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A UNIQUE PARTNERSHIP: WILLIAM AND LAWRENCE BRAGG
AND THE 1915 NOBEL PRIZE IN PHYSICS

ABSTRACT. The award of the 1915 Nobel Prize in physics jointly to William Henry Bragg and his elder son, William Lawrence Bragg – ‘for their services in the analysis of crystal structure by means of Röntgen rays’ – seems to have been largely uncontroversial at the time, but there are a number of questions that surround the award and the events that followed it that deserve exploration. This paper attempts to address these questions.

INTRODUCTION

There are a number of questions that surround the award of the 1915 Nobel Prize in Physics jointly to William Henry Bragg and his elder son, William Lawrence Bragg: ‘for their services in the analysis of crystal structure by means of Röntgen rays’. The work for which the Prize was awarded was undertaken in England in 1912 and 1913, only three years after the family had arrived from Australia and two years before the award. How was it possible to achieve so much in such a short time? What role did the two recipients play in the award-winning work? Lawrence was only twenty-two years old in 1912, a new graduate, and this was his first significant piece of research; was he simply riding on his father’s coat-tails, as many supposed? And what was his personal and professional relationship with his father, that led to the only parent–child pair ever to win the prize together? Moreover, the award was made in the heat of the Great War of 1914–1918, when the Bragg family was personally involved in the Allied war effort, and European science was battling with the implications of the hostilities for scientific openness and collegiality. How was the award received, when several they loved and many they knew were dying? And what effect did the award have on their personal future, and on the field they together pioneered, X-ray crystallography?1

William Henry Bragg was born in the northern English county of Cumberland (Cumbria) in June 1862, the first child of a seaman-farmer and a clergymen’s daughter. His early years were very happy, not least because his mother nurtured his intellectual ability by teaching him the pleasures of reading and arithmetic even before he went to the local school. His world was shattered, however, by his mother’s early death in 1869, and by what he probably saw as rejection by his father when he was sent to live with a domineering uncle in Leicestershire, while his two younger brothers remained at home. Thereafter, William became a solitary child who discovered fulfillment in academic achievement but found personal relationships difficult. His father intervened only once more in his life, insisting that William be sent to King William’s College on the Isle of Man for his secondary education. There was a family connection, his outstanding mathematical ability was encouraged, and he won a scholarship to Trinity College, Cambridge, to read for the Mathematical Tripos.

Few of William’s Trinity contemporaries remembered well the quiet undergraduate until his later fame reminded them. After being placed Third Wrangler in the Tripos examinations of 1884, an appointment to Australia took him out of England. When Horace Lamb resigned from the foundation chair of mathematics at the University of Adelaide, in the colony of South Australia, J.J. Thomson and Lamb were asked to find a replacement, and they gambled on the newly-graduated and inexperienced twenty-three year old in preference to other, better qualified candidates.


Thus, his father hardly appears in William’s detailed autobiographical notes of his early life (unpublished), and even his father’s death in 1885, a few months after William graduated from Cambridge, is not mentioned.

Much of the material in this article is found in my booklet on the Bragg years in Australia and the references to be found therein (Jenkin, op. cit. note 1). Other material is taken from the unpublished autobiographical notes of William and Lawrence Bragg, held by the present Bragg family.