The Tropical Bookshelf

A Passion for Parasites

To know Dickson Despommier is to know his love of parasites. Despommier's academic text on parasitic diseases (co-edited by Robert Gwadz, Peter Hotez, and Charles Knirsch) is now in its 5th edition. In 2010, the long-time professor at Columbia University's Mailman School of Public Health tackled something new in *The Vertical Farm: Feeding the World in the 21st Century*. Now he's returned to his first love, and—like a chef creating a fine sauce—has reduced years of teaching and research into a toothsome tome for general readers.

Okay, so it's not really a "tome." *People, Parasites, and Plowshares—Learning from Our Body's Most Terrifying Invaders* is barely 200 pages, but those pages are indeed packed. Featured creatures include Trichinellae, hookworms, trypanosomes, schistosomes, lymphatic filariae, *Toxoplasma*, geohelminths, tapeworms, and Dracunculus.

In his final chapter, Despommier serves up something different: poignant narratives depicting 1) a cluster of African men plagued with river blindness; and 2) a Chinese boy who develops sparganosis following treatment with a frog poultice. Both recreated scenarios are springboards for discussion around past, present, and future development of antiparasitic pharmaceuticals.

Despommier's writing is conversational and fun. He quotes Mark Twain and shares "inside" stories (did you know, for example, that Yul Brynner once contracted trichinellosis at a restaurant in New York and later banked a hefty sum for his *tsouris*?). Despommier also pays homage to early giants of parasitology and the late Robert Desowitz, a superb spinner of parasite tales known to many ASTMH members.

In some cases, the book segues from parasitology to global health. If only Guinea worm eradicators had installed hand-pumps next to step-wells (and thus provided truly safe drinking water), its author muses, think of the diarrheal deaths that might have been averted. And then there are the fascinating historical vignettes.

In the opening chapter of *People, Parasites, and Plowshares*, Despommier chronicles the original sighting of *Trichinella spiralis* in human tissue. In 1835, James Paget was the curious medical student who first excised a tiny piece of "sandy diaphragm," then—using a hand lens—spied coiled larvae in its muscle. Sadly, Paget did not receive much credit for the find. Why? Paget's professor (a man deliciously named "Wormald") quickly rushed another snippet of diaphragm to Sir Richard Owen, who presented the discovery to the Royal Society.

Nonetheless, the meat of *People, Parasites, and Plowshares* is modern parasite biology, whether Despommier is describing how Trichinellae nest in nurse cells—or hookworms penetrate

intestinal mucosa and discharge anticoagulant—or African trypanosomes cycle their variant glycoproteins—or schistosomes acquire surface molecules that allow them to adhere to host tissue. Then, at the end of each chapter, the author returns to his "uber-message." Probing the ways of parasites, he asserts, can yield major dividends in human health. That's the plowshare part.

Why, for example, are fewer people afflicted with allergies and autoimmune conditions in places where geohelminths abound? And if schistosomes bearing beta 2 microglobulin can "don human clothing," so to speak, how might their strategies aid efforts to transplant animal cells and organs into humans? These are just two of many questions raised in *People, Parasites, and Plowshares*.

A sense of wonder also weaves through the work. "What happens next is pure poetry from the parasite's perspective," Despommier says of a *Toxoplasma* tachyzoite entering its host cell. "*T. gondii* glides in . . . and is accepted as if it was some long lost relative who just showed up on the doorstep." He then likens the messenger peptide IL12 to "the poison apple that puts the parasite to sleep."

Some lay readers will see ecology in a new way as Despommier describes how *Toxoplasma* oocysts from feral cats on California's eroded northern coastline have recently infected and killed sea otters. The principal casualties are otters who eat marine snails on a regular basis as opposed to now-imperiled abalone.

Simply put, *People, Parasites, and Plowshares* is a rich, fulsome feast. It is also a gift to tropical medicine. If, as William Campbell writes in the book's Foreword, "... parasitologists sometimes worry that they are becoming an endangered species," one thing is sure. This book should "chemo-attract" many new enthusiasts.

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