



## IN MEMORIAM: DAVID B. PEAKALL, 1931–2001

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## IN MEMORIAM: DAVID B. PEAKALL, 1931–2001

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David Beaumont Peakall was born on 17 March 1931 in Purley, Surrey, England. He lived and attended school in Coulsdon, Surrey. With a keen interest in ornithology as well as chemistry; he worked as a volunteer at the RSPB reserve at Minsmere. From the University of London he received a Ph.D. in Physical Chemistry in 1956, and for his thesis on the ecological effects of pollutants he received a D.Sc. in 1979. He became a member of the AOU in 1961 and an Elective Member in 1972.

On a visit to the United States, he met LaVonne (“Vonnie”) Fairbanks; they were married in England in 1959. In 1960, Walter R. Spofford hired David as a research associate in the Department of Anatomy of the Upstate Medical Center in Syracuse, New York, where he used egg albumen protein electrophoresis to determine phylogenetic relationships in the Falconiformes and studied various aspects of

spider silk proteins. In 1962, he was appointed assistant professor of Pharmacology. In 1968, he moved to Cornell University to become a research affiliate at the Laboratory of Ornithology and a senior research associate with Tom Cade in the Section of Ecology and Systematics, Division of Biological Sciences. David’s first responsibility was to make the Laboratory of Ornithology’s Nest Record Card Program accessible to researchers and to emphasize the importance of spatial and temporal data on bird nesting. Soon he was working full time with Tom Cade on raptor pesticide problems, his first opportunity to combine his passion for birds with his skills as a chemist. He measured DDE levels in Peregrine eggs collected in Alaska, 1969–1973, and showed a strong inverse relationship between DDE content and eggshell thickness. When the chemical industry suggested that shell thinning occurred too rapidly

after the introduction of DDT in 1946 for DDT to be the cause, David filled blown peregrine eggs collected from the critical period with solvent and measured DDE in the extracted lipids. DDE was present in sufficient concentrations to account for significant eggshell thinning in 1946 in Great Britain and as early as 1948 in California. Later, he would apply similar methods to California Condor (*Vultur californianus*) eggshell fragments as evidence that this species was extremely sensitive to DDE. His testimony at U.S. congressional hearings contributed to the banning of DDT use in the United States. While at Cornell, David also conducted studies on the ability of pesticides to induce breakdown of steroids, to alter vitamin D metabolism and calcium up-take, and on the role of carbonic anhydrase and calcium ATPase in eggshell thinning. He also pioneered research on the effects of PCBs on birds.

In 1975 David moved to Ottawa to become a research scientist and Chief, Toxic Chemicals Division in the Canadian Wildlife Service (CWS) of Environment Canada. During his leadership, the contributions of the Division increased in magnitude and scope. To the existing strengths in analytical chemistry, field biology, pesticide registration and tissue banking, he added specialists in cytogenetics, heavy metals and biochemical toxicology, and a team to focus on the problems of fish-eating birds of the Great Lakes. He established an aviary and techniques to uncover the physiological mechanisms of pollutant effects observed in the field. He hired young scientists who went on to establish successful careers in CWS and elsewhere. He became an adjunct professor at the University of Ottawa.

David made a major contribution to the Great Lakes gull work by designing an egg swap between “clean” and “dirty” colonies, to isolate the effect of parental behavior from that of embryo toxicity—an idea adapted from the 1968–1969 Osprey (*Pandion haliaetus*) field work of Paul Spitzer and Stanley Wiemeyer. David also participated in analyzing the effects on songbirds of spraying New Brunswick forests, fostered the long-term monitoring of contaminant residues in seabird eggs, and for many years was key to the success of the Research Advisory Board of the WWF–CWS Wildlife Toxicology Fund. David guided his scientific team in their collaborative investigations with

