

honorary member of the Physical Society of London; in 1892, Foreign Member of the Royal Society; in 1900 vice-president, and in 1901 honorary member of the Institution of Electrical Engineers.

After his retirement last year, at the age of seventy, from the directorate of the Bureau of Meteorology, his health, which had suffered under his strenuous activities, broke down, and even the repose of his country residence failed to bring recovery. He was buried with military honours on Saturday, August 29, in the cemetery of Montparnasse.

THE LATE EARL OF ROSSE.

THE Earl of Rosse, whose death on August 29 has been already announced, inherited a name of great renown in science. It was during his childhood that his father, the third Earl, erected the mighty reflecting telescopes at his seat at Birr Castle by which the name of Lord Rosse became famous throughout the world. The third Earl was endowed by Nature with much mechanical skill, and as a means of utilising his tastes and opportunities in the best possible manner for the advancement of knowledge he commenced to make reflecting telescopes. Every detail of the work was carried out in the workshops which gradually grew about Birr Castle. Incessant experiments were made to improve the methods of casting, grinding, and polishing the specula, until at last his efforts culminated in the mighty six-foot reflector which even at this day, notwithstanding the advances of the last sixty years, has still the greatest aperture of any astronomical instrument in the world.

The great six-foot telescope at Birr, or Parsonstown, as the little country town used then to be called, soon gave abundant proof of its power. The most notable achievement was the discovery of the spiral nebulæ, which were not visible by any other telescope at that time existing. Indeed, the spiral nebulæ were not altogether credited in some quarters, until the advent of photography in recent years put an end to all doubts and showed that the spiral nebulæ abound in such myriads as to form, next to the fixed stars themselves, the most characteristic objects in the sidereal spaces.

It was under the shadow of the great telescope and amid such inspiring surroundings that Lord Rosse was reared. The sons of the third Earl inherited the mechanical tastes of their father, and joined eagerly in the practical work of the laboratories and workshops at Birr Castle. The eldest, Lord Oxmantown, succeeded to his father's scientific gifts no less than to his title and estates, and the youngest, the Hon. C. A. Parsons, following the natural development of his tastes from childhood, has achieved fame for his country as well as for himself by the splendid invention of the steam turbine.

The education which Lord Rosse derived from his father's precept and example was, of course, supplemented by the necessary education of a more conventional type. In this he was also exceptionally fortunate. The two first mathematical men of their year (1855) in Trinity College, Dublin, were John Purser, the late distinguished professor of mathematics in Belfast, and the Rev. T. T. Gray, who is at present a most respected senior fellow of his college. First one of these men (Gray) became resident at Birr, and to him the education of Lord Oxmantown was entrusted. He was succeeded by Purser, and under such admirable tuition the future Earl of Rosse developed much power in mathematics and its physical applications. In due course he entered Trinity College, Dublin, and had there a distinguished career.

The third Earl had been president of the Royal Society for several years, and his personal scientific

distinction, as well as his unrivalled position as one of the most bountiful and most capable patrons of science, naturally placed him in intimate association with the leading men of science of the day. Sir John Herschel, Romney Robinson, Sabine, Fairbairn, Lyell, South, and many other distinguished persons in the middle of the last century were the friends of Lord Rosse. As Lord Oxmantown always resided with his father either in the ancestral home at Birr Castle or when a visit was paid to London, or a cruise was taken in their yacht, his years of early manhood were passed in close association with the illustrious friends of his father, and he had thus unique advantages of making acquaintance with science and with scientific workers. On one occasion (more than forty years ago) we know of Lord Oxmantown's spending a long day with Babbage, who was enthusiastically explaining to him the details of that wonderful analytical engine which would perform every description of calculation up to filthy significant figures that the mind of man could render into formulæ. Babbage had many parts of the engine to exhibit. But though the differential engine was to some extent completed, the much more formidable analytical engine had not made much progress beyond the drawings, in which, however, it was believed that the characteristic mechanical difficulties had been overcome. Another time, Lord Oxmantown and his brothers would be the guests of Wheatstone for an afternoon, who would explain to them his inventions of the moment, such as the original printing telegraph or the inverted stereoscope, that presented objects hollowed out instead of in relief. Even in those early days of electricity Gassiot, at his home in Clapham, showed to the great Earl, as well as to Lord Oxmantown and his brothers, his wonderful battery of many thousand cells by which effects which at that time seemed marvellous were produced.

