

Glorified Dinosaurs: The Origin and Early Evolution of Birds

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Source: The Auk, 124(4) : 1464-1466

Published By: American Ornithological Society

URL: [https://doi.org/10.1642/0004-8038\(2007\)124\[1464:GDTOAE\]2.0.CO;2](https://doi.org/10.1642/0004-8038(2007)124[1464:GDTOAE]2.0.CO;2)

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species are identified where they appear. Both the CDs and the sonagrams are amazingly clear of traffic and other mechanical noises.

The sonagrams are not all to the same scale, those extending to 12 kHz being slightly compressed vertically. I applaud the authors for using a 0-kHz base for all. They are typically 3–10 s in length, with extremes of 1 and 34 s, the latter for a Common (Great Northern) Loon (*Gavia immer*). The sonagrams appear in the same sequence as on the CDs, making it easy to match sight and sound.

The chapter headings hopefully make more sense to a European reader than to me, but the frequent subheadings are descriptive and reveal much of the book's content. A few examples: Simple song; Kite and pipit calls illustrate modulation; Separating stonechats by inflection; Gull long calls; Comparing woodpecker drums by oscillogram; Learning to sing; Plastic song; Mimicry, hybridization, mixed singers and dialect; No bird has just one call or one song.

Clearly, this book was designed for a European audience. Its chief values to Western Hemisphere readers are (1) to show how sonagrams can help in the understanding of bird vocalizations, (2) to teach us to recognize vocalizations of European birds, and (3) to help us distinguish by voice a few species that occur on both sides of the Atlantic: Common Moorhen (*Gallinula chloropus*), Golden-Plovers, Pectoral Sandpiper (*Calidris melanotos*), Herring Gull (*Larus argentatus*), Lesser Black-backed Gull (*L. fuscus*), Common Tern (*Sterna hirundo*), Arctic Tern (*S. paradisaea*), European Starlings (*Sturnus vulgaris*), crossbills (*Loxia* spp., 15 pages), and some male versus female waterfowl.

The authors devote four pages to distinguishing various calls of Arctic Terns from those of Common Terns. The simplest way is by the long call, which speeds up toward the end in the Common Tern, but in the Arctic Tern consists of a few staccato notes alternating with a longer one. The *kee-arr* advertising call of the Common Tern is a little slower, lower, longer, and more mellow than the harsher, shorter, and more hurried *irr* of the Arctic Tern. The scolding *gyarrrr* call is slightly lower-pitched in the Common Tern, but the difference is really noticeable only in the fundamental frequency of the start of the call. The *kip* calls are higher-pitched in the Arctic Tern. These differences are clarified by the sound recordings and sonagrams.

A list of the species on the CDs, in the sequence in which they appear, is in the front of the book; details of location, date, age, sex, background species, and catalogue data are included on the pages with the sonagrams. Three pages of References and the Index complete the volume.

Americans have been slow to recognize the identification value of sonagrams. This volume should encourage many of those who have paid no attention to songs and calls as a means toward identification to reconsider their virtues. In spring and summer, most birds are heard before they are seen, and many are not seen at all. Songs and most brief call notes are diagnostic. Although I do not predict that this book will be a bestseller in the Americas, it will be a classic in its field. It will be sought by serious birders eager to hone their identification skills and by taxonomists interested in comparing geographic differences in bird vocalizations. Therefore, copies should be available in public and school libraries as well as in university libraries.—CHANDLER S. ROBBINS, U.S. Geological Survey, Patuxent Wildlife Research Center, Laurel, Maryland 20708, USA. E-mail: crobbs@usgs.gov

The Auk 124(4):1464–1466, 2007

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Printed in USA.

Glorified Dinosaurs: The Origin and Early Evolution of Birds.—Luis M. Chiappe. 2007. John Wiley and Sons, Hoboken, New Jersey. ix + 263 pp., 197 text figures. ISBN 0-471-24723-4. Cloth, \$69.95.—Exquisite and tantalizing images, either never before seen or strewn across the landscape of primary literature, will have readers thumbing through the pages of *Glorified Dinosaurs* in uncontrolled anticipation and unbridled excitement. At last, here is a summary of the exponentially burgeoning knowledge on Mesozoic birds. Yet this book encompasses so many levels, from elementary to professional, that it may not be immediately clear for what audience it is primarily intended. Ultimately, the common denominator is a relatively simple one. For the lay and up to college-level audience, the book will be hugely successful, so much so that it should come with a cautionary label: it may place young readers at risk of a career in paleontology.

