

New Titles

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acaran fossils to Annelida and Arthropoda than are those who work on those groups.

The picture of Ediacarans as ancestral animals means that in some respects the authors do not fully embrace the implications of the “new animal phylogeny.” The relationships between animal phyla reconstructed from DNA sequences are depicted twice in the book, but in other places the grand narrative of animal evolution devolves into notions from a pre-1990s textbook. On page 45, animal evolution is described as a *scala naturae* from sponges to diploblasts to platyhelminths to coelomates. This narrative conflicts with the current view of animal phylogeny in that platyhelminths are now seen as nested within a clade of spiral-cleaving animals that also includes annelids and molluscs, and coelomates are not regarded as a monophyletic group. In some chapters, various Ediacarans are assigned to a group named Proarticulata, which made sense when it was established in the 1980s, but now that the Articulata (annelids and arthropods sharing a single origin of segmentation) has been rejected by molecular phylogenies, “Proarticulata” is ancestral to a nongroup. In these instances, fossils are getting shoehorned into an evolutionary framework that is past its use-by date.

Now and then, apparent disagreements between the authors seem to crop up. On page 137, *Dickinsonia* is stated to have the zigzag style of symmetry called glide reflection, but on page 269, it is said to have mirror-image, bilateral symmetry. This difference is essential to understanding whether *Dickinsonia* is segmented in a way that has real bearing on affinities to extant segmented animals. The discrepancy gets at the heart of what is ultimately so frustrating and fascinating about the Ediacarans—the fact that two specialists can study myriad specimens for years, yet Ediacarans’ basic construction remains controversial. That *Swartpuntia* from Namibia could be either “a colonial animal or even a large alga” (says co-author Gehling) or “allied with the dickinsoniomorphs” (per coauthor Narbonne) indicates that we still have a long way to

go in making evolutionary sense of these fossils.

Among professional paleontologists and biologists, nonbelievers—those who dispute that any definite animals are represented by the Ediacarans—will probably still be nonbelievers when they finish the book. Still, they will welcome the publication of *The Rise of Animals* because it is a one-stop shop for up-to-date information about this puzzling menagerie, and they will appreciate the beauty of its imagery and admire the persistence of our colleagues’ efforts to learn more about what is ultimately paleontology’s greatest riddle. Non-professionals will likewise find that it is a fine-looking book that captures the excitement of scientific discovery.

GREGORY D. EDGECOMBE

Gregory D. Edgecombe (e-mail: g.edgecombe@nhm.ac.uk) is a researcher in the Department of Palaeontology at the Natural History Museum in London.

NEW TITLES

Animal Osmoregulation. Timothy J. Bradley. Oxford University Press, 2009. 178 pp., illus. \$60.00 (ISBN 9780198569961 paper).

The Annotated Origin: A Facsimile of the First Edition of *On the Origin of Species* by Charles Darwin. James T. Costa. Harvard University Press (Belknap), 2009. 537 pp., illus. \$35.00 (ISBN 9780674032811 cloth).

Bioeconomics of Invasive Species: Integrating Ecology, Economics, Policy, and Management. Reuben P. Keller, David M. Lodge, Mark A. Lewis, and Jason F. Shogren, eds. Oxford University Press, 2009. 320 pp., illus. \$49.95 (ISBN 9780195367973 paper).

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The Biology of Alpine Habitats. Laszlo Nagy and Georg Grabherr. Oxford University Press, 2009. 336 pp., illus. \$55.00 (ISBN 9780198567042 paper).

Birds of Pakistan. Richard Grimmett, Tom Roberts, and Tim Inskipp. Yale University Press, 2009. 256 pp., illus. \$40.00 (ISBN 9780300152494 paper).

Charles Darwin’s Shorter Publications, 1829–1883. John van Wyhe. Cambridge University Press, 2009. 556 pp., illus. \$160.00 (ISBN 9780521888097 cloth).

Cork Oak Woodlands on the Edge: Ecology, Adaptive Management, and Restoration. James Aronson, João S. Pereira, and Juli G. Pausas, eds. Island Press, 2009. 352 pp., illus. \$40.00 (ISBN 9781597264792 paper).

