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Obituary: A tribute to Robert Louis Cecil Pilgrim (26 August 1921–7 April 2010), Research Associate, Museum of New Zealand Te Papa Tongarewa

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With great sadness, I received the news of the death of my colleague, close friend and mentor, Professor R.L.C. Pilgrim, affectionately known as Bob. Despite his deteriorating physical health, Bob continued to do research on his beloved fleas until the last minute of his life. He died suddenly at home of a heart attack, after spending the evening working on his monograph of the flea larvae of the world. Although Bob will not see the results of his research in print, his friend and colleague Terry Galloway will complete the manuscript for publication.

I met Bob over 37 years ago, a few weeks after I arrived in New Zealand with my wife and son as political refugees from Chile, where democracy had been crushed and many people killed by the military. Little did I realise then that meeting Bob would mark an important turning point in my life as a person and as a scientist. I feel privileged and honoured to have known Bob and his family over all these years and remember him as a truly exceptional man.

Bob was a holistic scientist, a natural historian of the old school, who had extensive knowledge of biology in its broadest meaning. He was capable of working in any area of biology he chose, and his published papers are testimony to the wide range of topics he investigated in a career spanning seven decades. He was a practical, modest man who was not at all interested in publicity and adulation. His greatest pride was the quality of his work and that of his students.

Students filled a great part of Bob's time and effort during the almost 40 years he was a lecturer at the University of Canterbury. Bob could be called a 'man of all trades': he was

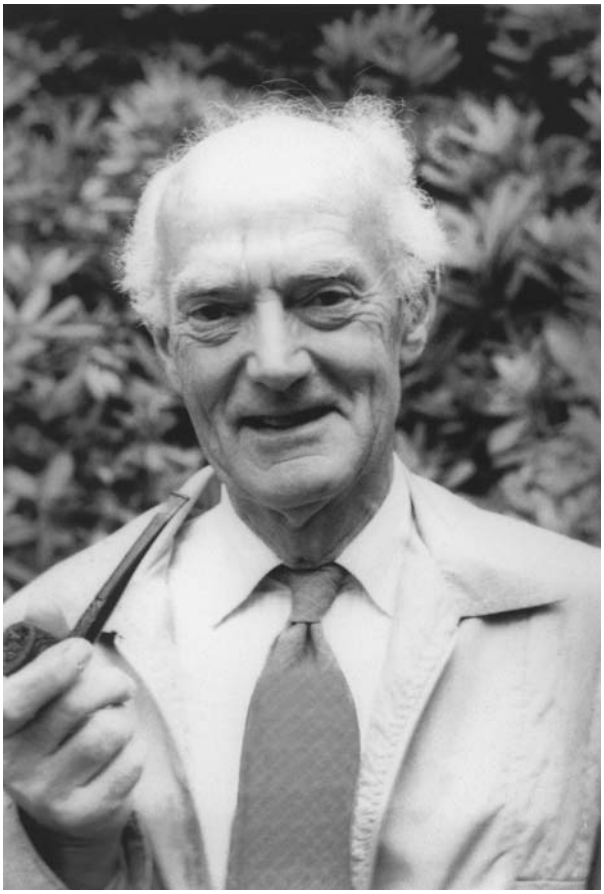

Fig. 1 Professor Pilgrim in July 1988, at the XVIII International Congress of Entomology held in Vancouver, Canada.

a biologist, a researcher, a collector, a handyman, a bookbinder, a linguist, a historian, a geographer, a family man, an outdoor man, a gardener and, above all, a great teacher. As university colleagues agreed during a memorial meeting held shortly after Bob's death, he was the best lecturer the Zoology Department had had in its history. Bob's main vocation was teaching, and I was fortunate enough to receive the benefits of his talent for that role on many occasions.

Bob was born and lived all his life in Christchurch, New Zealand. He had two sisters and one brother. His father's business collapsed during the Depression of the 1930s and Bob had to leave Christchurch Boys' High School at the age of 16, having completed only his sixth form. Bob's dream of becoming a medical doctor was shattered, and instead he had to settle for the reality of work in menial jobs to earn a living. Eventually, he obtained a job as a public servant, working first with the Department of Agriculture and later in the Department of Social Security, from the age of 17 until he was 21. He was sent to Wellington for some weeks, but hated the capital city and asked to be relocated to Christchurch.

