Ornithology at the University of Kansas

Richard F. Johnston

ABSTRACT.—Academic ornithology at The University of Kansas (KU) began 127 years ago, with the beginning of the University in 1866. Francis H. Snow, later Chancellor of the University, began the KU bird collection at that time, and pursued distributional and taxonomic studies on birds over the following 40 years. He was followed by Lewis L. Dyche, active in the period 1881-1909, and Charles D. Bunker, active from 1895 to 1942. Graduate studies were initiated in 1944 by E. Raymond Hall, and continue to the present time as a mutualistic program of the Department of Systematics and Ecology and the Museum of Natural History.

Over the years ornithology at KU has contributed to the development of vertebrate skeletonizing techniques; to the formation of the State bird organization, the Kansas Ornithological Society; to the incorporation of multivariate morphometrics into systematic and ecologic ornithology; to the use of electronic data storage and retrieval of museum specimen data; and to the enhancement of the processes involved in editing scientific journals. Since 1950, thirty-five doctoral degrees having ornithological dissertations have been awarded at KU.

The center of ornithology at the University of Kansas (KU) is the Museum of Natural History. The building housing the Museum, Dyche Hall (Fig. 1), is of eclectic, Romanesque architecture, with an entrance based on the Cathedral of St. Trophime at Arles, France. Dyche Hall's ornamentation includes six aedicules, two each on the south, east, and north walls. Names

1Contribution No. 2106 from the Museum of Natural History, The University of Kansas, Lawrence.

2Museum of Natural History and Department of Systematics and Ecology, 602 Dyche Hall, The University of Kansas, Lawrence, Kansas 66045-2454
of prominent naturalists are carved into the entablatures within the columns of the aedicules: the east (front) side, memorializes Charles Darwin and Thomas Henry Huxley, the north side John James Audubon and Asa Gray, and the south side Edward Drinker Cope and Louis Agassiz. This is a formidable sextet, the quality of which has set goals for Kansans at the museum for nearly 90 years, although the history of vertebrate biology and ornithology at KU is older than this suggests.

IN THE BEGINNING: 1866–1882

The inception of ornithology as an academic discipline at the University of Kansas has roots reaching beyond the middle of the 19th century, but the formal date identified is 14 September 1866 when the charter of the University went into effect (Hyder 1953). The first Professor of Natural History, later Chancellor of the University, was Francis H. Snow (Fig. 2). Snow, who was broadly trained and had strong interests in entomology and ornithology (Dye 1974), in the field taking zoological specimens that were the first evidence of
Fig. 2. Francis Huntington Snow, about 1895.

mology and ornithology (Dyche 1909), spent the day either of the official opening of the University (Hyder 1953), or two days prior to it (Griffin 1974), in the field taking zoological specimens, including birds. Snow was important in establishing a Cabinet of Natural History, administered by the Department of Natural History, and it was in fact a glass-fronted display cabinet housed in North College that contained the mounted bird specimens that were the first evidence of a bird collection at KU.
Snow continued collecting birds and contributed distributional notes and summary lists of the birds of Kansas to the periodical literature beginning in 1872, at which time 239 species and varieties were known from the State. By 1903, his list, the fifth, included 305 species, suggesting that field work on birds in the intervening 33 years had been reasonably vigorous (Snow 1903). The need for an assistant to help with teaching and the vertebrate collections, which by then included more than birds, was evident by the early 1880s. Lewis Lindsay Dyche was hired to assist Snow in 1881 and became Assistant Professor of Natural History in 1884. Snow was thus enabled to spend time looking after the funding and construction of (old) Snow Hall, which was completed in 1886.

THE TURN OF THE CENTURY: 1886-1910

L. L. Dyche (Fig. 3) was a charismatic and dominant personality, and one of the persons leading KU to a high level of accomplishment in natural history and ultimately to national recognition. Dyche's forte was expeditionary field work and natural history displays, with taxidermic mounts in naturalistic settings. He was uncommonly successful in obtaining national publicity as well as significant local funding for his work. In 1901 the Museum of Natural History, soon to be called Dyche Hall, was begun (Fig. 4), in no small measure in order to house Dyche's panorama of North American Mammals that had attracted worldwide attention when exhibited at the World's Columbian Exposition at Chicago in 1893. The museum building has been occupied by museum business ever since.

