

## Meeting ecology's ancestors

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Egerton, Frank N. 2012. **Roots of ecology: antiquity to Haeckel.** University of California Press, Berkeley, California. xiv + 273. \$75.00, ISBN: 978-0-520-27174-6 (alk. paper).

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A few years ago a story made the rounds about a graduate student in the biological sciences submitted a manuscript for publication that included a reference to “Darwin 1859.” The paper was returned with the editor’s instruction to include no citations for publications more than a decade old.

True or not, the story points to an apparent irony in the culture of modern science: we reward exacting work at the narrow cutting edge, even as the need to know broadly the history of one’s discipline—and of connections among disciplines—becomes more apparent. Senior scientists are prone to bemoan the lack of historical curiosity among the next generation (a complaint surely heard in every generation throughout history!). Yet students and early-career scientists are typically given few formal opportunities to focus on that history in the course of their studies and research. We are lucky if we get (or offer) a history lecture or two in our survey courses.

For ecologists, Frank Egerton’s work has long been an antidote to such ahistoricity. Egerton is now Professor Emeritus in History at the University of Wisconsin-Parkside. References to his own publications in this volume begin in 1961 (“William Harvey on the mating of red deer”) and run up to 2010 (“History of ecological sciences, part 34: a changing economy of nature”). As of July 2013, Egerton’s “History of ecological sciences” series in the *Bulletin of the Ecological Society of America* has reached Part 47. His contributions across the decades have included biographical sketches, historical essays, commentaries on trends in ecology, encyclopedia entries, bibliographies, and several books. In 2007 the ESA recognized this steady outpouring of scholarship by presenting Egerton with its Distinguished Service Citation.

Now Egerton has produced a *magnum opus*. (One hesitates to describe it in the singular, for who knows what further *magna opera* Egerton may yet generate!) He states, in the opening line of his acknowledgments that, “[m]y entire career has been preparation for writing this book.” It shows. Egerton’s thorough familiarity with the literature of proto-ecological themes and key figures, concepts, and events is evident in this sweeping, informative, and highly readable volume. It is a grand literature review. To read it is to make (or renew) an acquaintance with intellectual bedrock, to return to ecology’s foundational substrate.

Speaking of ironies, therein lies one. Egerton’s account ends, in effect, at ecology’s beginning. Egerton acknowledges that he is examining the deep historic roots of a science that did not have a name until 1866. However, he reminds us to look beyond the superficial vocabulary, to follow the long trails that converge to produce new insights, which in turn yield the new terms. He describes his work here this way: “This is a history of scientific endeavors concerning facts, things, and processes that we now study in various ecological sciences. Some of this knowledge was included in different disciplines from time to time.” This then is an exploration of the antecedents to ecology, the prelude to its particular metamorphosis. In the beginning, in fact, was not the word *ecology*, but varied strands of scientific thought and understanding.

In eight chapters Egerton traces those strands according to his subtitle: from antiquity to Haeckel. He begins, in his first chapter, with the ancient Greeks and Romans, and the origins of western biological science in Greek and Roman natural philosophy and natural history. Chapter 2 follows the influence of the ancients in the medieval (ca. 500–1500 AD) Byzantine, Arab-speaking, and western European worlds. Chapter 3 takes us into the Italian Renaissance, with special emphasis on botany, the herbalist tradition, and early zoology and parasitology. Egerton focuses in these early chapters on ecological aspects of natural history as it existed prior to the scientific revolution and the age of exploration. The next three chapters examine the ecological content of sub-disciplines of biology—botany and zoology, plant and animal physiology,

demography, taxonomy, microbiology—as they emerged in the 1600s and 1700s. In Chapter 7 we come to what Egerton regards as the first fields that can be regarded as “ecological sciences”: biogeography, early evolutionary biology, and marine biology. Explorations of the New World play an especially important role in this phase, as Egerton focuses on the contributions of von Humboldt, Michaux, Lewis and Clark, Darwin, Thoreau, and other U.S. naturalists. In his final chapter, Egerton reviews the discoveries of Victorian Age British and continental naturalists and biologists; the ecological dimensions of plant physiology and pathology, animal parasitology, and entomology; and the core contributions of Darwin, Wallace, Huxley, and Haeckel.

The hallmarks of Egerton’s approach to the history of ecology, in this volume and elsewhere, are his breadth and inclusivity; his ability to place developments in different disciplines in relation to one another and to events beyond the sciences; his knack for the pithy biographical sketch and comment (“Wallace, a generous man, would never have intentionally ‘stolen’ Darwin’s law”); and his clear and measured prose (“Nature is one entity, but scientists partition it into disciplines they can master”). Those qualities serve Egerton and his readers well in a broad study like this. One comes away feeling solidly grounded in the essentials of early ecological history, with rich additions of lesser known episodes and characters. One feels encouraged to read further into particular topics with a dependable sense of context. It helps, too, that this is a handsomely produced book, in a large format that allows for generous use of images and illustrations.

One key gap in *Roots of ecology* involves indigenous and non-Western ideas and developments in the early history of

ecology. Egerton has a strongly Western perspective on the roots and growth of ecological science. He does nod in alternative directions at several points, alluding to “earlier unrecorded knowledge” among hunter-gatherers, noting that “[a]ll early cultures had protoscience,” and commenting that “[e]arly Mesopotamians, Egyptians, Chinese, and Mayans collected and recorded data on celestial bodies and natural history, but... were unable to take the next crucial step of developing a theory to interpret the data.” Negotiating the cross-cultural dimensions of the evolution of ecological concepts is of increasing importance within and beyond the science proper, and perhaps we can look forward to Egerton sharing more of his views on this in future presentations.

*Roots of ecology* is a welcome summation of so much of Egerton’s work. It deserves a place on the bookshelf alongside other histories that add on to the story, from Haeckel to the present. As such it makes a perfect gift especially for ecologists-in-training, who, even if they are not allowed to cite Darwin, or von Humboldt, or the Bartrams, or Ray, or Magnus, or Frederick II, or Theophrastus, may find lasting rewards in knowing the deep sources of their cutting-edge knowledge.

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