A specially notable incident in the early career of Lord Rosse as an astronomer was a visit which he paid in 1866 to the observatory of Sir W. Huggins at Tulse Hill. It was a memorable time in modern astronomy. Huggins had commenced that great series of spectroscopic discoveries which, by the labours of himself and others, have so amazingly extended our knowledge of the heavens. On the night in question Huggins was observing the new star T Coronæ, which, after a few days of brightness, had then declined to the sixth magnitude. We are now so much accustomed to the outbreak of new stars and to the occurrence of bright lines in the spectra of such stars that it requires a special effort to recall the interest with which these discoveries were received at the time of their making. Huggins showed these lines to Lord Rosse, who also saw another most interesting object on that same evening. It was the linear spectrum of the first planetary nebula of which the gaseous nature had recently been announced.

With such opportunities and with the splendid instruments available at Birr, Lord Rosse devoted himself keenly to practical astronomical work. His first achievement was his magnificent drawing of the great nebula in Orion. It is probably the most elaborate piece of astronomical portraiture ever completed. It occupied about seven years of practically continuous work at all available opportunities with the six-foot reflector. The beautiful engraving which was made from Lord Rosse's drawing of the nebula is a familiar object on the walls of astronomical observatories. Among his other astronomical investigations we may mention those of the lunar radiation of heat. On this he was engaged up to the time of his last illness, and, indeed, at the recent meeting of the British Association in Dublin Sir Howard Grubb exhibited a short-focus mirror of remarkable construction which he had

recently made at Lord Rosse's request to provide further instrumental power for his lunar work.

Lord Rosse had been Chancellor of the University of Dublin since 1885, and he served as president of the Royal Dublin Society (1887-1892) and president of the Royal Irish Academy (1895-1900). He was also one of the visitors of Greenwich Observatory.

Lord Rosse married in 1870 the Hon. Frances Cassandra Hawke, only child of the fourth Lord Hawke. He is succeeded by his eldest son, Lord Oxmantown, who was born in 1873. His second son is the Hon. Geoffrey Laurence Parsons, and his daughter, Lady Muriel Parsons, was married in 1906 to Colonel H. M. Grenfell, C.B.

THE DUBLIN MEETING OF THE BRITISH ASSOCIATION.

ONE of the largest and most successful among recent meetings of the British Association has just been concluded in Dublin. The following return shows the number of tickets issued in the various classes of members:—

Old life members	288
New life members... ..	24
Old annual members	459
New annual members	111
Associates	1,152
Ladies	222
Foreign members	14
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Total	2,270

The various sections began work on Thursday, September 3. Most of them were located within the ample walls of Trinity College, and outlying centres were easily reached by means of the free motor service organised by an indulgent local committee. That service, creditable as it was, was greatly surpassed in value by the indicator boards announcing what papers were "up" in the various sections. These boards were mounted in places visible to everybody present. The letters A to L were written in large type in a horizontal row, and underneath each letter was hung a card bearing a number indicating the paper just being read in the section denoted by the letter. The service was maintained by four special operators per section, and it enabled members to bide their time comfortably in any section until their favourite paper took its turn in another. This useful innovation must be put to the credit of Prof. W. H. Thompson, one of the local hon. secretaries.

Thursday's sections began in a downpour of rain which contrasted unfavourably with the sunshine of the day before. The intersectional motor service was little in request, as nobody cared to leave the sheltering roof once it was reached. The various sectional meetings were, however, well attended, notably those of geology, educational science, and agriculture, the average attendance being about 150 per section.