The importance of Dyche to the early development of vertebrate biology at Kansas cannot be exaggerated. In spite of his entrepreneurship, he successfully established the idea of a natural history museum as a functional part of the University of Kansas, showing how natural history display could be a significant educational, as well as fund-raising, tool (Sharp and Sullivan 1990). Dyche's major phyletic fealty was to mammals, and although he did collect birds and contribute to the avian distributional literature, his chief contribution to ornithology was in enriching the environment in which it could thrive at Kansas.

THE EARLY 20TH-CENTURY: 1910-1944

Dyche had added the position of State Fish and Game Warden to his responsibilities in 1909, and his museum duties were gradually assumed by Charles Dean Bunker (Fig. 5), who had become an assistant at the Museum in 1895. Bunker created the first collections, sometimes getting data by mail. He became Assistant Curator of Birds and Curator in Charge in 1909, when
in 1895. Bunker created the first complete catalog of the museum collections, sometimes getting data by word-of-mouth from Dyche (Hall 1951). He became Assistant Curator of Birds and Mammals in 1907, and Assistant Curator in Charge in 1909, when Dyche was named State Warden. Bunker
emphasized specimens as research and teaching resources rather than items for display. He also continued the tradition of expeditionary field work in collecting vertebrates, specialized in birds, and concentrated on the preparation of whole skeletons. He developed innovative techniques for cleaning bones, emphasizing methods for the maintenance of colonies of dermestid beetles, the larvae of which were already known for their ability to clean bones precisely and without damage. Under Bunker's guidance, the ornithological skeleton collection at KU had achieved national recognition by the 1930s. Bunker's view of the Museum as a generator of new knowledge, a center for research rather than one primarily for passive display, was one of his important insights.

Students, 1915–1944.—Bunker also was an extremely effective teacher in the setting of a research museum, and his record of undergraduate instruction is hard to match. Alexander Wetmore was an undergraduate at KU and worked in the bird collections under Bunker. Wetmore later completed postgraduate degree work at the University of Michigan Museum of Natural History and became one of the leading ornithologists in the United States. Wetmore, a student with Bunker, specialized in birds but graduated achieving high status as an ornithologist. A graduate student, Ruben Stilton, also studying under Bunker, went on to become a professor at the University's Museum of Natural History.
completed postgraduate degrees at Washington University, developed into one of the leading ornithologists of all time, and eventually became Secretary of the Smithsonian Institution. Another future Smithsonian scientist (ultimately Assistant Secretary for Science) was Remington Kellogg, also a student with Bunker, specializing in mammalogy. Other Bunker under-graduates achieving high status in ornithology were Jean M. Linsdale, later of the Museum of Vertebrate Zoology (MVZ) at Berkeley and Hastings Natural History Reservation, and William H. Burt, also of MVZ and the University of Michigan Museum of Zoology. E. Raymond Hall was one of "Bunk’s Boys" also going on to MVZ, ultimately returning to KU to lead the Museum of Natural History to international prominence. Claude Hibbard and Ruben Stirton also studied with Bunker and went on to fame as mamm-
MID-CENTURY DEVELOPMENT: 1944-1967

The return of E. R. Hall to his native Kansas in 1944 was a promise that the development of vertebrate biology and the Museum of Natural History was to continue and expand. The record is clear on this—Hall instituted a graduate program that was almost immediately successful, and in relatively short order secured faculty curators for all the vertebrate groups represented in the Museum. He was able to do this so readily partly because of the power accruing from his being appointed Chair of the Department of Zoology as well as Director of the Museum. The museum was successful due to Hall’s use of the Berkeley model—most curators were secured after national searches and they were cross-appointed in the Museum and the Department of Zoology (later to become Systematics and Ecology) on 12-month contracts—and to a strict and disciplinarian singleness of mind about museum protocols.

