

The Art of Plant Evolution. W. John Kress and Shirley Sherwood. 2009. ISBN 978-1-84246-421-2. Pp 320. Kew Publishing.

This is a curious volume that merges botanical illustration with modern science. The idea is fantastic, trying to teach botanists a little about art and artists a little about science. Such a cross cultivation of ideas can go a long way, although probably requires a more idiosyncratic approach than was taken here.

This book is organized around a modern phylogenetic tree, largely generated by the Angiosperm Phylogeny Group (APG), with a few gymnosperms, pteridophytes, bryophytes, and two out groups (a fungus and a brown algae) thrown in. The authors, Shirley Sherwood, an art collector, and John Kress, an evolutionary botanist, cover over a hundred botanical illustrations from Sherwood's collection, representing a wide swath of taxa, especially angiosperms. They devote two pages per plant, with both author's contributing text in their areas of expertise. Each pair of facing pages contains one botanical work of art, plus occasionally a zoom-in detail. Although a *scala natura* is no longer fashionable, the authors present plants in such a traditional order, albeit with an unexpected interleaving of rosids between several groups of non-rosid/non-asterid core eudicots.

For each plant illustrated, Sherwood provides a brief biography of the artist, while Kress provides a summary of how molecular biology, especially DNA sequencing, implies phylogenetic placement. Occasionally, the author's provide other snippets, such as about the artist's style or about the plant's biogeography or pollination mode. Kress's brief insights into pollination were always nice. Often there is a lot of white space on each page, allowing us to really appreciate the illustrations.

Emphasis of the text is on systematic placement, so this book may have been better called "The Art of Plant Systematics". Both the main text and the inside back cover provide a visually elegant simplified phylogenetic tree. As a casual reader or as an artist, this is much better than looking at boring computer-generated output from a phylogenetic computer program. But there is much more to plant evolution than simply phylogenetics and systematics. And these other evolutionary aspects are unfortunately largely missing from this book.

In rare instances, interesting evolutionary gems are mentioned. For instance, with temperate violets, "It is a curious fact that the same plants also produce much reduced flowers hidden under the soil that never open and are consistently self-pollinated and inbred." I would have loved such pearls on most pages. That

would have really drawn non-biologists into science, much more so than discussing who is related to who. The botanical painting of the violet is also lovely insofar as it is a rare illustration of the entire root system. While not as technical, another pearl is that *Heliconia* was named after the Greek mountain Helicon, home to the muses, thereby signifying that *Heliconia* was and still is thought to be related to *Musa*. Many non-botanists would love reading that sort of material from cover-to-cover...and Kress probably has that knowledge at his fingertips.

The editing of this book was substandard, with lots of redundancy, self-contradiction, and other gaffes. For example, at the top of one page Kress says, "This order [Arecales] consists of a single family, the palms, with 2,000 species. Yet, near the bottom of that same page Kress says, "Over 2,775 species and 200 genera make up the palm family." A few assertions are blatantly wrong, yet could have been very illuminating about plant evolution. Kress says that *Ginkgo biloba* gametes are wind dispersed, by which I assume he means male gametes. However, since the late 1800s, we have known that ginkgo and cycad male gametes – i.e. sperm – swim to the egg using numerous flagella. While ginkgo pollen is dispersed by wind, pollen is a gametophyte, not a gamete, thereby missing an important evolutionary lesson that could have been taught to non-scientists. As a final example, we do not need to know that "Vicki Thomas is an attractive and energetic botanical artist." Of course she is a botanical artist and, more importantly, her attractiveness is irrelevant.

Overall, I really like this book, but was nonetheless hoping for better. The book needs more quixotic observations, remembering that, "Darwin admonished us not to ignore the 'oddities and peculiarities' of life as we see it today. It is by the analysis of such oddities that evolutionary history can be reconstructed." (Margulis & Sagan 1988: 26)

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