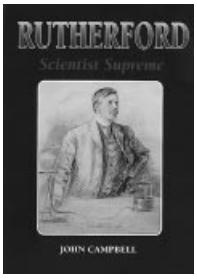
The Importance of Being Ernest

Rutherford—Scientist Supreme. By *John Campbell*. AAS Publications, Christchurch 2000. xvi + 515 pp., hardcover £ 25.00.—ISBN 0-473-05700-X

Ernest Rutherford's research caused fundamental changes to the scientific picture of the world on three occasions during the first 20 years of the past century: he showed that natural radioactivity was due to spontaneous transmutations of chemical elements, he discovered the atomic nucleus, and he converted one element into another (nitrogen to oxygen) in the laboratory. All that and much more was achieved by a man from a land at the end of the world, New Zealand, which had only established its first colleges a few years previously. He grew up as one of 12 children in a family of flax millers, and remained an ordinary uncomplicated person throughout his life. The key event of his early life was also a stroke of luck: in 1895, at 23, he was awarded New Zealand's only research scholarship in England because the first candidate to be chosen had turned it down. He chose to go to the cathedral of British physics, the Cavendish Laboratory in Cambridge, under J. J. Thomson. In that exclusive preserve of English students at Cambridge he was not always welcomed, with his loud voice, robust humor, unrestrained laughter, and short-tempered rage when things did not go well. In 1898 he moved to McGill University, Montreal. He was a typical explorer, one of those researchers who push forward into the unknown with audaciously simple ideas and experiments, leaving the details to others. In 1907 he returned to England, this time to Manchester, was awarded the Nobel Prize for Chemistry in 1908, and in 1919 succeeded Thomson at the Cavendish Laboratory. His death from a strangulated hernia in 1937 could have been prevented according to those around him at the time.



Not surprisingly, the life of Ernest Rutherford (Lord Rutherford of Nelson), has attracted biographers, and over 40 books have been written about him. So what does John Campbell wish to add? He answers that question in his preface: he aims to present Rutherford's origins, life, and work as seen from New Zealand, where he was born and received his upbringing, character molding, and education—the country that he left in 1895, having failed to find a suitable job there, and to which he returned many times to visit his large family, whose descendants still remain there. Campbell has set out to make Rutherford's life better known not only to the world at large but especially to New Zealanders, whom he reproaches for having neglected Rutherford's memory for decades. The author may be regarded as predestined for that task, as he teaches physics at the University of Canterbury in Christchurch, from where Rutherford too started out. However, the scientific aspects are limited to what is essential, and are presented in a way that can be understood by the general reader. Also, in contrast to the more usual scientific biographies, the author has avoided giving a clutter of source references and footnotes that could discourage a wider readership; that information has been reserved for a fuller version that will be made available in a few libraries.

Applying stringent criteria, John Campbell has critically evaluated and selected from an enormous wealth of documentary material and from his many interviews with people who knew Rutherford well. He is well aware that not all readers will wish to follow him in all the details, and therefore he suggests that they should skip over some of the material at a first reading. But it is exactly the digressions and ramifications that give the book its special appeal. There the author has not held back from describing some of the abstruse ideas of famous contemporaries Rutherford had to fight with as beginner. For example, it was proposed that the mysterious energy stored in radium originates from outside, namely from the ether, by the element absorbing its waves. In such controversies, which are typical in the pioneering stage of any field, Rutherford always was right; his intuition was infallible.

The book is enlivened especially by its anecdotes, and therefore I will reproduce here the story concerning Otto Hahn's shirt-cuffs. In 1905 the journal *Nature*, in the course of a series of articles about famous laboratories, sent a photographer to cover a report about the McGill University department. The photographer complained that Rutherford was not appropriately dressed; in particular he noted that Rutherford did not have the white shirt-cuffs that should be showing below the jacket sleeves. Fortunately Hahn, who was then working with Rutherford, possessed a pair of detachable shirt-cuffs. And thus, on page 273 of *Nature* for 1906, where Rutherford is seen standing in front of his apparatus for scattering alpha particles, we also see Hahn's detachable shirt-cuffs immortalized for posterity.

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