LMS NEWSLETTER

No. 31 *September* 1976

DATES OF SOCIETY MEETINGS 1976–77

Friday, 15 October, Burlington House, Bicentennial Meeting.

Friday, 19 November, Burlington House, Annual General Meeting and Presidential Address.

Friday, 14 January and Saturday, 15 January, Birmingham, Experimental two-day meeting.

Friday, 11 March, Burlington House.

Friday, 20 May, University College, Bangor.

Friday, 17 June, Burlington House.

London meetings will be held in the Geological Society Rooms, Burlington House, Piccadilly. The Annual General Meeting will be followed by the Annual Dinner in the Cavendish Hotel. Details of this will appear in a forthcoming issue of the *Newsletter*. Council meetings will be held in conjunction with all the above meetings except those on 14–15 January and (possibly) 20 May. There will be a Council meeting on 21 January in Burlington House.

D. A. BRANNAN

BICENTENNIAL EXCHANGE

To mark the Bicentennial of the foundation of the United States of America the American and London Mathematical Societies have agreed to exchange lecturers. Professor J. F. Adams will address the American Mathematical Society in Toronto on 24 August. The title of his talk is "Maps between classifying spaces". Professor S. S. Chern will address the London Mathematical Society in Burlington House on 15 October. Professor Chern's title will be announced later.

M. F. ATIYAH

EXPERIMENTAL TWO-DAY MEETING

This meeting, to be held in Birmingham on 14–15 January 1977, will be organised by a committee coordinated by Professor M. Macbeath. A number of lectures will be given on analysis and its relations with number theory and geometry. Details will be announced later.

L.M.S. COUNCIL

Council has met twice since the last report in the *Newsletter*. Dr. C. B. Thomas (University College, London) is taking over from Dr. B. Fishel as Reviews Editor for the *Bulletin* from 1 October, 1976. Dr. Fishel has been Reviews Editor since 1964. Professor G. R. Allan (Leeds) will take the position of Editor in Chief of the Proceedings of the L.M.S. left vacant by the death of Professor T. M. Flett. Professor Flett had been Editor in Chief for one year. Council has decided that membership subscriptions shall remain unchanged for the coming year (£3 for membership and £3 per volume for the Society's journals). The measures taken last year to restore the profitability of these journals have proved effective and Council has been able to put a sum of money at the disposal of the editors to reduce any excessive backlog which may occur.

M. F. ATIYAH

E.M.S./L.M.S. LINK WITH THE B.M.C.

At its Annual General Meeting held at Aberystwyth on 8 April, 1976, the British Mathematical Colloquium accepted the joint L.M.S./E.M.S. proposal on linking the Colloquium with the Societies. These proposals include:

(1) The L.M.S. and E.M.S. will provide financial guarantees of £1,000 and £100 respectively to the B.M.C. to cover any unforeseen losses the B.M.C. might make; the present organisation of B.M.C. has no machinery for dealing with such losses

(2) The Treasurers of L.M.S. and E.M.S. would become joint auditors of the B.M.C. accounts.

(3) The L.M.S. and E.M.S. would each nominate two members of the B.M.C. Committee.

These proposals imply that the two societies are more directly linked with the largest pure mathematics meeting held in the United Kingdom. The B.M.C. will in future acknowledge in its advertising material that it is sponsored by the Societies. The scientific activity of the B.M.C. will continue to be organised independently by the committee of four nominated members and twelve members elected by members of the B.M.C. It is hoped that this new link will further unify the organisation of mathematical activities in the United Kingdom.

Full details of these proposals are available from me at Adran Mathemateg Bur, Coleg Prifysgol Cymru, Aberystwyth, Dyfed.

The venues and dates of the B.M.C. in future years are as follows:—

Edinburgh, 28 March–1 April, 1977

Lancaster, 4 April–8 April, 1978

University College London, 3 April–7 April, 1979.

