

Parasites: Tales of Humanity's Most Unwelcome Guests

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Source: BioScience, 61(11) : 927-928

Published By: American Institute of Biological Sciences

URL: <https://doi.org/10.1525/bio.2011.61.11.13>

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host distributions as well as intriguing aspects of parasite biology.

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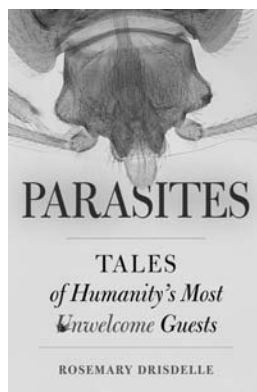
STRANGERS AT THE TABLE

Parasites: Tales of Humanity's Most Unwelcome Guests. Rosemary Drisdelle. University of California Press, 2011. 280 pp., illus. \$18.95 (ISBN 9780520269774 paper).

In her introduction to *Parasites: Tales of Humanity's Most Unwelcome Guests*, author Rosemary Drisdelle, a clinical parasitologist living in Nova Scotia, begins by saying what we all know: that parasites and their influences are often unknown, hidden, ignored, and otherwise unrecognized. Indeed, join two parasitologists for coffee or beer, and you are likely to hear a similar tale of fascinating animals that have somehow escaped recognition. But the author is clearly not content with this state of ignorance, and she uses it as a springboard to launch her mission in this book: "In the pages that follow, I seize the parasites one by one, drag them into the light, and ask, 'What are you and what are you up to?'" Right there, on page 3, is the last time she says much of anything that we all know. This is a book of surprises.

Drisdelle introduces many, if not most, parasites of humans in this book, but she does much more than commandeer a march through medical parasitology. Instead, she is an expert tour guide, sharing her excitement at finding the next unexpected view, the next little-known connection, the next worm, flea, tick, or protist set to make its living on humans—all the while regaling her readers with the stories that swirl around parasites but that are

often left out of textbooks. Therefore, we not only learn about *Trichinella spiralis*, we learn about the prolonged effect of *T. spiralis* on one person who consumed uncooked pork, and we learn about the broader effect of *T. spiralis* on food-safety regulations. We not only learn about the deadly tapeworm *Echinococcus multilocularis*, we learn about how parasites travel, sometimes as stowaways in animals that are themselves smuggled into a country. We learn about the role of



parasites in crime—or in preventing crime—and about their role in world affairs. And we are introduced to that most far-flung group of parasites, sometimes the most devastating of all: those that inhabit the imagination.

Committed to this layered approach, Drisdelle resists the temptation to organize the book along taxonomic or even diagnostic lines. Instead, the themes of her nine central chapters, bookended by an introduction and an epilogue, reflect the stories she tells. One chapter is devoted to the effects of parasites on history, another to parasite immigrants, yet others to parasite emergence and extinction. Not surprisingly, there is one chapter focusing on food and another on water. Within each of these chapters, Drisdelle weaves stories together with remarkable skill. For instance, she begins the chapter on immigrant parasites with hookworms arriving in Jamestown, Virginia, in 1694, carried by slaves. She detours into the pathology associated with *Necator americanus*, which leads to a discussion of its role in the American Civil War. From there, we

are introduced to a broader swath of immigrants and their parasites, ranging from honeybees with mites to reindeer with worms. The flow of her writing reminds us that these parasite–host associations do not exist in a vacuum but are part of a much larger network, and Drisdelle takes care to demonstrate that not all of the connections and outcomes are bad.

From St. Thomas à Becket's lice (impressive even to his "lousy" medieval contemporaries) to modern terrorists who are stopped in their tracks by parasites, Drisdelle's subject matter is interesting enough, but her writing style makes the book even more engaging. She writes humorously, sharing advice that one is not likely to pick up on any street corner (e.g., "If you don't want your intestinal contents analyzed thousands of years after your death, do not defecate in caves." p. 6). In addition, her use of imagery is creative and instructional. For instance, in chapter 3, she asks us to imagine that we are touring a watershed (and a water treatment facility) while perched on an oocyst of *Cryptosporidium*, which evades centrifugation and rises "like a shimmery hot air balloon." She informs us that because of our very small size, we can clear the filtration system—we are "veteran whitewater rafter[s] on a giant [oocyst] beachball" moving through "boulders" of anthracite and sand. If we peer inside the oocyst, we see the sporozoites, which look "like fat sleeping maggots."