Glorified Dinosaurs makes for very easy reading. Chiappe's amiable and non-confrontational personality is apparent as he guides readers through the sometimes rocky terrain of scientific controversy. His style is conversational, peppered with anecdotes and firsthand references to personalities in the field. The reader will feel very much as though he were engaged in conversation, and Chiappe's exhilaration for fossil discovery is contagious.

A dual personality of *Glorified Dinosaurs* is revealed in Chiappe's attempt to provide didactic lessons in the familiar format of popular natural-history magazines. Thus, the text is interspersed with full-page illustrated pedagogical sidebars explaining everything from phylogenetic analysis to plate tectonics. This format, becoming increasingly familiar in university textbooks, is a reincarnation of the belabored footnotes of Victorian literature. Sometimes these stand-alone digressions provide valuable background, but they have varying appeal to different readers. Some sidebars are needlessly reiterated in the text. Some are inadequately explained to stand alone, and thus merely introduce concepts rather than circumscribing them. For example, it is particularly unfortunate that parsimony-optimized cladistics is summarized so succinctly from a conceptual perspective, yet not illustrated with a sufficiently simple example that a novice could follow the steps mechanically. Elsewhere, sidebars seem to have been included more for consistency of formatting style than for their content. The colored backgrounds of sidebar text can be a distraction or even an impediment to reading for the visually challenged.

Another unfortunate side effect of the simultaneous outreach to professional and amateur audiences of *Glorified Dinosaurs* is the haphazard and inconsistent use of anatomical and scientific nomenclature. The use of vernacular descriptors is intended for the benefit of lay readers, yet euphemisms used to introduce structures and concepts need not replace the latter repeatedly throughout the text when, in other cases, proper Latin names are used without apology. Moreover, some vernacular terms are so imprecise as to be misleading. For example, Chiappe repeatedly refers to the pervasive homoplasy revealed by cladistic analysis as "evolutionary experimentation." This is unfortunate, because the existence of

parallelism in closely related organisms is an important evolutionary concept.

Whether in text books or popular literature, readers are all too often presented with dogma; yet, in truth, science is all about uncertainty. Chiappe paints an accurate picture of scientific discourse that, in itself, will be a valuable lesson for aspiring professionals. Among the nearly unique features of *Glorified Dinosaurs* in comparison with recent literature is Chiappe's willingness to confront and openly discuss contentious issues regarding the genealogical, temporal, and behavioral origins of birds. His purview of the primary literature is remarkably thorough, being considerably more up-to-date than one might think from the list of "Further Reading," none of which postdates 2005. (Note, for example, discussion of the hallux of the tenth *Archaeopteryx*, described in 2007.) Chiappe provides a balanced hermeneutic of opposing views that are either too superficially treated in textbooks or too often avoided altogether by proponents of the theropod ancestry of birds. To his credit, he lays bare unrealistically strict interpretations usually put forth by the detractors of specific hypotheses. For example, he distinguishes between the roles of vertical climbing and perching as primary adaptations versus opportunistic arborealism in discussion of cursorial and arboreal models for the origin of avian flight. Chiappe also shows surprising insight regarding the chasm of views on the timing of avian origins based on molecular clocks versus paleontology. Lineages of polymorphic genes necessarily predate organismal divergences, and fossils can only provide minimum ages of organismal lineages. Sadly, in too many cases after both sides of an argument are presented clearly, Chiappe simply states without providing documentation that one or the other view has since been discredited.