The Depression years left an indelible mark on Bob – literally. He was proud to show an unusual paperweight made of acrylic with bones stained red embedded in it, which he kept on top of his desk. They were the bones of one of his little toes, both of which had to be surgically removed in adult life after badly fitted shoes had deformed them during the Depression. Bob never discarded anything that could be reused later, including envelopes, paper clips, rubber bands, wrapping paper, string, boxes and so on. Although for different reasons, he was a pioneer of today's practice of recycling used goods.

Bob's lifelong interest in biology began at an early age when, with two schoolmates, he established the Onslow Museum Society, named after its location. The father of one of the boys refurbished a bedroom with shelves for the budding natural historians to display the shells, fossils and other specimens that formed the museum's collection. Since biology was not taught in secondary schools at that time, the boys were desperate to purchase an authoritative manual to assist in the identification and classification of shells. However, to purchase such a book was beyond their financial means. So, they took their plight to the top, and wrote to the Minister of Education, Peter Fraser, a man who appreciated the value of education. The reward for their bold initiative was a parcel containing the precious book, as a personal gift from Fraser. The Onslow Museum Society also received expert advice and visits from Dr Robert A. Falla, then director of the Canterbury Museum; Professor Edward Percival, Head of Zoology at Canterbury University College; and Professor Robin Allan, Head of Geology at Canterbury.

While working as a public servant, Bob was able to enrol as a part-time student at Canterbury University College in 1939. Although he was allowed time off work to attend lectures, it was given grudgingly, and he struggled to commute between the office and the lecture room within the allocated time. Frequently, he had no time for lunch and, had it not been for Saturday morning lectures and laboratory work, he would not have been able to complete his Bachelor of Science degree, which he achieved in May 1943 (Fig. 2). Bob never forgot the value of part-time studies and had a special regard for those students who had to work while studying. Years later, he had the opportunity of recalling part-time work while studying overseas. He assisted a Welsh relative who had a contract to clean chimneys in Wales, and proudly claimed to have been the only New Zealand professor who had swept the chimneys of Cardiff Castle.

After obtaining his B.Sc. degree, Bob was awarded the Charles Cook, Warwick House, Memorial Scholarship and the Shirtcliffe Graduate Bursary, but the Second World War put an end to his hope of immediate graduate studies. He was called for war service and spent the following year in the army. After training in Trentham, his scientific knowledge led to his recruitment as biochemist and diagnostician in a hospital of the New Zealand Army Medical Corps in New Caledonia. When the hospital was disbanded, Bob entered Burnham Army Camp. Scheduled to sail with reinforcements to Italy in 1944, he was released from the army to perform an essential occupation as research assistant in the unit dealing with artificial insemination of cattle in the Ruakura Animal Research Station, near Hamilton. He found out about his release and new research position only by chance, while giving a book to his commanding officer to return to the library because he had no time to do it himself before sailing to Europe. His battalion suffered heavy losses in the battle of Monte Cassino in Italy, and it is quite likely that Bob's biology studies saved his life.

Bob was a keen tramper and skier, and while skiing at Arthur's Pass in the winter of 1942 he met Joy Davies. They were married in May 1945, two weeks after the war ended in Europe. His work at Ruakura lasted until 1946, when he was appointed as an assistant lecturer in zoology at Canterbury University College and was then able to resume his studies, graduating with a Master of Science in zoology

Fig. 2 Bob Pilgrim with his fiancée, Joy Davies, on the day in May 1943 he received his diploma as a Bachelor of Science, Christchurch, New Zealand.

with equivalent first-class honours. A National Research Scholarship enabled Bob and his wife to travel to England in December 1948, where he undertook research on the physiology of oysters at London's University College, gaining a Ph.D. in 1951. His thesis supervisor was George Philip 'Gip' Wells, son of renowned novelist and science writer H.G. Wells (H.G. had taken classes under biologist T.H. Huxley; and H.G. and G.P. Wells co-authored *The science of life* (1930) with Julian Huxley, grandson of T.H. – connections that Bob would have appreciated). Bob's first series of scientific papers resulted from that research work, which confirmed his initial career as a physiologist (see Appendix 1, below). On his return to Christchurch, not only with a Ph.D. but also with Susan, his and Joy's first daughter, Bob was appointed as lecturer in Canterbury University College. In September 1952, he became a father for the second time when another daughter, Jennifer, was born in Christchurch, and on 1954 he was promoted to senior lecturer at Canterbury.

