THE LONDON MATHEMATICAL SOCIETY NEWSLETTER

No. 209   October 1993

ANNUAL GENERAL MEETING

The Annual General Meeting of the London Mathematical Society will be held on Friday 19 November 1993 at 3.00 p.m. in the Linnean Society Lecture Room, Burlington House, Piccadilly, London W1.

At the Annual General Meeting the report of the Treasurer will be read, the Council and Officers of the Society for the coming year will be elected, and Auditors appointed. The election of Council and Officers is governed by Article 9 of the Charter of the Society, by Articles 18, 24 and 31 of the Statutes of the Society and by By-Law I of the By-Laws of the Society.

A Ballot Paper is enclosed which contains a list of those names recommended by the present Council, in accordance with By-Law I.6, for election as Officers and Members-at-Large of the Council. It should be noted that the following five Members-at-Large of Council elected for two-year terms at the last AGM have one remaining year to serve:

F.H.J. Cornish, A. Gardiner, H.R. Morton, M.J. Taylor, C.T.C. Wall.

The election is (again) uncontested because no nomination from a Member of the Society was received by the Council and General Secretary by the deadline of 1 September 1993.

A Member of the Society is entitled to vote in the election by striking out on the Ballot Paper those names for which he/she does not vote. The Member must then validate the Ballot Paper both by writing her/his name legibly on it and by signing it.

The completed Ballot Paper should either be brought to the AGM or sent to "The Scrutineers, London Mathematical Society, Burlington House, Piccadilly, London W1V 0NL", to arrive at least 36 hours before the time of the AGM. An appropriate envelope is enclosed.
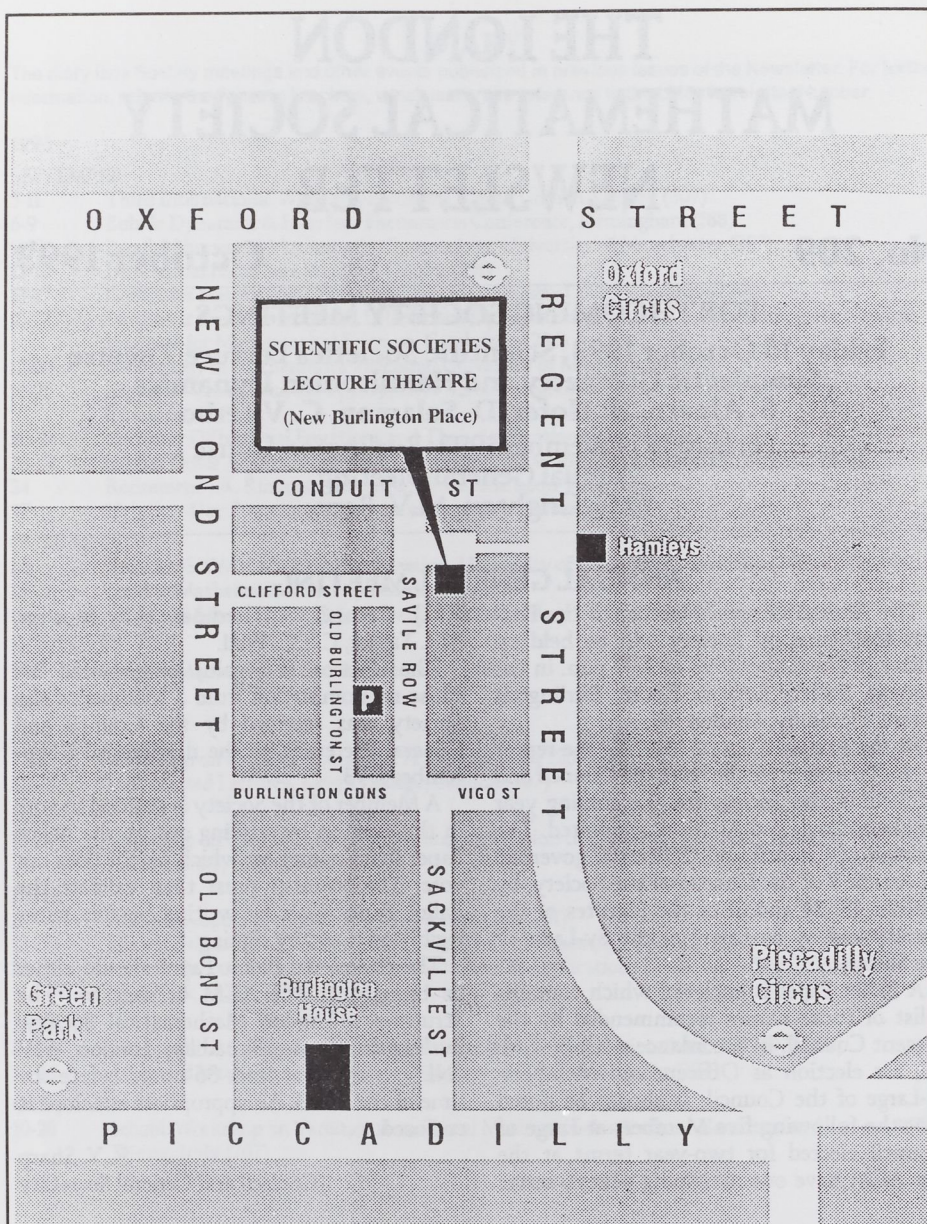
R. Y. Sharp
Council and General Secretary

ANNUAL DINNER

The 1993 Annual Dinner will be held after the Annual General Meeting on Friday 19th November at 6.30 pm for 7.00 pm at the Royal Over-Seas League, Over-Seas House, Park Place, St James's Street, London SW1. The cost is £21.50 per person and members may book places for guests. The booking form enclosed with this Newsletter, should be returned together with payment to the London Mathematical Society office by Wednesday 10th November.

The London Mathematical Society meeting on Friday 15 October 1993 will be held at the Scientific Societies Lecture Theatre.

LONDON MATHEMATICAL SOCIETY

FRIDAY 15 OCTOBER 1993

MEETING ON SYMPLECTIC GEOMETRY AND HAMILTONIAN DYNAMICS

2.00 C. Viterbo (Paris-Sud)

Lagrange Submanifolds and Symplectic Topology

2.50 S. Alpern (L.S.E)

Fixed Points of Area-Preserving Homeomorphisms

3.40 H. Hofer (ETH Zürich)

Pseudoholomorphic Curves in Three-Dimensional
Contact Geometry

A General and Ordinary Meeting
will commence at 5.00

D. Salamon (Warwick) will speak on

Generating Functions, Symplectic Action and
Holomorphic Curves

The meetings will be held at the Scientific Societies Lecture Theatre,
New Burlington Place, off Savile Row, London W1.

PLEASE NOTE VENUE

All interested are very welcome.
Tea will be served at 4.30

LONDON MATHEMATICAL SOCIETY ANNUAL SUBSCRIPTION

The annual subscription, including publications, for the session November 1993 - October 1994 is due on 1st November 1993. Together with this Newsletter is a renewal form to be completed and returned with your remittance in the enclosed envelope. No action is required if you are already paying by Direct Debit, and do not wish to change your choice of publications. Fully complete and return the form if you are paying by Direct Debit but wish to change your choice of publications or add/delete a subscription to the European Mathematical Society. Bank accounts of members paying by Direct Debit will be debited with the appropriate amount on 17th January 1994. Other members should either enclose a cheque (£ sterling or US$) with their form or, if they have a UK bank account and wish to take advantage of this convenient form of payment, request a Direct Debit mandate.

