Alexander Wilson: The Scot Who Founded American Ornithology.

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as one would expect from the ratio of their wavelengths? Factual glitches include neglecting to highlight Rhizaria (radiolarians) in a tree-of-life figure depicting where bioluminescence has evolved; stating that the sea pansy *Renilla* is found only in the North Atlantic Ocean; referring to pineapple fish as having been covered in previous chapters, when no earlier mention of the species could be found; and claiming that all green-fluorescent proteins have a chromophore consisting of the same three modified amino acids, when, in fact, only two of the three are conserved.

Noticeably absent are mentions of any researchers in the field, including the modern giants of luminescence. The only names that I noted in the text are Aristotle and Dubois, and one sentence even begins, "Someone calculated…." Why Wilson and Hastings are reluctant to give credit for the sources of research findings, even when the work was carried out in their labs, is a mystery. Maybe they are being modest. Perhaps related to this omission is the intriguing fact that the book is written as if the term *photoprotein* had never been coined. Although it is one of the most commonly encountered terms in modern luminescence applications, I noted it used only once in passing, and it apparently did not merit a glossary entry. My understanding is that the authors consider photoproteins to be luciferases and not a separate class of protein, but this perspective should be explained in the text. To me, the term *aequorin*, which the authors use liberally, is more objectionable, because it implies that there is only one protein of interest in the hydromedusa *Aequorea*.

Bioluminescence: Living Lights, Lights for Living is a unique book that would be of interest to marine scientists, beginning chemists, and students looking to improve their knowledge or write a report on the subject. For more in-depth chemistry, I would recommend Shimomura's (2012) book, and for a more up-to-date overview of the field, I would suggest a recent review paper in a scientific journal.

References cited

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STEVEN HADDOCK

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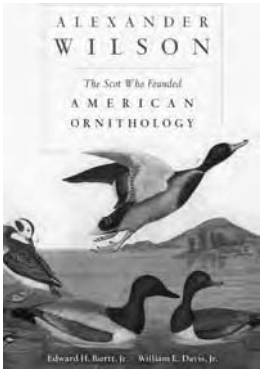
FANFARE OF FEATHERS FOR THE COMMON MAN

Alexander Wilson: The Scot Who Founded American Ornithology. Edward H. Burtt Jr. and William E. Davis Jr. Harvard University Press, 2013. 464 pp., illus. $35.00 (ISBN 9780674072558 cloth).

By any measure, Alexander Wilson is one of the most important ornithologists in the history of the field in America. Born in Scotland in 1766 and later becoming an American citizen, a poet, a marksman, and an artist, Wilson was indefatigable in his consuming interest in instructing ordinary folk in the science and identification of birds. He is the author of a natural history of living American birds—almost 80 percent of the species of the area in which he lived and through which he personally traveled. He adopted the Linnaean system of naming—the first American ornithologist to do so. Admittedly, he got some things wrong mainly as a result of financial problems, and he left much to do, but it is with good reason that many today consider him the father of American ornithology. The final intense process of researching and publishing his major work, the nine-volume *American Ornithology* (1808–1814), took its toll on Wilson, however; he died prematurely and penniless. *Alexander Wilson: The Scot Who Founded American Ornithology* is the story of this man's life, his work, and his legacy.

Wilson's formal education ended at age 10, soon after which he began an involuntary apprenticeship to his brother-in-law as a weaver. While traveling between home and work, Wilson developed his keen interest in birds (and a willingness to shoot some for the family table). During this period, it became clear that he also possessed a talent as a poet. He wrote one poem called "The disconsolate wren," but his best-selling work was a ballad that sold over 100,000 copies. (This poem was published anonymously, and all the profit went to the publisher in order to settle a debt that Wilson owed him.) Both skills—with the gun and with the pen—proved to be critical in the fulfillment of his ornithological goals.



Wilson developed strong feelings about the conditions of weavers and other workers, which brought him into conflict with the authorities. As a result, at age 28, he set sail for Philadelphia. In America, he published patriotic verse as he worked as a weaver, a peddler, and an engraver. Then he landed two successive jobs as a schoolmaster. The second, in 1802, was near the home of the descendants of the early American botanist and

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horticulturalist John Bartram, including that of his son William Bartram, who had recently published (in 1791) a list of over 200 species of birds in his influential travelogue through the American South. The move could not have been more serendipitous for Wilson. William Bartram, at age 63, became his mentor and teacher in natural history, ornithology, and art. Only 5 years later, Wilson published the prospectus for *American Ornithology* and began the task of obtaining subscribers as he traveled, researched, and perfected his craft of drawing, engraving, and hand coloring his images of birds.

