

COEVOLUTION

Coevolution of Life on Hosts: Integrating Ecology and History. By Dale H. Clayton, Sarah E. Bush, and Kevin P. Johnson. 2015. University of Chicago Press. (ISBN: 9780226302270). 320 pp. Paperback. \$28.

It would be difficult to find an aspect of ecology or evolution not touched upon in *Coevolution of Life on Hosts*. Although the book is focused primarily on the biological interactions between lice and their hosts, these associations present clear and fascinating examples of topics including competition, parasitism, structural and behavioral adaptation, island ecology, and much more. The reader transitions quickly from bemusement (“Am I really reading a book mostly about lice?”) to fascination. Topics are presented clearly, with informative supporting graphs, charts, tables, drawings, and photographs. Evolution’s central drive to maximize

reproductive fitness is evident throughout. Physiology, behavior, and adaptation are all examined in light of survival and reproduction.

Each topic is a case study in interesting evolutionary biology; choosing a few examples to highlight is a difficult task. Students with a paleontological focus will be interested in the comparison of mandibular lesions between modern osprey and *T. rex*, which indicates the probability of *Trichomonas* infections in the ancient beast. Those interested in evolutionary adaptation to environmental extremes will marvel at the numerous aspects of lice of the Weddell seal. Students interested in experimental design will find numerous, clearly presented examples of intriguing and carefully designed scientific investigations. Amazing associations are investigated: increased O₂ consumption with increased parasite load due to grooming; anatomical and behavioral adaptations due to parasite load, such as an owl’s pectinate claw or birds “anointing” themselves with citrus to decrease their load of ectoparasites – the list is fascinating and lengthy.

This is a rich, dense text: each page presents fascinating aspects of coadaptation. A student science reader may initially be intimidated by the text’s numerous accompanying charts, graphs, and phylogenetic trees. However, the research science is explained with clarity, and each case presents an excellent learning opportunity for students in developing familiarity with careful interpretation of data presentation. Although reading the whole text is doubtless rewarding, the number of examples presented offers the teaching possibility of dividing the topics between students to jigsaw the topic of coevolution and adaptation. However it is used, this text is well worth the time for any student or teacher with a love for learning about biology.

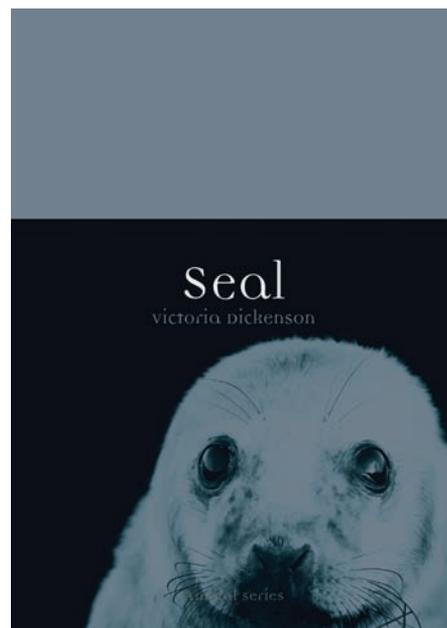


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ANIMALS

Seal. By Victoria Dickenson. 2016. Reaktion Books. (ISBN: 978-1-78023-489-2). 224 pp. Paperback. \$19.95.

Seal is the latest release in the Animal series published by Reaktion Books, and the second authored by Victoria Dickenson. The book begins with a review of the evolutionary history of this playful species and then moves into the long and complicated relationship between seals and humans, from the folklore of the selkies to the controversial but historic seal hunts. Dickenson describes pinnipeds, the clade of carnivorous, semiaquatic mammals that includes the Phocidae, or true seals, which are the focus of this book. If you have not spent much time along a coast where seals are common, then the pinniped you are likely most familiar with is actually a sea lion. “The otariids – fur seals and sea lions – are also distinguished by their possession of pinnae, or

outer ears. The walrus and the phocids have none, and the ‘true’ seals are thus commonly known as the ‘earless’ seals” (p. 22). After clearly defining the animal that will be the focus of the book, and with the help of gorgeous color photos generously used throughout, Dickenson focuses on the interactions between seals and people, because this is a species that humans have long interacted with and are fascinated by. Their large, inquisitive eyes capture our attention and imagination, and their intelligence has long been a source of amusement and profit – in the case of trained seals, many of whom are given human names such as Jenny, Fanny, and Ned – as well as of consternation – for the fishers who must contend with seals that destroy nets and steal the day’s catch.

This book is easy to read and utterly engrossing because of its accessible writing style, liberal use of firsthand accounts, and attractive photographs. However, the photos do not always match the subject matter, which at times makes their inclusion slightly distracting. The author does not shy away from the more controversial aspects of the seal’s shared history with humans, specifically the brutal aspects of the seal hunt and the clubbing of baby seals. Her tone is neutral, and she allows readers to generate their own opinions and conclusions about how we should proceed in the future with regard to the Inuit seal hunt, a source of continued controversy. This does not mean that her voice does not shine through. She makes occasional clever jokes that are not condescending, mocking, or off-putting, and are subtle enough to make the reader feel as though she or he has caught something elusive and special.