A. O. Morris

SENIOR BERWICK PRIZE

The Council of the Society has awarded the Senior Berwick Prize for 1976 to Professor A. Frölich for the following papers published by the Society:

Proc. L.M.S. 28 (1974) 402–438;
Proc. L.M.S. 29 (1974) 405–434;
Proc. L.M.S. 32 (1976) 279–321.

In these papers Fröhlich uncovers and develops a wholly unexpected relation between the module of integers in an algebraic number field and the corresponding L-functions. His work throws new light on the significance of the Artin root numbers which enter into the functional equation for L-functions, and is a contribution of major importance to algebraic number theory.

M. F. Atiyah

HONORARY MEMBERS

Vladimir Arnold Professor of Mathematics, Moscow University. Arnold is a prolific and versatile mathematician who has done striking work in differential equations and geometrical aspects of analysis. His first major contribution was on the stability of dynamical systems and the study of small perturbations. More recently he has made a wide-ranging study of singularities, bringing out many unexpected features such as their relation to braid groups. All his research is characterised by elegance, originality and vigour.

Raoul Bott Professor of Mathematics, Harvard University and Vice President of the American Mathematical Society. Bott has made far-reaching and important contributions to geometry in the widest sense. His most well known work was his application of Morse's critical point theory to the study of loop spaces of Lie groups and symmetric spaces, culminating in his famous periodicity theorem for the homotopy of the classical groups. He has also done important work on differential equations, Lie algebras and foliations. His work and exposition is marked by a fundamental clarity which is the result of a persistent search for the underlying truth.

M. F. Atiyah

THE T. M. FLETT PRIZE IN PURE MATHEMATICS

Professor T. M. Flett died at the age of 52 on 13 February, 1976. The members of the Department of Pure Mathematics in Sheffield feel that the most appropriate way to honour Tom Flett's memory and to place on record his services to the University of Sheffield and to mathematics would be through the endowment of a prize, associated with his name, for students reading Pure Mathematics.

There are many of his former colleagues and friends, readers of his published work, and other beneficiaries of his many interests and activities who would welcome the opportunity to support the Prize Fund. Contributions, in cash or by cheque may be sent to Mr. J. H. Barker, Director of Finance, University of Sheffield. Cheques should be made payable to University of Sheffield/T. M. Flett Prize. It would be a great help if all contributions were to be received not later than 1 December, 1976. When the total amount of the Fund is known, it will be possible to decide on the exact nature of the prize, and full information about final arrangements will then be made public.

D. G. NORTHCOTT

HOMOLOGICAL AND COMBINATORIAL TECHNIQUES IN GROUP THEORY

A Durham Research Symposium on this subject will be organised by the L.M.S. on 6–16 September, 1977. The main object of the symposium is to bring together those who have employed topological ideas in connexion with infinite group theory, to systemise the application of such ideas and relate them to new problems. Topics envisaged under this heading are: Ends of groups; Trace functions and Euler characteristics; Groups of finite cohomological dimension, particularly duality groups; Relation modules; Problems on presentations; Groups acting on graphs or on buildings. In addition to single talks, there will be a number of short lecture courses introducing the main topics. Principal speakers will probably include H. Bass, K. Gruenberg, J.-P. Serre, J. Tits and C. T. C. Wall.

The Science Research Council will provide financial support. Attendance will be primarily by direct invitation. However a few places will be avilable for others who wish to participate, and those interested should write to Professor C. T. C. Wall, Department of Pure Mathematics, University of Liverpool.

LEEDS/SHEFFIELD ALGEBRA DAY

There will be a one-day algebra conference in the University of Sheffield on Wednesday 22 September, 1976 starting at 10 a.m. The speakers will include R. W. Richardson (Durham), R. B. Warfield (Seattle, visiting Leeds), and R. Y. Sharp (Sheffield). Further details can be obtained from R. Y. Sharp, Department of Pure Mathematics, The University, Sheffield S3 7RH.

