LONDON MATHEMATICAL SOCIETY

DR. J. M. HAMMERSLEY (Oxford)

HEAVY WOOLLEN MATHEMATICS

PROFESSOR SIR JAMES LIGHTHILL (Cambridge)

The First Naylor Prize Lecture in the Applications of Mathematics

THE INTERACTION BETWEEN MATHEMATICS AND SOCIETY

FRIDAY, 11th March, 1977, at 3.30 p.m.

Geological Society's Meeting Room,
Burlington House,
Piccadilly, London, W1V 0NL

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

LMS NEWSLETTER

No. 37 *March 1977*

DATES OF SOCIETY MEETINGS 1976–77

Friday, 11 March, Burlington House (see p. 1).

Friday, 20 May, University College, Bangor.

Friday, 17 June, Burlington House.

Hardy Lecture (Professor J. K. Moser) and Professor A. Baernstein.

London meetings will be held in the Geological Society Rooms, Burlington House, Piccadilly. Council meetings will be held in conjunction with all the above meetings.

D. A. BRANNAN

HARDY CENTENARY

Godfrey Harold Hardy was born on 7 February 1877 in Cranleigh, Surrey and died on 1 December 1947 in Cambridge. He was a Prize Fellow at Trinity College, Cambridge (1900–1906), Lecturer at Trinity (1906–1919), Savilian Professor of geometry at Oxford (1919–1931) and Sadleirean Professor of pure mathematics at Cambridge (1931–1942). He was elected FRS in 1910 and received the Royal Society's Royal Medal (1920), Sylvester Medal (1940) and Copley Medal (1947). He was elected to the LMS on 10 January 1901. He served on the Council for 28 years: 1905–1907, 1914–1927, 1929–1933, 1935–1944. He was Honorary Secretary (1917–1925, 1941–1944), Vice-President (1916, 1933) and President (1926–1927, 1939–1940) of the Society and received the De Morgan Medal in 1929. Hardy was the major benefactor of the Society, leaving us, after the death of his sister, all his copyrights and a substantial amount in shares, which pays for the Hardy Lectureship.

In view of the above, Council plans to commemorate this centenary year by a special two day meeting at Trinity College, Cambridge, on 16/17 December 1977, on the topics of analysis and number theory. The initial organising committee consists of Professor Cassels (chairman), Professor Halberstam, Dr. Brannan and Dr. Singmaster.

LMS INSTRUCTIONAL CONFERENCES

The Council of the Society invites suggestions from Members concerning appropriate topics and possible organisers for future Instructional Conferences. Hitherto these have usually been supported financially by N.A.T.O., last two to three weeks, and have had around 100 participants. Suggestions should relate to summer 1978 or thereafter, and should be sent (with a reasonable outline of dates, possible participants, and area of mathematics envisaged) to Dr. D. A. Brannan, Mathematics Department, Queen Elizabeth College, London W8 7AH by 1 May, 1977.

DURHAM SYMPOSIUM ON MULTIVARIATE APPROXIMATION

A working research symposium on theoretical and applied topics in this area is to be held in the University of Durham, from the 21st to the 30th July, 1977. Principal speakers will include Professors B. Brosowski, C. W. Clenshaw, L. Collatz, J. W. Jerome, G. G. Lorentz, G. Meinardus, J. R. Rice, T. J. Rivlin, H. S. Shapiro and I. Singer.

The symposium is being sponsored by the London Mathematical Society and the European Research Office of the U.S. Army. There will be a registration fee of £20 and accommodation in Grey College is expected to cost £8 a day (all meals included). It may be possible to offer some financial help, on a very modest scale, to participants in special need.

Further details may be obtained from Dr. D. C. Handscomb, Oxford University Computing Laboratory, 19 Parks Road, Oxford, OX1 3PL. The number of participants is limited and early registration is advisable.

REPORT ON THE NOTTINGHAM CONFERENCE, 1976

A conference on the supply of Honours Mathematics Graduates was held at the Shell Centre, Nottingham, from 17–20 December 1976. This Conference was a sequel to the Conference held in December last year in Nottingham and sponsored by the LMS Education Committee (reported in this Newsletter, March 1976). At that Conference it was decided that further Conferences should be arranged but that they should be sponsored by the Joint Mathemetical Council. As explained in the November Newsletter, the present Conference was therefore run by members of three of the constituent organisations within the JMC, and the basic initiative came through the LMS Education Committee aided by people with experience of training Mathematics Graduates as teachers in University Departments of Education and Teacher Training Colleges. The theme of the present Conference was suggested at the first one, and supported at the Aberystwyth BMC meeting; and it was intended that the Conference should again be participatory in that members should spend most of their time attached to panels of 15 members or so.

There were about a hundred and fifty participants, including an average of two members from each University Department, with a reasonable spread in age, seniority, experience and range of interests. In addition, there were Mathematics Specialists from certain University Departments of Education and Teacher Training Colleges, plus a good number of teachers from a wide spread of Secondary Schools. Members were expected to have read the Proceedings of last year's Conference, so as not to waste time by off-the-cuff talk from scratch. The Conference was fortunate to receive generous financial assistance from the BP and Shell Companies, the Prudential, and the Legal and General Insurance Companies, and the Schools and Industry Committee of the Mathematical Association.