Accessible enough for high-level young readers, this book could be used in a middle school classroom to supplement a unit on ecology, classification, or a march through the kingdoms. In addition, the examination of the history between seals and humans means that it could be used in an interdisciplinary study between science and social studies.

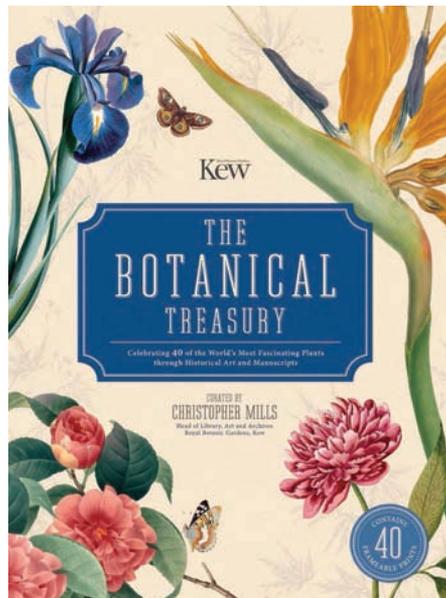


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PLANTS

The Botanical Treasury: Celebrating 40 of the World’s Most Fascinating Plants through Historical Art and Manuscripts. Edited by Christopher Mills. 2016. University of Chicago Press. (ISBN: 978-0-226-36934-1). 176 pp. Cloth, \$35.00.

What appears to be a slightly oversized book is reasonably titled a “treasury.” Over 20 authors,



most connected with Kew Royal Botanical Gardens, contributed to this project. The “book” is actually a nicely illustrated clamshell box containing a paperback book and a stack of 40 size-A4 sheets of reproductions of historically hand-colored botanical artwork that correspond to the 40 chapters in the book, each highlighting a particular plant. The prints are of fine quality, on ivory paper, and would be suitable for matting and framing for home or office decoration. There is a fabric ribbon thoughtfully built into the box for marking one’s place in the stack of prints while reading the book.

The book inside the treasury is of matching size (A4) and is filled with more artwork in the chapter for each of the 40 plants. This includes other historical color plates, black-and-white historical photographs, published articles, and even handwritten correspondence. So this book, on its own, is a lovely collection of botanical visual art.

The contributing authors’ texts are printed in a very small font (maybe 6 point). For many readers, bright light and magnification will be needed. I would have preferred a larger font, made up for by less space between the lines. To say that the focus of the book is on the artwork is an understatement. The text pieces provide some human and historical context to support the artwork representing the plants.

Botanists might wonder why some plants were not included in the collection. Rice feeds more people on Earth than any other plant and has a graceful appearance. Bamboo has been put to an amazing array of uses and has been a subject for artwork over thousands of years. Parasitic plants have a fascinating life history and can be exceedingly attractive. The potato revolutionized

agriculture in the 19th century, but its susceptibility to a waterborne mold contributed to the starvation deaths of about a million people and the massive Irish diaspora. The World Health Organization named tobacco the single leading cause of preventable human death, yet its flowers are fragrant and beautiful. The cotton that clothes us and was a participant in the triangle trade, alongside which botanical exploration occurred, was excluded from this selection. Not one timber tree was selected, even though the book and prints are on paper.

The 40 plants chosen for the treasury, out of the quarter- to half-million known species, were probably selected, in part, on the basis of available artwork in the Kew collection. As would be expected in lifting up antique artwork, the modern text uses a mixture of older and newer taxonomic nomenclature while describing the discovery, distribution, historical use, and economic value of each plant. Although the Introduction mentions the inclusion of nonplants in the historical realm of botany, the 40 species chosen for this treasury are all true plants (Viridiplantae) but are limited to flowering plants (angiosperms) and three gymnosperms: *Encephalartos* (cycad), *Ginkgo*, and *Welwitschia*.

The 40 plants include some used for food (corn, wheat, citrus, grape, sugarcane, coconut, bromeliads) and for medicines (angelica, cinchona, datura, ginkgo, poppy). But others were chosen for their utility (pandanus, mulberry), interesting human history (tulip), sublime beauty (protea, datura, lotus, peony, orchids, bird-of-paradise), or spectacular natural history (corpse flower, welwitschia, passion flower, monkey cups, baobab). Also prominent in the text are the names, stories, and contributions of many famous 18th- and 19th-century botanists and explorers. Reading their writing style and seeing their personal handwriting and signatures is a special treat for modern biologists.

In summary, this treasury is indeed a compendium of beautiful antique artwork and interesting biological history of 40 fascinating plants. The prints are suitable for framing. The treasury would make an attractive and interesting book for a coffee table, but you may need a magnifying glass and bright light to read the text or to examine some of the details in the photographs and artwork. At the current pricing, this book is an outstanding value.



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