Donald S. Farner was the first ornithologist to join the faculty of the Department of Zoology, staying for the year 1946-47. It was not until 1948 that the Division of Ornithology at the Museum got its first curator, Charles G. Sibley, who left in 1949 for San Jose State College. Harrison B. Tordoff joined the Department and the Museum in 1951 and initiated the first functionally independent graduate program in ornithology at KU. Tordoff left for Michigan in 1957 and was replaced by Richard F. Johnston. In 1965 Robert M. Mengel joined the Department of Zoology. At Hall’s retirement in 1967, Philip S. Humphrey became Director of the Museum, Chair of the Department, and the third ornithologist on the staff.

In addition to those noted above, other members of the Department occasionally provided graduate instruction for students in ornithology: A. Byron Leonard, Henry S. Fitch, Rollin H. Baker, and Theodore Eaton. In keeping with Hall’s interest in establishing a high level of museum studies in systematic biology, most of the curators he secured trace their academic lineages to Louis Agassiz, founder of the dominant North American academic museum tradition, whose own lineage included Georges Cuvier (1769–1832) and Lorenz Oken (1779–1851). One modern KU lineage includes Tordoff, Humphrey, and Mengel, all of whom studied with Josselyn Van Tyne at Michigan. Van Tyne worked with Alexander Ruthven (Michigan), who studied with C. C. Adams (Michigan), who took his degree with C. O. Whitman (Chicago), who did his work with Agassiz at Harvard. A second lineage from Agassiz (Stanford) to Joseph Grinnell (California) to Burt, Fitch, Hall (who was Director of the Museum), and Alden Miller, who in turn founded one of the 12 graduate instruction programs in North America.

H. Snow studied at the Peabody Museum in Baltimore paleontologists, the former at Michigan and the latter at Berkeley, with all preserving the broad orientation to vertebrate biology they learned at Kansas with Bunker. Bunker retired in 1942.

Students, 1944–1966—A vertebrate biology that the modern day members of Hall’s interests were predominantly directed by the graduates of the Museum. His students at the late 1940s (waxwings), Rollin H. Baker (nocturnal migration), and William A. Hall (Fringillidae). At a slightly later time to E. Bruce Holmes (Chindian manchurica) chaired the committee for Macelli and Henry Fitch directed the work with the American Crow, Corvus brachyrhynchos, the Red-bellied Woodpecker, Melanerpes carolinus, and Thane Robinson (ecology of gissianus) and Glen Woolfenden (Theodore Eaton was major professor, the arteries of swallows and pigeons). Jon Barlow (biology of Bells) adaptations in the Bank Swallow, with Tordoff (behavior of New Worlds marginatum in the Great Blue Heron) with Tordoff (behavior of New Worlds marginatum in the Great Blue Heron) (myology of pigeons). John New Urban, who began with Tordoff in Wildenthal (vocalizations of the Ne...
at Harvard. A second lineage from Agassiz led through David Starr Jordan (Stanford) to Joseph Grinnell (California, Berkeley). Grinnell was major professor to Burt, Fitch, Hall (who was major professor to Baker at KU), and Alden Miller, who in turn fostered Eaton, Sibley, and Johnston. Thus, ten of the 12 graduate instructors listed above came from a single academic museum lineage in North America. Earlier, in the summer of 1874, F. H. Snow studied at the Penikese Island Biological Station under Alexander Agassiz, who had studied under his father.

