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Henry Enfield Roscoe (1833-1915)

Henry Enfield Roscoe founded what became known as the Manchester School of Chemistry at Owens College, the precursor of the University of Manchester. The Museum holds a large collection of chemical samples from the former Owens College Chemical Museum. Many of these samples arose from Roscoe's work and the collection also includes a thermometer used by Roscoe.

Henry Roscoe was born in London in 1833. His father, also Henry, moved to Liverpool to become a barrister and judge but died in March 1837. His mother Maria took her two young children (Harriet was born in 1836) to Gateacre, where Roscoe attended a local preparatory school. In 1842, he went to the Liverpool Institute, where he got his first taste of chemistry. His mother allowed him to use a room at home for experimenting and giving lectures to friends and cousins.

In 1848, Roscoe went to University College London, where he studied chemistry under Thomas Graham. He passed his BA with Honours in 1853 and went to Heidelberg to study with Robert Bunsen, who had an excellent reputation and a focus on practical work. Roscoe learnt quantitative and gas analysis techniques and was encouraged to carry out research. He gained his PhD and began working with Bunsen on the measurement of the chemical action of light (photochemistry).

Roscoe returned to University College London in 1855 to become Lecture Assistant, setting up his own laboratory. Two years later, Edward Frankland resigned the Chair of Chemistry at Owens College and Roscoe took over at the age of 24. Owing to its local unpopularity, the College was almost at the point of extinction. Indeed, the *Manchester Guardian* had called it a 'mortifying failure' and Roscoe was even refused lodgings when the landlord learned of his affiliation. Owens College had opened in 1851, funded through a bequest by the textile merchant John Owens. It started off in a private house in Quay Street with 34 students, 15 of whom worked in the chemistry laboratory. A plaque now marks the house. Roscoe and the new Principal, J. G. Greenwood, managed to turn round the fortunes of the College. Steadily, Roscoe convinced local manufacturers of the need for chemical training. By 1863, the number of day students had risen to 110, of which 38 were in the chemistry laboratory.

Roscoe's skill and methodical approach made Owens College a success. All students received a thorough training and he encouraged them to pursue original research. During his 30 years at Owens College, students and demonstrators published over 120 original papers, a record unequalled at the time in Britain. Carl Schorlemmer, his assistant, became the first Professor of Organic Chemistry in Britain. Owens College became the leading chemistry school in the country and provided staff for numerous academic and industrial posts.

Roscoe's success was also due partly to his active role in the local scientific community. He joined the Manchester Literary and Philosophical Society and set up a series of 'Science Lectures for the People'. These were extremely popular and ran for 11 series between 1866 and 1880. They were published and sold widely for a penny. Roscoe also provided his services in analysis to local gas and water boards, and served on the Royal Commission on Noxious Vapours.

Roscoe investigated many different areas of chemistry during his career, concentrating on inorganic chemistry. His most important research work in Manchester was on vanadium, but he also investigated tungsten, niobium and uranium compounds. He proved that previous work by Jons Berzelius on vanadium had been wrong. His experiments were accurate and, given the lack of technology available at the time, Roscoe did well in experimental results. His research was spurred by the promise of industrial application: 'The best of the thing is that Vanadium will turn out to be a most valuable substance for Calico-Printers and Dyers – as by its means an aniline black can be prepared which is far superior to that obtained by copper salts.'

Roscoe's educational publications carried even greater weight than his researches. His books on elementary chemistry were widely adopted and translated into nine languages. He was active in numerous scientific organisations, including the Royal Society (which awarded him its Medal for his work on photochemistry and vanadium in 1873), the Chemical Society of London and the British Association for the Advancement of Science. He was a founder member of the Society of the Chemical Industry, which had its first meeting in 1881 when Roscoe was President.

Roscoe was knighted in 1884 and, upon retirement from Owens College, became MP for South Manchester from 1885 to 1895. He died in 1915 after an angina attack.

For further information:

Read Elisabeth Bowden, 'Sir Henry Enfield Roscoe 1833-1915', MSc thesis (University of Manchester, 2001).

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