardee	Grant
O.V. Rudenko (Moscow)	D.G. Crighton	£851
M.V. Karasev (Moscow)	K. Mackenzie	£700
S.A. Stepanov (Moscow)	S.D. Cohen	£800
L.D. Fadeev (St Petersburg) V.Z. Enolskii (Kiev) & P.L. Kulish (St Petersburg)	J.C. Eilbeck	£1000

MATHEMATICS OF NEURAL NETWORKS AND APPLICATIONS

LMS Conference Support for Research Students

This international conference, announced in the November LMS Newsletter and taking place at Lady Margaret Hall, Oxford 3-7 July 1995, has recently been granted financial support by the London Mathematical Society - for which the conference committee is most grateful. This will in particular enable a number of UK research students (with their supervisors' approval) to attend at significantly reduced fees. All enquiries,

including those from students seeking reduced fees, should be made to: Mrs R. Hawkins, School of Computing and Mathematics, University of Huddersfield, Queensgate, Huddersfield HD1 3DH, England (e-mail: r.hawkins@hud.ac.uk), supplying name, address, telephone, fax, e-mail, intention of submitting a paper (abstracts by 17 February), and area of proposed contribution.

3rd INTERNATIONAL CONFERENCE ON FINITE FIELDS AND APPLICATIONS

This will be held at the University of Glasgow 11-14 July 1995 with the support of the Engineering and Physical Sciences Research Council and the London Mathematical Society.

Suitable topics Structures of finite fields (bases, primitive elements, polynomials). Explicit construction of finite field objects; algorithms and complexity. Arithmetic theory of function fields over finite fields. Connections with number theory, group theory, algebraic geometry. Applications to coding theory, combinatorial designs, geometries, cryptology. Exponential sums and connections with codes. Pseudorandom number generation.

Dynamics of polynomial maps and sequences over finite fields.

Invited speakers S.S. Abhyankar, A. Blokhuis, S.D. Cohen, M.D. Fried, D. Goss, T. Hellese, D. Jungnickel, G. Lachaud, H.W. Lenstra, R.C. Mullin, H. Niederreiter, J.-P. Serre, I.E. Shparlinski, S.A. Stepanov, D. Wan. There will also be sessions for 15 minute contributed papers. A refereed conference proceedings edited by S.D. Cohen and H. Niederreiter is planned.

For further information and registration form contact: S.D. Cohen, Department of Mathematics, University of Glasgow, Glasgow G12 8QW; e-mail: sdc@maths.gla.ac.uk; fax: (0)141-330 4111.

VICE-CHANCELLORSHIP

Professor Gillian Slater, formerly Pro-Vice-Chancellor at Manchester Metropolitan University, became Vice-Chancellor of Bournemouth

University on 1 December 1994. Professor Slater, who is an LMS member, is one of only two women vice-chancellors in the country.

VACANT UNIVERSITY RESEARCH FELLOWSHIPS The Royal Society

Applications are invited for between 40 and 60 University Research Fellowships, tenable from 1 October 1995. These fellowships are offered for a period of five years in the first instance with possible renewals for three years and then a further two years. The appointments available embrace all branches of science including agriculture, medicine, mathematics, engineering and technology. Applicants must have a PhD or equivalent research experience and should be at least 26 years of age and have between two and seven years' postdoctoral experience. They should be European Community citizens, who are either employed in the

UK or who, if not employed, have been resident in the UK for a continuous period of three years, other than for the sole purpose of receiving full-time education. Application forms and further information are available from the Research Appointments Department at The Royal Society (ext. 223). The closing date is 17 February 1995.

Amongst the recent new appointments were Dr P.A. Midgley, H.H. Wills Physics Laboratory, University of Bristol, Dr S.F.C. O'Rourke, DAMTP, The Queen's University of Belfast and Dr J.C. Vasílicos, DAMTP, University of Cambridge.

47th BRITISH MATHEMATICAL COLLOQUIUM Application Form

Application forms are included with this Newsletter to UK-based members. Please note the deadline of 1 February for reduced registration fee.

1994 - MATHEMATICS SURVEY

The Funding Committee of the London Mathematical Society has carried out a survey of mathematics departments in the UK on an annual basis since 1991; this followed the successful survey in 1988 by Sir Christopher Zeeman, who was then President of the Society. For this purpose a detailed questionnaire has been issued to all Heads of Mathematics Departments. Initially, this was restricted to the 'Old' Universities, but as from 1993, Heads of 'New' Universities were also invited to complete the questionnaire. The Society is extremely grateful to all those who have devoted so much time and energy to the exercise; we acknowledge that this is one more in an increasing number of such chores which cross the desk of a Head of Department these days.

