

*UCL Chemistry Department 1828-1974*, Alwyn Davies and Peter Garratt, Science Reviews 2000, St. Albans, UK, 2013, 287 pp., ISBN 978-1-900814-46-1, £12 (distributed by the UCL College Shop or its online store, [onlinestore.ucl.ac.uk](http://onlinestore.ucl.ac.uk)).

Before University College London was founded in 1826 as the University of London, there had been no new Universities in England for over 500 years. In contrast to Oxford and Cambridge, it taught modern technical subjects such as chemistry and had no requirement for affiliation with the established church; it was called "The Godless Institute in Gower Street." Faraday was offered the first Professorship of Chemistry, but he declined. Edward Turner took the post. An honors examination from this period is reproduced. There are 35 questions with the instructions that students may answer as many as they choose, but "the Examiners would prefer short and distinct Answers to a competent number of questions." This kind of detail is characteristic of the entire book.

The department has maintained an extraordinary archive of architectural plans, portraits, drawings, menus, and academic records many of which are reproduced throughout. Turner was succeeded by Thomas Graham, first president of The Chemical Society and famous for his work on diffusion. There are illustrations of his equipment.

Alexander Williamson (the Williamson ether synthesis) was made Professor of Chemistry in 1855. It was in 1863 that the remarkable story of the Japanese connection began. A group of five samurai smuggled themselves out of Edo Japan (at great risk; it was a capital crime to visit a foreign country) in order to study at UCL, the one institution in England that did not discriminate on the basis of race, religion, or nationality. The Williamson family welcomed them. In fact, three lived in the Williamson house. These arrangements continued: in 2004, out of 71 Japanese studying chemistry in Britain, 42 were enrolled at UCL.

William Ramsay, the discoverer of the noble gases, succeeded Williamson. There is a list of 30 of Ramsay's students who subsequently filled Chairs of Chemistry. Three of these were subsequently Nobel prize winners (Hahn, Heyrovsky, and Soddy) while two others became heads of Chemistry at UCL. The list includes Sir Stafford Cripps, who did not go on in chemistry but who was a member of Churchill's war cabinet. Later eminent Professors of Chemistry were Norman Collie, the mountain climber and originator of the polyketide motif in biosynthesis and Frederick Donnan (the Donnan equilibrium).

This brings us to the seventh chapter of the book (which is organized chronologically) and which details the disruptions due to World War II. The entire University has to be moved out of London. The Chemistry department, because of its size, was split in two between Bangor and Aberystwyth in Wales. The story of the dynasty of Sir Christopher Ingold and Edward Hughes begins in Chapter 8. While Ingold is best known for the invention of the terms nucleophile and electrophile and for establishing the mechanisms of  $SN_1$  and  $SN_2$  reactions, it is not generally appreciated in how many other areas he made fundamental discoveries, for example, using infra-red and Raman spectroscopy to establish the centrosymmetry of benzene. There are marvelous stories about the collaboration of Ingold and Hughes. I was struck by the skill with which Ingold staffed his department relying for the most part on his own students. This has the clear advantage of certainty about a candidate's abilities but also requires a judge with broad knowledge of all of chemistry. This Ingold possessed. A partial list of Ingold's choices: C. A. Bunton, K. Lonsdale, P. B. de la Mare, C. A. Vernon, R. S. Nyholm, J. H. Ridd, A. G. Davies, Y. Pocker, P. Pauling, D. V. Banthorpe, F. Sondheimer, T. Thirunamachandran. (See the story about his request for a grant of minus £13). There are many others with illuminating biographical details about all of them.

Nyholm who began his career at UCL in 1950 became head after the death of Hughes in 1963. His Inaugural lecture was titled "The Renaissance of Inorganic Chemistry" which reflects the shift in all research universities away from a purely descriptive view of this branch of chemistry. His tragically short tenure is described in chapter 10. The M.Sc. was the highest degree available in Australia at this time and so the reputation of Nyholm brought an influx of Australian inorganic chemists to UCL as described in chapter 11. There are sketches of the organic and physical staff at UCL in chapter 12 for the final time period of the book. The secretarial and technical staff are not omitted: they are the subject of the following chapter for the same time period. The final two chapters (14 and 15) deal with social matters (pubs and dinners) and with memories of former students. There are useful Appendices and a good index. My only complaint is that the binding is poor.

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