If the renewal form is missing from this Newsletter, write to Miss H.K. Lotay, Assistant Administrator, London Mathematical Society, Burlington House, Piccadilly, London W1V 0NL, or e-mail: lms@uk.ac.kcl.cc.oak.

PUBLICATIONS PRICING POLICY

The London Mathematical Society has a pricing structure for its journals which allows individual members to purchase them at a substantial discount. These discounted prices are intended for personal use only and the journals should be kept among your pesonal belongings and not deposited, even temporarily, in a library, common room or other public area. Issues of the journals should be accessible to other mathematicians or students only with your permission, given individually in each instance.

1995 HARDY LECTURER

In Spring 1994 the Council proposes to appoint the 1995 Hardy Lecturer. The Lectureship is awarded to a distinguished overseas mathematician, who then comes to the United Kingdom and Ireland for from four to six weeks, visits a number of universities, and addresses the June meeting of the Society, giving in all about twelve lectures during this stay. The visit usually takes place during the months of May and June.

The Council invites members of the Society to submit their views on possible candidates for the award of this Lectureship, together with reasons for their choice, confidentially in writing to any member of the General Purposes Committee of the Society (J.R. Ringrose, J.D.M. Wright, R.Y. Sharp, D.J. Collins, D.A. Brannan) by 30 November 1993.

R. Y. Sharp
Council and General Secretary

DEPARTMENTAL NEWS

Exeter University Professor C.A. Jones has been appointed Head of Department of Mathematics as from 1st August 1993.

Imperial College Professor T.J. Lyons moved to the Department of Mathematics with effect from 1st May 1993. Dr Bogusglaw Zegarlinski has been appointed to a regular position in the Pure Section of the Department of Mathematics with effect from 1st September 1993.

King's College London Dr D.C. Robinson has been appointed Head of Department of Mathematics from 1st August 1993.

A MEMORIAL MEETING
FOR PROFESSOR PHILIP HOLGATE

WILL BE HELD ON FRIDAY 10th DECEMBER 1993
IN THE HARKNESS HALL, BIRKBECK COLLEGE

ALL WHO WISH TO ATTEND ARE WELCOME

<u>Afternoon Session - Scientific Papers</u>

2:00pm Dr J Haigh [Philip Holgate, & Stochastic
Processes in Biology]

2:45pm Professor N H Bingham [Philip Holgate, &
the History of Probability and Statistics]

3:30pm TEA (Old Refectory)

4:00pm Professor R A Bailey [Algebra in Biometry]

4:45pm Professor C D Kemp [Elephant Herds,
Animal Traps, & the Development of
Ecological Distributions]

6:00pm Refreshments (Old Refectory)

<u>Evening Session - Personal Tributes</u>

7:00pm Baroness Blackstone, Master of Birkbeck
College, will introduce the evening session

Speakers will include:
Professor J C Robson, Mr C Chalmers, Mr M Cooper

MATHEMATICS AND EDUCATION POLICY

In Spring, 1992, I was asked by Jacques Camus to prepare a report on Mathematics and Education Policy in the United Kingdom. The occasion for this was a Round Table discussion on the topic at the European Congress of Mathematicians in July in Paris. Initially his idea had been to prepare a document comparing the position of Mathematics within the education systems of various European countries. This was to complement and to some extent complete the excellent work by Howson on the place of Mathematics in the National Curricula of a group of European countries plus Japan. It became clear however during the preliminary discussions in Paris earlier in the year, that there was an even more pressing need for a series of documents explaining the structure of the final years of secondary school and of the first and higher degrees in higher education. This need was occasioned by the increasing links (ERASMUS, TEMPUS etc) between higher education institutions within the EC and with certain other neighbouring countries.

How was one to interpret the level of, say, someone who had completed 4 years in a German university and was asking for an ERASMUS place in a UK university? This was one reason, another was that 'political' decisions are constantly being made on the basis of partial information. For instance, a decision as to whether or not to insert more probability theory into the baccalaureate programme in France, might be taken because the nature of the UK examination system was misunderstood and the programme for the Maths and Statistics A-level might be thought to indicate the normal content of all Maths A-levels with regard to the amount of Probability taught. Simplistic comparisons can also be made by journalists trying to compare education systems that are very different in some respects but not in all. The size of the annual 'production' of graduates in a given subject is an obvious point here.

The aim of the Round Table thus changed to being a start on the huge task of providing and exchanging information between Mathematics Departments in the various systems. Needless to say it did not succeed in doing more than scratching the surface of the problem.

I prepared, with help from numerous people, a 19 page document, designed primarily for that discussion session. An abridged version will appear, together with similar documents from Belgium, France, Italy and Germany, in the Proceedings of the E.C.M., however that abridged version does not contain any of the tables that were in the original report. Various people have commented that the full report contains information that would also be of use to mathematicians in other places than just Europe and in particular would be useful for mathematicians here in the UK. A copy of the full report can be obtained by writing to or e-mailing me. (It is hoped to make an ftp version of the LATEX file and a dvi-file available once the London Mathematical Society's ftp-archive is set up. This will greatly ease the task of providing copies!)

The report is structured in four sections. The first and longest of these 'Mathematics Teaching in Secondary Schools and Higher Education' describes the overall structure of the various systems that exist in the UK. After a brief description of the secondary school system in England and Wales, Scotland and in Northern Ireland, the report gives approximate figures for the percentage of students staying on at 18, those taking some mathematics and those taking the most advanced maths available. This is followed by a description of the A-level system, the system of independent examination boards and some discussion of the fall in the numbers taking Maths at A-level or Highers. Here the data is far from complete and further work is in hand by the Education Committee to obtain a more accurate picture. The second part of this long first section looks at higher education. As the report was prepared for a meeting in France, I used a subdivision into 'cycles' based on:

'BA/BSc' = first cycle, 'MA/MSc' = second cycle, 'PhD/D.Phil' = 3rd cycle. The description includes figures on the number of full time students taking Mathematics or Statistics, mostly in the period up to 1988-89 but some more recently. (When the report was written the University/CNAA divide was still in existence. Figures are analysed for the two systems.) There then follows brief descriptions of joint degrees, the content of courses, teaching methods and assessment. I then attempted, with help from colleagues at the O.U., to give an impression of the importance of O.U. courses/degrees as they concern Mathematics. This is, I think, an area that needs much more work than I was able to devote to it. 'Second cycle' courses are then described with numbers of students and a description of the problems of funding. 'Third cycle' courses are then similarly described.

Given the importance attached to mathematics in the training of engineers in France and Germany in particular, the second section looks at this from the UK viewpoint. This is a very important area when it comes to inter-European comparisons and again it is difficult to gain any overall picture of the situation.

The peculiar situation of the UK on the recruitment and training of teachers of mathematics is described in the third section. In particular, the report attempts to highlight the low percentage of 1st degree mathematics students amongst the PGCE students specialising in maths. The crises over who teaches service maths courses will exacerbate this problem. The content of a PGCE course in Mathematics is then discussed followed by a description of selection procedures for maths posts in schools. One question posed by the coordinator (J. Camus) of the Round Table was the extent to which teachers in Higher Education Institutions were trained to teach, so this is discussed briefly.

