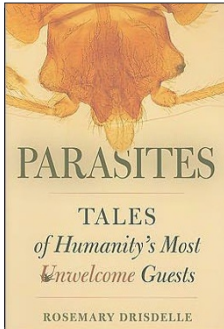


BOOK REVIEW

Our history with parasites



Parasites: Tales of Humanity's Most Unwelcome Guests

Rosemary Drisdelle

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Reviewed by Thomas B Nutman

Parasitic infections are caused by unicellular protozoa or multicellular helminths (worms), organisms quite distinct from viruses, bacteria or fungi. The global prevalence of parasitic infection probably exceeds that of any other type of infection. Parasites have characteristically been the special healthcare problem of resource-limited regions of the world, where the extreme prevalence of parasite-driven diseases such as lymphatic filariasis and trypanosomiasis imposes major medical and socioeconomic burdens. The importance of parasite-mediated diseases has received additional emphasis with the emergence of *Toxoplasma* and *Leishmania*, among others, as opportunistic pathogens in HIV patients. Further, with population shifts due to economic hardship and political unrest coupled with the ease of international travel, parasitic infections are no longer solely the domain of those living near the tropics and subtropics.

Superimposed on the changing parasitologic world map is the general disgust people have with things parasitic, these organisms being fodder for nightmares. Although often visualized as singularly squirming creatures, parasites are evolutionarily diverse and certainly not 'one size fits all'. It is this biologic complexity and the context in which parasites fit into our social and cultural history that is addressed in Rosemary Drisdelle's book *Parasites: Tales of Humanity's Most Unwelcome Guests*.

The book is loosely organized into thematic chapters that range from parasites in history to the role of parasites in subverting food and water safety to how parasites have been used to implicate felons (so-called 'forensic parasitology'). The author makes her way from biblical times to the present day and, in so doing, provides interesting vignettes showing how parasitic infections have provided a window into our social and cultural fabric. Whether it be the unintended consequences of building a dam in Ghana leading to widespread schistosomiasis caused by parasitic flatworms or the detrimental effects of malaria on the health of soldiers in many of the wars of the nineteenth and twentieth centuries (from the American Civil War to the Vietnam War), Drisdelle offers a compelling argument that parasites can alter both local customs and global outcomes. When, however, her discussion becomes a bit more speculative—such as when she suggests that a parasite-mediated nutritional deficiency was

responsible for the British explorer James Cook being uncharacteristically cruel to his crew and inhumane toward the natives of several South Pacific Islands, or that the effects of a *Toxoplasma gondii* infection on the central nervous system might have been responsible for tennis player Martina Navratilova's altercation with a photographer at the US Open in 1982—Drisdelle's arguments seem less compelling.

Written for a broad audience, the book provides insights into parasites and parasitic diseases based on primary sources (both historic and scientific). We are told, for example, in a very insightful chapter entitled "Illegal Aliens," about the many parasites introduced into the New World by settlers and through the slave trade. Indeed, the introduction of *Necator americanus* (one of two human hookworms), *Schistosoma mansoni* and *Onchocerca volvulus* (the causative agent of river blindness) to the Americas from Europe and Africa provides a framework for an understanding of how organisms establish themselves far from their continent of origin. Even more interesting were the discussions of a parasitic mite (*Acarapis woodi*) of the honeybee introduced to North America from Asia and the reindeer parasite *Elaphostrongylus rangiferi*, which stowed away within reindeer introduced to northern Canada in 1907 and caused a serious outbreak in caribou 60 years later. The notion that inadvertent migration of parasites when introduced into new environmental niches can have profound and long-lasting consequences is a theme that resonates throughout the book.

This book succeeds when providing well-documented explanations for particular problems. The most informative and authoritative discussions of the book relate to how parasites have subverted food and water safety. Using examples that range from *Trichinella*-laden pork used to make sausages to *Cyclospora*-contaminated fruits imported from Guatemala to a *Fasciola* (liver fluke) outbreak in France associated with contaminated watercress to *Anasakis simplex*-mediated human disease caused by ingestion of raw fish, the author provides insights into concerns about the globalization of food distribution. Perhaps even more intriguing was the account of drinking water contamination not only in remote areas of the world with poor sanitation but also in relatively pristine areas where water can be contaminated by animals infected with human parasitic pathogens such as *Giardia lamblia* or *Cryptosporidium* species. The fact that a number of waterborne protozoa have caused outbreaks of serious disease in municipal water systems of highly industrialized nations points to the highly evolved nature of many of these parasites.

Although the strength of this book lies in painting the parasitic landscape in broad and interesting strokes, its meandering from one parasite to another often feels like a laundry list of disparate organisms. Yes, they are all parasites, but, apart from having a similar classifier, is there something that distinguishes them from other nonparasitic organisms? What is missing, I feel, is insight into the nature of parasitism. Nevertheless, the anecdotes used to demonstrate the essential properties of parasites and their impact on humans are both illustrative and entertaining. Although written as a book for the general public rather than the scientific community, those not familiar with parasites and the diseases they cause will certainly gain insight into these organisms and how they have influenced our lives.

COMPETING FINANCIAL INTERESTS

The author declares no competing financial interests.

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