

## EDWARDS, CHARLES ALFRED (1882 - 1960), metallurgist and principal of University College of Swansea

**Name:** Charles Alfred Edwards  
**Date of birth:** 1882  
**Date of death:** 1960  
**Spouse:** Florence Edith Edwards (née Roberts)  
**Parent:** Elizabeth Edwards  
**Parent:** Samuel Edwards  
**Gender:** Male  
**Occupation:** metallurgist and principal of University College of Swansea  
**Area of activity:** Business and Industry; Education; Science and Mathematics  
**Author:** Donald Walter Hopkins

Born 23 March 1882, son of Samuel and Elizabeth Edwards, Kitchener, Ontario, Canada. The family moved to Lancashire in 1884 and C.A. Edwards was apprenticed in 1898 in the Lancashire and Yorkshire railways foundry. Such was his interest in the properties of metals and alloys that he was appointed assistant to Dr. H.C.H. Carpenter at the National Physical Laboratory in 1905. In 1907 he was co-author with Carpenter of a report on the copper-aluminium alloys and was appointed a lecturer in Metallurgy at Manchester University. Between this date and 1910, when he returned to industry with Bolckow Vaughan and Dorman Long in Middlesborough, he published several papers on the heat treatment of steel and was awarded the degree of M.Sc. He was also far in advance of contemporary ideas in recommending the addition of oxygen to the air blown into iron blast furnaces, a practice which became common about fifty years later. Further research publications led to the award of a D.Sc. in 1913. In 1908 he married Florence Edith Roberts and their son was born in 1913. C.A. Edwards succeeded Carpenter as professor of Metallurgy in Manchester in 1914 and succeeded in combining government work on steel analysis and heat treatment with the development of an Honours School in Metallurgy.

In 1920 he became Head of the Department of Metallurgy and Vice-Principal at the newly established University College of Swansea. The first entrants were mainly young men who had seen military service and were rather older than the normal intake, but with the aid of three colleagues who were inspired to accompany him from Manchester these were persuaded to embark on serious study and some, later, on research. Edwards' earlier experience in industry and absorbing interest in the application of science ensured widespread and lively collaboration with local industry, especially steel and tinplate and led to the establishment of a research group supported by the South Wales Siemens Steel Association. There were numerous publications relating to the production of mild steel sheet and tinplate, including definitive work on the structure of steel ingots and the influence of heavy cold-rolling on the final sheet structure. He became Principal of the University College in 1926, but he retained the Chair of Metallurgy and found great pleasure in discussing teaching and research and giving lectures and publishing papers as a relaxation from his strenuous efforts in promoting the interests of the college. His election as a Fellow of the Royal Society in 1930 gave great pleasure to a wide circle of industrial and academic friends. His lectures on alloy structures in the early 1930s were again an example of his capacity to keep ahead of current ideas on an important topic. The outbreak of war in 1939 stopped work on the major scheme for the replacement of the temporary buildings erected in 1921 and for which Principal Edwards had been indefatigable in his efforts. His guidance during the difficult period which lasted virtually until his retirement in 1947 put the college into a favourable position to take advantage of subsequent opportunities for growth.

Even after retirement C.A. Edwards retained his interest in metallurgy and was for some years a consultant to a major south Wales steelworks. His somewhat retiring personality and diffidence in expressing opinions contrasted strongly with the evidence of his progression by personal effort and ability from an apprentice to a high academic level and the possession of the highest awards in his profession. A kindly and dignified person, he was capable of inspiring enthusiasm and lasting friendship and his loss was felt by many when he died on March 29, 1960.

### Author

Donald Walter Hopkins

### Sources

*Biographical Memoirs of Fellows of the Royal Society*

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Wikidata: [Q20821414](#)

**Published date:** 2001

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