

In Memoriam

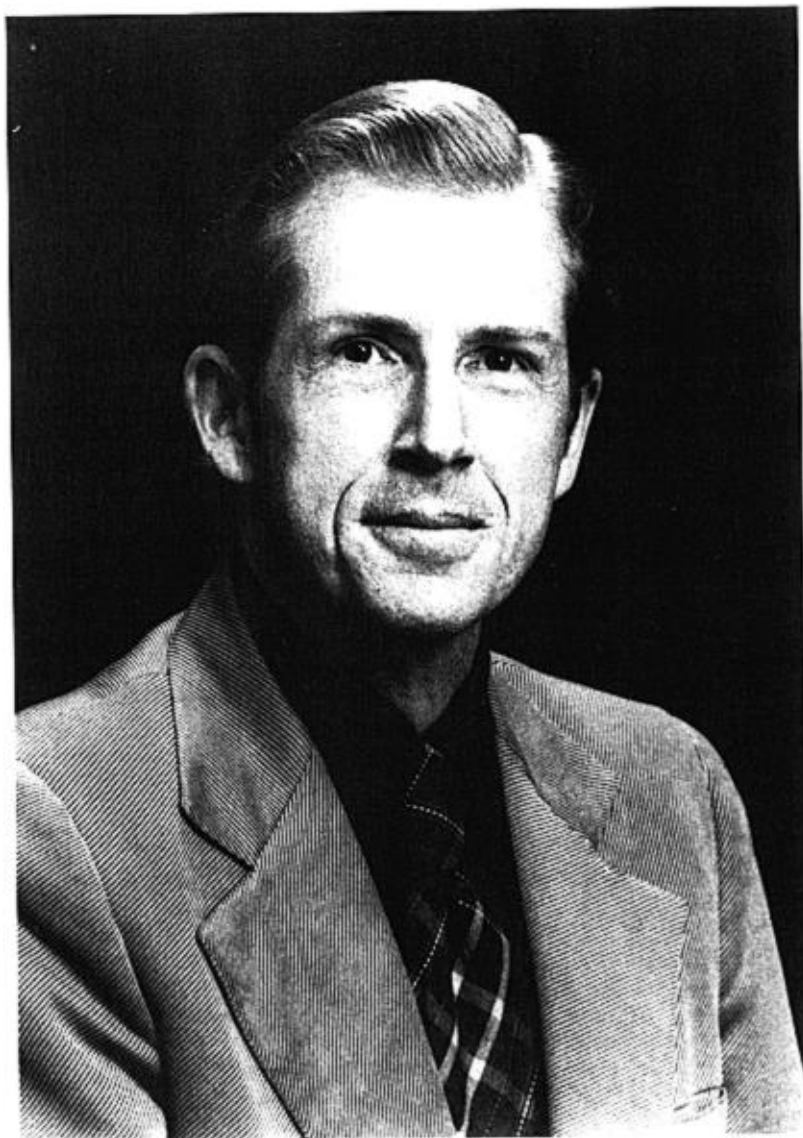


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IN MEMORIAM: WILBUR BROOKS QUAY, 1927-1994

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WILBUR BROOKS QUAY, 1927-1994

(Photograph taken 1976)

Bill Quay was born on 7 March 1927 near Cleveland, Ohio. As a boy he became interested in natural history, especially mammals, encouraged by B. P. Bole, Jr., and Philip Moulthrop of the Cleveland Museum of Natural History. Together with Norman Negus and James Findley they went on local field excursions; all three of these eager novices became distinguished mammalogists. Quay's outdoor interests were sharpened, beginning when he was 14 years old, by summer pack trips out of the Owens Valley of California, sponsored by the Three-Quarter-Round Society.

Quay was awarded an A.B. by Harvard University in 1950 and an M.S. and Ph.D. by the University of Michigan in Ann Arbor in 1952. His Ph.D. thesis was a survey of the skin glands of voles and lemmings. He then taught for 4 years at the Medical School of the University of Michigan (1952–1956), 15 years in the Zoology Department at the University of California in Berkeley (1956–1973), 4 years at the University of Wisconsin in Madison (1973–1977), and 6 years at the University of Texas Medical Branch in Galveston, from which he retired in 1983. He then returned to California, set up a research laboratory at his home in the town of Napa in the San Francisco Bay Area, and pursued his work as a Visiting Scholar and Research Associate in the Department of Anatomy and Physiology of the University of California in Berkeley. A flooding of the Napa River in 1986 inundated his laboratory and its extensive library, microscope slides, and other research materials. In 1990 he reestablished his laboratory in New Bloomfield, Missouri.

Bill was considered to be a "loner" by his colleagues. He habitually came to his laboratory at the University in the wee hours of the morning and went to bed after an early supper. I used to have lunch with him on Thursdays, always at 11 a.m.—to avoid the noon rush and, probably, to accommodate his feeding schedule driven by a diabetic condition. Although a loner, he was meticulous in meeting his faculty and student appointments, and was a no-nonsense teacher. For three consecutive years he won an award for excellence in teaching at the Medical School in Galveston.