Students, 1944–1966.—It was not until E. R. Hall headed up vertebrate biology that the modern era of graduate studies began at Kansas. Hall’s interests were predominantly in North American mammalogy, but he nevertheless directed the graduate work of a number of young ornithologists. His students of the late 1940s included M. Dale Arvey (phylogeny of waxwings), Rollin H. Baker (avifauna of Micronesia), George H. Lowery (nocturnal migration), and William B. Stallcup (myology and serology of the Fringillidae). At a slightly later time A. B. Leonard was major professor to E. Bruce Holmes (hindlimb muscles and nerves of grouse). Rollin Baker chaired the committee for Maurice F. Baker (ecology of prairie chickens), and Henry Fitch directed the work of Dwight Platt (biology of the American Crow, *Corvus brachyrhynchos*) and George Boone (ecology of the Red-bellied Woodpecker, *Melanerpes carolinus*). Harrison Tordoff directed Thane Robinson (ecology of the Northern Bobwhite, *Colinus virginianus*) and Glen Woolfenden (breeding biology of *Ammospiza* spp.). Theodore Eaton was major professor for Marion A. Jenkinson (variation in arteries of swallows and pigeons). Richard Johnston chaired committees of Jon Barlow (biology of Bell’s Vireo, *Vireo bellii*), Abbott Gaunt (fossorial adaptations in the Bank Swallow, *Riparia riparia*), J. W. Hardy, who began with Tordoff (behavior of New World jays), Erwin E. Klaas (*Clinostomum marginatum* in the Great Blue Heron, *Ardea herodias*), Robert Merz (myology of pigeons), John Newman (behavior of the American Tree Sparrow, *Spizella arborea*), Max Thompson (birds of North Borneo), Emil Urban, who began with Tordoff (birds from Coahuila, Mexico), and Joyce Wildenthal (vocalizations of the Northern Mockingbird, *Mimus polyglottos*).

High points in this period include the completion of a large addition on the north side of the Museum, which hid the aedicules memorializing Audubon and Gray, but which allowed significant expansion of all research divisions; ornithology was able to expand by about 80% in square footage for specimens and office space. In 1964, the 82nd Stated Meeting of the American Ornithologists’ Union was held at KU, with the Local Committee chaired by Johnston.
THE RECENT PERIOD: 1967-1990s

The significant steps taken in earlier years toward making ornithology an international discipline at Kansas were continued and expanded following the appointment of P. S. Humphrey to the directorship of the Museum and Chair of the Department. Humphrey was working on biodiversity of lowland Amazonian bird communities and on the distribution and abundance of seabirds in the tropical Pacific Basin. Johnston studied House Sparrows (Passer domesticus) and feral pigeons (Columba livia), which included field work in Europe and South America as well as North America. Additions to the staff in this period included R. M. Mengel, who took over from Johnston in 1968 when the latter was on a leave of absence as Program Director for Systematic Biology at the National Science Foundation (NSF). Mengel held his position until 1989, when he retired from academic life. He was replaced by Richard Prum, whose research is in Latin America, in 1991. Larry Martin joined the staff in 1972 and has been responsible for the program in avian paleontology. Johnston retired in 1992, and was replaced by Townsend Peterson, working on Central American birds, in 1993.


Students, 1966–1991.—Robert Mengel was chair of the committees of Robert Fleet (ecology of the Red-tailed Tropicbird, Phaethon rubricauda), James Parker (ecology of the Mississippi Kite, Ictinia mississippiensis), and Sievert Rohwer (molt and breeding schedules of the Chuck-will's-widow, Caprimulgus carolinensis). Philip S. Humphrey directed A. B. Amerson (avian ecology of the northwestern Hawaiian Islands), Bradley Livezey (systematics and flightlessness of steamer-ducks), Yoshika Oniki (ecology of ant-following birds in Brazil), Pamela Rasmussen (systematics of blue-eyed shags), and David Seibel (phylogenetic systematics of the Cuculidae). Richard Johnston chaired committees of Rosetta Arrigo (ecology of parkland birds in St. Louis), Timothy Broschat (morphological phenetics of motmots), John Bucher (ecomorphology of shorebirds), Brent Burt (ecology of the Scrub Jay, Aphelocoma coerulea), John Paul (morphology and hybridization in the Northern Cardinal, Cardinalis cardinalis), and Edward McClurken (population genetics of the House Sparrow), Pamela Heater (ecology of geographic size variation in the Red-winged Blackbird, Agelaius phoeniceus), Steven Johnson (population biology of the House Martin, Delichon urbica), and Edward Murphy (population biology of the House Sparrow), Michael Murphy (population biology of the House Sparrow), Galen Pittman (biology of geographic variation and hybridization in the Northern Gannet, Morus bassanus), and Larry Martin (phylogeny of the Aves). The Skeleton Collection—The Skeleton Collection is of considerable interest. It now belongs to the three largest collections among the three largest collections

