

a steep gradient adjoining the City of the "B.A." noise-silencer was carried out under ideal conditions and was well attended. The river-gauging demonstration some miles up the River Dee proved of interest to a large number of members. An excursion of unique interest arranged by Section A in conjunction with the Deeside Field Club was the excursion to Inverey, near Braemar, for the unveiling of the monument to Johann von Lamont. The president in his official capacity attended, and the unveiling ceremony was performed by Princess Arthur of Connaught. In all, thirty-six excursions of archaeological, biological, engineering and geological interest were arranged before the meeting, and some enthusiastic members have arranged for certain post-meeting excursions.

By kind permission of the owners, a number of works in Aberdeen and district was available for inspection by members of the Association. Each of the excursions to these works was fully booked and, in one case, so popular was the excursion that three additional visits had to be arranged. The different research institutes in the neighbourhood—Craibstone Experimental Farm, Macaulay Soil Research Institute, Rowett Research Institute, and the Fishery Board for Scotland's Marine Laboratory and the Research Station of the Department of Scientific and Industrial Research—were visited by the members of the sections interested in their respective activities as well as by other members of the Association. The Fishery Board for Scotland also generously placed its vessel, the *Explorer*, at the disposal of the local committee for demonstrations, and the vessel, which was berthed in Aberdeen Harbour during the week, was visited extensively. Five hundred members, in organised excursions, visited the Aberdeen Fish Market at 8 A.M. on two mornings; and, in addition, the various Corporation departments, particularly the municipal hospitals, attracted the attention of not a few visiting members.

A very full programme of general excursions had been arranged for the Saturday of the meeting, and the longer excursions proved to be very popular. The longest excursion, namely, the

Highland excursion to Inverness, through the Grampians, up the valley of the Spey and home-wards by the coast, was booked to its full capacity, and all who took advantage of it were loud in their praises of the provision that had been made for their entertainment at Clava Cairns, Culloden and at Inverness. The Deeside excursion was also well attended and proved interesting to the members of the Association who had selected that excursion. Excursions of somewhat smaller dimensions went to Elgin, the Mearns and Donside. The different excursion parties were favoured with splendid weather, which added in no little measure to their enjoyment and appreciation.

Very ample arrangements were made for the entertainment of the Association by the City and the University. Particular mention should be made of the reception in the Art Gallery and adjoining buildings on the Thursday evening, the luncheon given by the Public Library to a number of the members on September 6, and the garden party in the grounds of King's College on September 11. These were highly appreciated.

On the Sunday of the meeting, an official service attended by the chief office bearers of the Association was held in the West Church of St. Nicholas, when the Principal of the University preached to a very large congregation.

During the meeting, some of the more striking buildings of Aberdeen were flood-lit. Particular mention should be made of the flood-lighting of King's College by gas, as visiting members and others were agreed that it was the most effective and beautiful of the whole range.

The students of the University contributed to the entertainment of the members by having a performance of "Town and Gown" at His Majesty's Theatre during the second half of the meeting. On the special night set aside for members of the Association, the house was packed and the audience showed every sign of appreciation of a fine cavalcade of the history of the City and University. The wind-up of the Association's social activities was a dance in the Beach Ballroom which took place on September 11, after the theatre, and was attended by upwards of seven hundred people.

## Obituary

SIR THOMAS MUIR, C.M.G., F.R.S.

**S**IR THOMAS MUIR, who died at Rondebosch, South Africa, on March 21, 1934, was born on August 25, 1844, at Stonebyres, Lanarkshire, and educated at Wishaw public school and the University of Glasgow. Muir showed equal ability at classics and mathematics, but was persuaded by Kelvin (who influenced him profoundly) to devote himself to the latter.

After holding a small post at the University of St. Andrews and spending some time in Continental travel, Muir was appointed in 1871 to an assistant lectureship in Glasgow, and in 1874 to be chief mathematical and science master in the Glasgow High School, where for eighteen years he taught with notable success. His powers of organisation attracted the attention of Mr. Cecil Rhodes, then Premier of the Cape Colony, and eventually Muir was elected



to be superintendent general of education at the Cape. He reached South Africa in May 1892, and with the enthusiasm of a pioneer pulled together a loose educational system into a systematic whole. He served with conspicuous success until he retired in 1915, having left behind him a broad and liberal spirit in the Cape educational system.