Wilson's goal was ambitious. He wished to produce the scientific accounts of each species of bird, and he possessed the literary skills to offer a readable text. His narrative was focused on the bird's diet, plumage, anatomy, behavior, niche, and economic impact—and to complement his scientific text were his illustrations. A great strength of *Alexander Wilson* is in its detailed account of the development of its subject's art as it progressed from sketches to hand-colored, copper plate engravings. Over 200 pages of text—nearly half of the book—are dedicated to the chapter "Illustrating *American Ornithology*." Combining excerpts from *American Ornithology* with nearly 100 illustrations from the Ernst Mayr Library of the Museum of Comparative Zoology at Harvard University (and various other repositories), authors Edward H. Burtt Jr. and William E. Davis Jr. go to great length to analyze Wilson's choices of species and composition.

Wilson tended, at times, to place birds in settings in a manner more reminiscent of eighteenth-century bird illustrations, which, today, strike the viewer as stylistically awkward. His illustrations evolved from placing birds on stump pedestals or branches to those with background (albeit stylized) landscapes and accompanying ecological information. It is abundantly clear from his sketches—some are stunning portraits—that Wilson possessed an eye for detail regarding the anatomy, feathers, and behavior of his models. His preliminary drawings display an artist's insight that the engraved versions often lack. These remarkable works include a bald eagle with the talons of one foot sunk into a scavenged fish—a choice of inadvertent support for Benjamin Franklin's position that this bird was ill suited as the national bird. Burtt and Davis remark of a clapper rail that its "eye and its inset and placement are superior in the drawing, which is the case for many of Wilson's birds" (p. 214); that is, in this and other cases, Wilson's engraver had difficulties with eyes and bills.

Confident in his ability to sell his work by subscription, Wilson demanded of himself both wide and constant travel; at the same time, he continually observed and sketched birds. But this process literally exhausted him. By 1811, he had completed five volumes; 1 year later, he had nearly finished the sixth and was researching the last three. His savings were depleted, and his health had deteriorated. In 1813, at age 47, Wilson died, an apparent victim of dysentery. The ninth and final volume would be finished by an associate and published posthumously.

As a deist who saw a divine hand in nature, Wilson sought to portray a "simplicity of truth and nature" (p. 44). He wanted to demonstrate the importance of observation (a fundamental part of Wilson's methodology that derived from William Bartram's influence), and he believed in his scientific account of America's avifauna as a means to instruct the common man in the identification and general knowledge of endemic bird species. This book is a considerable achievement—not just in the understanding of Wilson himself but in that of the history of ornithology.

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THE BEST IDEA STILL BEING PERFECTED

To Conserve Unimpaired: The Evolution of the National Park Idea. Robert B. Keiter. Island Press, 2013. 368 pp., illus. $35.00 (ISBN 9781597266604 paper).

National parks are *institutions*—"the prescriptions that humans use to organize all forms of repetitive and structured interactions" (Ostrom 2005, p. 3). As such, they change in accordance with human interactions and values, responding to economic drivers, visitor patterns, politics, development, and sometimes even scientific information. The *idea* of a national park seems to change more slowly, however, exhibiting a sort of inertia. This tension, between the ideals and expectations of a national park on one hand and the realities of operating a park on the other, provides the theme to Robert B. Keiter's book *To Conserve Unimpaired: The Evolution of the National Park Idea.*

Although Keiter holds these two perspectives up as controversy, the tension is a healthy one (at least for those not having to run the parks themselves), because it engages the idealists, the managers, the politicians, the visitors, and the neighboring communities in a dialogue that should result in compromise. The national park is said to be the United States's best idea (a phrase that has been credited to various people, according to the author), but Keiter argues that the national park project is not one idea but many—wilderness area, tourist destination, recreational playground, commercial commodity, ancestral homeland, natural laboratory, wildlife reserve, and ecological cornerstone. The lodestar for US national parks is the National Park Service Organic Act of 1916, which contained the following mandate:

> The service thus established shall promote and regulate the use of the Federal areas known