# *In Memoriam*

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## IN MEMORIAM: HILDEGARDE HOWARD, 1901–1998

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On 28 February 1998, the ornithological community lost one of its preeminent scholars with the passing of Hildegarde Howard, one month before her 97th birthday, at her home in Laguna Hills, California. Hildegarde was the world's first woman avian paleontologist, and for much of the 20th century she was the only scientist whose research was devoted solely to the study of fossil birds.

Hildegarde Howard was born on 3 April 1901 in Washington, D.C., and in 1906 she moved to Los Angeles with her parents. Her father was a writer, often writing and editing scripts for the early movie studios in Hollywood; her mother was a musician and composer. Hildegarde published the first of her 150 papers on avian paleontology, general science, curation, and other matters in an international high school natural history bulletin in 1923, shortly after she began her affiliation with the Natural History Museum of Los Angeles County as a student worker from UCLA. She met her husband, Henry Anson Wylde (who later became Chief of Exhibits at the museum), in 1924 when she began working there as a "day laborer." The two of them sorted fossil bones from Rancho La Brea in the basement of the original museum building. They were married on 6 February 1930 and enjoyed 54 years together before a heart attack took his life in October 1984. They had no children.

Hildegarde joined the AOU in 1928, became an Elective Member in 1935, and became a Fellow in 1946. She was awarded the AOU's distinguished Brewster Memorial Award in 1953 for her outstanding contributions to avian paleontology. She was a long-time member of the Cooper Ornithological Society (Honorary Life Member), the Society of Vertebrate Paleontology (Charter Member and later Honorary Life Member), the American Association for the Advancement of Science (Fellow), the Geological Society of America (Fellow), the California and Southern California Academies of Sciences (Fellow), Phi Sigma, Phi Beta Kappa, and Sigma Xi. She also was a Research Associate of the Santa Barbara Museum of Natural History and a member of the Church of the Brethren. She was active in a variety of group programs in the retirement community of Laguna Hills, California, where she and Henry moved in 1968. In 1973, the California Academy of Sciences honored her as a Distinguished California Scientist and featured a special public exhibition of her works.

When Hildegarde began attending the Southern Branch of the University of California (now known as the University of California at Los Angeles, or UCLA) in 1920, she was not the least bit inclined toward a career in biology; she was planning a career in journalism. Her first biology instructor, Miss Pirie Davidson, made the subject so interesting, however, that she not only became deeply interested but became a laboratory assistant in the class. At that time Dr. Loye Miller was chairman of the Biology Department. Through the efforts of Miss Davidson, Hildegarde obtained a part-time job working for Dr. Chester Stock, a well-known mammalian paleontologist. Beginning in 1921, Hildegarde worked for Dr. Stock, sorting bones from Rancho La Brea in the basement of the Los Angeles Museum of History, Science and Art (now known as the Natural History Museum of Los Angeles County), even though he was at the time teaching at the University of California, Berkeley. In 1922, Hildegarde went to Berkeley to finish her undergraduate degree (UCLA was a two-year school at the time). At Berkeley, she took classes from Dr. Stock while continuing to work for him.

HILDEGARDE HOWARD, 1901–1998

(Photograph taken in spring 1980)

When Hildegarde completed her B.A. degree in 1924, Loye Miller offered her a position working part time at UCLA and part time at the museum. During the school year of 1924–1925, her work for Dr. Miller at the museum consisted primarily of research on the extinct California Turkey from Rancho La Brea, *Parapavo* ( = *Meleagris*) *californicus.* She obtained credit toward her master's degree at Berkeley for this work, and it became the subject of her first major publication. It was this year that set her firmly toward her career in avian paleontology and a long period of collaboration with Loye Miller.

Hildegarde returned to Berkeley in the fall of 1925 to continue her graduate work; she obtained her M.S. degree in 1926 and her Ph.D. degree in 1928. She was greatly influenced by Dr. Joseph Grinnell, her major professor, and Dr. William Diller Matthew, who was on her doctoral committee. Her dissertation, entitled "The Avifauna of Emeryville Shellmound," was not only a landmark achievement for her but when published became one of her most popular works. A model of careful comparative research, it became a classic. One of the reasons for its influence was a series of drawings illustrating the bones of a bird skeleton, with clearly labeled osteological features. For the first time avian osteologists and paleontologists had a standard terminology, a clear point of reference for the works of different authors. This paper remained the principal reference of its kind until the appearance of the first edition of *Nomina Anatomica Avium* (1979).

