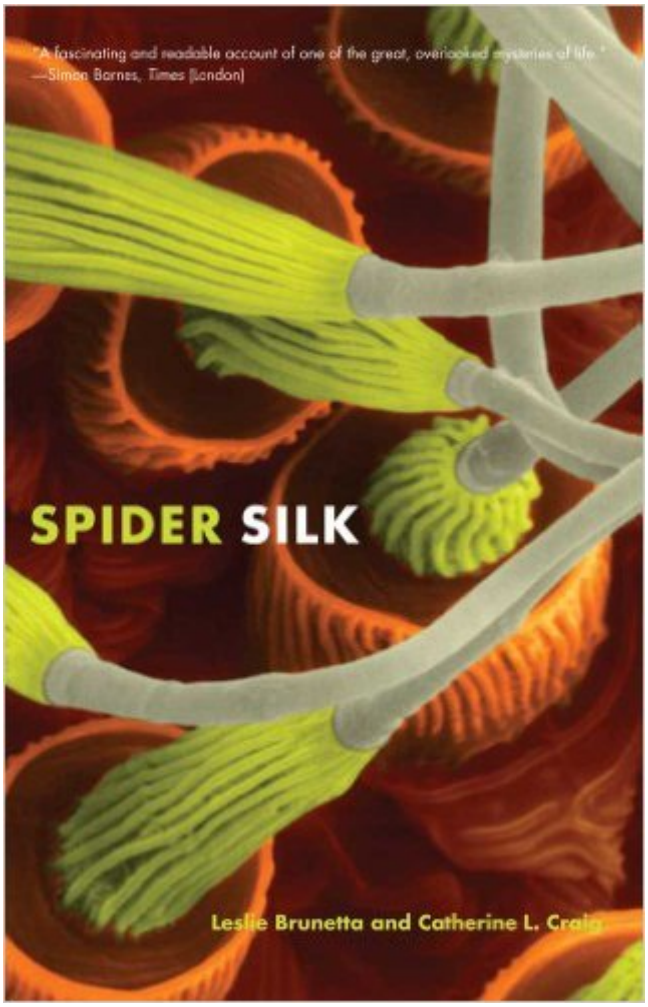
Spider Silk: Evolution And 400 Million Years Of Spinning, Waiting, Snagging, And Mating



Synopsis

Brunetta & Craig reveal how over 400 million years the spider has evolved, adding new silks & new uses for silk to meet the challenges of an ever changing environment. They show how natural selection works at the genetic level.

Book Information

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Customer Reviews

Spiders have terrible reputations. They are blamed (sometimes without reason) for bites to humans and even for human deaths, although such occurrences are rare. But they really do us almost nothing but good, because they keep down the insect populations that would otherwise really bother us. They are also being spotlighted as guides to the mechanics of evolution. That role is highlighted in _Spider Silk: Evolution and 400 Million Years of Spinning, Waiting, Snagging, and Mating_ (Yale University Press) by Leslie Brunetta and Catherine L. Craig. The former is a freelance writer and the latter is an evolutionary biologist who is an authority on silk. Their book is fine as a primer on what spiders do with silk (it isn't just webs), and every chapter has amazing facts about spider behavior or the different properties of the different silks they make. Best of all, though, is that the book gives an arachnologist's-eye-view of evolution, summarizing the ideas of Darwin (and Wallace), Mendel, and even E. B. White (who did a surprising amount of research on spiders and webs for _Charlotte's Web_). It would be an advantage to have some acquaintance with evolution and chromosomes before going to this book, as the introductions to big topics like gene duplication are brisk. Nonetheless, there is surprising light thrown onto many topics via the studies of spiders and

especially of their silks, and the authors display throughout good humor and a keen ability to make specialty topics plain.One of the fascinating parts of this book is that it shows that the radial web is no such pinnacle. We like those orb webs; they are pretty, and appeal to our senses of symmetry and geometric bull’s-eye precision. They are also so obviously practical.

More than just a book about spiders and their habits, "Spider Silk" takes us on a whirlwind tour a hundreds of millions years of spider evolution. The book is just as much about the processes that lay behind evolution- or descent with modifications - that brought spiders from seaside, burrow-dwelling opportunists to precision spinners of a thousand ecological niches. Leslie Brunetta and Catherine L. Craig lay their story out in rough chronological order by telling us about early spiders whose descendants still live among us, largely unchanged. The earliest spiders were segmented, much in the way that their crustacean ancestors were, a morphological feature still seen in "primitive" mesotheles. The quotes are placed because no animal feature can be considered primitive, in the sense of inferior, when it continues to provide survival value. Brunetta and Craig discuss spiders who used silk to line their burrows, then those who branched out to lay silky trip lines, create ground-hugging burrows, then vertical burrows, and then the fantastical airborne webs we usually associate with spiders.The book is as much a paean to evolution and diversity as it is to a particular animal. Spiders happen to exhibit diversity of shape and behavior that is tempting to ascribe to a designer, but which is easy to trace back to earlier models. A spider that spins four kinds of silk is easily seen as a descendant of one that spun three or two or one. Each species is suitable to it habitat, with none being the perfect exemplar of its family. Brunetta and Craig also take us into the world of genetics, giving us a primer on the chemistry of silk and on the way it is produced by the genes. They also do a great job of introducing the layman to the way that genetic errors occur.

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