Several faults unfortunately mar this otherwise polished product. The life-reconstruction artwork is cartoonish and, in some cases, patently incorrect. For instance, *Hesperornis* is depicted with frog-knees, even though Chiappe acknowledges that the entire *crus* would probably be bound to the torpedo-like body, as in loons. If the strength of this book is Mesozoic avian paleontology, then certainly its weakness is Cenozoic avian paleontology and neontology. Inclusion of illustrations of certain modern skeletons would have greatly enhanced the con-

veyance of comparative anatomy and behavior. Knowledgeable readers will wince at statements that nuthatches are zygodactyl and that gannets and pelicans have supraorbital salt glands, leaving them a bit uneasy about the accuracy of descriptions of lesser-known Mesozoic fossils. The proximal expansion of the cnemial and patellar regions of foot-propelled divers is for hypertrophied pedal and digital flexors and extensors, not to provide a lever for the hind limbs. The *supracoracoideus* muscle is not characteristically smaller in birds with high wing loading; quite the reverse is true. Gruiformes and Pelecaniformes are suggested to have originated in Gondwana, owing to the geographic distribution of extant species, but genetic evidence contradicts their monophyly. Many readers will be disappointed to find no list of characteristics shared by birds and alvarezsaurids or to define Enantiornithes, inasmuch as these are central to the lengthy discussions of these taxa. At times, there is protracted use of Latin binomials without adequate accompanying illustration—for example, where alluding to the great diversity of enantiornithe tarsometatarsi. Chiappe also seems to have experienced author's fatigue. The first half of the book is more conceptual, whereas the second is more taxon-specific. The eloquent verbiage of earlier chapters eventually gives way to increasingly frequent grammatical and spelling errors, and repetitive themes and phrases.

I confess disappointment for the authoritative professional reference this book almost is, but is not. Professional utility could be greatly augmented without detracting from the meandering narrative, simply by including numerical citations in the text and a full bibliography of primary literature at the end, as well as by the addition of key character matrices where they are available. Certainly, no other author could have succeeded in accommodating both audiences, for Luis Chiappe's experience and international networks in the field are unparalleled. I may be faulted for measuring a popular text with a professional's yardstick, but one should not underestimate the influence this text could have on the professional growth of its readers. It was indeed a natural-history magazine article that led directly to my first professional ornithological field experience. This also will likely be the first point of reference for many nonspecialists in the ornithological community. A book that is otherwise so inspiring should

not be dumbed-down for lay readers who are clearly eager to learn the Latin names of fossils and anatomical structures. I have no doubt that some interested readers of *Glorified Dinosaurs* will be insatiable. Apparently, I am one of them.—PETER HOUDE, *Department of Biology, New Mexico State University, Las Cruces, New Mexico 88003, USA. E-mail: phoude@nmsu.edu*

The Auk 124(4):1466–1468, 2007

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Printed in USA.

Pelicans, Cormorants, and Their Relatives: The Pelecaniformes.—J. Bryan Nelson. 2005. Oxford University Press, Oxford, United Kingdom. ix + 680 pp., 12 color plates, 159 drawings, 62 maps. Illustrated by J. Busby, A. Mackay, and A. Teunis. ISBN 0198577273. Hardbound, \$174.50.—Seventeenth in the series *Bird Families of the World*, this volume covers the complete Order Pelecaniformes in six families and follows the general format of previous volumes in the series. Relationships among the families, fossil history, general descriptions of the characteristics of each family, and taxonomy are discussed in Chapter 1. Behavior and breeding biology for the order in general are discussed in Chapters 2 and 3. Chapter 4, "Pelecaniformes and Man," covers a broad range of topics, including human disturbance of colonies, conservation, use of logging devices to study birds, conflicts with fisheries, and mythology. Chapter 5 provides general accounts of the six families. These chapters constitute Part I, and individual species accounts appear in Part II. The volume contains one appendix of measurements. The format of having some characteristics of the order discussed in Chapters 2 and 3, then further discussion of characteristics in the family accounts (Chapter 5), and finally discussions of characteristics for each species in the species accounts (Part II) makes it difficult to know where to go to look up particular information, which may be presented in any of the three places and sometimes in all three.

Sixty-five species are included in Pelicaniformes, lumping the now recognized Nazca Booby (*Sula granti*; American Ornithologists' Union 2000) with the Masked Booby (*S. dactylatra*) ("to me, unnecessary splitting"). Nelson suggests name changes for the Cape Gannet (*Morus*