obtain a near perfect unison synchrony, comes about through a mutual entrainment between fireflies and is leaderless. The mechanism of synchrony is, however, different in the two Southeast Asian species and one North American species studied, and this simplification is not addressed. I wonder how many of the other topics have been similarly treated?

Additionally, the actual definition of synchrony is unclear. In biological systems, synchrony is usually defined as concurrent rhythmic group behavior and its time course, to be relevant to the nervous system, is a matter of milliseconds. The synchrony in menstrual periods of women living in a dormitory or the synchrony that triggers riots or fads may represent synchronic behavior, but of such different time domain as to be "interesting" in phenotype, but probably different in mechanism.

Nonetheless, this is a thoughtful book and will make a fascinating "read" to those who are interested in synchrony and other rhythmic phenomena.

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NEW CONSTRUCTIONS IN CELLULAR AUTOMATA. *Based on a conference held in Santa Fe, New Mexico, December 1998. Santa Fe Institute Studies in the Sciences of Complexity.*

Edited by David Griffeath and Cristopher Moore. Oxford and New York: Oxford University Press. $85.00 (hardcover); $45.00 (paper). xii + 340 p + 16 pl; ill.; index. ISBN: 0–19–513717–5 (hc); 0–19–513718–3 (pb). 2003.

CHOOSING AND USING STATISTICS: A BIOLOGIST'S GUIDE. *Second Edition.*

By Calvin Dytham. Malden (Massachusetts): Blackwell Publishing. $49.95 (paper). xiii + 248 p; ill.; index. ISBN: 1–40510–243–8. 2003.

It is hard to present a course in statistics without cheating students out of some aspect of the subject. The underlying foundations of statistical theory run deep, so a course devoted to the conceptual bases of the field will certainly leave students hungering for more practical applications. Focusing exclusively on the "how-to" of various statistical procedures may whet appetites for immediate use, but will probably serve to contribute to the already-large pool of biologists who misuse statistics. Courses aimed at emerging researchers must compromise between the practical and the theoretical. Dytham's new edition of *Choosing and Using Statistics* provides this balance to instructors of both upper undergraduate and beginning graduate students.

This book is well written, logically laid out, and intuitively clusters major groups of parametric and nonparametric statistics into sizeable chapters. All of the basic statistical concepts are covered in several initial chapters, but without elaborate explanation. Readers lacking background in statistical theory may not find sufficient exposition here, but all others will discover an efficient, useful review. An ambitious yet effective key helps to identify the statistical procedures appropriate to a given set of data, guiding readers to the proper chapter for analysis. Users of this key will not become highly fluent in the greater rationale for choosing between statistics, but will find reliable direction. Given its relative brevity, the book is impressively comprehensive, although not all of the statistical procedures prescribed include explicit instructions for performing the test. Assuming that no single user will read through every chapter, Dytham offers some valuable repetition that makes each of the instructive sections stand alone. Particularly impressive are the helpful rules of thumb and valuable warnings distributed throughout the text in a series of gray boxes, which dispense practical guidance and will probably prevent many statistical disasters from occurring.

A unique feature of *Choosing and Using Statistics* is its provision of instructions for carrying out a variety of statistical procedures in *SPSS, Minitab,* and Microsoft *Excel.* Users of other programs will still find value in the overall roadmap provided by the book, but will miss the detailed neighborhoods provided to those who endeavor to learn the three supported packages. The instructions read like recipes, and will assist students in obtaining and interpreting meaningful output. The comprehensive nature of the book often betrays the incomplete and often cumbersome nature of these three statistical packages, but the book describes a variety of indirect means of convincing the software to perform the correct analysis.

Dytham suggests that the book "is aimed, primarily, at undergraduates and masters students in the biological sciences who have to use statistics in practical classes and projects" (p x). Its emphasis on designing experiments with available statistics in mind, coupled with its confidence-inspiring guidance, will certainly aid in practical application. Its use in an undergraduate course would best occur in a class with either a statistics prerequisite or a very strong lecture in statistics, as a reading of this book alone will not be sufficient for the statistically uninitiated. Beyond the classroom, the distilled nature of the book provides a welcome reference for any biologist considering experiments in unfamiliar statistical territory.