In the chapter on food-borne parasites, Drisdelle asks us to examine a fly that has been stopped in mid-air and magnified 500 times. Amid spines and eyes "like the surface of a ripe raspberry," there are "glittering balls," "slightly flattened grains of cooked tapioca"—*Toxoplasma gondii* oocysts. We find all manner of hitchhikers inhabiting the surface of a fly; Drisdelle's narrative is at once disconcerting and skillful, flowing between tapeworm eggs that resemble golden-brown marbles and the biological backstory that reminds us of fecal

doi:10.1525/bio.2011.61.11.13

contamination, which is the ultimate source of those marbles, that tapioca, and the serpentine nematode hatched from yet another egg.

Drisdelle has written one of those rare books that is fun to read but does not skimp on scholarly rigor. Both the chapter notes and the selected bibliography are detailed; together, they make up almost 30 pages of the book. It is a treasure trove of anecdotes, not to mention novel perspectives, that professors of organismal animal biology will find invaluable in their teaching. It is also a fabulous auxiliary text for courses about parasitology or public health.

The word *parasite* originated as a Greek term for someone who eats at someone else's table, often without payment. We have all had unwelcome guests in that sense. Some of those folks whose visits we have endured might have been more welcome were they half as interesting as the guests we meet in *Parasites: Tales of Humanity's Most Unwelcome Guests*.

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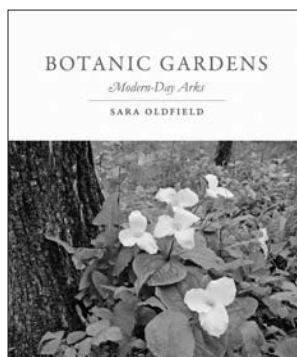
GARDENS IN DEFENSE OF THE PLANT KINGDOM

Botanic Gardens: Modern-day Arks. Sara Oldfield. MIT Press, 2010. 240 pp., illus. \$29.95 (ISBN 9780262015165 cloth).

Since the 1980s, botanical gardens (*botanic garden* is a variant more frequent outside North America), like zoos, have become increasingly active in conservation efforts. And rightly so, because these institutions often harbor critical expertise and practical experience in taxonomy, plant geography, seed biology, and plant propagation. The role of botanical

gardens is all the more important now, because traditional organismal botany departments are disappearing from many universities. One could argue, in fact, that botanical gardens derive the reason for their existence from a diverse natural world; therefore, they ought to make their primary function be the survival of biodiversity in the wild—as a matter of both principle and practice. Once, gardens had the luxury of restricting their focus inward while assuming that the natural world of plant diversity was safe outside their walls. Today's extinction crisis and the effects of global climate change tell us that this is no longer a tenable or acceptable assumption.

Botanic Gardens: Modern-day Arks depicts the critical role that botanical



gardens can and do play in plant conservation by profiling the work of particular gardens as examples. Between a brief introduction to the plant-extinction crisis and a concluding overview of future environmental challenges, the book offers beautiful pictures and describes programs in Europe (four gardens), Asia Minor (one garden), North America and Hawaii (four gardens), South America (one garden), Asia (two gardens, including a program that is a network of sites), Africa (three collaborative programs that include multiple sites), and Australia (one garden). Although the text presents excellent examples that are wonderfully illustrated, it lacks a deeper analysis of whether this garden network is sufficiently prepared—in geographic locations, facilities, or funding—for the enormous task at hand: that of plant species conservation.

Although a botanical garden staff member might want greater depth in this book, the audience for *Botanic Gardens* is a different and important one: The book speaks to the general public and to conservationists not yet aware of the crucial role and the potential of gardens. Other botanical programs are mentioned among these 16 profiles, but author Sara Oldfield's approach is not to analyze the entire botanical garden effort but, rather, to illustrate the development of the work underway using specific examples. At times, particularly from the point of view of a North American, this approach feels too abridged. For instance, the Center for Plant Conservation (CPC) is mentioned only within the context of three gardens, but the CPC is an integrated network of 36 gardens in the United States whose efforts in plant conservation exist on many levels, including connecting gardens to federal land managers and conservation organizations, developing funding for member gardens, and promoting public education. The CPC network is an excellent model for the kind of work that this book is promoting. Although similar networks in South Africa and Asia are described, the CPC is not given the same direct treatment as those. In a text box, the idea of the National Collection (the CPC's term for the germplasm samples of critically endangered species) is mentioned, but without reference to the organization itself. Perhaps this oversight reflects only that the author's perspective is more international in scope—Oldfield is secretary general of Botanic Gardens Conservation International and chair of the International Union for Conservation of Nature's Species Survival Commission's Global Tree Specialist Group. She has also worked for the United Nations Environment Programme's World Conservation Monitoring Center.

As *Botanic Gardens* makes clear, the threats that we face will be measured in decades, if not centuries, and these modern-day arks must preserve more than one male and one female of each species; complete genetic samples are required. These genetic collections must

doi:10.1525/bio.2011.61.11.14