



IN MEMORIAM

Charles Richard Grau
Professor of Avian Sciences, Emeritus
Davis
1920 — 2002

Charles Richard (Dick) Grau died at the age of 82 on November 16, 2002 due to complications with pneumonia. He is survived by his wife of 60 years, Lois Sandner Grau, two daughters, two sons and five grandchildren. His academic career started in the Poultry Husbandry Department at Berkeley; later he was transferred to Davis in the same department which was later renamed Avian Sciences.

Dick grew up in the San Diego area where his father operated a chicken hatchery. As a boy he was allowed to tramp through the mesas, play by the San Diego River and conduct science experiments in their basement. He frequently took the trolley to the World Exposition where he was fascinated by the exhibits. For several summers he was a camp counselor. He frequented used bookstores in San Diego, thus beginning a life-long passion for book collecting. He and his family took several trips around the United States, which initiated his interest in travel.

When Dick was an undergraduate chemistry major at U.C. Berkeley, he worked part-time as an analyst in the laboratory of Herman Almquist in the Department of Poultry Husbandry. After graduation in 1942, Dick elected to do graduate work in nutrition, also with Almquist. The main research thrust was studying protein quality and determining the amino acid requirements of chickens. Dick and Almquist were the first to successfully use an amino acid mixture in the diet of chickens. At about the time that Dick finished his thesis, Almquist left the University and Dick replaced him on the departmental faculty. He continued the amino acid and protein work and determined the requirements for and interactions between several amino acids. One must remember that this was before amino acid analyzers were heard of and many amino acids were not readily available. Dick was the first to show that the requirement for an amino acid increases with an increase in the protein level of the diet. Fish meal was an important feed ingredient at that time and Dick worked extensively in determining factors which influenced the nutritional quality of fish meal.

In 1954, on the completion of Asmundson Hall, Dick was transferred to Davis from the department at Berkeley. In Davis, Dick continued the work with fishmeal and also studied means of evaluating cottonseed meal to determine whether it was adequately processed to prevent egg discoloration.

Some of Dick's work on embryo nutrition was unique. Instead of removing the embryo from the egg, Dick elected to replace the yolk of intact eggs with an artificial medium. He developed equipment to do this yolk replacement and was able to make some important discoveries on embryo nutrition.

In 1969 the name of the Poultry Husbandry Department was changed to Avian Sciences. Dick was a strong supporter of this name change reasoning that the departmental mission should reflect an interest in the environment as well as commercial poultry production and should reflect the increasing breadth in avian species under study.

As a further extension of Dick's interest in eggs, he worked with the yolks of several different avian species. He used a technique whereby the yolk was prepared, sectioned and stained with potassium dichromate. This permitted visualization of the various layers of yolk so that one could tell the number of days it took for the yolk to develop, similar to counting the annual rings in a tree trunk. This method was very useful in many

subsequent projects. Dick studied yolk rings of over a hundred different species, including some 22 from Alaska.

Dick was very interested in the environment. Prompted by the adverse effects of oil spills, he studied the effect of various oil fractions on sea birds. He and a student, Tom Roudybush, studied the effects of oil on Cassin's Auklets on the Farallone Islands. It was a strenuous job to catch the birds, dose them and record the effects on reproduction. In another study he again used eggs in studying the detrimental effects of various DDT derivatives on egg shell strength in doves. You might say he was a true "eggspert."

In 1979, in response to student interest, Dick began Psittacine research. He started a sizeable cockatiel colony and several of his students and colleagues were involved in studies ranging from optimum day length for breeding, age of weaning, embryonic development and nutritional requirements of cockatiels. This work was also very tedious since young cockatiels must be hand-fed. He and Tom Roudybush developed the first formulated diet for companion birds and Tom has since developed this work into a business. Dick was also largely responsible for founding the Exotic Bird Report.

In more recent years, Dick conducted many studies on sea birds, again using the yolk ring technique to find that the long-lived sea birds have a very slow buildup of yolk.

Dick took several sabbatical leaves: six months studying amino acid metabolism at the Brookhaven National Laboratory on Long Island, a year studying embryo nutrition at Cambridge and Edinburgh and several periods in New Zealand where there were good opportunities to study sea birds. He is especially revered in New Zealand where his pioneering studies were greatly appreciated. Lois was a great help to him in this work.

Dick taught courses in general nutrition, biology of the egg, caged bird management and special seminars. He and Barry Wilson started the popular Avian Sciences 13, Birds, Man and the Environment. He always encouraged students to be original and to pursue their own projects.

He was chair of the department from 1969 to 1976 and served on many college committees. He received a Guggenheim Fellowship in 1960 for research at Cambridge. He was a fellow of the American Society for Nutritional Sciences and had many professional affiliations. He was active with JASRAP, a summer internship program to encourage underprivileged middle school students to become interested in science.

From his first days in Davis, he and Lois were active in numerous humanitarian and community service organizations, with a focus on world peace, social justice and environmental protection. The Graus were founding members of the Davis Unitarian Church where Dick chaired the building committee for the current church. They were also among the original organizers of the Davis group serving meals at Loaves and Fishes, a program serving the homeless and poor in Sacramento. In 1965 the couple joined and were tireless leaders of the Short Term Emergency Aid Committee (STEAC), which serves immediate needs of individuals and families in Yolo County. In 1978, the Graus received the C.A. Covell Trophy as Citizens of the Year in recognition of their service to the Davis community.

Dick spent many peaceful weekends with his wife, family and friends at their cottage at Dillon Beach, where he enjoyed fishing in the tidepools, and collecting driftwood and shells from his long walks on the beach. He was equally at home in the mountains where, in his younger years, he was an avid backpacker. He and Lois also spent much of their time tending the large vegetable and flower garden, renowned for producing towering sunflowers, a wall of sweetpeas and some of the earliest tomatoes of the summer. When not in the garden, he could be found in his garage woodshop making furniture and puzzles for friends and family. He was a skilled carpenter who finished the interior of their home in Davis as he did earlier in Berkeley. His annual jigsaw puzzle was a tradition for family gatherings.

Dick Grau's career was exceptionally well balanced, encompassing his role as devoted family man, a giving campus and community citizen, university and international researcher and loyal friend. He is greatly missed.

Ursula K. Abbott
Hans Abplanalp
F. Howard Kratzer