APPENDIX I provides a list of former KU students who have been elected to membership in the American Ornithologists' Union.

PROGRAMS AND EVENTS

The Skeleton Collection—The Skeleton Collection is of considerable interest. It now belongs to the three largest collections among the three largest collection

High points of the period include the computerization of the cataloged specimens of birds. The 102nd Stated Meeting of the American Ornithologists' Union was held at KU in 1984, with the Local Committee chaired by Marion A. Jenkinson. A group photograph taken at that meeting (Fig. 6), includes the likenesses of 40 persons associated with the recent era in ornithology at KU.

Appendix I provides a list of the persons who have taken doctoral degrees in ornithology at KU. The professional contributions of a number of former KU students have been recognized by election to Fellowship or membership in the American Ornithologists' Union, and these are noted in the list.

PROGRAMS AND EVENTS OF HISTORIC SIGNIFICANCE

The Skeleton Collection.—The bird skeleton collection at KU is of more than passing interest. It numbers about 25,000 specimens, placing it among the three largest collections in the world. It was given its impetus
Fig. 6. An assembly of persons associated with ornithology at KU in the last half of the 20th-Century as they appeared on the steps of Dyche Hall in August 1984, at the 102nd meeting of the American Ornithologists' Union. Back row: Donald S. Farner; Peter E. Lowther; Larry D. Martin; John E. Bucher; J. D. Stewart; Lawrence M. Witmer; third row: John T. Paul, Jr.; Norman L. Ford; David E. Seibel; Michael T. Murphy; Robert C. Fleischer; Mark Holmgren; Philip S. Humphrey; Sandra L. Gauth; Abbot S. Gaunt; Pennie von Achen; second row: Jeffery T. Cox; Edward C. Murphy; Erwin E. Klaas; Glen E. Woolfenden; James D. Rising; Charles G. Sibley; Robert W. Dickerman; Gary D. Schnell; Christie L. Wilkerson; Rosetta Arrigo; Douglas Siegel-Causey; Danielle Morlock; Pamela Rasmussen; Dennis M. Power; front row: Calvin L. Cink; Jerome A. Jackson; Jon C. Barlow; Clayton White; Harrison B. Tordoff; Robert M. Mengel; Marion A. Jenkinson; Sandra Herrington; Max C. Thompson; Richard F. Johnston.

by C. D. Bunker, and many of the unusually long series of specimens were assembled in his time. This preferential attention continues to the present. Noteworthy series of specimens are available for mid-American species, South American seabirds, feral and wild Rock Doves, Horned Larks, meadowlarks, and House Sparrows. Provenance is world-wide, with good representation from Australia, North Borneo, and Mexico.

Phenetics and Multivariate Morphometrics.—Developments in numerical phenetics by Robert Sokal, James Rohlf, and Charles Michener of the Department of Entomology of research. At KU, the discipline entomology and was pursued by power. There was great response to the and his colleagues employed, use of developments in digital computer power. Jerome Jackson, Stevert Johnston's project with Robert evolution in populations of House South America had just begun, and rows used conventional univariate powerful. The series of House innovative use of multivariate method from the American Ornithologists trends in size and shape, such as of flightlessness, are considerably House Sparrows. These are now and PC multivariate statistical power an analysis that might have required part of an afternoon.

The Kansas Ornithological KU in 1948, he was surprised to the State of Kansas. Through Sibley's amateurs. The Kansas Ornithological Society meeting in May 1949 at the Musuem to be one of the most suc tion-oriented societies.