The questionnaire was redesigned this year with the intention that it should be far easier to complete. Also it was shortened; some of the questions in earlier questionnaires which were no longer regarded to be as relevant were deleted. In addition, the Funding Committee reconsidered the timing of the Survey. It was decided that the ideal time in future for Heads of Departments to complete the questionnaire is towards the end of the calendar year when universities have produced most of the relevant statistics for USR purposes. Thus, in future, the questionnaire will be distributed before the end of the calendar year requesting a response by the middle of February. Provided there is a prompt reply, they will be analysed as soon as possible with at least a preliminary response to the Council meeting of the Society in March with a report in the Newsletter in April. This would be almost a whole year earlier than at present. This decision was taken too late to be implemented this year but the questionnaire for 1994/5 will be issued before the end of December.

The response to the 1993/4 questionnaire was disappointing. The retiming of the questionnaire meant that this one followed closely on the tail of the last one and it may have deterred some Heads of Departments who we all know are over-whelmed by paperwork these days. The number of responses from Old Universities decreased from last year's 48 (which was by far the highest total reached) to 38, but the New Universities increased from 11 to 14. In fact, in the case of the New Universities, it may be that we are already receiving replies from those who are most heavily involved in teaching Mathematics to Honours level. Although there was an overall decrease, it was gratifying that responses were received from ten universities who had not previously responded. If we can persuade those who had previously responded to do so in future and also maintain the newcomers, then we would have an excellent coverage. It is noticeable that the Heads of Departments of those who do not respond are mainly non-pure mathematicians and most are not members of the Society.

However, despite the lower response, the Survey was still very useful in many ways.

- We learnt that the questionnaire is still not as user friendly as we had hoped. There are changes in the system which makes it difficult to complete. For example, modularisation makes it more difficult to identify which teaching should be regarded as service teaching. The questionnaire will be modified without changing its basic structure. More questions will be deleted, especially those which are speculative in nature.
- It has given us an opportunity to experiment with a different way of presenting the results. Here, there is a point of principle. In the past, we have not circulated Heads of Departments with the Summary Table which gives information about the separate institutions. This was not done since it may have contained information which could indirectly divulge confidential information about individuals. In this year's question-

naire, Heads of Departments will be asked whether they object to the information about separate institutions being distributed with the report. We believe that this information gives a good profile of the state of UK Mathematics. This kind of information ultimately appears in USR in any case. Our idea is that we can produce it earlier than USR so that we can use it to defend our corner in a more effective way.

The following are some of the main points which arise.

1. Student Numbers Overall there is a slight increase in the total number of FTEs. This is achieved despite a decrease, as forecast, in service teaching but with a more than corresponding increase in undergraduate mathematics students. However, within the undergraduate total, there are fluctuations with some departments showing a decrease, some rather startling increases (this could be due to a different interpretation of the definitions when a new person completes the questionnaire). There is some evidence to suggest that some departments are able to compensate for a loss in service teaching through increasing their entry quota for mathematics. These tend to be the Universities which are able to attract high quality students with high A-level scores and which are perceived to be attractive by school leavers. They are able to achieve this with only a slight drop in entry requirements. However, this leads to recruitment problems elsewhere, where the entry requirements may already be lower. This can have a severe effect on the system as some of our strong research departments could be unduly affected by recruitment problems.

2. Staff Numbers Overall, in the Old Universities reporting there has been an increase of 9 staff numbers. But this covers some large increases, but with decreases elsewhere. However, some of these comparative figures must be considered with caution; it may be that staff, especially part time staff or college tutors, have been counted differently this year; elsewhere it is known by one institution that retirements in 1993/4 have already been replaced by up to 4 new appointments in 1994/5. Some of the others are known to be genuine and indicate departments which have lost and gained through the Research Assessment Exercise and their Universities response overall. The New Universities were more stable than the old, but one institution had 2 1/2 new staff members.

3. Brain Drain There was a question for the first time to attempt to obtain more specific figures as evidence on this issue. The results were as follows:

Total people, in the following categories, in your department, who have taken up academic employment outside the UK in 1993/94.

	Old		New	
	UK Citizen	Other	UK Citizen	Other
Permanent Academic Staff	4.00	1.00	0.00	0.00
Temporary Academic Staff	3.00		0.00	0.00
Postdoctoral	8.00	6.00	0.00	1.00
New PhD	9.00	15.00	1.00	0.00

Total staff were appointed to academic positions in your department in 1992/3, from posts or study overseas.

