

its historic and contemporary importance to human society, and how and why plant organisms will continue to evolve novel compounds in a process that is both dynamic and ongoing.

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TWO “DESTINED HUMAN DELIVERERS” OF ENVIRONMENTAL SCIENCE

Leopold’s Shack and Ricketts’s Lab: The Emergence of Environmentalism. Michael J. Lannoo. University of California Press, 2010. 216 pp., illus. \$24.95 (ISBN 9780520264786 cloth).

Aldo Leopold, forester and wildlife biologist, and Ed Ricketts, marine biologist, were two early twentieth-century naturalists whose works have reverberated across the decades and influenced a generation of environmental scientists and activists. Through intense observation and uncommonly clear writing, both men were able to develop and articulate an understanding of nature that linked the appetites of a rapidly industrializing nation to the vulnerability of its environment, long before the Earth Day awakening and the polarizing politics that consume current science and policy debates. If every discipline has its heroes, Leopold and Ricketts are two of the rock stars of environmental studies.

With *Leopold’s Shack and Ricketts’s Lab: The Emergence of Environmentalism*, Michael Lannoo has crafted a book designed to pull these two larger-than-life figures into focus, and he does so by linking their very different personalities to the places

most closely identified with their lives and insights: Leopold’s shack in the Wisconsin Sandhills and Ricketts’s waterfront lab on Monterey Bay. By weaving their stories together around these unassuming buildings, Lannoo manages to create a connection in the mind of the reader, a connection that did not exist between these men, who never met. By forging this link, the author integrates the terrestrial and the marine, the introversion of the researcher with the wanderlust of the naturalist, the discipline of science and the passion of activism. By tying these men to the modest structures where their most sweeping ideas came to life, Lannoo makes a connection that is both unexpected and insightful. And although their private lives could hardly have been more different, their impact on society is convergent and complementary. From the reader’s perspective, the author’s appreciation of both the men and their contributions is inspiring.

Ricketts and Leopold are a dynamic duo, yin-and-yang voices that together transformed natural history into environmental science and made the leap from insular and specialized disciplines to a new field with sweeping societal relevance.

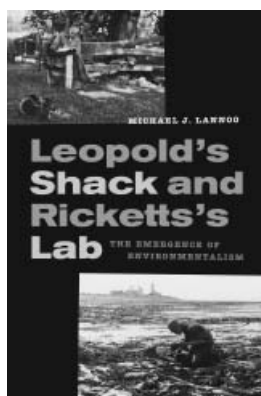
Leopold’s Shack and Ricketts’s Lab is a short and entertaining read, a book that fans of both Leopold and Ricketts will appreciate. Each reader is likely to recognize one character and be introduced to the other. The reverence I hold for the shack and the ideas that flowed from it gave me entry to Ricketts’s life, through his lab, and I expect the reverse will be true for other readers. Yet one cannot help but wonder

if the focus on the shack and the lab reveals true similarities, or if it is a device that pulls together the mythology surrounding each man, perhaps obscuring or ignoring the divergent lives they led. After all, Leopold’s shack and Ricketts’s lab were different in purpose, origin, and use. Whereas the lab served to process marine specimens for sale to students and researchers, the shack was a family retreat, where solitude and physical work restored the forests that had been lost to the saw and plow. Ricketts’s lab was a gathering spot for authors and artists (frequent guests included John Steinbeck and Joseph Campbell), whereas Leopold’s shack was a quiet refuge for family and, at times, a few close friends and students. And whereas the lab was a rented building squeezed between a sardine cannery and busy railroad tracks, the shack was in the boondocks, surrounded in Leopold’s day by exhausted farmlands that were an unlikely destination for naturalists or tourists.