Scientific Editorships.—A an edited by members of the Division Bulletin, edited by H. B. Tordoff event for the Division, for the Museum of Natural History, which of mammalogy.
of the Department of Entomology at KU led to a number of discrete lines of research. At KU, the discipline of numerical taxonomy flourished in entomology and was pursued by a few graduate students in ornithology. There was great response to the multivariate statistical methods that Sokal and his colleagues employed, use of which became possible because of developments in digital computers in the 1950s and 1960s. Graduate students in ornithology began using multivariate statistics in the mid 1960s (thus forcing their professor also to use them), and notable dissertations with early use of these statistical methods were completed by Dennis Power, Jerome Jackson, Sievert Rohwer, James Rising, and David Niles. Johnston's project with Robert Selander on size and color variation and evolution in populations of House Sparrows introduced into North and South America had just begun, and although their early papers on sparrows used conventional univariate statistics, later ones also employed multivariate work. The series of House Sparrow papers was recognized for the innovative use of multivariate morphometrics by the Coues Award for 1975 from the American Ornithologists' Union. Today, studies on evolutionary trends in size and shape, such as Livezey's on multivariate morphometrics of flightlessness, are considerably more sophisticated than those done on House Sparrows. These are now mediated by terminal-access mainframe and PC multivariate statistical packages of enormous flexibility, whereby an analysis that might have required three months in 1969 is completed in part of an afternoon.

The Kansas Ornithological Society.—When Charles Sibley arrived at KU in 1948, he was surprised to find no ornithological organization for the State of Kansas. Through Sibley's efforts, and with the cooperation of concerned amateurs as well as E. R. Hall and the Museum, the organization of the Kansas Ornithological Society was realized. The Society had its first meeting in May 1949 at the Museum of Natural History, and has since gone on to be one of the most successful of State ornithological and conservation-oriented societies.

Scientific Editorships.—A number of scientific journals have been edited by members of the Division of Ornithology. The first was the Wilson Bulletin, edited by H. B. Tordoff from 1951 to 1954. This was a landmark event for the Division, for the Museum, and for the city of Lawrence, as it signalled the conversion of The Allen Press from an unknown small-town press to an internationally-recognized printer of scientific journals. Perhaps more importantly, it marked the re-emergence of ornithology at the Museum of Natural History, which had become known mainly as a center of mammalogy.
Tordoff had wanted to do the *Wilson Bulletin* with as little fuss and bother as possible. So, he insisted that the journal be printed in Lawrence, at The Allen Press; this, he assumed would make his job as comfortable as any editorship could be. Harold Allen, founder of the press, and his son Arly were apparently preadapted to doing scholarly and scientific journals, did the *Wilson Bulletin* in fine fashion, and ultimately became the most visible of North American scientific and scholarly publishers. The *Wilson Bulletin* is still printed at The Allen Press, as is *The Auk, The Condor, The Journal of Field Ornithology*, and *The Ibis*.

*The Auk* was edited by R. M. Mengel from 1962 to 1967, and he also edited *Ornithological Monographs* in 1972–1973. R. F. Johnston was the founding editor of *Current Ornithology*, and edited the first five volumes, from 1981 to 1988.


Electronic Data Storage and Retrieval.—In the 1980s, Marion A. Jenkinson, holding an adjunct curatorship in the Division, set out to create a computer-based catalog file, wherein each specimen would be represented by electronic file space in which all information concerning the specimen was stored. The file could be addressed by combinations of desired data, so that, for example, all data for a given species on male specimens with testes larger than 7mm from NW Oklahoma taken between May 1 and June 30 could be retrieved. Except for House Sparrows, the file was completed at the end of 1985, with the aid of an NSF-BRRP collections assistance grant. I note that the classical paper catalog is still intact and functional.
Jenkinson later expanded the electronic facility to regional status, and it now accesses records from 12 additional museums: Walla Walla College, Walla Walla, Washington; University of Nebraska, Lincoln, Nebraska; Kearny State College, Kearny, Nebraska; Wayne State College, Wayne, Nebraska; Iowa State University, Ames, Iowa; Fort Hays State University, Hays, Kansas; Emporia State University, Emporia, Kansas; Southwestern College, Winfield, Kansas; Gaylord Memorial Lab, University of Missouri, Puxico, Missouri; Cooperative Wildlife Unit, University of Missouri, Columbia, Missouri; Stovall Museum; University of Oklahoma, Norman, Oklahoma; and University of Arkansas, Fayetteville, Arkansas. Upgrading of equipment in 1993 allowed transfer of the catalog files from the KU mainframe to hard disks in desktop computers, mediated by new user-friendly software.