From the EU	14.25	5.00
International	14.00	7.00

Assuming that the Other New PhDs are overseas students returning home as expected, we seem to be importing more than we export at the present time. Presumably, it would be regarded as healthy that we are appointing our lecturing staff from amongst those who have broadened their experience overseas. It is interesting that the 14 New Universities responding have appointed 9 in this category.

4. Retirements The total numbers in retirements between now and 1999 are

	Old	New	Total
Pure	41	4	45
Applied	42	15	57
Statistics	8	10	18

The matter of replacements has been of great concern to the Society, but of course we only claim a replacement problem in the first decade of the next century. There should be a sufficient supply of qualified PhDs with postdoctoral experience to meet these retirements, but the number does increase towards the end of the period. It is clear that we should continue to put pressure on the funding bodies to increase postgraduate numbers as it is now accepted that considerable postdoctoral experience is a great advantage when appointing permanent staff, that is, a total of at least 7 years after graduating. Thus, for appointments in 2002 (the beginning of the alleged problem), students must commence on PhD studies in 1995.

5. Fee Banding An increasing number of departments claim, even in the old Universities, that they have some courses in Band 2, especially for those involving statistics laboratory courses.

6. Janet Up to 95% are now connected to Janet, presumably all who would wish to be connected. This question will be deleted from the questionnaire in future.

7. Funding In the Old Universities after an increase from £2632 per FTE in 1991/92 to £2716 in 1992/93, there was a decrease to £2459 this year. This figure may be due to a lower number of universities responding. However, it may have been expected in that there may have been an increase in student numbers without a corresponding increase in grant. Again, a comparison with the New Universities is striking, their corresponding figure is £1652.

8. The Future There are a number of questions where departments are asked to speculate on student numbers (undergraduate mathematics and service) and A-level entry grades. We have decided that these questions do not provide useful information and they will be deleted from future surveys.

9. Library Expenditure This continues to be a matter of great concern. Although around 55% say that the expenditure on books is adequate, by now 86% say that expenditure on periodicals is either *inadequate* or *seriously inadequate*.

In this year's survey, an extra question was included to ascertain the subscription histories of some journals which are regarded as prestigious (e.g. *Annals of Mathematics*, *Inventiones Mathematicae*) and specialised (and prestigious?) (e.g. *Journal of Algebra*, *Discrete Mathematics*). The response so far is given in the table below. It is not clear how we should respond to this information. But it is important that our departments are sufficiently well informed to respond to any developments which may arise from the Follett Report on the Funding of University Libraries (see my note in the Newsletter). For example, it has been suggested that University Libraries within a region should cooperate - we should ensure that all journals are available within a region and within reach of our departments.

The detailed analysis of the Survey has been circulated to all Heads of Mathematics Departments. We have requested these to be freely available to all staff members - if a copy has not appeared in your common room do make enquiries with your Head of Department. As usual, any constructive comments on the Survey will be especially welcome.

However, for the continued success of the Survey, and if it is to be a reliable statistical survey, then it is absolutely essential that all departments respond and that the numbers provided are consistent with those which appear at a later date in the USR.

Library Periodicals						
Journals	Currently taken		Used to be taken, now cancelled		Never taken	
	Old	New	Old	New	Old	New
Annals of Mathematics	25		2	2	2	8
Inventiones Mathematicae	17		8		6	10
Transactions of American Mathematical Society	21	1	5	2	2	7
Journal of Algebra	24		4	2	2	8
Acta Mathematica	20		6		4	10
Discrete Mathematics	8	1	9		13	9
Quarterly Journal of Mechanics & Applied Mathematics	23	6	3	3	4	3
Journal of Fluid Mechanics	24	5	3	1	4	5
SIAM Journal of Applied Mathematics	23	5	4	2	4	5
Classical Quantum Gravity	8		3		18	9
Applied Mathematical Modelling	6	5	5		13	6
Numerische Mathematik	13	3	11	3	3	7
Journal of the Royal Statistical Society, Series B	19	11	5	1	3	
Advances in Applied Probability	19	1	1	1	5	7
Journal of American Statistical Association	25	6		1	3	3
Biometrika	23	9	2	1	2	2
Annals of Statistics	22	4	6	3	1	5
European Journal of OR	10	2	1		14	6