Similarly, the two men’s personalities seem equally disparate: Ricketts, loud and boisterous, provided a meeting place for the unconventional intellectuals who sought freedom in the freewheeling California of the early twentieth century. If Ricketts provided refuge and inspiration for their great works, it was through the unvarnished life he shared with them, which included field excursions to Mexico and Alaska, as well as many days in California tide pools and festive evenings in the lab. Leopold, the quiet professor, spent most of his time at the shack with his children and students—planting trees, making detailed natural history observations, cleaning, fixing, and restoring, while cementing the personal bonds that come with hard work. Seen in this light, Ricketts and Leopold are a dynamic duo, yin-and-yang voices that together transformed natural history into environmental science and made the leap from insular and specialized disciplines to a new field with sweeping societal relevance.

doi:10.1525/bio.2011.61.7.12

The central idea that emerges from this interesting volume is the sense that these men led complimentary lives. Together, they express what was then an emerging, uniquely American form of environmental awareness that still defines a distinctive philosophical direction. A century earlier, a different pairing of intellects and personalities collided to define a prior movement in literature and philosophy. Ralph Waldo Emerson, the renowned poet, and Henry David Thoreau, the anarchic naturalist, followed shared insights but contrasting lifestyles that, together, embodied the Transcendentalist movement. This creation articulated an intellectual foundation on which science and nature would be united to confront the future that Thoreau predicted and that Ricketts and Leopold encountered in their twentieth-century lives. Without putting too fine a point on it, Lannoo invites us to see the subjects of his book as two lives intertwined in an effort to articulate a modern environmental ethic grounded in empiricism and committed to action—action to save nature from the unwitting march of a society utterly unaware of its destructiveness and its dependency on the natural world.



The subtitle of this book—*The Emergence of Environmentalism*—is somewhat misleading. The emergence of environmentalism is not addressed directly, nor are these men's roles in fostering it explored in any depth. Instead, we get a sense of the resonance

their work has enjoyed with those who discovered their writings long after the authors were gone. That subsequent generation, those born into the era of environmental crises, read Leopold's *Sand County Almanac* and Ricketts's *Between Pacific Tides* with wonder, impressed that the authors had such clear thoughts about such important ideas, and that they were able to write about them so artfully that these titles continue to speak today with compelling voices. Yet there are others who more fully capture the activist roots of the environmental movement; perhaps most prominent among them is Rachel Carson, who galvanized the nation around the decline of nature with the publication of *Silent Spring* in 1962. In that context, Leopold, Ricketts, and the Transcendentalists before them were rediscovered and embraced by a new generation, one that gave rise to the great environmental leaders of the late twentieth century. The emergence of the environmental movement has changed the world, but with almost seven billion humans now (three times the population of the world when Leopold and Ricketts were writing), the planet is changing even faster and, thus far, not in a manner that would give either man much cheer.

Can their words inspire the next generation as it has the past two, and will the emergence of environmentalism contribute to the adoption of the ethical stance on conservation that emerges from their fusion of natural history and philosophy? Lannoo points in this direction, saying in the book, "Leopold shows us what to do, Ricketts shows us how to do it." But he takes a different path to the book's conclusion, stepping out of the flow of environmentalism and into the field that his two subjects shared without question: natural history. By recounting their decades of detailed observations and the depth of their insights, as well as their love of being in the field and experiencing nature directly, Lannoo highlights not so much the emergence of environmentalism as a social movement, but rather the emergence

of environmental science as a rigorous intellectual pursuit, grounded in method, informed by observation, and leavened with an awareness of its relevance to society.

Lannoo writes that "the discipline of ecology, as understood by both men, could not be neatly categorized into more traditional academic fields." Through the interdisciplinary nature of their inquiry, something new and critically important was discovered and carefully communicated to the rest of us. Emerson wrote about how knowledge and nature are "still hid and expectant... as if each waited... for a destined human deliverer." Lannoo's homage to Leopold and Ricketts is a convincing claim that the two men, drawing on creativity and social conscience, were so diligent in their commitment to natural history that they uncovered a set of vital truths for those who came after.

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MAKING SENSE OF REMOTELY SENSING VEGETATION

Remote Sensing of Vegetation: Principles, Techniques, and Applications. Hamlyn G. Jones and Robin A. Vaughan. Oxford University Press, 2010. 400 pp., illus. \$55.00 (ISBN 9780199207794 paper).

An ever-expanding constellation of Earth-observing sensors provides us with a virtual tsunami of data, much of it now freely available. But channeling this digital torrent into useful information about the vegetated land surfaces requires a skillful blending of radiation physics, image processing,

doi:10.1525/bio.2011.61.7.13