

IN MEMORIAM: EDGAR GUSTAV FRANZ SAUER

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Our friend Franz Sauer strode onto the American ornithological scene as a guest of the American Ornithologists' Union at its 75th anniversary meeting at the American Museum of Natural History in New York in October 1958. At the symposium on contemporary problems in ornithology he presented in clear, excellent English, tinged with an unmistakable "Herr Professor" accent, an intriguing paper on his discovery of stellar orientation in migrating warblers of the genus *Sylvia*. He described the circular cages in which he tested the birds during their periods of *zugunruhe* in his home-made plantetarium at the University of Freiburg and showed how by manipulating the star patterns he could change the birds' direction of flight. This was indeed a major breakthrough in the study of nocturnal migration. The large audience received the paper enthusiastically, and the membership elected him a Corresponding Fellow.

Born in Mannheim, Germany, on 4 September 1925, Franz became interested in birds and animals as a child, as did so many of us, and in his youth learned at first hand the birds of the Black Forest in Baden. He retained this interest in living animals as he grew up. He received a typically thorough Teutonic education with courses in languages, zoology, botany, chemistry, physics, and mathematics. While studying biology in college he became acquainted with Konrad Lorenz and other people working in animal behavior. His doctoral dissertation at the University of Freiburg compared the behavior patterns, call notes, and songs of European Whitethroats (*Sylvia communis*) living in the wild with those reared from hatching in acoustical isolation.

As a teaching assistant and researcher at Freiburg he studied and published on the origin and evolution of play behavior in animals and man, as well as on his epoch-making work in the celestial orientation of migratory birds. In 1957 he led an 11-month expedition to South West Africa to investigate the biology and migratory orientation of European birds on their wintering grounds there. He also studied the nest-building and courtship activities of the

Masked Weaver (*Ploceus velatus*), and made preliminary observations on the polygamous behavior and other reproductive activities of the South African Ostrich (*Struthio camelus australis*).

After the New York meetings before returning to Germany he lectured by invitation to the zoology departments at Yale, Harvard, Pennsylvania State, Duke, Northwestern, and Wisconsin universities and in the Department of Neurophysiology at New York University Medical Center. Yale offered him an appointment in zoology, but he returned the following February as a visiting lecturer at the University of Wisconsin, replacing John T. Emlen during the spring semester.

That summer the National Science Foundation appointed him to its Foreign Lecturer Program, on which he lectured at the University of Minnesota's Lake Itasca Biological Station, Montana's Bigfork Biological Station, Oklahoma State University in Stillwater, Texas Technological College in Lubbock, the University of Missouri in Columbia, and the University of Southern Illinois in Carbondale. He then returned to Madison, where the University of Wisconsin awarded him a post-doctoral fellowship in the Department of Zoology.

In the spring of 1960, NSF supported his project to investigate the biology and the diurnal and nocturnal migratory orientation of the Pacific Golden Plover (*Pluvialis dominica fulva*). In late May he went to St. Lawrence Island in the Bering Sea to study the plovers in their natural habitat and to bring back nestlings to rear and study in captivity. In addition to accomplishing these objectives, he made observations on the courtship activities and summer movements of the gray whale (*Rachianectes glauca*).

At the end of summer he returned to Madison and went immediately to the California Academy of Sciences in San Francisco, where he began his researches with the young Golden Plovers he brought back from St. Lawrence Island. There he also entered into a joint project with William J. Hamilton III, supported by the Aeromedical Division of the U.S. Air Force, to



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investigate the migratory orientation of the Bobolink (*Dolichonyx oryzivorus*), which makes one of the longest and most intricate migrations of any landbird.

In February 1962 he accepted an appointment from the University of Florida to teach ethology in its Department of Biological Sciences. He brought with him to Gainesville his wife, Eleonore, who held a Ph.D. in physiology and was his frequent field assistant and co-author of many of his papers. They bought a house and settled down happily in the north-western suburbs of the city. In September he was invited to address the Symposium on Animal Orientation in Munich on his Golden Plover studies, and in the summer of 1963 he addressed the 16th International Congress of Zoology in Washington on the plover's evolution, migration, and orientation.