A.O. Morris, Chairman
Funding Committee

EPSRC WORKSHOP ON COMPLETELY BOUNDED MAPS AND COHOMOLOGY IN OPERATOR ALGEBRAS

This Workshop, which is supported by a grant from the EPSRC will take place in Newcastle from 17 July to 4 August 1995. It will overlap partly with the Banach Algebra '95 Conference (see Newsletter 221) which is being held in Newcastle on 17-28 July 1995. There will be some joint sessions and participants in either event may attend the formal sessions of the other. The leading participants in the Workshop are E. Effros (Los Angeles), F.L. Gilfeather (New Mexico), A.Y. Helemskii

(Moscow), V.I. Paulsen (Texas), R.R. Smith (Texas), A.M. Sinclair (Edinburgh). Participation in the Workshop is by invitation only and anyone wishing to receive an invitation should write to the organiser, Professor B.E. Johnson, Department of Mathematics and Statistics, University of Newcastle, Newcastle upon Tyne NE1 7RU, England, fax: 091 222 8020, tel: 091 222 7314 to arrive by 31 January if possible.

University of Edinburgh
DEPARTMENT OF MATHEMATICS AND
STATISTICS

Lecturership in Mathematics (ref.490564)
and
Lecturer/Computing Officer (ref.490565)

Applications are invited for a new Lectureship in Mathematics tenable from 1 September 1995 or earlier if this can be agreed. Preference will be given to candidates with research interests in analysis (including stochastic analysis), geometry, numerical analysis, analytical or numerical aspects of partial differential equations, applied differential equations or related areas. The position is tenable for five years, but with the possibility of a permanent contract for an exceptionally well qualified candidate.

Applications are also invited for a position as Lecturer/Computing Officer commencing as soon as can be agreed. The position will entail joint responsibilities for teaching and research and (with other Computing Officers) the management and development of the Department's computer installations. Candidates should have research interests in an area of mathematics or statistics which makes significant use of computation, and have practical experience in the running of computer systems. The position is tenable for five years in the first instance.

Salary for both positions will normally be on the Lecturer Grade A scale (£14,756-£19,326) or possibly on the Lecturer Grade B scale (£20,133- £25,735).

Informal enquiries may be addressed to Dr J. Martin, Department of Mathematics and Statistics, The King's Buildings, Edinburgh University, Edinburgh EH9 3JZ, tel: 0131-650-5062, e-mail: hod@maths.ed.ac.uk.

Three copies of applications (one copy from overseas candidates), including curriculum vitae and the names and addresses of three academic referees, quoting the appropriate reference number, should be addressed to the Personnel Office, University of Edinburgh, 1 Roxburgh Street, Edinburgh EH8 9TB. Further particulars may be obtained from this address or from the Internet via the Departmental WWW home page (<http://www.maths.ed.ac.uk>).

Closing date: **20 January 1995.**

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DEPARTMENTAL NEWS

Hull University Dr Zdzislaw Brzezniak has been appointed to a Lectureship in Pure Mathematics, and Dr Beate Zimmer has been appointed as the University Leverhulme/USA Visiting Fellow, in the Department of Pure Mathematics.

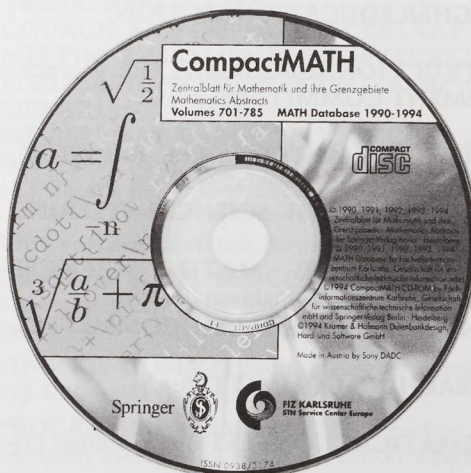
Kent University Dr Peter Clarkson, at present Reader in Differential Equations at the University of Exeter, has been appointed to the Chair of Mathematics at the University of Kent and will take up this position from 1 April 1995.

THE LIBRARY

Enclosed with this issue of the Newsletter is a leaflet giving details of the library facilities and services offered together with a copy of the photocopy request form. Members are encouraged to make use of these. Note that the Library is not just for the benefit of those in London. With periodical and book acquisitions shrinking in many places, it is hoped that members all over the country will find the rapid Xeroxing service and the postal borrowing services valuable. The catalogue is available via JANET by Telnet or through a PAD.