Hildegarde continued to work at the museum part time during breaks in her Berkeley academic schedule. Upon receiving her Ph.D. degree she returned to Los Angeles where she began working full time at the museum in 1928. She obtained a permanent position with the museum in 1929; her title was Junior Clerk, and her initial assignment was the curation of the fossils from Rancho La Brea and research on the birds of this collection. Although she was, in fact, a curator from that point on, she did not receive that official title until 1938.

In 1951 she was appointed Chief Curator of Science. From 1957 to 1961, she served as editor of the museum's scientific publications. Although she officially retired in 1961, she energetically continued research on fossil birds, publishing her last paper in 1992. Her achievements in avian paleontology, including those that predate her formal association with the museum, made her one of the most recognized and respected scientists on the staff. Her works contributed significantly to the status of the museum as a major research center. The esteem with which she was regarded by the trustees and staff was manifested by the 1977 dedication of the Hildegarde Howard Hall of Cenozoic Life at the museum, which honored her as its most eminent paleontologist.

It was the tremendous collection of bird fossils from the asphalt deposits of Rancho La Brea, a collection now numbering more than 300,000 specimens, that formed Hildegarde's training ground and the primary focus of her research. Indeed, the names Hildegarde Howard and Rancho La Brea are readily recognized and connected by paleontologists of all specialities the world over. Work with this large collection taught her the caution, restraint, and thoroughness in methodology that came to characterize her works. For, as many paleontologists have learned, it is far easier to describe a species when only one or two specimens are available than it is when hundreds of specimens are available. Few, however, have had the opportunity to learn this so early in their career. Hildegarde learned this lesson when studying the fossil turkey from Rancho La Brea, even before she began her graduate studies. Working with more than 800 specimens representing all the major bones of the body, she discovered the critical importance of considering variability within a species before drawing any hard and fast conclusions. Considering the osteological variability found in turkeys, one can only speculate that perhaps Loye Miller had just this lesson in mind when he assigned her this group for her first research project.

Many of Hildegarde's later works on the fossil birds from Rancho La Brea also involved studies of large numbers of specimens. For example, her studies of the eagles and eagle-like vultures of Rancho La Brea involved the analysis of more than 14,000 fossil specimens, and the study of the Rancho La Brea caracara involved more than 900 specimens. These studies clearly reinforced the lessons of osteological variability that she had learned earlier.

The initial synthetic papers concerning Rancho La Brea presented analyses of the paleoav-

ifauna as if it was representative of a single deposit, even though the collections came from many different excavations, termed "pits." Following the advent of radiocarbon dating and the recognition that the pits had different ages, Hildegarde began searching for and documenting trends in avian evolution over the past 40,000 years. This work led to the development of her concept of chronoclines, or temporal subspecies. Her comparison of avian assemblages from the various pits of Rancho La Brea also provided significant information pertaining to the paleoecology of the Los Angeles area and, by inference, much of southern California during the late Pleistocene. These studies also provided information concerning the timing of extinctions in the late Pleistocene.

But Hildegarde's research on the fossils from Rancho La Brea was important not just to science but to exhibitry as well. After sorting through and identifying thousands of disarticulated bird bones recovered from the tar pits, she oversaw the preparation of the museum's first skeletal mounts of the extinct birds of Rancho La Brea; many of these dramatically posed skeletons are currently on exhibit in the George C. Page Museum of La Brea Discoveries, a branch of the Natural History Museum of Los Angeles County.

The Tertiary marine birds of southern California were the second focus of Hildegarde's research. As the explosive development and urbanization of southern California exposed numerous outcrops of marine Miocene and Pliocene strata, many collections of fossil birds came to light. Highlights from these works include the evolutionary history of the flightless diving auks of the subfamily Mancallinae (Charadriiformes), and the description of the pseudodontorns of the genus *Osteodontornis*, the flightless diving geese of the genus *Chendytes*, and the flightless pelecaniform plotopterids.

And, of course, there were many other important papers, such as those concerning the paleoavifaunas of Fossil Lake, Oregon, the Anza-Borrego Desert of southern California, and the Pleistocene pluvial lakes of the southwestern United States, as well as her reviews of the status of our knowledge of fossil birds.

In her 69-year publishing career, she described 3 families, 13 genera, 57 species, and 2 subspecies. Remarkably, of these, she described 1 family, 7 genera, 34 species, and 1 subspecies after she retired from the Natural History Museum in 1961. A distinctive feature of all of her studies was the caution she used in describing new taxa. If a specimen did not possess good, solid diagnostic characters, it was not given a name, even if she herself was convinced it represented a new form. Rather, such specimens were only described, thus being put on record in the event that similar, more-diagnostic material should appear in the future. This approach kept other workers abreast of new finds without cluttering the literature with names based on nondiagnostic material.

