

transformative role in redefining the notion of what it means to be human and what awaits us when we die. That this book serves as Porter's epitaph makes the prose even more poignant.

As biology shifts from its analytic phase into a new synthetic one in which biochemists are planning the construction of the first artificial organisms, we realize that it is no longer just the human body that will be subjected to anatomical analysis. The Lockean tabula rasa will itself soon be delivered like the corpse of a hanged villain and placed on the genetic dissection table. Once the biochemical anatomy

of consciousness and human nature has been defined, humans will have the option not just of theorizing about the creation of an Earthly Eden but of actually realizing it. We could do worse at the cusp of this new enlightenment than to reflect on Porter's synthesis. As Porter describes the paradox of man portrayed in Laurence Sterne's novel *The Life and Opinions of Tristram Shandy, Gentleman* (1759): "such a tender piece of flesh, harbouring such fantasies of omniscience, self-knowledge ... and physical wholeness." Among many other things, what Porter's observations tell us is that the paradoxical ten-

sions of humanity—our vices, fears, woes, simple appreciation (of a star-filled sky or dandelion), animal instincts, ambitions, jealousies, and inadequacies (all of which make us so irresistibly human)—are the raw materials of our nature. Animal passions, though undermining aspects of humanity and society, are also their cement.

How sad that the Porter of flesh and bones is no longer with us. But how delightful that the immaterial image of his post-Enlightenment mind remains to sparkle before us like a handful of bright jewels scattered across the seashore.

EVOLUTIONARY BIOLOGY

A New Synthesis or Just The New Synthesis?

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The sweeping reviews of speciation and biogeography produced by the architects of the "new synthesis" (or "modern synthesis"), particularly Ernst Mayr, in the mid-20th century provided detailed summaries of ecological, distributional, and historical phenomena related to the evolution of biological diversity. The numerous recent advances in theory and technology, as well as the vastly improved information resources related to this subject, would seem to make possible fresh insights into this field. In particular, there has been much new thought about the process of biological diversification and its geographic dimensions, yet genuinely synthetic reviews of this fertile field have been few.

The appearance of a book boldly titled *The Speciation and Biogeography of Birds* brings hope of just such a review. Birds are the focus of intensive research in phylogeography, alpha systematics, distributional biology, and ecology, and would thus seem to be an ideal group on which to found such a new synthesis. Ian Newton, an ornithologist at the National Environmental Research Council's Institute of Terrestrial Ecology, Cambridgeshire, took on the big challenge of summarizing a truly massive literature into a coherent account. The book is attractive and illustrated amply with maps that—although simple and not particularly information-rich—quite aptly illuminate many of the concepts. It is also rich in examples illustrating the ideas and concepts that Newton treats.

The Speciation and Biogeography of Birds

by Ian Newton

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Nonetheless, the book falls disappointingly short of achieving a new synthesis regarding the diversification of birds. On a number of points, in fact, it feels quite dated. Newton bases much of his discussion of phylogenetic history on DNA-DNA hybridization results (1) that have largely been left behind in the face of newer sequence-based findings (which are only scarcely cited); indeed, he falls into the trap of believing Sibley and Ahlquist's argument that their phenetic analyses were phylogenetic analyses. The author more or less rejects alternative species concepts, which many ornithologists believe have great potential to elucidate patterns of avian diversity by achieving a more consistent species catalog (2). Instead, he postulates that the biological species concept and alternative

species concepts will converge on the same patterns. Newton places enormous confidence in molecular clock-based measurements of divergence times, in spite of accumulating evidence that such approaches to dating are likely to be fraught with inaccuracies and biases (3). He bases much of his discussion on such dated concepts as anagenetic (within lineage) speciation, competition as a major force structuring distributions of species and even faunas, species-to-genus ratios as indicators of colonization and speciation histories, and the adaptationist program. Readers will find that many exciting results from recent research have been dismissed, downplayed, or ignored, including the impressive avifaunal richness of Oceania before the arrival of humans (4), the role of pre-Pleistocene speciation in generating present-day diversity (5), the

utility of climate-envelope approaches to understanding the effects of climate change on species' distributions (6), and alternatives to the Pleistocene forest refuge hypothesis (7–9).

I would also have preferred a different organization of the book. Long chapters on dispersal, barriers to movement, and migration come after the core accounts of endemism and major diversity patterns, when they would seem much more appropriate as introductory material. My other complaints are minor: The book's binding may not stand up to heavy use, and though overall the editing is good, there are a few typographical errors and dated place names or assertions (e.g., Ceylon for Sri Lanka and the comment that *Oceanodroma macrodactyla* "may be extinct").

There remains a great need for a comprehensive, up-to-date account of avian evolution. Recent findings on the origin, diversification, Pleistocene and current diversity, phylogeography, and ecological biogeography of birds could be integrated into a profoundly novel view of the history of the class, which would offer an important perspective on the process of biological diversification in general.

Newton's eminently readable book probably provides the best available overview of the origin, distribution, and extinction of bird species on a global scale. But *The Speciation and Biogeography of Birds* fails to live up to the promise of a new synthesis and instead remains firmly embedded in the ideas of the new synthesis.

References

1. C. G. Sibley, J. E. Ahlquist, *Phylogeny and Classification of Birds: A Study in Molecular Evolution* (Yale Univ. Press, New Haven, CT, 1990).
2. R. M. Zink, M. C. McKittrick, *Auk* **112**, 701 (1995).
3. I. J. Lovette, *Auk* **121**, 1 (2004).
4. D. W. Steadman, G. K. Pregill, D. V. Burley, *Proc. Natl. Acad. Sci. U.S.A.* **99**, 3673 (2002).
5. J. Klicka, R. M. Zink, *Science* **277**, 1666 (1997).
6. A. T. Peterson et al., *Nature* **416**, 626 (2002).
7. M. Nores, *J. Biogeogr.* **26**, 475 (1999).
8. P. A. Colinvaux, *Global Ecol. Biogeogr. Lett.* **7**, 95 (1998).
9. J. L. Patton, M. N. F. da Silva, J. R. Malcolm, *Evolution* **48**, 1314 (1994).

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