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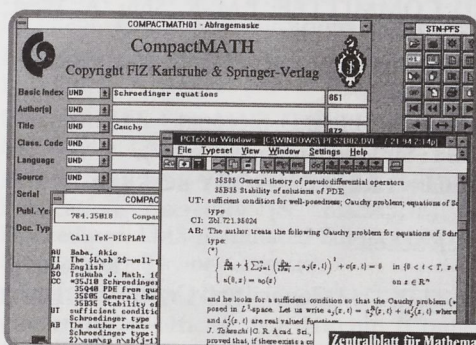


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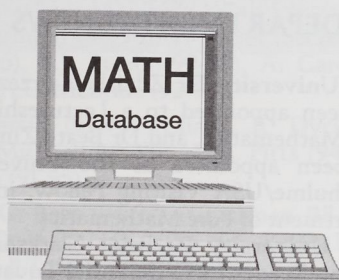
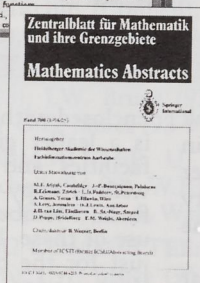
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DIARY

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.

JANUARY 1995

13 Edinburgh Mathematical Society Meeting, Heriot-Watt University, Dr H. Ockendon (219)

FEBRUARY 1995

5-9 ANZIAM'95, University of Western Australia (219)

7-10 Fractals in the Natural and Applied Sciences International Working Conference, Marseilles, France (217)

10 Edinburgh Mathematical Society Meeting, Edinburgh University, Professor M.J. Dunwoody (219)

11 Arthur Cayley (1821-1895) Special Day, Mathematical Institute, Oxford (221)

17-18 Two-day London Mathematical Society Meeting, Mathematics and Computers, Warwick University

MARCH 1995

10 Edinburgh Mathematical Society Meeting, Abertay, Professor A.D. Wood (219)

17-24 Sciences, Engineering and Technology Week (219)(221)

19-22 Carolus Magnus on Arithmetic and Geometry Colloquium, Aachen, Germany (217)

26-29 Postgraduate Conference in Probability & Statistics, Keble College, Oxford (222)

27-29 Applications of Logic, University of York (221)

27-31 Workshop on Stochastic Evolution Equations as Dynamical Systems, Warwick University (222)

APRIL 1995

3-6 British Mathematical Colloquium, Heriot-Watt (221)

3-6 Conference on Numerical Methods for Fluid Mechanics, Oxford (221)

18-22 Professor P.F. Baum, LMS Invited Lectures, Manchester University (218)

23-26 Korteweg and de Vries International Symposium, Amsterdam, The Netherlands (210)

24-28 Operator Algebras Symposium, Fields Institute, Canada (212)

MAY 1995

5 Edinburgh Mathematical Society Meeting, Stirling University, Dr C.J.H. McDiarmid (219)

6 A Celebration of Two Lives, William Kingdon

Clifford and Lucy Clifford, Kent University, Canterbury (222)

12-13 Two-day London Mathematical Society Meeting, 'A Hundred Years of Analysis', Oxford University.

29-1 June Mathematical Modelling Conference, University of Brunei Darussalam (214)

JUNE 1995

2 Edinburgh Mathematical Society Meeting, St Andrews University, Dr M.A. Berger (219)

16 London Mathematical Society Meeting, Burlington House, London

25-29 European Consortium for Mathematics in Industry Conference, Technical University of Denmark, Lyngby (222)

28-30 Conference on the Legacy of George Boole, University College, Cork (219)

JULY 1995

3-7 Fifteenth British Combinatorial Conference, University of Stirling (210)

3-7 International Congress on Industrial and Applied Mathematics, Hamburg (213)

3-7 Mathematics of Neural Networks and Applications, Lady Margaret Hall, Oxford (221)

3-14 Gauge Theory and Symplectic Geometry Seminar, Montreal University, Canada (222)

9-16 European/Gregynog Stochastic Analysis Symposium, Gregynog, Wales (222)

10-12 Linear Algebra and Its Applications Conference, Manchester University (220)

10-21 Workshop on Ergodic Theory on Riemannian Manifolds, Warwick (222)

11-14 Finite Fields & Applications International Conference, University of Glasgow (219)

13-16 British Congress of Mathematics Education, Manchester Metropolitan University (220)

17-21 Symposium on Sieve Methods, Exponential Sums and their Applications in Number Theory, University of Wales College of Cardiff (221)

17-28 Banach Algebras '95, Newcastle University (221)

24-5 Aug Workshop on Differential Geometry & Stochastic Analysis, Warwick (222)

AUGUST 1995

28-1 Sep The A.C. Aitken Centenary Conference, University of Dunedin, New Zealand (210)

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. Telephone 071-437 5377, fax 071-439 4629, e-mail lms@uk.ac.kcl.cc.bay. The London Mathematical Society is registered with the Charity Commissioners.