Muir initiated three educational reforms. First he abolished the elementary examination in the schools and improved the curriculum by the addition of domestic economy, woodwork and drawing. Secondly, he encouraged the teaching of science, which at first he found to be almost non-existent. Thirdly, he made substantial improvement in the conditions for the training of teachers. He paid careful attention to the erection of properly equipped training institutions and schools. As a friend has lately remarked, "To whatever little village you go, you will find there no better building than the school."

With unstinted singleness of purpose Muir devoted his leisure, during and after official duties, to mathematics: and his writings upon determinants have already become classical. His first book, the "Treatise on the Theory of Determinants" (Macmillan), appeared in 1882, and a second in 1890. These were followed by the well-known four-volume "History of Determinants" (vol. 1, 1906; 2, 1911; 3, 1920; 4, 1923) together with a supplementary fifth volume (Blackie, 1929). The "History" has recorded with almost complete success the name, place and contents of every published book, thesis and note upon determinants from the earliest records up to date 1920. A sixth volume running to the year 1940 was actually in preparation. In the hands of most compilers such a work could be valuable perhaps but certainly dull. Muir, who had considerable literary and poetic gifts, made it positively gay! Forty-nine years separate the date of the first list

of writings on determinants from the publication of vol. 5.

Altogether Muir wrote 307 mathematical papers. He rendered notable service by making accessible to all mathematicians the pioneering work in algebra of Laplace, Bezout, Cauchy, Schweins, Jacobi, Reiss, Bazin, Sylvester and Cayley. By his artistic sense of form, his use of a telling notation and of judicious commentary, Muir moulded countless isolated and overlapping propositions into a convincing whole. He showed his greatness not in intuitive discoveries but in his eminent reasonableness. He reaches through his books a wide mathematical public, and has taken an essential part in the algebraic discoveries associated more particularly with Edinburgh, where so much of his work has been published.

Muir was a fellow of the Royal Society of Edinburgh, later receiving the Keith Prize (1884, 1899) and the Gunning-Victoria Prize (1916). He was an early president of the Edinburgh Mathematical Society, and an honorary graduate of Glasgow (1882) and of the University of the Cape of Good Hope (1901), where he was Vice-Chancellor. In 1892 he became a fellow of the Royal Geographical Society, and in 1900 he was elected a fellow of the Royal Society. He was made C.M.G. in 1901 and knighted in 1915.

Muir had wonderful health. From sixty to eighty-four years of age he played tennis, and later took exercise by sawing wood. He had a gentle kindly manner, a quick smile and a keen sense of humour. He loved flowers, was a scholarly musician, and had a fine literary sense. To the end he preserved an unclouded brain and an acute and investigating spirit. By a deed of gift, Muir has bequeathed his wonderful library of mathematical books and serials to the Public Library of South Africa.

In 1876, he married Margaret Bell, of Dumbartonshire, who predeceased him by many years. He is survived by three generations. H. W. T.

## News and Views

### America and Trade Prospects

DISCUSSING the effect of American recovery on trade prospects at a luncheon arranged by the Aberdeen Chamber of Commerce on September 10 during the recent meeting of the British Association, Sir Josiah Stamp stated that the influence of a larger volume of American prosperity upon British trade would be chiefly through the stimulus of rising gold prices and lower value of gold, a revival of foreign trade, payment of debt through easier imports and a readiness to organise for an international standard of value. America could take the lead in reversing every one of the chief heresies at present throttling the world's prosperity. Unfortunately, a new phase of weakness has shown itself recently in American business activity, though in Great Britain a slight but distinct improvement has taken place since June last. In America, all the elements of which confidence can take advantage are now provided, though many

new features have been introduced which confidence has to surmount, and confidence is slow in coming. The complex situation in America may be classed under three heads, (1) salvage and desperate relief efforts after the disasters of 1933, (2) steady application of recognised or new remedies for recovery and (3) long run provision for a new industrial order. The first stage is now becoming less important, and therefore the measures taken under the three heads, hitherto contrary and mutually antagonistic, ought less and less to be so and more and more to emerge with the second dominant. It is impossible, however, to press on the provisions for a new order, before trade under any order at all is strong enough to stand it. Meanwhile, our own trade revival is testing the limits of domestic trade, and if a general increase in export trades does not reinforce it, further extension can only be obtained with increasing difficulty.