Ronald Bentley (1922–2011)

We are saddened to report that Professor Emeritus Dr Ronald Bentley, Department of Biological Sciences, University of Pittsburgh, passed away on Monday 6 June 2011 after struggling for some time with kidney disease. Ronald Bentley received his PhD in 1943 from the Imperial College of Science and Technology, University of London, and a DSc in 1965 from the University of London. As a graduate student, Dr Bentley worked on the international penicillin project, working in a laboratory on the top floor from which he could watch the bombing of London through a skylight. He was a co-author of 13 reports on the chemistry of penicillin in the years 1943–1946. He carried out postdoctoral studies in the Biochemistry Department at Columbia University with Professor David Rittenberg, where he learned about the emerging utilization of mass spectrometry in organic chemistry and met his future wife, Marian Blanchard. Both the marriage and the technology were enduring. When he returned to London, he built an all-glass Nirenberg-type mass spectrometer. Unfortunately, he and his colleagues had very little actual use of that particular instrument, as Ronald spent much of his time repairing leaks.

Dr Bentley joined the faculty of the Department of Biochemistry and Nutrition in the Graduate School of Public Health at the University of Pittsburgh in 1953 and remained there throughout his career and serving as Chair from 1972 to 1975. The department later became part of the Department of Biological Sciences. During his long and distinguished career, he published over 200 papers and reviews and served as one of the editors on both the 1997 and 2000 editions of the definitive Oxford Dictionary of Biochemistry and Molecular Biology. He devoted much of his career to studies of the biosynthesis of secondary metabolites, especially aromatic compounds in micro-organisms, ranging from tropolones such as stipitatic acid and stipitatic acids, to quinones such as naphtahoquinone, menaquinones and coenzyme Q (in collaboration with Professor Robert E. Olson). He was very interested in chirality in organic compounds, which was associated with an inborn gift for perspective and seeing things in three dimensions, and was the author of the highly regarded book on this subject, Molecular Asymmetry in Biology, published in two volumes in 1969. In 1963, Dr Bentley joined with Professor William Wells, his postdoctoral fellow, Dr Masami Makita, and one of us (C.C.S.) in collecting gas chromatographic data on the trimethylsilyl derivatives of a large number of carbohydrates, publishing a paper that became one of the 100 most cited papers in the sciences in the 1960s. In 1979, he was the recipient of the Pittsburgh Award of the American Chemical Society.

In 1967, when C.C.S. was awarded funds from the NIH to purchase an LKB 9000 gas chromatograph–mass spectrometer and was getting it set up in the laboratory next to that of Dr Bentley, a glass capillary inlet was needed for the introduction of a reference liquid polymer, perfluorokerosene, into the ion source. C.C.S. was drawing capillaries when Dr Bentley came in, asking about the proper diameter of such a device. C.C.S. admitted that he had no idea, so Ronald disappeared and came back a short time later with a small vial. He said the capillaries needed to be the diameter of one of the red hairs in the phial, which he said were taken from the head of Professor Rittenberg and were of the proper diameter. He had kept these hairs all of those years in case he might one day need to make a capillary inlet for a mass spectrometer!

One day in the autumn of 1961, Ronald was walking with his dog on the community golf course bordering his property in Mt. Lebanon, PA. He spotted a gigantic puffball, a basidiomycete (Calvatia gigantea), and brought it to the laboratory. With C.C.S. and a postdoctoral fellow, C.V. Lavate, we analysed the lipids including sterols and coenzyme Q and reported our findings. In typical Ronald Bentley style, he sacrificed a portion in the interests of cuisine, and we all enjoyed a helping of sautéed puffball. Ronald wanted to include this culinary aside in the paper, but the editors declined to include this fact.