WARWICK YEAR: GEOMETRY OF THE LAPLACE OPERATOR

During the coming academic year (4 October, 1976–31 July, 1977) a series of lectures, seminars and visitors centred on the Geometry of the Laplace Operator will be held, with S.R.C. support, at the University of Warwick. Further information can be obtained from Professor J. Eells, Mathematical Institute, University of Warwick, Coventry.

JAHRESTAGUNG DER DEUTSCHEN MATHEMATIKER-VEREINIGUNG

This meeting will take place in Munich on 10–15 October, 1976. Speakers include B. Fischer, E. Freitag, A. Frölich, P. Gabriel, P. Hilton, K. Jacobs, W. Jäger, J. Neveu, A. Prestel, A. Rosenberg, A. van de Ven, H. Zeitler. In addition there will be sessions for short research papers. Details from DMV–Tagung 1976, Mathematisches Institut der Universitat, D–8 München 2, Theresienstrasse 39.

New June 1976

Encyclopaedic Dictionary of Mathematics for Engineers and Applied Scientists

I.N. SNEDDON, Professor of Mathematics, Glasgow University

Designed specifically to fulfil the needs of engineers and scientists in industry and research and as an important supplementary reference work for students.
Contains over 2000 contributions by more than 150 outstanding authors of international repute.

Perhaps the most striking development in engineering in the present century has been the increasing use of mathematics in the analysis of engineering problems. No longer is skill in the use of a slide rule sufficient mathematical equipment for a practising engineer. For instance, control engineers use sophisticated, and very often abstract, mathematical concepts, some electrical engineers have to be acquainted with quantum mechanics, others with transform theory, and civil and mechanical engineers reading research papers on continuum mechanics encounter a bewilderingly wide range of mathematical techniques. The need for an *Encyclopaedic Dictionary of Mathematics for Engineers and Applied Scientists* is therefore very apparent.

It is expected that many engineers and scientists wishing to consult the dictionary will be busy people without the time to read an exhaustive account of every aspect of a topic. On the other hand many will wish to explore a subject to a greater depth. The user will find some articles of 2000 to 3000 words and many more much shorter ones according to the importance and topicality of the subject. Each article aims to be self-contained, but to allow the reader to develop his interest in a subject as far as he wishes, cross-references to related articles and bibliographies are appended.

ARRANGEMENT OF ENTRIES

The Dictionary has been arranged in strictly alphabetical order. All important items are the subject of individual articles but many items are not given separate entities but are covered in other relevant articles. In the event of any difficulty the reader is referred to the comprehensive index, where the location of the topic will be found. Terms covered are those used in mathematics, mathematical engineering, physics and other related fields with S I units employed throughout.

AIMS AND SCOPE

The aim has been to select those mathematical concepts and techniques most widely and frequently used with the emphasis on *applications* rather than theory. Principal branches include algebra, combinatorial analysis, differential and integral calculus, differential equations, differential geometry, Fourier analysis, functional analysis, geometry, integral equations, linear programming, logic, mathematical analysis, operational calculus, operational research, oscillations, probability, special functions, statistics, theoretical mechanics, theory of functions, theory of games, topology and trigonometry.

The four main fields are theoretical or "pure" mathematics, numerical analysis and applications, probability, statistics and related subjects, and theoretical mechanics.

READERSHIP

An invaluable reference work for lecturers, students and researchers in applied sciences and all fields of engineering and for all engineers in research and production departments concerned with applications of mathematics.

ISBN 0 08 021149 6 | 800pp | 400 illus | 250 x 176mm
$100.00 £50.00 | LC No. 73-6800 | June 1976

Pergamon Press Headington Hill Hall, Oxford OX3 OBW England
Fairview Park, Elmsford, New York 10523 USA

INTERNATIONAL CONFERENCE ON COMBINATORIAL THEORY

This conference, organised by the Australian Academy of Science and the I.M.U. will be held in Canberra on 16–27 August, 1977. Speakers are expected to include C. Berge, P. Erdös, M. Hall, H. Hanani, F. Harary, R. C. Mullin, J. J. Seidel, R. G. Stanton and W. Tutte. There will also be sessions for short research papers. Further details from Dr. J. Wallis, Mathematics Dept., Institute for Advanced Studies, Australian National University, P.O. Box 4, Canberra.

