

The cholera introduced in 2010 remains an ongoing health problem today. It took years for the United Nations to admit even qualified responsibility for the Haitian cholera epidemic. Having done so, officials have refused calls for compensation for the epidemic's victims. But then, as we learned during the West African Ebola epidemic in 2014, WHO—the United Nations' health agency—has been continually strapped for funds and its resources repeatedly pruned through years of budget cuts.

Here the problem was complicated by the fact that the source of the epidemic was a group of UN peacekeepers, dispatched to the island for humanitarian service after the earthquake. Investigation of their apparent culpability revealed, over time, broader problems with UN peacekeeping sites. In 2016, United Nations auditors reported that “poor sanitation practices remained unaddressed not only in its Haitian mission but also in at least six others in Africa and the Middle East” (Gladstone 2016). Haiti became an example of what happens when the best of peacekeeper intentions are undermined by basic infrastructure failures. As Frerichs implies in his writing on Snow and cholera, then and now, the Haitian epidemic echoes the nineteenth century understanding of sanitation infrastructure as a crucial barrier to disease transmission.

## COMPLAINTS

Frerichs's authorial style is academic, and while that suits a part of his story, it doesn't quite contain the political and social messages he seeks to convey. As a result, there is a tension in the writing between the nuts-and-bolts story of the investigation and his outrage at the obfuscation of the environmentalists and of the United Nations officials who did not want to admit responsibility.

It is unfortunate that the text refers to, but does not include, most of the plethora of maps that were distributed by WHO, PAHO, and the US Centers for Disease Control and Prevention during the epidemic. Nor do we see those created by Piarroux and presented in his discussions with Haitian and other international agency officials involved in combating this outbreak. Worse, the few maps that are included are of uniformly low quality and in some cases barely legible. It should be noted that the illustration accompanying this review is *not* from *Deadly River*, but from a different paper by Frerichs and Piarroux.

While the quality of the maps in this book is lamentable, the author has, “independent of the publisher” (xi), provided web-based resources where some of the maps and other images central to the book's theme can be found: [www.deadlyriver.com](http://www.deadlyriver.com), and, more specifically, [www.deadlyriver.com/mmmaps.html](http://www.deadlyriver.com/mmmaps.html) (note the double m). The first is a general website for the book, and the second is a collection of bi-annual maps of UN camps in Haiti, 2004–present, with UN Security Council reports of Haitian activity.

Frerichs's repeated references to John Snow and the history of mid-nineteenth century cholera debates does resonate at some level here, but, again, it is easily overstated. There were, as I have argued elsewhere (Koch and Denike 2009), good reasons for Snow's contemporaries to question his findings, but there is no doubt, in this reading, that in Haiti environmental explanations did not serve and that Piarroux was correct. That said, the story of how critics, then and now, disputed the evidence of field epidemiologists and their evidentiary maps joins the nineteenth- and twenty-first-century stories.

Frerichs's narrative could have been effectively broadened with the introduction of some more general contextual material. The British geographer Peter Haggett has produced many books—for example, *The Geographical Structure of Epidemics* (Haggett 2000)—that would have served as useful models. Haggett is a master of making the technical seem simple and demonstrating the means by which maps and statistics together can uncover an epidemic's secrets.

This is not a great book. It is, however, a very useful one. The story it tells is important, and in the epidemiological unfolding of a disease study Frerichs is an old hand, a professional. Too, *Deadly River* is a reminder that even “scientific” work occurs within contexts that are at once political and social; to ignore that is to miss the greater story. And, of course, here is a book in which maps are a tool of choice successfully deployed by heroic researchers. For cartographers, the book sets modern disease events in a spatial frame they will appreciate, and, too, it might encourage some to develop the necessary expertise to apply their mapping to disease studies.

In an era of rapidly evolving infectious diseases, that end would serve us all.