Each panel was given a set of axioms and a 'brief' to produce a three-year curriculum in Mathematics for students who would be spending most of their time learning Mathematics, but the majority of whom would go into a variety of careers not involving research in mathematics. The intake was supposed to be at a level roughly midway between O-level and A-level, specified more precisely through a list supplied to panels based on a current 'core', of topics most probably studied by students who have taken one A-level in Mathematics, as given in the recent paper prepared for the IMA-Royal Society Education Committee.

The panels were also given a list of requirements which have been asked for at different times by persons in industry and other potential employers of graduates, and the panels were requested to formulate a three-year curriculum that met some or all of these requirements, where possible. The word 'curriculum' was to be understood in a wider sense than that of 'syllabus' so as to include teaching method and, especially, modes of assessment. Each panel was expected to write down its conclusions, then to pass them on to the other panels to allow the opportunity for comment and criticism before preparing a revised version, and nine sessions were allocated for this work.

In addition there were evening plenary sessions, and the main feature of the opening session was a lecture by Mr. J. H. McDonnell, Head of the Mathematics Advisory Group, BAC (Mliitary Division) Wharton. He stated what he thought were desirable qualities for a Mathematics Graduate in this kind of industry to possess from the point of view of knowledge and skills. Among the latter, he stressed practical Numerical Analysis. It was followed by a very interesting and lively discussion from the floor. The theme of the next plenary session was the Prime Minister's 'Great Debate', because several members of the JMC were at the Conference and intended to stay for a further two days for a 'think-in' on the topic (advised by some school teachers); and they wished to have some idea of the kind of feeling in the membership. The discussion was introduced by a talk by Dr. Trevor Fletcher HMI, who reviewed the statistics of A-level entrants in Mathematics and of the number of qualified Mathematics School Teachers, and he pointed out the interesting fact that more students graduate in Mathematics than any other subject except Medicine. He raised several general questions to which answers are required, and a vigorous discussion followed. The third plenary session was concerned with new methods of teaching and assessment, with short talks on teaching First-year Analysis as a pure reading course, using 'seen' exam. papers, drawbacks encountered by an External Examiner with timed examinations and the possibility of a scientific appraisal of how certain qualities desirable for mathematicians to possess might be encouraged by the use of project work. There was a great deal of discussion especially on the last

item, and a call was made for further work to be organised in this direction.

The Conference ended on the Monday lunch-time after a final plenary session at which two matters were dealt with. First, the Chairman of each panel gave a summary of his own panel's revised position, its attitude to its own proposals in the light of the criticisms of other panels. Ideas for future work were called for and it is expected that these will lead to Conferences on other topics in due time. As expected, participation in the Conference was hard work because each member was being forced by verbal and written criticism to make his own arguments on Mathematics Education more rigorous. The Proceedings ended with thanks to the Organising Committee and especially to Dr. J. Anderson and the Shell Centre for their local organisation.

Detailed Conference Proceedings will be sent to all who participated, in a few weeks' time. A limited number of copies will be available on request from the Secretary, Shell Centre for Mathematical Education, The University, Nottingham, NG7 2RD.

H. B. GRIFFITH

ADAMS PRIZE

The subject for 1977–78 is **Differential Equations.** The competition is restricted to graduates of Cambridge University and the closing date for essays is 31 December, 1978. The amount available for prizes is about £1,900. Full announcement from the Mathematics Faculty Office, Cambridge.

J. W. S. CASSELS

ZÜRICH COLLOQUIUM ON TOPOLOGY AND ALGEBRA

An international colloquium on topology and algebra sponsored by the International Mathematical Union and the Swiss Mathematical Society will be held at the Eidgenössische Technische Hochschule, Zürich on 12–16 April, 1977. The provisional programme includes lectures by J. F. Adams, M. André, R. Bott, A. E. Dold, Ph. A. Griffiths, A. Haefliger, P. J. Hilton, F. Hirzebruch, I. M. James, M. A. Kervaire, S. MacLane, J. Milnor, D. G. Quillen and D. Zagier. Further details and membership forms can be obtained from Professor V. Stammbach, Mathematik, Eidg. Technische Hochschule, ETH-Zentrum, CH8092 Zürich, Switzerland.

COURSE ON CURRICULA AND TEACHING METHODS

The Association of Teachers of Mathematics is organising a course for teachers interested in improving mathematics curricula and teaching methods at Trent Polytechnic, Nottingham on 12–16 April, 1977. Lectures, seminars and discussion groups will cover a veriety of topics and cater for teachers of students at all levels. Further details can be obtained from the ATM Office, Market Street Chambers, Nelson, Lancs., BB9 7LN.

THE TRAINING OF SCHOOL TEACHERS OF MATHEMATICS

A report "The Training and Professional Life of Teachers of Mathematics "by the Mathematical Instruction Subcommittee of the British National Committee for Mathematics is now available from The Royal Society, 6 Carlton House Terrace, London, SW1Y 5AG. This report examines the supply, initial training and in-service training provision for mathematics teachers in both primary and secondary schools in the U.K.

D. SINGMASTER

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