The Ethics of Protocells: Moral and Social Implications of Creating Life in the Laboratory. Mark A. Bedau and Emily C. Parke, eds. MIT Press, 2009. 392 pp., illus. \$28.00 (ISBN 9780262512695 paper).

Food-Borne Microbes: Shaping the Host Ecosystem. Lee-Ann Jaykus, Hua H. Wang, and Larry S. Schlesinger, eds. ASM Press, 2009. 410 pp., illus. \$159.95 (ISBN 9781555814052 cloth).

Forms of Becoming: The Evolutionary Biology of Development. Alessandro Minelli. Princeton University Press, 2009. 242 pp., illus. \$27.95 (ISBN 9780691135687 cloth).

The Fruit, the Tree, and the Serpent: Why We See So Well. Lynne A. Isbell. Harvard University Press, 2009. 207 pp., illus. \$45.00 (ISBN 9780674033016 cloth).

The Genial Gene: Deconstructing Darwinian Selfishness. Joan Roughgarden. University of California Press, 2009. 272 pp., illus. \$24.95 (ISBN 9780520258266 cloth).

James Lovelock: In Search of Gaia. John Gribbon and Mary Gribbon. Princeton University Press, 2009. 288 pp., illus. \$24.95 (ISBN 9780691137506 cloth).

The Lives of Ants. Laurent Keller and Élisabeth Gordon. Oxford University Press, 2009. 252 pp., illus. \$27.95 (ISBN 9780199541867 cloth).

The Medea Hypothesis: Is Life on Earth Ultimately Self-Destructive? Peter Ward. Princeton University Press, 2009. 208 pp., illus. \$24.95 (ISBN 9780691130750 cloth).

An Orchard Invisible: A Natural History of Seeds. Jonathan Silvertown. University of Chicago Press, 2009. 224 pp., illus. \$25.00 (ISBN 9780226757735 cloth).

Paradise Found: Nature in America at the Time of Discovery. Steve Nicholls. University of Chicago Press, 2009. 536 pp. \$30.00 (ISBN 9780226583402 cloth).

Speciation and Patterns of Diversity. Roger Butlin, Jon Bridle, and Dolph Schluter, eds. Cambridge University Press, 2009. 346 pp., illus. \$65.00 (ISBN 9780521709637 paper).

Study and Communication Skills for the Biosciences. Stuart Johnson and Jon Scott. Oxford University Press, 2009. 224 pp., illus. \$39.95 (ISBN 9780199219834 paper).

Sustainable Natural Resource Management for Scientists and Engineers. Daniel R. Lynch. Cambridge University Press, 2009. 248 pp., illus. \$65.00 (ISBN 9780521899727 cloth).

Ticks: Biology, Disease and Control. Alan S. Bowman and Pat Nuttall, eds. Cambridge University Press, 2009. 518 pp., illus. \$150.00 (ISBN 9780521867610 cloth).

Unquenchable: America's Water Crisis and What to Do About It. Robert Glennon. Island Press, 2009. 420 pp., illus. \$27.95 (ISBN 9781597264365 cloth).

What Have You Changed Your Mind About? Today's Leading Minds Re-think Everything. John Brockman, ed. Harper Perennial, 2009. 416 pp. \$14.99 (ISBN 9780061686542 paper).

What I Require from Life: Writings on Science and Life from J. B. S. Haldane. Krishna Dronamraju, ed. Oxford University Press, 2009. 231 pp. \$29.95 (ISBN 9780199237708 cloth).

Why Evolution Is True. Jerry A. Coyne. Viking (Penguin), 2009. 304 pp., illus. \$27.95 (ISBN 9780670020539 cloth).

You Are Here: A Portable History of the Universe. Christopher Potter. HarperCollins, 2009. 304 pp. \$26.99 (ISBN 9780061137860 cloth).

Zoo Animals: Behaviour, Management, and Welfare. Geoff Hosey, Vicky Melfi, and Sheila Pankhurst. Oxford University Press, 2009. 544 pp., illus. \$50.00 (ISBN 9780199233069 paper).

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