Unlike many experimental scientists, Ronald had a keen interest in the nuances of scientific language and the history of science, passions he shared with J.W.B. They both had struggled with the difficulties associated with defining the large and heterogeneous group of natural products that biologists usually call ‘secondary metabolites’. In the late 1980s, he persuaded her to co-author a definitive review about microbial secondary metabolites, claiming that once he retired it would no longer be possible for him to continue writing and publishing. During that same era, he acquired his first home computer and mastered a chemical drawing program, and when he became a Professor Emeritus in 1992, he continued his scholarly collaborations with her and other historically minded collaborators in a series of definitive reviews on polyketides, antibiotics, mycophenolic acid, microbial arsenic metabolism, stereochemistry and some of the people (John Norman Collie, Frederick Challenger and Bartolomeo Gosio) associated with the study of these subjects. His post-retirement output consisted of almost 50 papers, about half
of them single-author publications and about half with Thomas G. Chasteen (Sam Houston State University), William R. Cullen (University of British Columbia) and J.W.B. During most of his later years, he lived alone with a lively Sheltie named Bronwyn, carrying on an extensive email correspondence with friends and colleagues. He entertained frequently, cooked superbly (his English trifles and fruitcake were especially memorable), and opened his guest room regularly. His last graduate student, Jan Popp, made him an honorary grandfather for her two daughters and visited each year for an extended time at the Fourth of July weekend. Jan nominated him for the Waksman Outstanding Educator Award from the Society for Industrial Microbiology, which he received in 2002.

Ronald is survived by two sons, Colin and Peter. He was preceded in death by his beloved wife, Marian Bentley, in 1989 and his only daughter, Alison, who unexpectedly passed away in 1985 of complications associated with her first pregnancy. He is mourned by his many former students, colleagues and friends who remember his exacting scholarship leavened with wit; his vast store of knowledge about secondary metabolites, carbohydrates and stereochemistry; his gift for language; and his understanding of the complex ways in which scientific advancement develops through an interplay between ideas, experiments and the human beings who generate both.

Charles C. Sweeley (Michigan State University, USA) and 
J.W. Bennett (Rutgers University, USA)

References

Tony Atkinson (1945–2011)

Tony Atkinson will be remembered by many at Porton Down as a keen supporter of research and development, someone who was responsible for giving many people the opportunity at the start of their career to work for a higher degree. The authors of around 40 PhD theses held in the HPA Porton Down library, in some way or other, owe their success to Tony. He acted as supervisor to many, mentor to others, and provided encouragement to everyone; he also found the funding for virtually all of these projects. Young scientists were encouraged to explore interesting research paths, to protect their inventions through patents and to publish in the learned journals at every possible opportunity. Together with the other departments in the Centre, this allowed the development of a flourishing research capability which eventually established an international reputation in its field.

Tony completed his own doctoral research in 1970 at Victoria University Manchester, studying adenosine triphosphatase isolated from pig cerebral cortex. He subsequently started work at what was then the Microbiological Research Establishment (MRE) at Porton, in the days when it still belonged to the Ministry of Defence. He worked with Ken Sargeant, undertaking research alongside contemporaries such as Denis Herbert, Don Callow, Jack Melling, Charles Evans and Dick Yeo. Tony worked at MRE’s Experimental Plant No. 1 (now the Fermentation Process Plant) on enzymes from thermophiles, where he rapidly established his reputation in the large-scale growth of bacteria and the associated downstream processing. He was particularly interested in glycerokinase as a possible means of measuring triacylglycerols in the diagnosis of cardiac disease. Tony also worked on the isolation of many other enzymes, including RNA synthetases and lactamas. His interest extended to the development of the accompanying technology, and he worked with Chris Bruton (Imperial College) and Chris Lowe (Southampton University) on the use of ICI’s Procion dyes in protein separation. He also worked over the years with equipment manufacturers, often offering to test prototype products in return for early access to the technology.

When the MOD closed MRE in 1979 and it was taken over by the PHLS, the establishment was renamed the Centre for Applied Microbiology & Research (CAMR). Tony became Director of the Diagnostic Reagents Laboratory, which began with himself, a staff of 12 and a secretary. He quickly expanded this through large numbers of research grants. Tony’s interest in the emerging field of ‘genetic manipulation’ – the forerunner of today’s molecular biology – combined with a strong reputation in microbiology, established his team and it continued to diversify. When Ken Sargeant moved to a prestigious post in the European Commission, Tony took over the management of the Fermentation Pilot Plant (FPF) section and this merged with the Diagnostic Reagents Laboratory to become the Microbial Technology Laboratory (MTL). Tony extended CAMR’s catalogue of bacterial products into a significant commercial activity and, eventually, over 70% of the Centre’s income was to be derived from external sources – effectively the forerunner of today’s Business Development activities in the HPA. MTL built a strong diagnostic...
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enzymology capability, working with Chris Price at the Southampton General Hospital (and later, Addenbrooke's Hospital in Cambridge) and developed a strong molecular genetics team in collaboration (among others) with Howard Dalton at Warwick University.