In April 1964 another NSF grant enabled him

to return to South West Africa to continue his studies of the ecology and ethology of the Ostrich. He and Eleonore and their two small children spent most of the year traveling over Botswana in a Volkswagen minibus. The most rewarding of his observations were made at a waterhole in the Kalahari Desert from an ingenious blind that he built of hardware cloth sprayed with rubber cement and coated with dry desert topsoil to resemble a termite mound. When he was concealed in this, the birds and animals, principally ostriches, wildebeests, and jackals, paid no attention to him whatever, and came freely to within a foot or two of the hide.

He gave the first of a succession of papers on the Ostrich's social behavior at the Second Pan-African Ornithological Congress in Pietermaritzburg, Natal, in September 1964. Later that year he gave a series of guest lectures to

the South West African Scientific Society at Windhoek and Swakopmund. On his return in 1965, the University of Florida granted him tenure and promotion to Associate Professor, and the A.O.U. changed his status from Corresponding Fellow to Fellow.

From the borings of a well sunk in Etosha Pan, Ovamboland, he had retrieved Ostrich eggshell fragments of Quaternary age. Measurements of their curvature allowed him to calculate that the eggs were considerably larger than those of living Ostriches, and he described the bird that had laid them as a new species, *Struthio oshanai*. During a visit to New York that summer he analyzed the ratite eggshells in the American Museum.

In the summer of 1965 he attended the XIV International Ornithological Congress in Oxford, England, where he delivered a paper on the behavior of the South African Ostrich and projected his motion pictures of the Kalahari Ostriches and other wildlife at an evening film showing. NSF travel grants permitted him to study fossil ratite material at the British Museum in London, the Museum Alexander Koenig in Bonn, and the Naturhistorisches Museum in Basel. Later, in 1974 and 1976, he traveled to Morocco, where he collected more ratite eggshell material of Miocene and Pliocene age, the basis for some of his last papers.

In June 1967 the Sauer family spent a fortnight with us at Fort Jefferson in the Dry Tortugas, helping us band young Noddies and Sooty Terns and studying their behavior. As usual his presence was helpful, invigorating, and stimulating, and on that trip we banded a record 28,000 young birds. In July Franz went to Williamstown, Massachusetts, as a guest lecturer at Williams College, and in September he attended the Ethological Congress at Stockholm. On his return the University promoted him to Full Professorship.

Franz was a multi-faceted zoologist. In addition to his work on birds, he studied and published on the behavior of rodents, jumping spiders, seals, and primitive primates. He was highly motivated in his research, active, energetic, and unusually productive. A perfectionist in everything he did, he was impatient with sloppy procedures and surroundings. He kept an impeccable laboratory, his animal cages were models of cleanliness, and his desk and files were always in perfect apple-pie, almost Spartan, order. He attracted a number of excellent graduate students and chaired the committees for a number of doctoral candidates, among them Charles Collins, Storrs Olson, and Peter Westcott.

In 1978 he was offered the Directorship of the Zoologisches Forschungsinstitut und Museum Alexander Koenig in Bonn, which he found much too attractive to refuse. To our great disappointment and regret he left Gainesville and returned to Bonn in September 1969. Though his directorial duties were heavy, he found time to continue his distinguished work on fossil ratites and the ethology of lower primates and to guide and supervise the work of graduate students. He was able to return to the Buffalo A.O.U. meetings in 1971, his last visit here, but he kept up his ties with friends in this country through frequent correspondence. In private he was a warm, thoughtful friend and a kindly paterfamilias, extremely fond and proud of his family. He died in Bonn suddenly on 31 March 1979 after a brief illness. He is survived by his widow, Eleonore, their son, Christopher (a brilliant linguist now studying physics in Germany), and their daughter, Ursula (a freshman at Williams College).