

Book Review

What if it were not the custard cream that did for them?

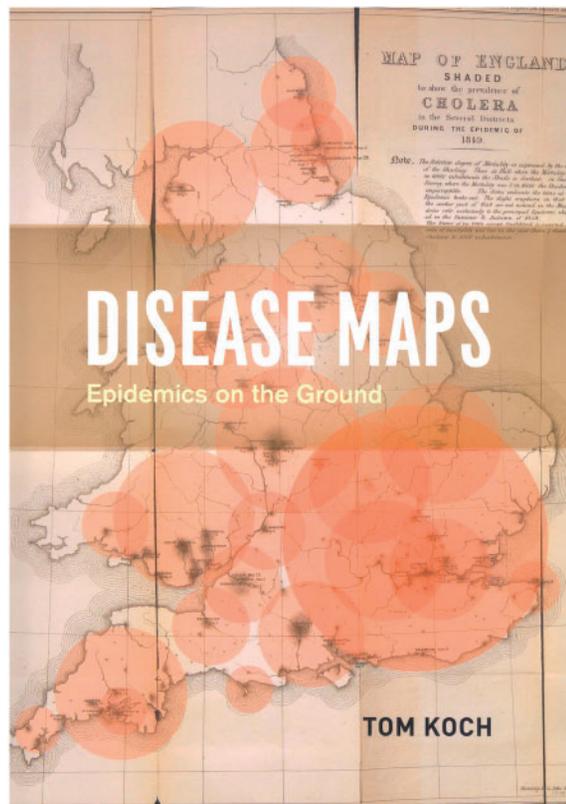
Disease Maps: Epidemics on the Ground. Tom Koch.
Chicago: University of Chicago Press, 2011, pp. 344, \$45.00, ISBN:
9780226449357.

Tom Koch's book is a work of art that lovingly brings together hundreds of contemporary computer-generated and historical line-drawn maps to tell a tale of disease. Beginning by outlining the parallels between the developments of analytical cartography of the city and scientific anatomy of the body, *Disease Maps* is an attempt to link Geography and Medicine, playing up the importance of images: 'For centuries the map has been a mechanism by which the rolls of the dead and the dying became shared realities whose relation to local environmental conditions could be assessed' (p. 2).

The author himself says that his central argument is that we need to think about visualization, about 'seeing' at every scale (p. 4). To do this he tells numerous stories with maps and stories about maps. Most of these stories have a common format. They concern the cartographic search for the source of a particular disease. Early on in the book the disease is an outbreak of *Salmonella enteritidis* in British Columbia in the year 2000 and the source is traced back to a cream custard:

In the Vancouver example the patients were blameless and responsibility assignable in part to the local bakery whose cream custards were the apparent source of the outbreak. But the local baker brought supplies from wholesalers and they carried a predicate responsibility. Ultimately, the final responsibility rested with the hospitals that treated the patients and the health agencies that in theory but not always in practice assure restaurants and food producer practices are safe. (p. 29).

I have no quibbles with the arguments against blaming the victims, or against seeing us all, through the agencies we fund and the hospitals we support, as being responsible, I have great admiration for the amount of work that has gone into documenting the stories behind so many maps and outbreaks in this book, I find Koch's arguments that there are no real heroes of great use, but I have a concern. What I am concerned about are the custard creams (which may have been vanilla slices—it is a bit lost in translation). The problem is, for all the beauty of these maps, in almost every case there is very little evidence



that the map was used to identify the causes of each outbreak.

In the case of the custard creams the health officials only 'tentatively identified that bakery as the origin of the outbreak' (p. 25). Why did they even do this? They did it because they were presented with a crude dot map, with a little spatial smoothing applied to the dots to suggest the bakery was near the place of greatest disease density. Officials then look in that place and, given their knowledge of the transmission at the time, finger a possible source. A few centuries ago it might have been a witch rather than a vanilla slice. Unless the cream custards are tested and found to be carrying the vector, all is pure speculation.