In the mid-1980s, Tony won significant funding from the DTI (Department of Trade and Industry) for work in what was then the developing field of biosensors and the department grew yet again. Eventually, in 1987, it became the Biotechnology Division with around 200 staff and Tony became one of the two Deputy Directors of the Centre. Much of his department’s work was carried out in collaboration with many of the UK’s leading universities and his links with Warwick led to a visiting Chair, something of which he was particularly proud. He also developed a strong interest in thermophiles and mounted an expedition to Montserrat to search for new extremophiles, taking a property by the volcano which was later to devastate a large part of the island.

Many will remember Tony for his laidback approach to life and his love of his black Rover car. He rarely wore a tie and was always considered part of the team, rather than the senior manager that he was. That team had a reputation for hard work and hard play in the 1980s and, on several occasions, Tony had to intervene to sort out problems after a night of revelry, including one occasion when many of his staff had a lift home courtesy of the constabulary after a particularly noisy stag night in a nearby local village.

Tony eventually left CAMR in 1994, having been affected for several years by back trouble. He did not let this affect his scientific drive, however, setting up an enterprise called Chimaeron Ltd at the local business park at Old Sarum to take forward his scientific interests. In the ensuing years, various colleagues joined him and Tony undertook consultancies with Biogen, Schering Plough and DuPont de Nemours. He served at various times as Director of New Sarum Enterprises Ltd, Third Millennium Intek Ltd and Thermophilic Microorganisms Ltd, and was a partner in the incubator which developed Tetricus, the Porton Down Science Park. Tony was a founding Director of Generic Biologicals Ltd and Kymed GB Ltd, which he subsequently merged before leading Kymed’s reverse takeover of the Ofex-listed oncology company Enzacta Plc, to form Enact Pharma Plc in April 2000. He served as Chief Executive of Enact from the following year. Enact was eventually merged with the LSE (London Stock Exchange)-listed company Protherics in June 2003 and Tony became its Chief Scientific Officer from July 2003 until April 2005, after which he continued to advise them as a consultant.

In 2004, Tony co-founded the pharmaceutical company Morvus Technology Ltd, where he served first as a non-executive director and then as non-executive Chairman. He stepped down from the board of Morvus in April 2011, but continued to work with the company as a consultant. At the same time (2004), Tony co-founded NanoMor Biomedical, a bionanotechnology company. Both were spin-outs from Protherics and the latter licensed patents originally developed by Enact, on a royalty basis.

The early years of the new millennium were busy ones for Tony and in December 2004 he became a non-executive Director of Fusion IP Plc (formerly Biofusion Plc). The company had exclusive rights to technology developed at the Universities of Cardiff and Sheffield, working in the fields of clean energy, electronics, engineering and medicine. Tony also served as Director of a number of AIM (Alternative Investment Market)-listed companies, including Lab21 Ltd, Eden Biopharma Ltd and TMO Renewables Ltd. As the co-founder of Third Millennium Intek Ltd, he held various additional corporate non-executive Directorships and shareholdings in a number of other companies, including Sarum Biosciences.

Besides his family and his beloved boxer dogs, one of the other passions in Tony’s life was a small narrow-gauge railway, which he purchased with a colleague in early 1995. In 2009, Tony and his business partner transferred the railway into a charitable trust in order to preserve its long-term future. Located at Fairbourne on the west coast of Wales, this was the site of two huge ‘railway parties’, when former colleagues travelled from all over the world for reunions. Held at the pavilion at the end of the line, they were memorable for not only their comradeship but also the firework displays which acted as the finale on each occasion. It is probably true to say that Tony was one of the few, if not the only person who inspired such loyalty among his former colleagues that they would travel to such a remote location for a party!

In more recent years, Tony chaired the pre-registration steering group that eventually led to the formation of the General Chiropractic Council and also chaired the Chiropractic Patients’ Association for a number of years. His proudest achievement was becoming a Fellow of the Royal Society of Medicine.

A man who was fervent about his science and, in particular, about scientific research, Tony will be fondly remembered by all who knew him; the legacy of scientific and commercial achievements he leaves behind stand as testimony to his talent and determination. He passed away after a brief period of illness in Salisbury Hospital, on Sunday 19 June 2011. We offer our deepest sympathy to his wife, Maureen, and to his family.

Peter M. Hammond
(Porton Down)