Above all, he was a dedicated, incredibly hard-working researcher endowed with remarkable self-discipline. Where others might settle for a half-dozen specimens to demonstrate a point, he would strive for dozens. He did much of the

tedious work himself. Who else has single-handedly tended 16 bird nets day and night for a week? Or banded, measured, and examined cloacal lavages from 70 species of migrating birds in a single campaign? Or 921 emberizids of six species? In the early years he was helped by his first wife Joan, and in later years by his last wife, Charlet. He was sole author on most of his approximately 400 publications.

His research is divisible loosely into three categories: an early phase (1948–1956) of "old-fashioned" natural history and microscopic anatomy, mostly of mammals; a middle phase (1956–1993) of neuroendocrinology with a focus on the pineal gland of all classes of vertebrates; and a final phase (1982–1993) related to avian reproductive performance in wild populations.

His impact was probably greatest during his pineal gland phase, during which he published scores of papers. He was a pioneer in the attempt to relate circadian and photoperiodic events to the pineal complex. He was a cofounder of the *Journal of Pineal Research* and one of its two Associate Editors from Volume 1 in 1984 through Volume 13 in 1992.

Although Quay was an Elective Member, Fellow, and Life Member of the AOU, a Life Member for three or more decades of the Cooper Ornithological Society and the Wilson Ornithological Society, and for 10 years a member of the Association of Field Ornithologists, his major ornithological contributions did not start until the 1980s. He had found that by flushing the cloaca of male and female small birds (cloacal lavage) and examining the contents under a microscope, the presence or absence of spermatozoa could be used to yield important information about mating behavior. Combining this technique with massive netting and banding of many resident and migratory species led to a series of insightful papers. He found that the males of many migratory species were producing and releasing spermatozoa long before they reached their breeding grounds. Indeed, he was able to demonstrate that one-quarter of 52 northward-migrating, female Tennessee Warblers had already been inseminated by the time they passed through Missouri. This has created much interest among ornithologists studying the role of breeding territories; perhaps, it will also give inspiration and employment to genetic fingerprinters.

By combining netting, banding, cloacal la-

vage, and the injection of microscopic beads of known but differing diameters into the cloaca of male birds and then searching for the spheres in lavages of females, Quay was able to document the degree of fidelity and copulatory performance of individual males and females in resident populations of many species.

His extensive netting and banding activities during these years put him into contact with the Western Bird Banding Association. He became President of that organization (1987–1988) and editor of its contributions to the *North American Bird Bander* (1983–1986).

Quay's demonstration of the great potential

of cloacal lavage is an important contribution to ornithology. A connection between his research on the neuroendocrinology of the pineal complex and ornithology is not as apparent. However, in the year Bill Quay was born, William Rowan was launching his classic experiments with juncos and crows that demonstrated the importance of photoperiodism to the reproductive and migratory behavior of birds. One lifetime later, an army of pineal researchers is closing the gap between the photoperiodic world revealed by Rowan and the molecular/cellular realm ruled by the pineal gland. Bill Quay played an important part in this endeavor.

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IN MEMORIAM: DAVID E. DAVIS, 1913–1994

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David E. Davis was born 18 July 1913 in Chicago, Illinois, and died in Santa Barbara, California, on 31 October 1994 after prolonged illness. He received his primary and secondary education in Wilmette, Illinois. He joined the AOU in 1931 and became an elective member in 1941. In 1942 he married Emily ("Tim") Rodgers with whom he had three daughters. Tim predeceased him in 1987, and in her memory he endowed a research chair at the Morton Arboretum in Hinsdale, Illinois.

His B.A. was from Swarthmore College (1935), and his M.S. and Ph.D. were from Harvard (1939); his thesis was on anis in Cuba. During his postdoctoral fellowship with L. V. Domm at the University of Chicago (1941) he studied chicken behavior. In 1941–1943, he investigated hosts of yellow fever in Brazil for the Rockefeller Foundation. After two years of work on typhus in Texas, he went to the Johns Hopkins School of Hygiene and Public Health as Associate Professor (1946–1959), where he worked on population dynamics of European Starlings, Norway rats, several other species of birds and mammals, and on potential rodent vectors of Korean hemorrhagic fever. He became a pro-

fessor at Pennsylvania State University in 1959 and chairman of zoology at North Carolina State University of Raleigh in 1966. When he retired to Santa Barbara in 1975, he continued research there.

Dave's research usually had applications to human welfare. He published three books and 230 papers on populations, behavior, ecology, and the physiology of aggression. He was the editor of the *Wilson Bulletin* (1948–1950), then a cofounder with Carlton Herman of the Wildlife Disease Association, of which he was the second president (1961–1962); he received their Distinguished Service Award in 1975. He was on the executive committee of the AIBS (1959–1962) and president in 1971. He was an associate editor of *Animal Behavior* (1958–1979), secretary of section F of the AAAS (1966–1969), and a trustee of *Biological Abstracts* (1975).

Dave was a well-balanced, stable man, with an optimistic outlook, though he was discouraged by the limitations his illness placed on his physical activity in later years. He was held in high regard by his family, friends and students, and in turn he was deeply interested in their progress and achievements. He was noted for