Disease Mapping does provide a wonderfully lucid history of graphical anatomy and human cartography developing side by side, of germ-theory spreading and of people learning, but it perpetuates the myth of map as microscope. A very large part of the book

concerns the most celebrated case of all, John Snow's removal of the pump handle in Broad Street, Soho, England. Only at one point does Koch report that 'England's first great authority on microscopy, Arthur Hill Hassall, who examined the water from the Broad Street pump for the Board of Health inquiry, declared it "relatively bereft of microscopic animal life" that might be identified as a contaminant...' (p. 209). Labouring this point would not help the book's overall argument, so it is not laboured. Similarly, although the author does look in a little more detail at Snow's data with techniques using rates, he concludes: 'Because these techniques were not in wide use in Snow's day they are not used here, with the exception of risk ratios, whose utility is so great it seemed wise to present them without dwelling on their significance' (p. 303, note 9).

The author makes what I think are mistakes when suggesting that Snow worked out an average rate of 3.83 incorrectly (p. 153). Snow in this case was right and Koch wrong. Snow might have added up some numbers incorrectly at this point, but had he not made that mistake the rate would have been 3.84. It is not an issue. Koch does find that his hero maps different numbers of deaths on two of his maps, in different places. This is far more serious a find than his reported rate of 3.83 possibly being 3.84 but is relegated to footnote 3 on p. 301.

Just as in Monty Python's *The Meaning of Life* (part 7), only Death himself could identify the Salmon Mousse as the culprit. It remains an error to suggest that these disease maps did point the finger well enough to identify the source. There has been disease mapping that has sought to do a better job of cluster identification, including for Salmonella and Cholera. The maps from 1910 on p. 227, those of Hunter and Young's from the 1970s referred to on p. 228, or Howe's of the 1960s were all redrawn at the times using cartograms, on an equal population basis, to try to not make the custard crême errors, but this aspect of the history of disease mapping is ignored in this book. It does not fit the story.

It would be wonderful if, in a future edition some of the early disease mapping cartograms of Iowa, of Salmonella and cancers, of cholera and flu, Hunter and Young's projections and Howe's were mentioned. There also remain a number of less important errors

that are most probably the publisher's fault and which could also be rectified. Publishers tend to write the blurb on book jackets. The last sentences on the inside cover of the book jacket ends '...only in maps do patterns emerge that allow disease theories to be proposed, hypotheses tested, and treatments advanced'. That is the way to raise a wry smile from knowledgeable epidemiologists, the majority of whom never use a map, but it does not add to the credibility of the book.

There are other irritants that I suspect are also more about the production than the writing. Sometimes a detail in colour plate is enlarged (p. 44 of part of p. 43, p. 178 of part of an image on p. 177), but when this is first done the publisher forgot to enlarge the inset (p. 33 is drawn to the same size as p. 32). The English is, of course, American, but this does result in words about old London streets such as 'mews' being altered to 'news' (p. 204). It may be over-enthusiastic copy-editing, but copy-editing which did not spot that both the blue and red shades in the key of one of the first figures in the book (p. 17) are labelled with the same dates, or that % in the map on p. 236 should be ‰. Or that the last sentence of the book on p. 279 is simply not clear English.

Despite my complaints and concern over the propagation of possible myths, this remains a great work of scholarship, albeit one that also reveals fallibilities although often reporting them. But it is extremely well presented. You know that feeling when you pick up a book and it feels right, weighs right and smells right! Well, Chicago Press have certainly printed it beautifully and, regardless of my quibbles, there is nothing else that competes as well out there. It is also of interest to a wide readership, which is why I was asked to review the book for both an Epidemiology journal and one concerning Cultural Geography! This is the best book on disease mapping in print today. Its next edition could be even better.

DANNY DORLING

E-mail: danny.dorling@sheffield.ac.uk

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