The Curious World of Carnivorous Plants: A comprehensive guide to their biology and cultivation by Wilhelm Barthlott, Stefan Porembski, Rüdiger Seine, Inge Thiesen [Translated by Michael Ashdown]. Timber Press: Portland. 224 pages, 158 illustrations, 2 maps. ISBN-13: 9780881927924, ISBN-10: 0881927929. US$39.95.

This is an exquisite book, truly covering both biology and cultivation of carnivorous plants. It provides an up-to-date review of scientific work on these plants, much of it done by the authors. It also contains a lot of obscure older references. The photos are remarkable. While not particularly artistic - there are no gorgeous panoramas with these plants, as can be found in other recent volumes, such as Stewart McPherson's *Pitcher Plants of the Americas* - Barthlott et al. provide photos with such lush detail that you can really begin to understand the intricacies of these plants.

This book begins with curious and far-ranging history, that covers everything from the first suspicions of carnivory, to the not-so-subtle sexual innuendo in the binomial of the Venus flytrap, to Charles Darwin, and molecular systematics. After a short digression into distributions and diversity, the authors move on to six lovely chapters on how carnivorous plants make a living: attracting, trapping, and digesting their meals, sometimes with the help of other organisms. After another short digression into conservation and cultivation, the book launches into chapters on each family of carnivorous plant, although the terms "carnivorous"and "plant" are used liberally.

The book is filled with fascinating details. Although Darwin titled his seminal monograph *"Insectivorous Plants,"* many carnivorous plants have diets composed of things other than insects or even other arthropods. Although it will hardly surprise anyone that bladderworts (*Utricularia)* eat rotifers (which curiously do not appear in the index), they also eat mollusks and protists, including algae. Many carnivorous plants eat a fair amount of pollen, with some butterworts (*Pinguicula*) making up 70% or more of their catch in pollen. Barthlott, who has done much work with epiphytic cacti, also highlights epiphytic carnivorous plants. *Utricularia reniformis* can grow epiphytically on tussocks of grass. *Utricularia nelumbifolia* and *U. humboldtii* grow epiphytically in the water-filled rosettes of bromeliads, where they can spread vegetatively from bromeliad to bromeliad, including the carnivorous bromeliad genus *Brocchinia*. Some *Nepenthes* and *Pinguicula* species are also epiphytes, including *P. lignicola*, which only grows on pines. The authors also report some amazing observations about longevity of single flowers. *Utricularia meziesii* in cultivation had a single flower that was open for over two months! If unpollinated, some female flowers of *Nepenthes* can remain viable for several weeks.

This book is, however, not without problems. The authors use archaic terminology. Describing taxa as primitive or advanced, instead of ancestral and derived, carries too much pejorative baggage. Contrary to standard usage for at least a quarter century, the authors consider lichens and fungi to be plants. The authors use the term "precarnivorous" for plants that do not meet all their criteria for carnivory, such as bromeliads that catch and kill insects in cisterns (pitchers) but do not have digestive enzymes, instead relying on bacteria for digestion. This is like saying that termites do not eat wood or cows do not eat grass because they rely on microbes for their digestion. Furthermore, the term precarnivorous is a teleological nightmare in that it needlessly implies that descendants of these plants will evolve what the authors call true carnivory.

The authors assert correctly that carnivorous leaves and (non-carnivorous) flowers use the same mechanisms to attract insects. They then claim that carnivorous plants have tall inflorescences to keep pollinators from being eaten. This is a too adaptationist—and untested. Moreover, the cosmopolitan *Drosera rotundifolia* has relatively short inflorescences.

Disturbingly, this book does not contain information on ISBN, year of publication, place of publication, or information on who did the translation from the 2004 German text. I had to go to the publisher[1]s website for most of this information, although I still could not easily locate the year of publication. Lack of information on the translator is particularly disturbing because of errors in botanical nomenclature (e.g., *Discocactus horstii* absorbs water via spines, not thorns) and failure to detect silly errors, such as in the etymology of *Heliamphora*, and confusion between figures 26 and 27. There is also the odd production maneuver of filling up blank space with uncaptioned repeats of photos that have been used elsewhere in the book. I am not sure if lack of care with production is attributable to Timber Press, the last great independent North American botanical publisher, having been recently acquired by Storey and Workman Publishing. However, such essential information, especially full credit to the translator, needs to be given.

Regardless of these shortfalls, this is a superb book, at a reasonable price, that beautifully covers both biology and horticulture of a group of plants that have fascinated people for centuries.

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