CWS regional biologists on such problems as reproductive declines in falcons, effects of mercury and acid precipitation on loons and waterfowl, and the effects of dioxin in pulp mill effluent on Great Blue Heron (*Ardea herodias*) reproduction. From 1979 to 1985, he conducted his own extensive collaborative research program on the sublethal effects of oil on seabirds, working at the Mount Desert Island Biological Lab in Maine and Memorial University in Newfoundland. Early in 1984, David took a short sabbatical to the University of Siena where he worked with other scientists interested in the application of biomarkers to wildlife toxicology. That November, the newly elected Canadian government eliminated much of the CWS Research and Interpretation Branch; the reorganization was stressful. In 1990, he spent six months of study leave at the Monitoring and Assessment Research Centre at King's College, London, where he wrote *Animal Biomarkers as Pollution Indicators*. He retired from CWS in 1991 and relocated to Wimbledon, England, a few miles from his childhood home.

David's world-class scientific record earned him promotion to the elite top level of research scientists in Environment Canada. He became an influential advisor to the department's senior officials. His advice on contaminant issues was always cogent and objective, framed in the international context that he knew personally. In his own research, he had a talent for developing key ideas, working them out, and publishing promptly. As a scientist, he took his responsibilities to the larger community seriously, and served tirelessly on various national and international boards, taskforces and committees, including the AOU Conservation Committee, the Scientific Advisory Boards to the Environmental Defense Fund, and the NIEHS Superfund Research, and the Canadian National Committee on Scientific Problems in the Environment. He was Chair of the Canadian Inter-Departmental Taskforce on Pollutants in the Great Lakes, a task that required diplomatic skills as well as scientific knowledge. On the international scene he made major contributions to the work of the Ecotoxicology Expert Group within the Organization for Economic Cooperation and Development (where he worked tirelessly for the acceptance of the “Minimum Pre-market Data” criteria), the Hazard Assessment Project, the Indicator Species Working

Party, the Working Party on Environmental Effects, and the Scientific Group on Methods for the Safety Evaluation of Chemicals (which he cochaired for years). Some of those involvements continued into his retirement, touching scientists, regulators, public policy makers, and the lay public throughout the world. He did all of this, as well as manage his staff and students, with panache, a great sense of humor, and a very personal and caring touch.

In retirement, David accomplished more than many do when working full-time, but he also attended to his interests in cooking, literature, travel, and art, and indulged his love of cricket. He enjoyed birding and attending cricket matches with childhood friends. David married his second wife Margaret Patricia Armstrong in 1996; she brought some of the happiest years he had ever known. For several years he was a visiting fellow at the University of Reading where he lectured in ecotoxicology, coauthored the widely acclaimed textbook *Principles of Ecotoxicology*, and in 1992 became a founding coeditor of the new and successful journal *Ecotoxicology*. In 1996, he coauthored *Beyond Silent Spring*, and helped to organize a U.S. Department of Energy-funded international workshop on "Nondestructive Biomarkers in Vertebrates." He organized at least two NATO-funded advanced workshops; the most recent,

"Biomarkers: A Pragmatic Basis for Remediation of Severe Pollution in Eastern Europe" was held in Cieszyn, Poland, in September 1997.

David worked while overlooking his beloved garden until he became ill in early August. He died on 18 August 2001 from complications following abdominal surgery. He was preceded in death by his only sister, Jeanne, in 2000, and is survived by his wife Margaret, three daughters, a son, and two grandchildren. He wrote over 250 scientific papers and book chapters, and authored four books. He will be remembered by all those who knew him for his great sense of humor, his hospitality, his love of a good cup of tea, fine wines and good food, and for his sense of justice. He cared passionately about this planet and all its inhabitants. His work was a mission; he told his children that he would have done it whether he was paid or not. He was a loving and devoted husband and father, and a wonderful friend. We will miss the man who taught us the importance of understanding the effects pollutants have on birds and the need to appreciate their beauty and value. We trust his spirit soars with the peregrines he so loved.

We thank Tom Cade, John Elliott, Michael Gochfeld, Anthony Keith, Pawel Migula, Robert Risebrough, Colin Walker, and David's daughters Susan and Beth and wife Margaret for additional information.