The final short section looks at some aspects of research into mathematics teaching.

The report was written a year ago and already needs updating. Not only does new data need adding, but also several new developments (M.Math, the end of the binary divide, etc.) are not described in any detail. The report is freely available to anyone who wants a copy.

Dr T Porter
School of Mathematics
University of Wales at Bangor
Dean Street, Bangor
Gwynedd LL57 1UT, United Kingdom
e-mail: MAS013@UK.AC.BANGOR

Walter de Gruyter
Berlin • New York

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de Gruyter Expositions in Mathematics
Editors: O. H. Kegel • V. P. Maslov • W. D. Neumann • R. O. Wells, Jr.

The Analytical and Topological Theory of Semigroups
Volume 1

- Trends and Developments -

Editors: *K. H. Hofmann, J.D. Lawson,* and *J.S. Pym*
1990. 17 x 24 cm. XI, 398 pages.
Cloth DM 138,-- / sfrs 133.00 / ÖS 1077.00
ISBN 3-11-012489-0

H.J. Baues *Volume 2*

Combinatorial Homotopy and 4-Dimensional Complexes

With a preface by Ronald Brown

1991. 17 x 24 cm. XXVII, 380 pages.
Cloth DM 158,-/ sfrs 152.00 / ÖS 1233.00
ISBN 3-11-012488-2

A.M. Meirmanov *Volume 3*

The Stefan Problem

Translated from the Russian by Marek Niezgódka
and Anna Crowley
1992. 17 x 24 cm. IX, 245 pages.
Cloth DM 148,-- / sfrs 143.00 / ÖS 1155.00
ISBN 3-11-011479-8

K. Doerk/T. Hawkes *Volume 4*

Finite Soluble Groups

1992. 17 x 24 cm. XIV, 891 pages.
Cloth DM 268,-- / sfrs 255.00 / ÖS 2091.00
ISBN 3-11-012892-6

A. A. Karatsuba / S. M. Voronin *Volume 5*

The Riemann Zeta-Function

Translated from the Russian by Neal Koblitz
1992. 17 x 24 cm. XII, 396 pages.
Cloth DM 198,-- / sfrs 190.00 / ÖS 1545.00
ISBN 3-11-013170-6

V. R. Nazaikinskii, V. E. Shatalov, *Volume 6*
B. Yu. Sternin

Contact Geometry and Linear Differential Equations

1992. 17 x 24 cm. VII, 216 pages.
Cloth DM 148,-- / sfrs 143.00 / ÖS 1155.00
ISBN 3-11-013381-4

Yu. A. Bahturin, A.A. Mikhalev, *Volume 7*
V.M. Petrogradsky, M.V. Zaicev

Infinite Dimensional Lie Superalgebras

1992. 17 x 24 cm. X, 250 pages.
Cloth DM 158,-- / sfrs 152.00 / ÖS 1233.00
ISBN 3-11-012974-4

E.I. Khukhro *Volume 8*

Nilpotent Groups and their Automorphisms

1993. 17 x 24 cm. XIV, 252 pages.
Cloth DM 158,-- / sfrs 152.00 / ÖS 1233.00
ISBN 3-11-013672-4

M. Jarnicki/P.Pflug *Volume 9*

Invariant Distances and Metrics in Complex Analysis

1993. 17 x 24 cm. XI, 408 pages. With 6 figures.
Cloth DM 178,-- / sfrs 171.00 / ÖS 1389.00
ISBN 3-11-013251-6

E. Guadagnini *Volume 10*

The Link Invariants of the Chern-Simons Field Theory

- New Developments in Topological Quantum Field Theory -

1993. 17 x 24 cm. XIV, 312 pages. With 157 figures.
Cloth DM 148,-- / sfrs 143.00 / ÖS 1155.00
ISBN 3-11-014028-4

LEIBNIZ POST-DOCTORAL FELLOWSHIPS IN MATHEMATICS

EC Human Capital and Mobility Programme
Second Round

Applications are invited for a number of 2 year fellowships for research in any area of mathematics, to be held at any one of the institutions in the following network:

CRM, Institut d'Estudis Catalans, Barcelona
Max-Planck-Institut für Mathematik, Bonn
Department of Pure Mathematics & Mathematical Statistics or Newton Institute, Cambridge
DMI, Ecole Normale Supérieure, Paris
Département de Mathématiques, Orsay, Paris

Conditions Applicants must be citizens of a member state of the European Community or resident in the Community, be under 33 and expect to have completed a PhD or equivalent degree by 1 October 1994. Exceptionally, consideration may be given to applicants who expect to finish by 1 October 1995. Applicants should propose at least 2 institutions at which they would accept appointment; each of which must be outside their country of citizenship or residence, and other than the institution at which their doctoral studies have been carried out. In all cases successful candidates will be expected to take up their fellowships on 1 October 1994. Holders of the fellowships will be encouraged to spend 6 months at a second network institution. Information concerning salaries and the main mathematical interests of the various institutions can be obtained from the coordinator (e-mail: leibniz@pmms.cam.ac.uk).

Applications These must include a c.v., list of publications, concise description of research interests and the names of 3 referees, and should reach the coordinator

Dr. C.B. Thomas
Leibniz Fellows
Department of Pure Mathematics & Mathematical Statistics
University of Cambridge
16 Mill Lane
Cambridge CB2 1SB

(fax: 44-223-337920)

by **30 October 1993**. Each candidate must ensure that his/her referees send their reports so as to reach the coordinator by the same date. A network committee will make an initial selection of the fellows on 13 November 1993.

MODULES NEED NOT DAMAGE YOUR COURSE

There has been much talk recently of modularisation, semesterisation and other ugly words, some of the results being presented as an evil, at best a necessary evil. Some departments have suffered a twin reorganisation, into modules and semesters simultaneously, and have clearly disliked the process. Need things be as bad as we are told?

I have no case to make for semesters, which we have so far avoided at Reading, but we have a considerable experience of unit systems which is worth some comment. The background is that the School of Mathematical Sciences at Reading adopted a unit system, voluntarily, about fifteen years ago and, with a little adjustment in the light of experience, we have remained happy with it. Recently, the entire Science Faculty converted to a unit system (different, of course), so we have, less willingly, adapted to another scheme. The contrast, both in the way of proceeding and in the perceived outcome, is interesting.

One point to make at the beginning is that, other than the fact that there is a measure of quantity associated with the "unit" or "module", a modular system is whatever you define it to be, and its worth will depend on the other objectives adopted with the reorganisation. The disadvantages described by Adam McBride in his recent article could all be avoided - if they are seen as disadvantages. Our fifteen-year-old unit system intended to give the students as much flexibility of choice as was academically sensible, with as little disturbance to the existing courses as possible. Other aims included the revision of the examining system, which then had some visible faults. The main consequent changes made, not without controversy, were concerned with providing the flexibility of student choice, which certainly involved some significant changes in certain courses. Apart from this, the courses had to be packaged into identifiable doses, measured in terms of the "unit", but to fit academically sensible teaching and examining not all courses are of the same amount - there are half-units and (few) double units. As the courses evolved directly from the existing ones, so did the timetable; no revolutionary changes were made to it. This all reflected the aims we had at the time: there was no call for a complete free-for-all in student choice, and the way in which mathematical courses depend on the prior study of other topics, limits the amount of choice which can sensibly be exercised anyway.