The work is much more of a handbook than a

textbook, and this is one of its strengths. The volume is quite prescriptive, fulfilling its stated goal of providing statistical guidance. Leaving the mechanics of each test to statistical software, the work allows users to focus on choosing and interpreting the appropriate test. As such, it should be a great asset to biologists early in their careers who, after having endured a highly theoretical course in statistics, now struggle to find a framework in which to use these skills. The practical nature of the book also makes it an ideal accompaniment to a statistics course where experiments are to be planned or actual data will be analyzed.

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PALEONTOLOGY

The Lost World of the Moa: Prehistoric Life of New Zealand. *Life of the Past.*

By Trevor H Worthy and Richard N Holdaway; principal photography by Rod Morris. Bloomington (Indiana): Indiana University Press. $89.95. xxxv + 718 p; ill.; index. ISBN: 0–253–34034–9. 2002.

Hawaii and the Galápagos are widely known as remarkable examples of island evolution, yet they emerged less than eight million years ago (Ma), and the majority of their colonists arrived by air. In contrast, when the southeastern margin of Gondwana separated to become New Zealand some 80 Ma, a full complement of taxa was isolated on a landmass of great paleontological and ecological complexity. The only terrestrial mammals were three species of bat, and large flightless birds, reptiles, and giant insects evolved to fill niches occupied by mammals elsewhere. Worthy and Holdaway deservedly bring New Zealand's unique vanished megafauna and ecosystem back into the limelight.

Around half of New Zealand's estimated 174 species of endemic birds have become extinct since humans arrived about 700 years ago, and the authors vividly detail how habitat destruction and introduced species destroyed a fragile ecosystem. The focus is the 11 species of giant extinct moa, of which the largest, *Dinornis giganteus* (3m and 280kg), was the tallest bird known. The moa radiation is thoroughly examined through analyses of taxonomy, size, diet, locomotion, and evolution. Attention then turns to the sole predator of large moa, Haast's eagle (*Harpagornis moorei*), whose 15kg and 2.5m wingspan make it one of the heaviest flying birds known. Subsequent chapters focus in less detail on the other extinct and extant fauna, including kiwis, wrens, rails, ducks, frogs and parrots, detailing how each established a niche within this fascinating ecosystem.

This well-illustrated volume admirably synthesizes 150 years of scientific research, and although primarily aimed at academic and ornithological communities, it is also suitable for a wider audience once the paleontological "jargon" is overlooked. The multidisciplinary approach is refreshing, integrating carbon dating, stable isotope analysis, DNA sequences, geology, climatology, and paleontology to piece together New Zealand's evolutionary past. It is thoroughly recommended for those interested in birdlife, or a fascinating evolutionary case study.

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In the Blink of an Eye.

By Andrew Parker. Cambridge (Massachusetts): Perseus Publishing. $24.95. xviii + 316 p + 25 pl; ill.; index. ISBN: 0–7382–0607–5. 2003.

The rapid appearance of animals during the Early Cambrian is among the five or six major events in the history of life on Earth and is thoroughly deserving of a detailed treatment for that long-sought clade, the general public. Regrettably, this is not that book. Parker has once again adopted the English murder mystery as a template (despite his Australian background) and, not surprisingly, the culprit behind the Cambrian radiation turns out to be just the topic that Parker has been studying: eyes, color, and the origin of vision. Thus, by the end of the introduction, the book has fallen victim to two of the most insidious traps of this genre.

This might be forgivable, since Parker does provide a general overview of the subject, but the numerous errors in the book raise considerable doubts about its preparation. The geologic timescale is out of date: the Cambrian "explosion" did not begin until the late Manykian or Tommotian stages, rather than spot on the Neoproterozoic-Cambrian boundary; and Charles Walcott was the Secretary of the Smithsonian Institution, not the "Chief Scientist," and collected fossils of the Burgess Shale into the 1920s, rather than 1911. Even more troubling is the fact that Parker is neither a geologist nor paleontologist and, consequently, he fails to adequately convey the geological setting of the event, which is critical to any understanding of the processes that produced it. The author is much better on the importance of color for animals, which is the focus on his own research. Were eyes important to the Cambrian? Judging by the size of