In 1958, Bob was awarded a postdoctoral fellowship by the National Academy of Sciences to undertake research at the California Institute of Technology in Pasadena, and at the Friday Harbor Laboratories of the University of Washington, where he worked on crustacean neurophysiology. In 1963, Bob was promoted to reader at the University of Canterbury, and awarded a travel grant by the British Council to continue his research at the Marine Biological Association in Plymouth. From England, he travelled to Italy to extend his research at the Stazione Zoologica in Naples. He made major contributions to the field of invertebrate neurophysiology, and this work led to his establishment of the physiology laboratory and course in the Department of Zoology at Canterbury, at a time when physiology was taught only at medical schools. Bob was the driving force behind the establishment of biochemistry and biophysics as teaching disciplines at Canterbury, and was appointed as the faculty's coordinator for the two subjects. This was a major achievement in his career, for which he felt very proud.

After his appointment to the second Chair of Zoology in 1965, Professor Pilgrim, as I respectfully addressed him for many years, saw his teaching and research activities reduced as he assumed more administrative responsibilities. Noted for his efficiency, he was appointed Dean of the Faculty of Science from 1967 until 1969. He also became the secretary of the Lecturers' Association, a lecturers' representative on the Professorial Board, and represented the university on the Papanui High School Board of Governors. As if that was not enough, Bob served as chairman of the Canterbury Branch of the Association of University Teachers, as council member of the Royal Society of New Zealand as well as president of its Canterbury Branch, and as vice-president of the New Zealand Science Teachers' Association. However, his greatest administrative interest within the university related to his lifelong love affair with books: he was a member of the Library Committee for nine years, the last three as chairman.

The time and effort taken by Bob's numerous administrative positions meant that his neurophysiology research had to be abandoned because it required long and sustained hours of laboratory work. Bob turned instead to insect research and became an entomologist. It was Tillyard's (1926) book on Australian and New Zealand insects that, many years earlier, had enticed him into collecting and studying insects and other invertebrates. The challenge of identifying specimens found in the field attracted him greatly, and through it he was able to combine his love for the outdoors with that of biology. Bob enjoyed leading students and

colleagues to his favourite collecting spots in Canterbury: Cass, Banks Peninsula and Kaikoura. Several new invertebrate species were described by colleagues based on material collected by Bob during those field trips, and some of them carry his patronymic for posterity (see Appendix 2, below). A major entomological achievement was Bob's discovery of the aquatic larva and pupa of the only species of scorpion fly living in New Zealand, and he proudly took visiting foreign entomologists to the locations where these unusual larvae could be found. Bob was also interested in coastal invertebrates – he wrote the corresponding chapter for the 1969 book *The natural history of Canterbury* – and decapod crustaceans, in particular hermit crabs, of which he had a considerable collection, now housed at the Museum of New Zealand Te Papa Tongarewa (Te Papa).

However, the subject that delighted Bob most, and which took up the greatest part of his time and effort after he left neurophysiology, was parasitology – partly because he believed parasites made 'clever' adaptations and partly because of their close relation to humans. He collected and researched ectoparasites from birds, mammals and marine fishes for the rest of his life. Bob amassed very large collections of lice and fleas, mainly from New Zealand hosts but also from Australian ones, and later added specimens from many other countries, mostly as the result of exchange with overseas colleagues. He donated his collections of lice and fleas – amounting to several tens of thousands of specimens – to Te Papa, where they are now permanently housed, maintained, and available on loan to bona fide researchers.

Bob's interest in parasitic lice, and my M.Sc. thesis on the same group of insects, were the reason for our first meeting in April 1974. I was somewhat worried about my poor spoken English but, as soon as we made contact, we established a strong connection that became a close friendship as years passed. Bob was Head of the Department of Zoology at the time, and he was able to employ me as his personal research assistant for two years, until I took a position at the National Museum of New Zealand, now Te Papa, in 1976. Those two years working with Bob were enlightening and extremely important for my future career as an entomologist and, in particular, as a specialist on lice. He improved my English pronunciation, and he taught me how to write academic English and how important it was to express scientific concepts clearly, without colloquial expressions. He also taught me the necessary tools for publishing scientific papers, and introduced me to many New Zealand entomologists. After my departure from Canterbury, we corresponded weekly and visited each other at least once a year to work on lice. The number of joint papers we published is testimony to that fruitful cooperation lasting over 30 years (see Appendix 1, below).