What were the advantages? We achieved the flexibility that we sought and saved some double teaching. (The saving should not be overestimated, about 5% in all.) There was added flexibility for the students including, in cases where it makes sense, the possibility of varying the proportions of a joint degree. The additional exams we saw as a gain, giving students better indications of progress and applying some pressure at what we thought were helpful times, which also helped to make the students' choice a more informed one. The need to produce documentation to inform student choice proved a useful discipline, as was the need to spell out pre-requisites and interdependence, which allowed information to reach parts other systems had failed to reach. It is, in our experience, a little easier to plan new courses, but that is marginal.

Not all of the gains would be universally accepted. The students have more exams than they had before the unit system, partly because we wished that, in order to tackle perceived problems with what had gone before, where some of the basic material furthest in advance of the examinations was poorly known. The revised system did produce a better understanding of the earlier parts of the course. Nevertheless, more examining is part of our structure, and if not carefully controlled it can get out of hand, with lots of little exams; the packaging of courses into units has to be done with the sensible examining in mind. The sort of question set in the earlier exams has to correspond to the students' current level of sophistication, rather less than it would be by

Finals. This caused some disquiet, but has not been a problem in practice, perhaps because all topics of significance are built on by later courses and more subtle examples can be used in the form of the later material. (This is true of mathematics, but perhaps not of all subjects.) In a few cases a good performance in the early exams can boost confidence and improve a student's perception of his or her abilities.

The disadvantages we saw included a tendency to think of the course in a fragmented way. Giving too much freedom to pick and choose inhibits lecturers' ability to make links with other areas of the subject when many of the class have not taken the topics referred to. Other drawbacks include extra administrative effort, but on the whole we gained more than we lost. So now we have re-modularised, to use a word of an elegance approximating to that of the process. The faculty-wide system was introduced with clearly stated aims and the result has been mixed, partly because different groups see the purpose of the new system differently. It also came with a presumption that each module (two hours of lectures plus a tutorial per week, to us) should be taught within a four-hour half-day; the mathematical sciences have refused to adopt this format (and are held to be eccentric for not so doing), since it would have such a drastic effect on the way we teach, and is not in our eyes necessary for a unit system. (Had we not already had a unit system it might have been harder to escape this.)

The lessons we have learned are fairly simple, mainly to keep the "system" from forcing the teaching or examining into unnatural ways - in other words to keep the flexibility to do what is sensible. Even within one department, different topics may need different formats, but this is certainly necessary when many subjects are involved.

A modular system should not be an end in itself, but a means to other ends. If these other aims are sound then common sense should produce a worthwhile unit structure.

David S.G. Stirling
University of Reading

THIRD INTERNATIONAL CONFERENCE ON GROUP THEORY

An international conference on Group Theory will be held at Pusan National University, Republic of Korea, from 18th to 25th August 1994. The meeting will be run on lines similar to its predecessors, with opportunities to present papers and the proceedings to be published in 1995.

Those who have so far expressed an interest include the following: B. Amberg (Mainz), C. Campbell (St. Andrews), K. Doerk (Mainz), M.J. Dunwoody (Southampton), D Garbe (Bielefeld), C. Gupta (Manitoba), N. Gupta (Manitoba), H. Helling (Bielefeld), J. Howie (Heriot-Watt), N. Ito (Meiji), L. Kovács (Canberra), P. Kropholler (London), T. Maeda (Kansai), J. McCool (Toronto), J.L. Mennicke (Bielefeld), B.H. Neumann (Canberra), W. Neumann (Melbourne), A. Yu O'lshanskii (Moscow), C. Praeger (Nedlands), S. Pride (Glasgow), A. Rhemtulla (Edmonton), E. Robertson (St Andrews), D. Robinson (Urbana-Champaign), J. Rolfs (Eichstadt), G. Rosenberger (Dortmund), K. Shum (Hong Kong), J.R. Stallings (Berkeley), F. Tang (Waterloo), R. Thomas (Leicester), H. Yamaki (Tohoku), H. Zieschang (Bochum).

If you are interested in participating in the Third Korean Group Theory Conference, and would like to receive a letter of invitation and the second announcement early in 1994, write to either Professor Ann Chi Kim, Department of Mathematics, Pusan National University, Pusan 607, Republic of Korea, email: ackim@hyowon.pusan.ac.kr, or Dr D.L. Johnson, Department of Mathematics, Nottingham University, Nottingham NG7 2RD, United Kingdom, e-mail: dlj@uk.ac.nott.maths.

MATHEMATICAL SCIENCES RESEARCH INSTITUTE
Berkeley, California

The Institute solicits applications for membership during the 1994-95 year, which begins on September 6, 1994.

In 1994-95 two programs will be featured. Although these two areas will be emphasized, applications from candidates in all fields are welcome. Applications are invited for Postdoctoral Fellowships and Research Professorships, as well as General Memberships.

Automorphic Forms. A full-year program. The object of the program will be to bring together mathematicians studying automorphic forms from different viewpoints in an atmosphere that fosters cross-fertilization of ideas. There will be two workshops: one in the Fall and one in the Spring.

Topics will include, but not be limited to:
1. Explicit constructions of L-functions: Langlands-Shahidi method, Rankin-Selberg method
2. Special value problems
3. Spectral theory of automorphic forms
4. Langlands functoriality
5. Theta correspondences

The program committee consists of: Daniel Bump, Stephen Gelbart, Dennis Hejhal, Jeff Hoffstein (co-chairman), Steve Rallis (co-chairman), and Marie-France Vigneras.

Complex Dynamics and Hyperbolic Geometry. A half-year program in the Spring.

The focus will be on the following topics:
1. Conformal dynamics in one complex variable
2. Geometry and dynamics of hyperbolic 3-manifolds
3. Dynamics in several complex variables
4. Riemann surfaces and quasiconformal mappings

A principal goal of the program is to foster the essential unity of these fields. The program committee consists of: Bodil Branner, Steve Kerckhoff, Mikhail Lyubich, Curt McMullen (chair) and John Smillie.

Application Procedures: If you are interested in applying you should request an application form. Write to: Mathematical Sciences Research Institute, 1000 Centennial Drive, Berkeley CA 94720, or send email to: info@msri.org with a message consisting of the single word "help". Women and minority candidates are especially encouraged to apply.

Candidates are asked to make sure that their application materials and letters of reference arrive by the deadline (September 30, 1993 for Research Professorships and November 30, 1993 for the others). Late applications cannot be assured a complete consideration. Awards will be announced by mid-December, 1993 for Research Professorships and by late February, 1994 for the others.

In 1995-96 MSRI will feature a full-year program in Several Complex Variables.

The Institute is committed to the principles of Equal Opportunity and Affirmative Action.

THE LIBRARY OF THE ROYAL SOCIETY, LONDON

The Librarian of The Royal Society, London has very helpfully sent the following details about the Library, the facilities offered, and conditions of use.

The Royal Society Library dates from the foundation of the Society in 1660. Early meetings of the Society included experiments as well as discussion of recent scientific observations, so books of particular relevance to these activities began to be collected. Robert Hooke, the first curator of experiments and a founding Fellow, purchased many for the Society, and Fellows were encouraged then, as they are now, to present copies of their own works to the Library.

