

Ronalds, well known in connection with the origin of the electric telegraph. He was educated at a private school in England, after which he went abroad, and studied at Giessen, Jena, Berlin, Heidelberg, Zurich, and Paris. At Giessen he was the fellow-student of Hermann Kopp, Fresenius, Will, and other well-known chemists. He returned to England in 1840, and lectured on chemistry at St Mary's and the Middlesex Hospital. In 1849 he was appointed professor of chemistry in Queen's College, Galway. In 1856 he gave up his professorship, and took over the Bonnington Chemical Works, where the tar and ammonia liquor of the Edinburgh Gas Works were dealt with. At the expiry of the contract Dr Ronalds retired from business, and lived at Bonnington House until his death, on 9th September 1889. He was a constant attendant at the meetings of the Society, and although he rarely took an active part in its proceedings he always took a lively interest in everything that went on. He had an admirably appointed laboratory, with the use of which he was most generous; and among the numerous chemists who, either as students or teachers, have from time to time resided in Edinburgh during the last thirty years, there are none who do not remember him with affection.

Joseph J. Coleman. By Professor M'Kendrick.

Joseph J. Coleman died on 18th December 1888, in the 49th year of his age. Trained first as a chemist and druggist, he was early led to the study of chemical science, and so soon as in his 22nd year he contributed papers on chemical subjects to the *Proceedings* of the British Association. In course of time he became chemist to the Young's Paraffin Light and Mineral Oil Company, and in this capacity made original investigations on the gases produced in the distillation of bituminous shale. By submitting these to great pressure, at a low temperature, Mr Coleman obtained highly volatile liquid hydrocarbons. This investigation led him to the problem of the mechanical production of low temperatures, and to the invention of the well-known machine by which a low temperature is maintained in the holds of steamers conveying large cargoes of fresh meat from America and Australia. Along with Mr James Bell, the method was successfully carried out,

and Mr Coleman's dry-air mechanical refrigerators were fitted up in many steamers. Mr Coleman acquired a modest fortune from his invention, and, retiring to Bearsden, near Glasgow, he built a small private laboratory in connection with his house, and devoted himself entirely to original investigation. He contributed numerous papers to the Philosophical Society of Glasgow, to this Society, to the Society of Chemical Industry, and to the Institution of Civil Engineers. For many years Mr Coleman suffered from weak health, and at length his frail body succumbed to a complication of disorders. He was a man of bright and lively intelligence, who took an original view of any scientific question to which his mind was directed. Although eminently practical as a chemical engineer, he had a great regard for the first principles of science, and even for those problems in chemistry and physics that are of merely speculative interest to most men. Few were more gifted with the power of recognising the practical applications of scientific theory, and it was this quality of mind that led him to the invention of the machinery for the mechanical transference of heat with which his name will always be associated.

Franz Cornelius Donders. By Professor M'Kendrick.

This distinguished physiologist and ophthalmologist was born in North Brabant on 27th May 1818, and died at Utrecht on 24th March 1889. Educated in the Dutch Royal Hospital for Military Medicine and Surgery, he practised for a time as army surgeon in Vliessingen and in the Hague; but an anatomical and pathological investigation on the nervous centres having attracted the attention of the authorities, he was soon appointed lecturer on anatomy and physiology to the Royal Military Academy in Leyden. This office he held till 1848, when he was appointed professor extraordinary in the Medical Faculty of the University of Utrecht; in 1852 he became an ordinary professor; and on the death of Schroeder van der Kolk, in 1862, he was called to the chair of physiology. He filled this chair till 1889, when he retired in compliance with the law of the universities in Holland, by which no professor can occupy a chair after attaining his seventieth year. Soon after his retirement his health gave way, and he died after a series of apoplectic attacks.