

Henry Edward Schunck (1820-1903)

Dr. Henry Edward Schunck was a well-known chemist who undertook important research on natural dyestuffs. The Museum's collections include samples from his research.

Schunck was born in Manchester in 1820, the second son of a wealthy textile merchant. He was introduced to the study of practical chemistry by William Henry (famous for Henry's law of gas solubility) and his son Charles at their chemical laboratory in Manchester. On completing his school education, Schunck was sent to the universities of Berlin and Giessen in Germany. He completed his doctorate at Giessen under Justus Leibig (a leading German scientist of the nineteenth century), as a preparation for managing his father's dyeworks. His university studies under Leibig included investigating the colouring properties of aloe plants. Schunck also investigated lichens that produce violet dyes, publishing many papers on the subject in German.



Schunck returned to England in 1846, and became Chemical Manager of the family calico printing firm, Schunck, Souchay & Co. In his spare time, he began a long investigation into the colouring properties of the madder plant. Madder was one of the most commercially important dyestuffs of the nineteenth century, but the process of dyeing with madder was not properly understood before Schunck's work. Schunck isolated the yellow dyestuff of madder, called

alizarin. He invented a way of purifying alizarin for commercial use, patenting the product as Pincoffine. He also isolated a second colouring matter called purpurin. He found that these colouring agents are formed by fermentation in the dead plant root. He also isolated a glucoside called rubian, which decomposed by fermentation to sugar and alizarin.

In the 1850s, Schunck began a new investigation into the formation of indigo blue, which he extracted from the woad plant. He succeeded in isolating the precursor of indigo, called indican, as a complex but unstable compound. He also studied indigo in urine and the Tyrian purple dye, derived from shellfish, which he found was also an indigo derivative.

Schunck's final chemical investigations were into chlorophyll, the green colouring matter in plants. He analysed several decomposition products of chlorophyll, compared their properties to those of haemoglobin (red blood cell) compounds from blood and found that the two were similar. From this, he concluded that chlorophyll and haemoglobin were closely related chemical compounds. This led to important discoveries regarding the structure of chlorophyll.

Schunck is not well remembered today, despite discovering many important organic compounds and much about the nature of dyestuffs and plants. Many of Schunck's investigations died with him, partly due to the introduction of synthetic dyestuffs into the chemical industry in the late nineteenth century. His work did, however, pave the way for chemists to make similar substances from synthetic sources. Many of the dyestuffs investigated by Schunck are still in use today. For example, anthraquinones are important mordant-fixing and vat dyes. They are fast and stable dyes used for dyeing fabric and paper, and were developed in 1901. In the late twentieth and early twenty-first centuries, the demand for organic products has increased and natural colouring matters have become popular once again, bringing Schunck's methods of extraction and isolation back into use.



Schunck left a lasting legacy by donating £20,333 and his entire laboratory to the University of Manchester in 1895 for chemical research. The University also holds the Schunck Library, which consists of some 4,000 scientific books and pamphlets collected by Schunck during his lifetime. Schunck was associated with many different scientific institutions, and became President of both the Manchester Literary & Philosophical Society and the Society of the Chemical Industry.

He was elected Fellow of the Royal Society in 1850 and was given an honorary doctorate by the Victoria University of Manchester in 1899. Schunck also received the Dalton Medal in 1898, the Davy Medal in 1899 and the Gold Medal of the Society of the Chemical Industry in 1900. He died in 1903.

For more information:

- Read* Kargon, Robert H. *Science in Victorian Manchester*. Manchester, UK: Manchester University Press, 1977.
Pollard, J. *The Chemical Research of Henry Edward Schunck*. University of Manchester BSc Chemistry Project, 2001.
- Visit* The Museum's Manchester Science Gallery