



The structural links between ecology, evolution, and ethics: the virtuous epistemic circle. By Donato Bergandi

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The Structural Links between Ecology, Evolution, and Ethics: The Virtuous Epistemic Circle. Donato Bergandi. Springer, 2013. 179 pp., illus. \$129.00 (ISBN 9789400750661 cloth).

The idea of a book devoted to the links between ecological science and philosophy, within the framework of present-day environmental concerns, was formed at an international workshop (“Between the philosophy of biology and the philosophy of ecology: evolutionisms, ecologies, and ethics”) held in 2005 at the French National Museum of Natural History (MNHN) in Paris. Ten philosophers of science – from France, the United Kingdom, and the United States – contributed to the workshop, exchanging viewpoints and experiences in various environmental, ethical, and epistemological domains. This meeting resulted in *The Structural Links between Ecology, Evolution, and Ethics: The Virtuous Epistemic Circle*, a succinct book edited by Donato Bergandi, who also coordinated the workshop. Bergandi is a professor at the MNHN and is well known for his dissection of the concepts and methods now in use in systems ecology and for his stimulating debates about (a) holism and reductionism, (b) cybernetics, and (c) emergence.

The central figure of the book is that of Charles Darwin, whose research saturated evolutionary science – and changed the way mankind sees nature – before the appearance of ecology and nature conservation at the end of the nineteenth century. Darwin’s theories were largely propagated and, unfortunately, often distorted by his numerous followers – the *Darwinian evangelists*, as Michael Ruse humorously calls them in a chapter entitled “Evolution versus creation: a sibling rivalry?” Several Darwinian concepts are analyzed and criticized in the light of present-day knowledge: evolution (by Michael Ruse, in the above-mentioned chapter), chance (by Jean Gayon), time (by Jean-Marc Drouin), and adaptation (called *adaptive management* by Bryan G. Norton).

New concepts are also suggested throughout the book. For example, John Baird Callicott describes an “erotic ethic” of embracing human duty and our obligation to biotic communities. Environmental ethics is the subject of two contributions – Robin Attfield’s questioning chapter called “Reconciling individualist and deeper environmentalist theories?” and Catherine Larrère’s “Two philosophies of the environmental crisis.

The book is strewn with many innovative ideas, sometimes presented in a provocative manner. For instance, as a slap in the face to hierarchy theory (a highly favored theory among the Darwinian evangelists), Callicott suggests, with strong arguments, that organisms should be called *superecosystems*, reversing the paradigm of ecosystems as *superorganisms*, erected by Frederic E. Clements (1905) to describe plant societies. Patrick Blandin, surfing on the contradictions between nature conservation (i.e., nothing must change) and evolution (i.e., everything is changing), states that the *equilibrium paradigm* must now be substituted by the *cochange paradigm*, which stems from the concept of *EcoEvoEthics* and is based on the evidence that we live in a permanently changing world.

The plea for the rights of animals by Tom Regan also deserves our attention. Aside from the psychological

and biological reasons (e.g., their social behavior, their intelligence, their abilities for abstraction, and their capability of language), he poses the problem on moral grounds: “Like us, [animals] are in the world, aware of the world, aware of what happens to them.... [They] share the rights we have mentioned, including the right to be treated with respect” (p. 121).

Far from being a boring treatise, *Structural Links* has great educational value. The panel of contributors representing a variety of schools of thought is presented to the reader as an opportunity to embrace a wide landscape of philosophical problems within the fields of environmental science and nature conservation. I highly recommend this book to evolutionary biologists, systems ecologists, and environmental stakeholders, with the hope that it will contribute to new avenues of research in ecosystem resilience.

Reference cited

Clements FE. 1905. Research Methods in Ecology. University Publishing Company.

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