VISITING MATHEMATICIANS

The following mathematicians are expected to visit Britain. At present the Editor plans to publish a main list of visitors in the September issue and supplementary lists in December and June. The Editor relies on all members, particularly local representatives, informing him of visitors to their departments.

Name and Home University		*Visiting*	*Dates of Visit*
A. Abian	(Iowa State)	Oxford	Dec. 76–May 77
T. O. Adewoye	(Ibadan)	Sheffield	Sept. 76–Aug. 77
C. A. Akemann	(Santa Barbara)	Newcastle	Jan–June 77
Z. Arad	(Bar-Ilan)	Oxford	Oct. 76–Sept. 77
N. Batakis	(Athens)	Oxford	May 76–Aug. 77
A. Bellini-Morante	(Florence)	Oxford	Oct. 76–Aug. 77
J. W. Berry	(Manitoba)	Leicester	Oct.–Dec. 76
G. Choquet	(Paris)	Oxford	May 77
D. Clements	(Adelaide)	Oxford	Jan.–Dec. 77
D. Debney	(Virginia Polytechnic)	Oxford	Sept.–Dec. 76
M. Elzanowski	(Warsaw)	Oxford	Jan.–Dec. 77
A. Figa-Talamanca	(Perugia)	Newcastle	Nov. 76
P. Fillmore	(Dalhousie)	Edinburgh	Jan.–June 77
S. Gitler	(National Polytechnic Institute, Mexico)	Oxford	Oct. 76–Dec. 77
P. Köhler	(Giessen)	Bedford College, London	Oct. 76–Oct. 77
A. C. Leisenring	(Evergreen State)	Oxford	July 76–June 77
G. Lindblad	(Stockholm)	Bedford College, London	Oct.–Dec. 76
P. Milnes	(Western Ontario)	Sheffield	Aug. 76–June 77
M. Mimura	(Konan)	Oxford	Sept. 76–Feb. 77
J. Neubüsen	(Aachen)	University College, Cardiff	Sept. 76
A. F. Pixley	(Harvey Mudd College California)	Bedford College, London	Oct. 76–Oct. 77
O. de Salbany	(Cape Town)	Oxford	June–Dec. 76
J. P. Seldin	(Southern Illinois)	Oxford	July 76–June 77
W. R. S. Sutherland	(Dalhousie)	Oxford	July–Dec. 76
P. Szekercs	(Adelaide)	Oxford	Sept. 76–June 77
P. D. Taylor	(Queen's Kingston)	Oxford	Oct. 76–Sept. 77
A. Urquhart	(Toronto)	Oxford	Oct. 76–Sept. 77
W. D. Wallis	(Newcastle, N.S.W.)	Surrey	Oct.–Dec. 76

BOOKS RECEIVED FOR REVIEW IN THE *BULLETIN*

Topics in finite groups. Terence M. Gagen: pp. viii, 86. £2·50. (Cambridge University Press, L.M.S. Lecture Notes 16, 1976).

A geometric approach to homology theory. S. Buoncristiano, C. P. Rourke, B. J. Sanderson: pp. 149. £3·90. (Cambridge University Press, L.M.S. Lecture Notes 18, 1976).

Continuum mechanics. P. Chadwick: pp. 174. £5·25. (George Allen & Unwin Ltd. 1976).

Entire holomorphic mappings in one and several complex variables. P. A. Griffiths: pp. x, 99. £7·20 (paperback: £2·80). (Princeton University Press, 1976).

Introduction to calculus. L. Loomis: pp. xiv, 700+. £9·10. (Addison-Wesley Publishing Co. 1975).

Partial differential equations in the complex domain. D. L. Colton: pp. 88. £3·90. (Pitman Publishing Ltd. 1976).

Vector & tensor methods. F. Chorlton: pp. 333. £8. (Halstead Press (John Wiley) 1976).

