

## Book review

**Harry Marshall Ward and the fungal thread of death.** Peter Ayres. 2005. APS Press, St. Paul, Minnesota, USA. ISBN 0-89054-333-X. US\$79.00, 168 pp

Before I read this book by Peter Ayres, I wasn't aware of the outstanding achievements and contributions made by Harry Marshall Ward to the development of Botany, Mycology, Microbiology and Plant Pathology. This book introduces Ward and his science and portrays Ward's life as a reflection of the changes that occurred in biological sciences in the late 19th century.

The book begins with Ward's visit to Ceylon, where he made his reputation as an epidemiologist by studying the spread of the rust fungus, *Hemileia vastatrix*, among the coffee plantations of Ceylon. This was a major disease at the time as it affected the quality of coffee beans. The following chapter covers the early years of Ward's life as he became a botanist. While studying to become a school science teacher at the Department of Science and Art in South Kensington, London, Ward met William Thiselton-Dyer. Thiselton-Dyer was a teacher at South Kensington but later became Director of the Royal Botanic Gardens and was a major influence in Ward's future career. However, it was his friend and fellow student, Louis Lucas, who helped and persuaded Ward to go to Cambridge, where Ward obtained a first class honours degree in Botany. Whilst at Cambridge, Ward realized the importance of visiting the German laboratories of Anton De Bary and Julius Sachs. Chapter three covers Ward's contact with De Bary who was largely responsible for the extent of knowledge in Plant Pathology at the time and Mycology and Plant Pathology were high on the list of Ward's interests. The approach of the German School was to investigate by experiment and rely on observations rather than use textbooks, an approach that Ward pursued throughout his career. Ward was among the first to study the physiology and biochemistry of the interaction between host and pathogen. He

investigated the way in which pathogens use enzymes to attack plants and the way plants defend themselves which is now at the heart of current understanding of infection, resistance mechanisms and plant breeding. Thus, Ward was the father figure in the development of physiological plant pathology.

Ward's progress up the ladder of academia was very carefully orchestrated. His early move to Owens College, Manchester, as demonstrator and assistant lecturer was significant. It was at Owens College that Ward investigated the infection of *Saprolegnia ferax* in salmon. In 1885, Ward was offered and accepted the Chair of Botany within the Forestry Branch of the Royal Indian Engineering College at Cooper's Hill, London. It was here that Ward's research proved to be the most productive. He pursued a variety of projects such as the diseases of trees, fermentation processes and action of light on bacteria to name a few. He was elected Fellow of the Linnaean Society, Fellow of the Royal Horticultural Society and Fellow of the Royal Society before obtaining the Chair of Botany at the University of Cambridge in 1895, a position described as 'the fatal challenge'. He also made major contributions to the affairs of the British Association and was twice President of the British Mycological Society.

Ward created the Cambridge School of Botany as a major leader in plant science but due to an early death at the age of 52, he was never able to appreciate his own achievements. It is the final chapter entitled 'Legacies' that is the most fascinating. Ward did not supervise many students but those that he did, such as Biffen (plant breeding) and Freeman (plant pathology), became world leaders.

*Harry Marshall Ward and the Fungal Thread of Death* is an interesting biography and a good read. However, more details could have been provided on Ward's researches, particularly when his publications are not easily accessible. This book will be of benefit to those who are studying the history of

science but should also be of interest to plant pathologists, mycologists, botanists and general biologists. Peter Ayres has explained the science in simple language and so people with little scientific knowledge will understand and enjoy the story of Ward's life and the development of his researches. The book is well illustrated with original photographs and simple diagrams which enable the reader to get a good feel of the times in which Ward lived. One major criticism is the cost of the book at US\$79.00; I can't imagine many biology

students being able to afford to buy it. Hopefully, Institutional Libraries will have it on their shelves.

DEREK T. MITCHELL  
UCD School of Biological and Environmental  
Science,  
University College Dublin  
Belfield, Dublin 4, Ireland  
E-mail: [Derek.T.Mitchell@ucd.ie](mailto:Derek.T.Mitchell@ucd.ie)