During the 1980s, when the National Museum of New Zealand established the honorary positions of research associates, Professor Pilgrim was among the first group of scientists to receive such a title. His appointment was in recognition of his close and mutually beneficial association with the museum, which continued uninterrupted until his death.

Bob was extremely concerned with the quality of spoken and written scientific language, and his office and home contained many foreign-language dictionaries. He was critical of the language skills of science students, noticing that those skills were diminishing as years passed. Bob blamed schools, and wondered how students could become good scientists if they lacked knowledge of grammar and spelling. He strongly believed that if they could not observe language rules, they would not make proper observations in the field or in the laboratory. Bob was also a strong supporter of introducing foreign languages to science degrees, to help students access publications in other languages and when they travelled to international conferences.

In 1983, after almost 40 years working at the University of Canterbury, Bob decided to retire early to dedicate himself to the full-time study of flea larvae, as he felt that was a much-neglected area within the discipline of entomology. His interest in the immature stages of insects was not new, as his previous work on scorpion fly larvae would attest. He felt that studying flea larvae was important considering the role played by some flea species in the transmission of human pathogens, especially the agent of bubonic plague. When interviewed by Christchurch's *The Press* in June 1983, Bob said that he would continue with his flea research at the university 'for at least another 20 years, maybe 30'. At the time of his death, he had achieved 27 years of steady work and had published more than 15 papers on the subject (see Appendix 1, below).

Bob established correspondence with many flea workers, ornithologists and mammalogists around the world in his relentless search for flea larvae representing as many families and genera as possible. He visited Canada, the USA, China, Russia, England and Slovakia to meet colleagues and to obtain specimens. He taught himself to read papers in Russian and in Chinese, since much of the relevant literature is written in those languages. He developed an innovative

technique to dissect, slide-mount and examine the larvae, and used SEM photography to interpret and confirm the nature of anatomical structures he had seen in slide-mounted specimens. He prepared more than 8000 slides of fleas, most of them with larvae, but some with adults that were needed to identify the larvae by association. As a result, Bob amassed what is almost certainly the largest and most diverse collection of flea larvae in the world.

Professor Pilgrim was an active member of the Entomological Society of New Zealand for 40 years. He attended many annual conferences at which he gave engaging oral presentations, he assisted in the organisation of conferences held at the University of Canterbury, he contributed papers to the *New Zealand Entomologist*, and he held the offices of president (1987–89) and immediate past-president (1989–91) in the society's executive. His professionalism, friendly personality and unique sense of humour will be greatly missed in future annual meetings of the society.

At the time of his death, Bob had been associated with the University of Canterbury for more than 70 years, as a student, lecturer, professor, researcher, administrator, emeritus professor and, above all, as a highly respected member of the university community. He was well known for his high level of professionalism, extreme efficiency, sharp punctuality, warm friendliness, special sense of humour and great honesty. At an informal meeting held in Bob's memory at the University of Canterbury in May 2010, several of his old colleagues and friends agreed that his death marked the end of a special era at the university. I believe that Bob's passing marked the end of an era in biological science everywhere.

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Appendix 2: Animal taxa named after Professor Pilgrim

INSECTA

Phthiraptera (parasitic lice)
Colpocephalum pilgrimi Price, 1967
Ardeicola pilgrimi Tandan, 1972
Rallicola pilgrimi Clay, 1972
Pseudomenopon pilgrimi Price, 1974
Degeeriella mookerjeei pilgrimi Tendeiro, 1979
Forficuloecus pilgrimi Guimarães, 1985

Hymenoptera (wasps)
Spilomicrus pilgrimi Early, 1978

Siphonaptera (fleas)
Notiopsylla peregrinus Smit, 1979

ARACHNIDA

Acari (mites)
Analges pilgrimi Mironov & Galloway, 2002

Araneae (spiders)
Plectophanes pilgrimi Forster, 1964
Aorangia pilgrimi Forster & Wilton, 1973

Opilionida (harvestmen)
Nuncia (Micronuncia) roeweri pilgrimi Forster 1954

CRUSTACEA (crabs, shrimps, etc.)
Neocyproidea pilgrimi Hurley, 1955
Scherocumella pilgrimi (Jones, 1963)
Mecaderochondria pilgrimi Ho & Dojiri, 1987
Schistobrachia pilgrimi Kabata, 1988
Trizocheles pilgrimi Forest & McLaughlin, 2000