Methods of real analysis, second edition. R. R. Goldberg: pp. x, 402. £8·25. (John Wiley & Sons Ltd. 1976).

Space structures—their harmony and counterpoint. A. L. Loeb: pp. xviii, 169. US$19·50 (paperback US$9·50). (Addison-Wesley, 1976).

Locally convex spaces. Edited by McKennon and Robertson: pp. 80. SFr. 45. (Marcel Dekker Inc. New York, 1976).

Algebraic topology: A first course. Edited by Max Agoston, pp. 376. US$23·50. (Marcel Dekker Inc., New York, 1976).

Graph theory with applications. J. Bondy and O. Murty: pp. x, 264. £14·50 (Macmillan, 1976).

Methods of numerical mathematics. G. I. Marchuk: pp. xii, 316. DM72,80. (Springer-Verlag, Berlin, 1975).

Eigenwerttheorie gewohnlicher Differentialgleichungen. K. Jorgens and F. Rellich: pp. ix, 277. DM28,—. (Springer-Verlag, Berlin, 1976).

Variational methods in theoretical mechanics. J. T. Oden and J. N. Reddy: pp. x, 302. DM29,80. (Springer-Verlag, Berlin, 1976).

Stochastic linear programming. P. Kall: pp. vi, 95. DM38,—. (Springer-Verlag, Berlin, 1976).

Elliptic functions according to Eisenstein and Kronecker. A. Weil (Ergebnisse): pp. xii, 92. DM36,—. (Springer-Verlag, Berlin, 1976).

Problems and theorems in analysis Vol. 2. G. Polya (Grundlehren): pp. xi, 392. DM110,—. (Springer-Verlag, Berlin, 1976).

Inequalities in mechanics and physics. G. Duvaut and J. L. Lions (translated from the French by C. W. John) (Grundlehren): pp. xvi, 397. DM98,—. (Springer-Verlag, Berlin, 1976).

Proof theory symposium. (Proceedings of the International Summer Institute Kiel 1974). Editors: J. Diller and G. H. Muller. (Lecture Notes in Mathematics Vol. 500): pp. viii, 383. DM 32,—. (Springer-Verlag, Berlin, 1975).

Spline functions. (Proceedings of an International Symposium Karlsruhe 1975). Editors: K. Bohmer, G. Meinardus, W. Schempp (Lecture Notes in Mathematics Vol. 501): pp. vi, 421. DM 35,—. (Springer-Verlag, Berlin, 1976).

Representations of real numbers by infinite series. J. Galambos (Lecture Notes in Mathematics Vol. 502): pp. vi, 146. DM 18,—. (Springer-Verlag, Berlin, 1976).

Frobenius distributions in GL_2-extensions. S. Lang and H. F. Trotter (Lecture Notes in Mathematics Vol. 504): pp. iii, 274. DM 25,—. (Springer-Verlag, Berlin, 1976).

Proceedings of Seminars Maryland, 1973/74. Editors: W. E. Kirwan and L. Zalcman (Lecture Notes in Mathematics Vol. 505): pp. viii, 203. DM 23,—. (Springer-Verlag, Berlin, 1976).

Proceedings of the Dundee Conference 1975. Editor: G. A. Watson (Lecture Notes in Mathematics Vol. 506): pp. x, 201. DM 23,—. (Springer-Verlag, Berlin, 1976).

Abstract non linear wave equations. M. C. Reed (Lecture Notes in Mathematics Vol. 507): pp. vi, 128. DM 18,—. (Springer-Verlag, Berlin, 1976).

Regularly varying functions. E. Seneta (Lecture Notes in Mathematics Vol. 508): pp. v, 112. DM 18,—. (Springer-Verlag, Berlin, 1976).

Edited by B. E. Johnson, School of Mathematics, The University, Newcastle upon Tyne, NE1 7RU
Printed by C. F. Hodgson & Son Ltd., 50 Holloway Road, London N7 8JL