OBITUARY

R.K.S. Wood FRS, 1919–2017

Simon Archer¹

Received: 31 October 2017 / Accepted: 2 November 2017 / Published online: 18 November 2017
© Springer Science+Business Media B.V., part of Springer Nature and International Society for Plant Pathology 2017

In May of this year (2017) the plant pathology community lost one of its most visible and respected practitioners of the twentieth century. Few plant pathologists, or plant scientists more generally, whose career spanned the middle part of the twentieth century could be unaware of Ronald Wood (sometimes Ron to his closest contemporaries, but widely known

within the plant pathology community simply as RKS) through his prolific publication record, presentations at conferences, books and reviews.

Starting in the late 1940s Ronald Wood published extensively in botanical and other journals. He was one of the first to address seriously the question of how plants either resisted or succumbed to microbial infection, and the parallel questions about what qualities enabled certain microorganisms to incite disease in a plant whereas others, closely related, could not. Tied in with this is the question of what controls host-pathogen specificity, especially that seen on an exquisitely fine scale amongst biotrophic plant pathogens. RKS was an early advocate of ‘looking under the bonnet’ to study the physiology and biochemistry of the interaction between plants and their pathogens. The term ‘Physiological Plant Pathology’ was coined to describe this, possibly not by RKS himself but it was indeed the title of his 1967 book, a highly detailed account of the state of the science at that time. The term spawned an eponymous journal a few years later while the subject itself has slowly morphed into molecular plant pathology as the tools of investigation have become more sophisticated. The state of the subject now allows extremely detailed dissection of the molecular signalling between plant and microbial adversaries but the underlying questions being tackled are much the same as those framed by Ronald Wood some 50 years ago.

Ronald Karslake Starr Wood was born in Ferndale, south Wales in 1919, into a coalmining family. Few who knew him only later in life would be aware of his humble origins or his Welsh accent as a youngster. Ronald evidently excelled at school and was a beneficiary of both the grammar school and the government scholarship systems which allowed poor pupils to attend university. Despite pressure from his school to attend a local university (a curb on ambition sadly still evident in some schools today) RKS opted for London and went up to Imperial College to read Botany in 1937. His period as an

✉ Simon Archer
s.archer@imperial.ac.uk

¹ Imperial College London, South Kensington, SW7
2AB London, UK

² Present address: Noirmont Cottage, Cobbetts Hill, Weybridge, KT13
0UB Surrey, UK

undergraduate in what would today seem very small classes was well spent and he graduated in 1941 with first class honours. Thankfully, unlike in the First World War when young men, educated or otherwise, often ended up fighting in the trenches, by World War Two policy had moved on to use those with a technical education much more selectively when allocating war work. Preventing losses to home-grown food was a priority and Ronald's introduction to practical plant pathology, as a research assistant, started at this point. Later in the war he joined the staff of Professor F.C. Stewart in the Ministry of Aircraft Production. Preventing wastage of equipment and improving its reliability was one of the aims of the unit. Little of what he did for the best part of three years had even the faintest botanical connection!

After the end of hostilities Ronald was appointed assistant lecturer at Imperial College and started a period of concentrated research activity both on his own behalf and jointly with research students, which he was increasingly expected to supervise, even while completing his own PhD (awarded by the University of London in 1948). He was promoted to Lecturer in 1947, to Reader in 1955, and in 1964 was appointed to the Foundation Chair of Plant Pathology in the University of London (and coincidentally the first named chair in the subject in the UK). The research school in plant pathology at Imperial started by William Brown FRS during the 1920s was increasingly directed by RKS from the early 1950s onward. It expanded greatly (William Brown retired in 1953), aided by parallel developments in the department in plant physiology, genetics, microbiology and plant biochemistry. A number of research themes flourished under Ronald's guidance, notable amongst which were the role of microbial cell-wall-degrading enzymes, the physiology of vascular wilt diseases, research on leaf spots and (somewhat later) the role of phytoalexins in disease resistance and studies on induced resistance.

RKS read widely (helpfully the literature was smaller then) and readily entertained, but often critically, ideas from outside. He was aided in this by extensive travelling and personal contact with established researchers in other countries. Two periods he spent overseas were seminal. In 1950, by virtue of a Commonwealth Fund Fellowship he was able to spend a period at the University of California, and again in 1957 he spent a year as research fellow at the Connecticut Agricultural Experiment Station. Both trips furnished him with new ideas and crucially with equipment to put them into practice. The contrast with a typically resource-poor British biological sciences lab at the time was striking. Both trips enabled him to travel widely in North America and to make contacts and friendships with other scientists which were to last a lifetime. In 1958 he was invited to lecture at a series of special meetings to celebrate the fiftieth anniversary of the founding of the American Phytopathological Society. The esteem with which he was held in the USA was cemented and never dwindled.

Later in his career RKS frequently found himself invited overseas either to investigate or advise on a particular disease

problem, or as a guest of an overseas university, scientific academy or on occasions a foreign government. Some of these visits developed into extensive lecture tours and were often timed to allow RKS to double up as external examiner. No part of the world was off-limits as far as he was concerned, and this included countries behind the then iron curtain where visits without a specific high level invitation were all but impossible. He was certainly a globe-trotter and his CV at retirement listed visits to at least 28 countries. With a work routine so diverse he could afford to boast that he never took a regular holiday! The Indian sub-continent was a favourite of his and he enjoyed the repartee he developed with senior Indian scientists on a wide range of subjects including politics. He felt that India had something special to offer the world and that nobody could really understand world culture unless they had visited and studied in India.