In 1667 Henry Howard, later sixth Duke of Norfolk, presented to the Society the library of Arundel House, a collection of about 2700 printed books and 570 manuscripts, which was then one of the finest private libraries in Europe. This core collection was dispersed in 1833 when the manuscripts were given to the British Museum (now the British Library) to form part of the national collection. In 1925, the non-scientific books were, with the permission of the Duchess of Norfolk, sold and the proceeds applied to a fund for the maintenance and improvement of the Library. The remaining 1000 volumes from the Arundel collection form a group offering especial interest, including about 50 incunabula, sixteenth century copies of works by Albrecht Durer, and volumes on astrology, navigation, geography and mathematics, including the *Elements* of Euclid published in 1528.

The Society has always recognized the importance of maintaining records of its activities. Volumes recording the meetings since 1660, mainly in English, have been preserved, as have the letters and papers of many individual scientists. These include the earliest manuscript copy of Isaac Newton's *Principia*, 46 volumes of the papers of Robert Boyle and 300 letters of Antoni von Leeuwenhoek. More recent acquisitions have been the papers of Sir John Herschel, Sir Henry Dale and Lord Florey. A collection of the papers of George Boole, given to the Society by his widow, is also held.

With the rapid growth of science in the nineteenth century, it became difficult for the Society to continue to maintain a thoroughly comprehensive scientific collection. In 1950 it was decided that the Library should concentrate on its role as a unique resource for historians of science, principally for the period 1660 to 1800, with particular emphasis on the lives and work of Fellows of the Society. Modern histories of science, histories of institutions, and biographies of scientists have been acquired to supplement the original collections of books and archives.

In its role as the national academy of science of the United Kingdom, the Society has always maintained close relations with other academies of science. The Library engages in the exchange of many journal publications, and holds rare titles published by national academies worldwide since the seventeenth century. In many cases these are the only copies now available in the United Kingdom.

Those sections of the collections which may be of greatest interest to researchers in the history of mathematics are as follows:

Archives

Over 250,000 archive and manuscript items are preserved and cared for. These include the complete and detailed official records from 1660, comprising the Journal Books kept of early meetings, Council and Committee Minute Books, and records of Fellows of the Society. In addition, original letters, scientific papers communicated to the Society, and letters and papers of individual scientists have been carefully mounted on guards and preserved in several series of books. Collections of papers are constantly being offered to the Society, but constraints on space enable it to accept only those with particular relevance to the history and work of the Society itself.

Early in its life the Society maintained a museum, but the artefacts were later presented to the Science Museum to form part of its founding collection. A small number of valuable artefacts remain with the Society, including a terrestrial globe by W. and T.M. Bardin, a chronometer made by Shelton and used by James Cook on his voyages to the Southern Hemisphere and several items of Newton memorabilia presented by the Revd Charles Turnor, FRS. Many of these items are on exhibition in the

Library from time to time.

Books

In addition to the collections of incunabula and early printed books, the Library houses an unrivalled collection of biographies of scientists from the time of Copernicus to the present. There is a special collection of about 500 volumes of the works of Isaac Newton and of books about him. Books by other early Fellows, elected before 1690, are maintained as a separate collection. The Society's policy of asking Fellows to donate copies of their works to the Library has resulted in a catholic collection of volumes, not all on scientific subjects, including a first edition of Edmond Halley's rare and little-known geometrical lectures, read at Oxford in 1704.

Scientific books published before 1950 form the greater part of the book stock, arranged in broad subject areas, one of which is Mathematics. Books published since 1950 are shelved in a simplified Dewey classification sequence, with the exception of the volumes on the history of science and technology which are grouped by subject, and occupy nearly half the shelf space in the main Library Reading Room. 1500 volumes of tracts and a complete set of the books published by the Society itself are also held.

Journals

Approximately 2000 journal titles are held, of which about 10% are currently received. These include complete sets of all journals published by the Society: *Philosophical Transactions*, published since 1665 and now the world's oldest continuously published journal with all referees' reports, and manuscripts of papers published before 1867; *Proceedings; Science and Public Affairs; Notes and Records: Royal Society News; Reports on Researches;* the *Year Book;* and the *Annual Report* and *Accounts*. Many of the journals, published by foreign national academies and various learned societies worldwide, date from the seventeenth and eighteenth centuries. The collection is comprehensive until 1800, and thereafter selective. Current titles include general scientific journals, such as *Nature, New Scientist, Scientific American* and *Lancet*, and there is a comprehensive selection of journals on the history of science, including *ISIS* and the *British Journal for the History of Science*. Journals in the history of mathematics include *Annals of the History of Computing, Centaurus,* the *Newsletter of the Charles Babbage Institute, Historia Mathematica, Archive for History of Exact Sciences,* and the *Newsletter of the British Society for the History of Mathematics.*

Illustrations

The Library receives many biographical enquiries. To support this aspect of its work, and to complement the records of Fellows of the Society, a collection of some 5000 portraits, engravings, photographs, slides, maps and other illustrations is maintained. Photographs of most of these can be supplied, and a small reproduction fee is charged. Income received in this way is reinvested in the purchase of items for the Library.

Non-book Material

The importance of the spoken word as a medium for historical research has been recognized for some years. The Society maintains a collection of recordings of meetings, lectures and speeches held under its auspices. In addition there is a growing collection of audio and video tapes of scientists talking about their life and work. Recordings of radio and television programmes relating to the Society and its Fellows are also acquired where possible. Microfilm copies of archival material have been made, both for reasons of security, and to ensure that irreplaceable originals are not damaged by excessive use.

The Library is open Monday to Friday from 10.00 - 17.00. It welcomes all **bona fide** researchers, but new enquirers are asked to discuss their requirements with the Librarian, and to supply a reference. A number of catalogues are available to users of the Library, and the Library staff will be pleased to provide help. Books may be borrowed by some authorized persons, but all loans are at the Librarian's discretion. Photocopies of manuscripts can be supplied, but only if the copying process does not endanger fragile materials. Readers will normally be provided with microfilm or printed copies of archive material for their research studies.

The above article appeared in the Newsletter of the British Society for the History of Mathematics and is reprinted by kind permission of the Editor.

WORLD MATHEMATICAL YEAR 2000

On 6th May 1992, in Rio de Janeiro, Professor J.-L. Lions, President of the International Mathematical Union (IMU) declared in the name of the Union that the year 2000 will be the World Mathematical Year. The Declaration of Rio de Janeiro set three aims. The first is to mark the turn of the century in a manner appropriate to the standard set by David Hilbert in 1900 and a Turn of the Century Committee has been set up to envision what the great mathematical challenges in the year 2000 will be. The second aim is that most countries that are members of UNESCO reach a level enabling their admission to the IMU by the turn of the century. A third aim is to improve through WMY 2000 the image of mathematics with the general public. A WMY 2000 Newsletter will be circulated to all National Committees and National Adhering Organizations of the IMU and the first issue appeared during the summer. For further information about WMY 2000 and the Newsletter, please contact: Helène Gispert, WMY 2000, Institute Henri Poincaré, 11 Rue Pierre et Marie Curie, 75231 Paris-Cedex, France.