THE COLLECTIONS AS OF 1991

The catalog contains 85,679 entries. This is based on about 55,000 skin specimens, 25,000 skeletons, 4000 spirit specimens, and 1000 eggshell sets. Acquisition of specimens proceeds mostly along lines of research activity, but special collections are purchased as funds allow.

This brief history has stressed the contributions to ornithology made by members of the Museum of Natural History and the Department of Systematics and Ecology. Other components of KU have nevertheless been a part of study and instruction in avian biology. The Kansas Biological Survey has supported graduate research in ornithology since the 1940s, and a number of degree programs have received substantial benefit from such funding. The Kansas Ecological Reserves (KER) administers University-held tracts of land in eastern Kansas. These range from uncut woodland and unmowed prairie through secondary successional tracts to disturbed agricultural land, and all are or have been used in a variety of studies on avian autecological and prairie and woodland community research. The jewel in the crown of these field reserves is the Fitch Natural History Reservation, six miles northeast of KU, which, under the guidance of Henry Fitch, has been the focus of field ecological research since the 1940s; many of the studies were on birds.
ACKNOWLEDGMENTS

Philip S. Humphrey, Kathy Dwigans, and Jerome A. Jackson read and commented on late drafts of the manuscript, correcting some errors of fact. Photographic negatives from which figures 1-5 were printed are on file in the Archives of the University of Kansas; Marion A. Jenkinson supplied the negative for Figure 6.

LITERATURE CITED

APPENDIX I


ARNEY, M. DALE, 1950; formerly Chair, Department of Biology, University of North Carolina, Charlotte. Fellow, AOU. Deceased.

BAKER, MAURICE F., 1952.

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BUCHER, JOHN, 1984. Director, Computation Center, Kansas State University, Manhattan.


CINK, CALVIN, 1974. Professor of Biology, Baker University, Baldwin, Kansas.

FLEISCHER, ROBERT, 1983. Director, Molecular Systematics Laboratory, National Zoological Park, Washington, DC. Elective Member, AOU.


HARDY, JOHN WILLIAM, 1959. Professor of Zoology and Curator of Birds, University of Florida and Florida State Museum. Fellow, AOU.

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LIVZEY, BRADLEY, 1985. Associate Curator of Birds, Carnegie Museum, Pittsburgh, PA. Elective Member, AOU.


LOWTHER, PETER, 1977. Research statistician, Field Museum of Natural History, Chicago. Elective Member, AOU.

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PACKARD, GARY, 1966. Professor of Zoology, Colorado State University.

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Abstract.—A review of the 100-plus years of the American Museum of Natural History has had a profound impact on the development of ornithology as a cross-road and gathering place for and diverse research collections and a resource that provides material for research. Through the years ornithologists have contributed to research and education in the study of avian biodiversity and recognition of the birds of the world, now serving a bigger role in serving the American public as a national resource for the study of birds and their habitats.

The Department of Ornithology at the American Museum of Natural History in New York has had a long history of study of the evolution, systematics, and geography of birds worldwide. Its research collections of specimens, are not only rich in numbers and geographic representation but dedicated to the study of a wide range of taxa and large series from all corners of the world. This comprehensive collection of over 6300 type specimens, unique records, and large series from all corners of the world, is a testament to the importance of the research conducted there.