RKS had by the mid 1960s an encyclopaedic knowledge of the state of plant disease physiology and he decided to commit what he knew to print in the form of his seminal book 'Physiological Plant Pathology'. At 570-odd pages and with rather few illustrations this was no light bedtime read. To the current author, an undergraduate at the time of publication, it was daunting but also required reading for those who wished to progress in the subject. Not only did 'PPP' provide a unique resource of so much information in one place but it also delved into the evidence and provided much of the rational argument on which then current theories were based.

Although best known for physiological plant pathology the research group which RKS built up covered the subject of plant pathology much more widely. His own doctorate was on biological control of a soil-borne pathogen; work on fungicides (including an early demonstration and warning of fungicide resistance) featured intermittently, as did studies on the biology of poorly studied diseases (these were usually the remit for overseas students from countries where the disease was important). As the university system in Great Britain expanded and as funds allowed, the group grew, to include further members of academic staff. Brian Deverall (a former student of RKS) and Bryan Wheeler both joined in the 1960s. John Mansfield spent a period as a research assistant and later re-joined a much changed department towards the end of his career when Wye College merged with Imperial. Others whose tenure overlapped with RKS include Ian Smith, Bob Coutts and the author of this obituary. John Gay, a specialist on botanical ultrastructure, worked alongside but with a degree of independence. The list of plant pathologists who studied under Ronald's tutelage is extensive and includes many well known names. Some of these have now passed on or retired but others remain currently or recently active in the field. Of the latter Richard Cooper (Bath), Michele Heath (Toronto), Jim Kavanagh (Dublin), Sarah Gurr (Exeter), Peter Mills (Harper Adams), Alan Slusarenko (Aachen) and Ralph Dean (North Carolina) come to mind.

Although honoured by his peers both at home and abroad, RKS never received recognition from the UK government, something he attributed to his disdain of authority and self-confessed tendency to rudeness. Within his home institution he was successively Dean of the Royal College of Science and the first head of a newly unified Biology Department. Nationally he was elected Fellow of the Royal Society (the UK's national academy of science) in 1976 and he was one of the first honorary members of the British Society for Plant Pathology. Internationally he was elected as Fellow of the American Phytopathological Society and as a corresponding member of the Deutsche Phytomedizinische Gesellschaft. At various times he was visiting lecturer, fellow or professor at a number of overseas universities including visiting Regents' Professor at the University of California. In 1978 at the third International Congress of Plant Pathology in Munich he was awarded the prestigious Otto-Appel-Denkmuende (medal) by the German Federal Republic.

RKS was active in professional affairs throughout his career. Early on (from 1949) he acted as honorary secretary of the Association of Applied Biologists (AAB) and for some years was their representative on the Biological Council and several other bodies. In 1956 he was elected to the council of the Institute of Biology and in the early 1960s he was on the plant pathology committee for the tenth International Botanical Congress and was later Chairman of the Plant Pathology Committee of the British Mycological Society (BMS). This served as a stepping stone to acting as Chair of an *ad hoc* committee jointly of members of the BMS and the AAB which led to the founding of the Federation of British Plant Pathologists. Some 15 years later when the Federation evolved into the new British Society for Plant Pathology, RKS provided much behind-the-scenes encouragement and he became the new Society's first president. Meanwhile the Federation had acted as the parent body for organising the first International Congress of Plant Pathology held at Imperial College in 1968.

RKS, together with Bryan Wheeler, took on much of the local organising (something that today is usually outsourced at considerable cost). At this Congress the suggestion of an International Society (mainly to ensure the running of a second Congress) took hold. Following a period of intense negotiation and with much good will the International Society for Plant Pathology was formally constituted in 1970 with RKS as its first president; later (1998), he was elected as Fellow.

Little of the research that RKS directed was entirely novel but he had a very clear vision of what was important and what was likely to become so. His career started at a time when academic staff in British universities were expected to undertake 'personal research' and many took this literally by working alone. Running a research group was unusual, and a large one supported by outside funds even more so. His legacy includes an extensive list of publications, but even more importantly the people that he trained have gone on to promote the subject at research institutes and universities around the world. He supervised, wholly or partly, some 70 research students whose names read like a *Who's Who* of mid-twentieth-Century plant pathologists. He favoured graduate students rather than post-doctoral research assistants: the latter he felt came with pre-conceived ideas, were set in their ways and less open to original thinking!

RKS considered plant pathology to be both a science and a technology (applied science, to some) and this was the title of his inaugural professorial lecture given in 1965. He fervently believed that the study of host-parasite interactions, although intellectually stimulating in its own right, should always have as its ultimate aim the seeking of solutions in practical crop protection. The critical mass generated by RKS raised the profile of plant pathology and helped transition it from a descriptive to an experimental science. In the words of one former research student 'He put plant pathology on the map'.