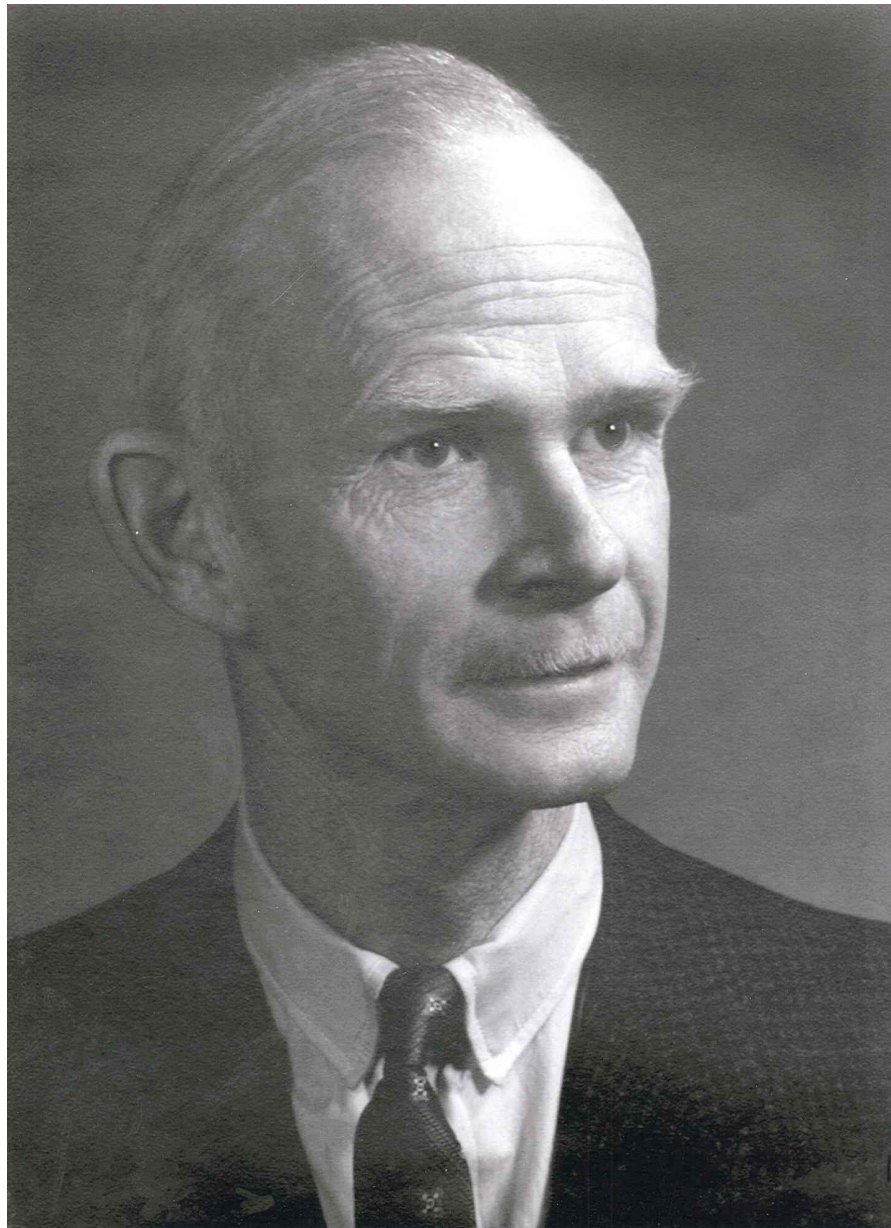


ROBERT G.E. MURRAY & JOHN E. STEELE

Anthony William Aldridge Brown
1911-2005



Professor A.W.A. Brown, known to friends and colleagues around the world as "Tony", died in his 94th year at Morges, Vaud, Switzerland on 17 February, 2005. He enjoyed a varied and distinguished life as an entomologist, research scientist, teacher, professor/administrator, and as a consultant at home and abroad on the control of mosquitoes and insect vectors of diseases. He served Canada and his discipline with distinction. He was awarded the M.B.E. in 1946 for his wartime service in defence research and was elected FRSC in 1961 in recognition of his scientific achievements.