However, once Hildegarde was convinced that her conclusions were sound, she proceeded to publish them. This confidence was exemplified by her action in naming a new extinct family of pelecaniform seabirds, the Plotopteridae, on the basis of a humeral end of a coracoid, a specimen that most would probably describe as fragmentary "road kill." That her diagnosis was correct was confirmed a decade later when Storrs Olson and Yoshikagu Hasegawa began reporting on many more specimens of that enigmatic family that were being collected from Washington State and Japan. Olson has commented that her action in diagnosing the "fragment" that is the basis for this family constitutes one of the most perceptive insights in the history of vertebrate paleontology.

The care she took with her manuscripts was typified by that seen in her last paper, which I was privileged to "edit" for the festschrift in honor of the late Pierce Brodkorb. Because the paper concerned a new taxon of anseriform, I sent the manuscript to Glen Woolfenden, a Past President of the AOU and an expert in anseriform osteology, for review. It came back without a mark on it. As I remember it, his accompanying comment was, "I really did try, but I could find absolutely nothing wrong with this paper."

Hildegarde also contributed numerous articles of a nontechnical nature to the museum's publications. These served to inform the public as to the museum's activities and some of the intriguing fossils she and others were working on. In 1945, she published a general review of fossil birds for the nonscientist with an emphasis on the birds of Rancho La Brea; this was updated and expanded in 1955 and again in 1962.

Through these efforts, and her generous willingness to spend time with students and interested members of the general public, she engendered considerable public support for the museum.

Although she never discussed any details, as a woman scientist in a man's world, Hildegarde undoubtedly faced many obstacles in her scientific career, beginning with being banned, as were all female students at that time, from class field trips in her early years at UCLA. However, as she became the leader in her field and an internationally recognized and respected scientist, she became a prominent role model and inspiration for women students seeking to enter the scientific professions. The fact that she rose to serve for a decade as the chief scientist at the Natural History Museum is testimony to her outstanding abilities.

In the words of Jean Delacour, ornithologist and Director of the Museum for 9 of the 10 years when Hildegarde served as Chief Curator for all sciences, "I sincerely believe that no one could have done it better; her experience, her authority, and her understanding of people and problems were perfect."

I came to know Hildegarde personally only late in her career, when I took up a position as a Curator at the Natural History Museum in 1977. As I was preparing to leave the University of Florida to come to Los Angeles, I asked my mentor, the late Pierce Brodkorb, if he had any suggestions for projects I might undertake in my new position. Without a moment's hesitation he replied, "Organize a festschrift like the one we just did for Alex Wetmore. She, of all people, really deserves such a tribute." The sincerity in his voice typified the high esteem for Hildegarde and her long devotion to paleornithology that was shared by all her colleagues. Looking back, I now know it was the high regard for Hildegarde that brought that festschrift together and led the numerous contributors to overlook the many missteps of a first-time editor. That volume, *Contributions in Science, Natural History Museum of Los Angeles County* No. 330, may be consulted for a more detailed biographical and bibliographical sketch of Hildegarde and her works.

A brief overview of a career as long and productive as that of Hildegarde Howard's can only hint at its depth and breadth. To survey her contributions to avian paleontology is to see a perfection of technique, the evolution of ideas, and a devotion to a science. As the 20th century's preeminent student of paleornithology, she served her chosen field well.

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# IN MEMORIAM: JÜRGEN ASCHOFF, 1913–1998

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Jürgen Aschoff, a Corresponding Fellow of the AOU since 1976 and an Honorary Fellow since 1981, was born 25 January 1913 in Freiburg, and died there on 12 October 1998. The son of a world-renowned pathologist, Jürgen studied medicine at the University of Bonn, then moved in turn to Göttingen, Würzburg, and Heidelberg. He was primarily a physiologist and a pioneer in biological rhythms, but various circumstances led him to undertake bird studies. The more general physiological and chronobiological aspects of his career have been commemorated in *Nature* 396:418 (1998) and *Journal für Ornithologie* 140:384–387 (1999); this memorial will emphasize his ornithological achievements.

That Aschoff developed an appreciation of birds as ideal research objects—not least for his own investigations of circadian periodicity—had six main causes. First, he learned from his close associate Gustav Kramer, who discovered the sun compass in birds, that birds compen-