VISIT OF PROFESSOR K.R. GOODEARL

Professor K.R. Goodearl of the University of California (Santa Barbara) will be visiting the UK during October. He will give talks at the University of Leeds on Monday 11th October, at the University of Glasgow on Wednesday 20th October and at the University of Edinburgh on Friday 22nd October. Titles will be announced later. Professor Goodearl's visit is partially supported by a Scheme 2 grant from the London Mathematical Society and by a grant from the Centenary Fund of the Edinburgh Mathematical Society. Further details from Ken Brown, Department of Mathematics, University of Glasgow, Glasgow G12 8QW, telephone 041 339 8855 ext. 6535, e-mail: k.a.brown@uk.ac.glasgow.cms.

UNIVERSITY OF CAMBRIDGE
DEPARTMENT OF PURE MATHEMATICS
AND MATHEMATICAL STATISTICS

University Lecturer or Assistant Lecturer in Pure Mathematics

Applications are invited for this post in any field of Pure Mathematics to take up appointment from 1 October 1994.

The current age-related scale for an Assistant Lecturer is £13,601-£18,855, and for a Lecturer is £17,379-£26,803.

Further information and details of application procedure, can be obtained from the Head, DPMMS, 16 Mill Lane, Cambridge CB2 1SB (e-mail: vacancies@pmms.cam.ac.uk; telephone: (0223) 337996; fax: (0223) 337920).

The closing date for applications is **1 December 1993**.

SERC Research Associate in Arithmetic Geometry and Automorphic Forms

Applications are invited for this 3-year postdoctoral research position, commencing on 1 October 1994, to work with J.H. Coates and R.L. Taylor. The current age related scale is £12,828 at age 24 rising to £18,855 at age 32. Further information and details of application procedure, can be obtained from J.H. Coates, DPMMS, 16 Mill Lane, Cambridge CB2 1SB (e-mail: vacancies@pmms.cam.ac.uk; telephone: (0223) 337996; fax: (0223) 337920).

The closing date for applications is **15 December 1993**.

The University is an equal opportunities employer.

MATHEMATICAL AND STATISTICAL ASPECTS OF DNA AND PROTEIN SEQUENCE ANALYSIS

A Royal Society Discussion Meeting on the above topic will be held on 8th and 9th December 1993. Recent advances in molecular biology have given rise to a wide range of challenging mathematical and statistical problems. These include the design and analysis of algorithms and artificial intelligence techniques for comparison and assessment of sequences and their structures, efficient protocols for gene mapping and cloning experiments, analysis of complicated pedigrees and modelling and inferences concerning evolution within and between species at the molecular level. The Humane Genome Project has given added impetus to many of these problems.

The speakers at the meeting are S. Brenner (Cambridge), D. Balding (QMW), T. Bishop (Leeds), E. Thompson (Seattle), M. Sternberg (ICRF, London), J. Fox (ICRF, London), M. Waterman (USC), S. Karlin (Stanford), T. Blundell (Birkbeck), S. Sawyer (St. Louis) S. Tavaré (USC), T. Gojobori (Mishima).

Attendance is open to anyone who is interested. There is no registration fee, but advance registration for the meeting is required. Registration details and further information are available from The Royal Society, 6 Carlton House Terrace, London SW1Y 5AG. The organisers of the meeting are Sir Walter Bodmer and Professor Peter Donnelly.

ROYAL SOCIETY DISCUSSION MEETING

There will be a Discussion Meeting 'Mathematical Models in Finance', organized by Dr S.D. Howison, Professor F.P. Kelly and Dr P. Wilmott, at the Royal Society on Wednesday 10 and Thursday 11 November 1993. Registration is required for Discussion Meetings. The programme, registration form and other information are available from the Scientific Meetings Secretary, The Royal Society, 6 Carlton House Terrace, London SW1Y 5AG (telephone 071-839 5561, ext. 278).

THE BENJAMIN FRANKLIN MEDAL

Sir Michael Atiyah, PRS, has been awarded the Bejamin Franklin Medal of the American Philosophical Society (APS). He was honoured for establishing links among differential geometry, topology and analysis, thereby creating useful mathematical tools for physicists. The Benjamin Franklin Medal is awarded in recognition of distinguished achievement in the sciences. Authorized by the United States Congress in 1906, the medal commemorates the 200th anniversary of the birth of Franklin, who founded the APS in 1743. Sir Michael received the Franklin Medal at the APS 250th Anniversary Celebration held in April 1993.

M. YA. SOUSLIN
(1894-1919)

The 3rd Souslin Conference, dedicated to the memory of M. Ya. Souslin (1894-1919), will be held in Saratov, Russia from 20th to 27th July 1994. The main topics include: set theory, model theory, logic, complexity, nonstandard analysis, real functions. The conference will be held in cooperation with the Associa-tion for Symbolic Logic (ASL). For further information write to: Vladimir Molchanov, Executive Director of the Souslin Foundation, Faculty of Mathematical Studies, Saratov Pedagogical Institute, ul. Michurina 92 Saratov, 410071 Russia, e-mail:@postmaster:scnit.saratov.su.

NANYANG TECHNOLOGICAL UNIVERSITY
SINGAPORE

NATIONAL INSTITUTE OF EDUCATION
SCHOOL OF SCIENCE

The Nanyang Technological University (NTU) is a full and comprehensive university. Courses that are offered currently at NTU include Accountancy, Arts, Business, Computer Technology, Education, Engineering, Physical Education and Science. The National Institute of Education (NIE) as part of the University is responsible for the training of teachers of all subjects at pre-school, primary school, secondary and pre-university levels. It aims to achieve excellence in teacher training and research in arts, science, education and physical education. It offers courses that range from diploma to degree and post-graduate levels.

The NIE is inviting high calibre candidates to apply to teach and conduct research and development activities in the Division of Mathematics of the School of Science. Applicants would be expected to have PhDs in the relevant areas, extensive teaching experience and proven ability in research. Successful applicants will be expected to contribute to a range of pre-service, in-service and postgraduate teacher education programmes and to educational research.

AREAS OF SPECIALIZATION

Alegbra, Analysis
Applied Mathematics, Operation Research
Teaching of Primary/Secondary Mathematics

Applicants for Teaching of Primary/Secondary Mathematics must also possess a teaching diploma or equivalent and minimum of two years relevant school teaching experience.

Gross annual emoluments (for 12 months) range as follows:

Professor	: S$108,870 - S$146,970
Associate Professor	: S$ 88,650 - S$122,870
Senior Lecturer	: S$ 58,680 - S$100,310
Lecturer	: S$ 39,350 - S$ 64,200

(£1 = S$2.38 approximately)

The commencing salary will depend on the candidate's qualifications, experience, and the level of appointment offered.

In addition to the gross annual emoluments, the University adopts the Government's practice in the payment of annual variable component/allowance, the quantum of which is tied to national economic performance and has, in the past 2 years been of 3 months' salary.

Other benefits, depending on the type of contract offered, include provident fund benefits or an end-of-contract gratuity of 25% of the staff members' last drawn monthly salary for each completed month of service, settling-in allowance, subsidised housing, children's education allowance, passage assistance, and baggage allowance for transportation of personal effects to Singapore. Leave and medical benefits will also be provided. Staff members may undertake consultation work of a specialist nature, subject to the approval of the University, and retain consultation fees up to a maximum of 60% of their gross annual emoluments in a calendar year.