He was born in England at Horley in Surrey, 18 November 1911, the son of Dr. William Brown, a psychiatrist and Harley Street consultant. His formal schooling culminated in a classical education at Winchester College (1925-1929). In his childhood his younger brother and mother died and he had a difficult life split between boarding school and an unsympathetic home. He solved his problems adventurously at age 17 by immigrating to Canada. A scholarly record and a long-standing interest in biology led him to enroll in the forestry program at the University of Toronto. Contending with limited resources and the depression, he sought extra support and life experience in the summers by "riding the rails" to the prairies and seeking farm work along the way. This gave him a lifelong incentive to work hard for his goals in science and in family life. By 1934 he had a B.Sc.F. and an M.A., consolidating his knowledge of forest biology and entomology.

The basis for his lifelong study of insect physiology and the control of insect pests was set in place by his doctoral studies in the Department of Biochemistry, University of Toronto, where he gained his PhD in 1936 for an investigation of nitrogen metabolism in flesh-flies. He continued this pioneer research in the UK in 1936-37 at the London School of Hygiene and Tropical Medicine where he worked in the laboratory of Sir Vincent B. Wigglesworth and was supported by a Research Fellowship from the Royal Society of Canada. Following a year as Sessional Lecturer in entomology at Macdonald College of McGill University his practice as an entomologist began with the Canada Department of Agriculture. He was appointed as Assistant Entomologist and served as the Director of the Forest Insect Survey in the Gatineau River region of Quebec from 1938 to 1942. During this time he maintained a broad interest in nature through his service as Editor of the Canadian Field-Naturalist from 1939 to 1942. By that time Canada's involvement in WW II was well advanced to include a Directorate of Chemical Warfare in association with the Department of National Defence and the National Research Council; this national effort was then (1941-42) engaged with their British counterparts in the formation of the Suffield Experimental Station for research in "Chemical Warfare and Smoke" and other matters of military significance, including biological warfare and insect vectors of diseases. He joined the Canadian Army as Lieutenant and was assigned to the Department of National Defence, where he subsequently rose to the rank of Major in the Directorate of Chemical Warfare (Defence Research Board). He was appointed Head of the Entomological Section of the National Defence Experimental Station in Suffield, Alberta in 1945 where he remained until 1947. With this range of experience and exposure to worldly problems it is little wonder that he became involved in field studies and the application of his knowledge and skills to solving insect control problems in many far off places-acting for the World Health Organization.

His start in academic life came in 1947 when Prof. Detwiler at the University of Western Ontario persuaded him to join the Department of Zoology as Associate Professor to undertake

entomological research and teaching. There is good reason to believe that this relatively senior scientist was taken on as having greater potential because he was appointed Professor and Head of Zoology in 1949 on the retirement of Professor Detwiler, a position he would hold until 1968. This initiated a new and very active phase of his career in which he took his responsibilities seriously: he became known for encouraging excellence in teaching, developing the strengths of the Department with quality appointments, facilitating the research careers of his colleagues, being productively involved himself in research, and in writing papers and books. Co-workers remember him as being a patient and helpful senior colleague with a strong sense of what the Department was about and what was needed for success. He recognized that teaching was the bread and butter of a University department and ensured that the job was done to a high standard. His work with insects attracted much attention and served to put the Department of Zoology 'on the map', the result being that the Department of Zoology was one of the first in the University to welcome a large and diverse group of international students.