About fifty members visited Guinness's Brewery at St. James's Gate at noon, and were shown over the vast works by the principal members of the scientific staff.

The Provost's garden party in the afternoon was largely attended in spite of the prevailing drizzle, though many members were absent. The Provost of Trinity College, Dr. Anthony Traill, braved the wintry blast manfully, and stood at the gate of the Fellows' Garden to receive his unexpectedly numerous guests. The latter kept to the marquees and the gravel walks, and enjoyed themselves prodigiously.

The conversazione given in the evening by the Royal Dublin Society at Leinster House proved one of the largest receptions on record. The 3000 mem-

bers of the Royal Dublin Society were, of course, all invited, and as practically all the members of the British Association present in Dublin attended, the number of guests was more than 4000. The queue of carriages extended along several streets, and took two hours to discharge the occupants. On arrival the guests were received by Lord Ardilaun (president of the Society), the Right Hon. Frederick Trench, and Sir Howard Grubb. There were numerous scientific exhibits by local men.

In the lecture theatre Mr. W. H. Vipond Barry gave an organ recital, while subsequently lantern demonstrations were given by Rev. W. S. Greene and Dr. E. MacDowel Cosgrave, the subjects being "Scenes and Incidents in the West of Ireland" and "Old Dublin" respectively.

The Lord Lieutenant, accompanied by several members of his staff, arrived at 9.30, and spent some time inspecting the exhibits.

The sections started in full force on Friday, the weather having cleared up completely. The encounter between Sir William Ramsay and Prof. Rutherford in Section A drew a large attendance of distinguished physicists, but the keenest local interest was evoked by Mr. T. W. Russell's appearance at the section for Economic Science and Statistics, and the discussion on land purchase and the nationalisation of railways in which he took part.

A special meeting of the Senate of Dublin University was held at 2 p.m. for the purpose of conferring honorary degrees. The University Caput consisted of Mr. Justice Madden, Vice-Chancellor, Dr. Anthony Traill, Provost, and Mr. Frederick Purser, Senior Master. As each candidate was summoned to the dais, the Public Orator, Dr. L. C. Purser, proclaimed his titles and qualifications in Latin. The names of those who received degrees are to be found on p. 471 of the present issue under the head of University and Educational Intelligence.

Meeting of the General Committee.

At a quarter-past three o'clock a meeting of the general committee was held at Trinity College, Mr. Francis Darwin occupying the chair, when it was decided to hold the meeting of 1910 at Sheffield, and that of 1911 at Portsmouth.

On the motion of Sir Arthur Rücker, Prof. J. J. Thomson, F.R.S., was elected President for the Winnipeg meeting in 1909, the date of which was fixed for August 25 to September 1.

The afternoon engagements of Friday were divided between the general committee, a garden party at Dunsink Observatory, another at Saint Patrick's Cathedral, a visit to Messrs. Jacob and Co.'s biscuit and cake factory, and a special *matinée* of Irish plays at the Abbey Theatre, where Mr. W. B. Yeats gave an address on the recent development of native Irish drama.

The drive to Dunsink in special brakes was enjoyed by 200 members, who accepted the invitation of the Astronomer Royal and Mrs. Whittaker. The Observatory is situated to the north of Phoenix Park, and is best known to the Dublin public as the centre from which "Irish time" is furnished to the public time-pieces of Ireland. The transit circle was, naturally, inspected with special interest.

Dean Bernard's garden party at St. Patrick's was also well attended, and was distinguished by the presence of the Lord Lieutenant of Ireland.

The Lord Mayor of Dublin took sixty members of the Association in his "flagship," the *Shamrock* (he is admiral of the Port of Dublin), down the Liffey to see the main drainage and electric light works at the Pigeon House, and gave a luncheon on board after the works had been inspected.