Applicants should send their curriculum vitae and the names and addresses of three referees to: **Director of Personnel, NANYANG TECHNOLOGICAL UNIVERSITY, Nanyang Avenue, Singapore 2263 or Telefax: (65) 7919340 or Internet: tslu@admin.ntu.ac.sg**

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METASTABILITY AND HYDRODYNAMIC LIMITS FOR INTERACTING PARTICLE SYSTEMS

There will be a period of concentration on Metastability and Hydrodynamic Limits for Interacting Particle Systems during 8th to 19th November 1993, with a symposium from 8th to 12th November. This will form part of the Programme on Random Spatial Processes at the Isaac Newton Institute. The present list of speakers includes: D. Abraham (Oxford), P. Clifford (Oxford), R. Dobrushin (Moscow), A. DeMasi (L'Aquila), P. Ferrari (Sao Paulo), R. Kotecky (Prague), F. Martinelli (Rome), T. Mountford (Los Angeles), E.

Olivieri (Rome), E. Presutti (Rome), R. Schonmann (Los Angeles), E. Scoppola (Rome), S. Shlosman (Moscow/Irvine), B. Toth (Budapest).

The second week is available for more informal talks and cooperation.

Limited funds for subsistence are available through the Isaac Newton Institute. Prospective participants are invited to contact Harry Kesten at the Isaac Newton Institute, 20 Clarkson Road, Cambridge CB3 0EH, e-mail: h.kesten@newton.cam.ac.uk.

GRESHAM COLLEGE
GEOMETRY

Two Public Lectures in Geometry will be given by Sir Christopher Zeeman, FRS (Gresham Professor of Geometry) at the City of London School, Queen Victoria Street, London EC4. "Introduction to Topology" will be given on Monday 4th October at 5.00 pm and "The Class-

ification of Surfaces" on Tuesday 19th October at 5.00 pm. Admission is free and without tickets. Further details of the lectures are available from Gresham College, Barnard's Inn Hall, Holborn, London EC1N 2HH, telephone 071-831 0575.

NORTH BRITISH FUNCTIONAL ANALYSIS SEMINAR

A meeting of the North British Functional Analysis Seminar will be held at Lancaster University from 2.30 pm on Friday 29th October to midday on Saturday 30th October 1993. The speakers will be Dr D.G. Vassiliev, Dr Cecelia Laurie and Dr Aristides Katavolos. The lectures will take place in Fylde College at times to

be announced. All interested are most welcome to attend.

For further information contact Dr Gordon Blower, NBFAS Secretary, Department of Mathematics, University of Lancaster, Lancaster LA1 4YF, telephone: 0524 65201 ext 3962, e-mail: maa008@uk.ac.lancs.cent1.

SYMPLECTIC GEOMETRY OF MODULI SPACES

A conference on Symplectic Geometry of Moduli Spaces will be held from 21st to 25th March 1994 at Marseille/Luminy. The joint organisers are J. Huebschmann (Lille) and A. Weinstein (Berkeley).

For further information write to J. Huebschmann, USTL, UFR de Mathématiques, F-59 Villeneuve D'Ascq Cedex, France, tel: 20 43 42 33, fax: 20 43 69 93, e-mail: huebschm@gat.citilille.fr.

GUY C. HIRSCH

Professor Guy C. Hirsch who was elected a member of the London Mathematical Society on 18 March 1965, died on 4 August 1993.

Leicester University

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

CHAIR OF MATHEMATICS

Applications are invited for a newly established Chair of Mathematics in the Department of Mathematics and Computer Science. The appointment will date from 1 January 1994 or such other date as may be agreed. The applicant should have a strong research record, preferably in pure mathematics including areas related to the current research strengths of the Department. In addition to this appointment, a new Lectureship has been established, and the appointee should expect to play a major role in filling this position.

Salary will be within the Professorial Range.

Informal enquiries are welcome and should be addressed to **Professor W. Light, Head of Department of Mathematics and Computer Science, telephone (0533) 523884.**

Further particulars may be obtained from the **Staffing Office (Academic Appointments), University of Leicester, University Road, Leicester LE1 7RH, telephone (0533) 522422, Fax number (0533) 522200.** UK candidates should submit eleven copies of their application (overseas candidates may submit one copy).

Closing date for applications is 25 October 1993.
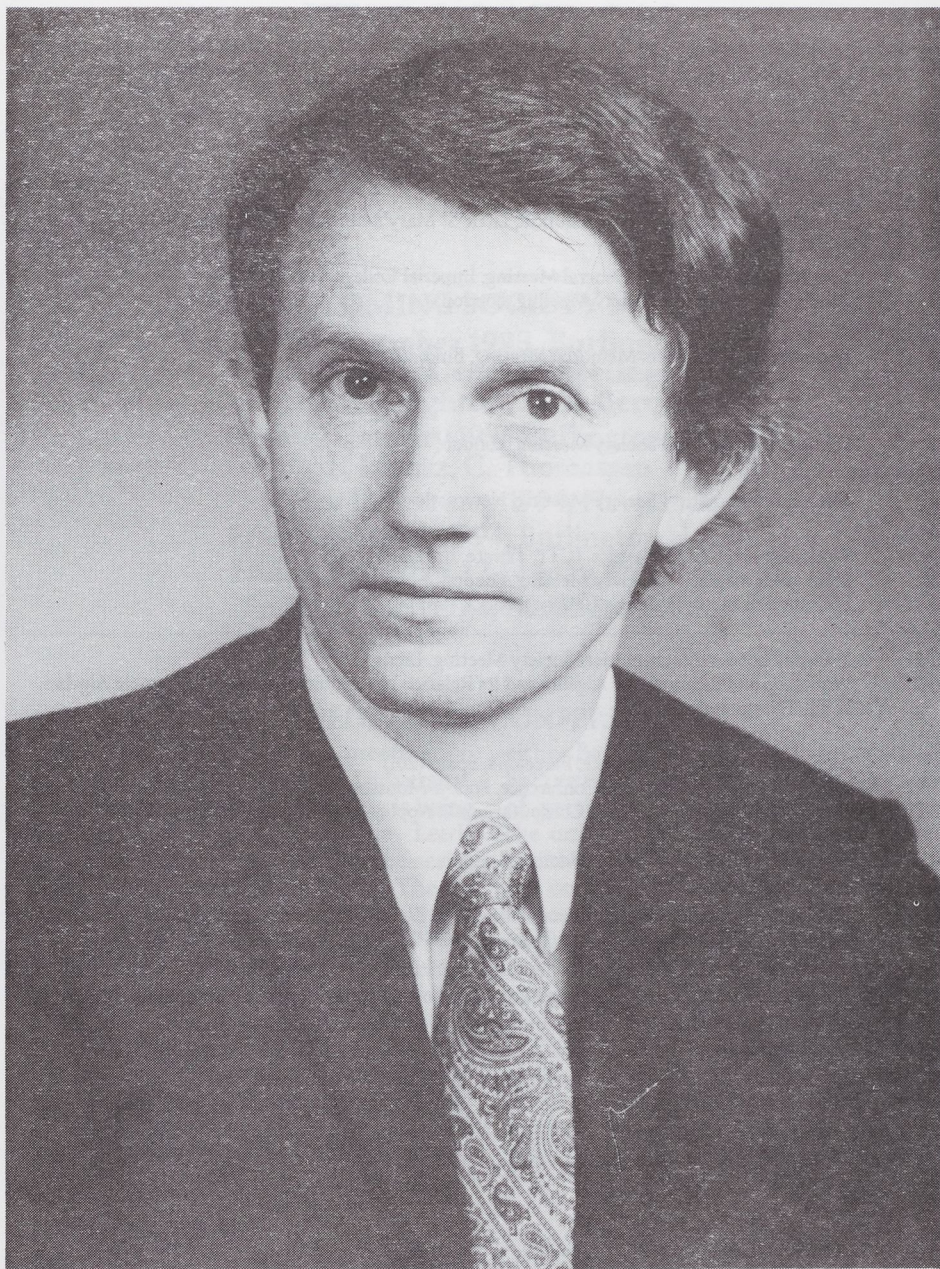
Towards Equal Opportunities.