His research shifted from insect biochemistry and physiology, especially nitrogen metabolism, to problems involving the mechanisms of pesticide action, the ever increasing problem of pesticide resistance, and the use of pesticides in forestry, agriculture, and the control of insect vectors of human diseases. This shift was stimulated in part by his Army responsibilities for protection of troops in areas noted for insect-borne diseases. These interests were reflected in his papers and particularly in the titles of the books and reviews he wrote in the 50s and 60s: *Insect Control by Chemicals*, *Medical and Veterinary Entomology*, *Insecticide Resistance in Arthropods*, *Mechanisms of Resistance against Insecticides*, and *Factors in the Attractiveness of Bodies for Mosquitoes*. One of the most significant scientific contributions by the Brown lab was the clear demonstration of the genetic basis of insect resistance to insecticides. His research team was the first to identify the chromosomal loci responsible for DDT and cyclodiene resistance. Another significant contribution was the use of biochemical studies to determine the mechanism of insecticide resistance such as the altered carboxylesterase responsible for malathion resistance in several species of mosquitoes. This effort was one of the earliest studies to employ biochemical genetics and molecular biology techniques for the investigation of insect resistance against insecticides. He was an authority and sought as such by the World Health Organization who accorded him the position of Biologist while he was on a special leave of absence 1956-1958. He returned to the University to continue his researches on toxicity and repellancy of various organic compounds and the resistance of many insects to insecticides then in use. This was the beginning of wider associations and many other consultancies resulted, including the US Public Health Service.

After leaving UWO in 1968 he joined the World Health Organization where he became Head of the Vector Ecology Section in Geneva, Switzerland. He served in that position from 1969 to 1973 when he was appointed Director of the Pesticide Research Center at Michigan State University and John A. Hannah Distinguished Professor. This enabled him to expand his interests in the ecology of pesticides and to take advantage of his experience in field problems of choice, distribution, and tactics relevant to large-scale insect control involving aerosols, aircraft, natural features like rivers, and more. He retired as Emeritus Professor in 1976.

His scientific career brought many honours. He was awarded the MBE (military) for his wartime services. He was elected a Fellow of the Royal Society of Canada in 1961 and was awarded the Entomological Society of Canada Gold Medal for Achievement in 1963. He was

elected President of the Entomological society of Canada (1962), the American Mosquito Control Association (1965), the Entomological Society of America (1967), and the Canadian Society of Zoologists (1968). His honorary memberships included the Entomological Society of America and the Entomological Society of Ontario.

Parallel to the productive scientific and academic life there was a well-managed base in home and family. In June 1938, following his year at Macdonald College, he made a summer trip to England to marry Jocelyn Evill in the London suburb of Hampstead. They returned to Canada and made their home in Ottawa during his years with Canada Agriculture and the Army service. Family life got its start and the three girls (Hilary, Virginia and Kathryn) grew up during the years in London, Ontario and in Switzerland. Tony and Jocelyn built a summer cottage on Dwight Bay of Lake of Bays where they spent many happy summer vacations and other occasions. In home or cottage they welcomed friends and visiting colleagues and were generous, lively and amusing hosts for guests of all ages. Those meeting with them at the lake gained the fruits of Tony's experience as a forester and naturalist which added much to the al fresco meals and picnics that were featured nearly every visit. They enjoyed two years in Switzerland in the 50s and when Tony retired they moved there for his continuing association with the World Health Association. Finally, they settled down in the village of Genolier in the Canton of Vaud, about half way between Geneva and Lausanne, in a house with an elegant prospect and in a countryside full of vineyards. They took part in village affairs and, for years, took an active part in the grape harvest. They were welcoming and generous hosts when visited. Sadly, Jocelyn suffered a bad road accident and continuing ill-health. She died in 1997, leaving Tony still in remarkably good shape until the last year or two of his life when a hip replacement and infirmity forced his placement in a nursing home in Morges, not far from his home.

It was a fulfilling, varied and interesting life from the beginning to end; he was a great parent, friend and colleague at every stage of it. He attained a fine age and was a man to be proud of and enjoyed for his wit and his notable accomplishments.

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(Author's title given as of the time of writing)