SERC AWARDS

Research Grants

Allen, G., Schutz., B., Cardiff. *Development of Techniques for Numerical Relativity.*

Ball, J., Eilbeck, J. Carr, J., Penrose, O., Brown, K., Lacey, A., Duncan, D., Johnston, D., Rynne, B., Heriot-Watt. *Nonlinear Problems in Mathematics with Applications to Physics, Chemistry, Biology and Materials Science.*

Brown, R., Bangor. *Investigations of Multiple Categories.*

Buhmann, M. *Radical Basis Function for Multivariate Interpolation.*

Cameron, P., Soicher, L., QMW. *Algebraic Combinations and Graph Theory.*

Cassels, J., Cambridge. *Curves and Jacobians of Genus 2.*

Cooper, S., Wainer, S., Leeds. *Leeds Recursion Theory Year 1993/94.*

Cutland, N., Hull. *Stochastic Navier-Stokes and General Stochastic Partial Differential Equations Using Nonstandard Methods.*

Davies, E.B., KCL. *Spectral Properties of Partial Differential Operators.*

Dold, J., Bristol. *Analysis of Detonation Initiation.*

Donkin, S., QMW. *Schur Algebras and Related Algebras.*

Etheridge, A., Edinburgh. *Stochastic Partial Differential Equations.*

Evans, D., Olive, D., Swansea. *Algebraic and Topological Aspects of Conformal Field Theory.*

Gillespie, T., Edinburgh. *Harmonic Analysis and Partial Differential Equations.*

Higham, D., Griffiths, D., Dundee. *The Dynamics of Time- Stepping in the Numerical Analysis of Differential Equations.*

Higham, N. Manchester. *Parallel Eigenvalue Computations.*

Hilton, A., Reading. *Edge - and Total - Colourings of Graphs.*

Hirschfeld, J., Sussex, Shaw., R., Hull. *Clifford Algebras and Geometric Codes.*

Hogan, S., Bristol. *The Fine Structure of the Ocean Surface.*

Huppert, H. Cambridge. *Macroscopic Modelling of SO Metals Lidification Phenomena.*

Kaimanovich, V., Edinburgh. *Poisson Boundaries of Random Walks on Groups.*

Kelly, F., Cambridge. *Mathematical Modellings of Telecommunication Networks.*

Kent, A., Cambridge. *Singular Vectors in Conformal Field Theory.*

Light, W., Leicester. *Approximation by Ridge Functions.*

Penrose, O., Heriot-Watt. *Kinetics of Phase Separation in Metals.*

Peregrine, D., Bristol. *Violent Free-Surface Motions.*

Proctor, M., Gough, D., Weiss, N., Cambridge. *Nonlinear Dynamics of Convection in Sunspots.*

Rees, E., Etheridge, A., Gillespie, T., Parker, D., Edinburgh. *International Centre for Mathematical Sciences.*

Riley, N., East Anglia. *Vortex Ring Intersections.*

Rogers, T., King, J., Tew, R., Nottingham. *European Mathematics Study Group with Industry 1993.*

Saxl, J., Cambridge. *Groups and Graphs.*

Scholl, A., Durham. *Geometry and Cohomology in Group Theory: LMS Durham Research Symposium.*

Tayler, A., Ockendon, J., Ockendon, H., Norbury, J., Fowler, A., Howison, S., Oxford. *Oxford Centre for Industrial and Applied Mathematics.*

Taylor, M., UMIST. *Tame Actions of Group Schemes.*

EDINBURGH MATHEMATICAL SOCIETY

Meetings to be held by the Edinburgh Mathematical Society are: 22 October (Edinburgh) Annual General Meeting and Presidential Address of Dr A.C. McBride; 19 November (Glasgow) Professor A.H. Schofield; 10 December (Napier) Professor P.G. Drazin; 14 January (Edinburgh) Dr R.J. Wilson; 11 February (Edinburgh) Dr P.J. Giblin; 11 March (Dundee) Professor N.G. Lloyd; 6 May (Aberdeen) Professor R.S. Ward; 4 June (St. Andrews) Professor S. Wainger. Further information is available from the Honorary Secretary, Dr Philip Heywood, Department of Mathematics and Statistics, University of Edinburgh, James Clerk Maxwell Building, King's Buildings, Mayfield Road, Edinburgh EH9 3JZ.

John Henry Coates was born in 1945 and has a BSc from the Australian National University and a PhD from Cambridge. A distinguished number theorist, he taught for some years at Harvard and Stanford and then in Paris, before becoming Sadleirian Professor at Cambridge in 1986. He is currently a Vice-President of the International Mathematical Union. In 1985 he was elected to Fellowship of the Royal Society. He was the London Mathematical Society's 64th President from 1988 to 1990.

DIARY

The diary lists Society meetings and other events publizised 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.

1993

OCTOBER
| | |
1-3   Joint AMS-DMV Mathematics Meeting, University of Heidelburg, Germany (205)
15   London Mathematical Society Meeting, London
16   Memorial Service, John Charles Burkill, Little St Mary's Church, Cambridge (207)

NOVEMBER
17   Save British Science, 1993 General Meeting, Imperial College, London (208)
19   London Mathematical Society Meeting, London

DECEMBER
10   Professor Philip Holgate, Memorial Meeting, Birkbeck College, London (208)

1994

JANUARY
21   London Mathematical Society Meeting, London

FEBRUARY
18   London Mathematical Society Meeting, Newcastle

MARCH
7-25   Workshop on Fluid Mechanics, ICTP, Trieste, Italy (207)
18   London Mathematical Society Meeting, London
21-25   LMS Invited Lectures, King's College, London (207)

MAY
13-14   Two-day London Mathematical Society Meeting, Leeds
16-27   Workshop on Commutative Algebra and its Relation to Combinatorics and Computer Algebra, ICTP, Trieste, Italy (207)

JUNE
1-7   Algebraic Topology Conference, Barcelona, Spain (201)
13-17   Elliptic & Parabolic Problems Conference, Pont-a-Mousson, France (204)
13-17   Hyperbolic Problems - Theory, Computations & Applications Conference, Stony Brook, New York, U.S.A. (204)
17   London Mathematical Society Meeting, London

AUGUST
3-11   International Congress of Mathematicians, 1994, Zurich, Switzerland (189)(197)(207)
15-26   Advanced Workshop on Algebraic Geometry, ICTP, Trieste, Italy (207)

OCTOBER
10-28   School/Workshop on Variational and Local Methods in the Study of Hamiltonian Systems, ICTP, Trieste, Italy (207)