media, attention work is a key aspect of a culture of action for building solidarity.

In the fifth Chapter, "Quantification: Counting on Location-Aware Futures," Wilson takes up a recurring theme in Critical GIS praxis. Quantification dominates debates on positivism's influence in geography, on efforts to advance a Qualitative GIS, and on the data models that prevail in GIS practice. In this regard, Wilson also discusses what he terms the *quantified self-city-nation*, drawing attention to the relationships between the idea of "smart cities and smart societies" and of personal quantification via the tracking of personal metrics with wearable devices. In this, the interdependence of scales is significant; the smart city is about controlling the individual, but control is dependent on voluntary individual quantification. Following from earlier discussions of the attention economy, he examines marketing around smart cities and wearable technology. Wilson discusses the interplay of what he sees as three *dualities*: interoperability–propriety, competition–habit, and fashion–surveillance, in the context of a *quantified self-city-nation* wherein mass collection of metrics on individuals constitutes a "neoliberalizing vehicle for reterritorialization of the body, the city, and the nation" (126). He considers the proliferation of quantification of proximity (citing an example of AT&T collecting location information for market research) and the ambiguous line between fashion and surveillance (the third duality) when it relates to the increase in sensors in our daily lives and on our bodies. At the chapter's close, he re-conceptualizes the map through the dualities, as an object of interoperability and propriety, competition and habit, fashion and 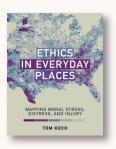surveillance. "The digital map that guides us toward consumptive opportunities in our neighborhoods both creates and safeguards these neighborhoods" (132).

The great strength of this book is the manner in which the author re-situates familiar Critical Geography arguments and histories with mainstream topics—social media, spatially enabled society, and digital surveillance—and with theoretical considerations from well beyond the discipline. Maps and GIS are powerful, and spatial technologies have been a transformative force, but the broadly dominant positivist approach has failed to account for and engage a wide range of their significant effects on people and societies. I found a striking criticism of positivist mapping in the opening paragraphs of the closing chapter: "The force of [Robinsonian] thought simply does not take maps seriously enough" (136).

New Lines: *Critical GIS and the Trouble of the Map* reinvigorates some of the discussions that GIScience scholars have debated for decades by presenting material that is substantial without being impenetrable. I would recommend this book to anyone studying GIScience, and especially to those interested in GIS and Society, though Wilson's discussions are also relevant to the GIS community at large. It may also appeal to those interested in the digital humanities, particularly humanities GIS. This book challenges everyone who usually deals primarily with the technical issues of GIS to more carefully consider the impacts of these technologies on society; I know it challenged me.

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ETHICS IN EVERYDAY PLACES: MAPPING MORAL STRESS, DISTRESS, AND INJURY

By Tom Koch

MIT Press and Esri Press, 2017

288 pages, 34 maps, 10 tables, 7 graphs, 14 diagrams, $35.00, hardcover.

ISBN: 978-0-262-03721-1

Review by: Daniel G. Cole, Smithsonian Institution

I read *Ethics in Everyday Places* after finishing the third edition of Mark Monmonier's *How to Lie With Maps*. While Monmonier's book is geared toward a general audience, Koch's work focuses more specifically (although not exclusively) on cartographers, and on mapping as "the medium for ethical exploration" (xii). He cautions: "Readers who are looking for an easy fix, a straightforward, uncomplicated ethical rule, or an inflexible moral standard will be disappointed" (xv). Koch also points out that "This is a

book about ethics and morals as understood through maps and what they say" (xvi). This review shall look at how the author uncovers these often-ignored dilemmas, and exposes them to examination.

In the first nine pages of Chapter 1: "An Ethnography of Ethics," Koch undertakes a philosophical discussion on ethics, moral stress, distress, and the moral injury that can result from actions taken. He addresses the quandary faced by many people in different professions who find that doing their jobs or "just following orders" results in moral injury, or even in loss of life. This problem, he points out, is not limited to any one field, and he questions the grounds upon which we may empower our consciences to guide us in our work as well as in our lives.

Koch begins his cartographic examination with a section entitled "Map Talk," where he writes that maps are just "a kind of talk" (10) and, as such, they use their particular language to say some things and to leave others unsaid, by means of what is shown versus not shown. Understanding maps as a kind of talk explains how maps are supposed to be simultaneously objective and persuasive, a dichotomy that can lead to the sort of quandaries that arise "when you've done everything right but know you have done something wrong" (1). The goals and scope of the text are established early on: "This is neither a book about cartographic ethics nor a learned treatise on the limits of knowable truths. It is instead an attempt to investigate problems arising at the intersection between sets of conflicting expectations and standards governing personal practice, professional ideals and social policy" (11). Maps are the principle medium in the author's investigation because, he writes, they are "a way to see all this philosophy in action" (10).

In Chapter 2 ("Ethics, Geography, and Mapping: The Failure of the Simple"), the author begins by examining quandaries inspired by his experiences at the 2005 North American Cartographic Information Society (NACIS) conference. He is particularly interested in the concerns that attendees voiced surrounding the subcontracting of cartographic and printing work overseas, and he sees a conflict between "an economic ethic whose bedrock presupposition made gain their sole objective," and a professed "morality of community and social good that extended beyond personal benefit" (23). Koch then turns to the popular NACIS Map-Off competition, where contestants presented maps created within five days in response to an

assigned theme (in 2005, it was Hurricane Katrina). The worst submission, in Koch's opinion, was not only poorly designed, but, it transpired, was not even produced for the Map-Off: it had been a newspaper job assignment some weeks earlier. Of this situation, Koch asks: what are the ethics of fair engagement (that is, of competition rules)? The author also notes that all of the maps failed to take account of the mapped situation's complexities. What, he asks, are the ethics of mapping this hurricane while "ignoring the history of recurrent gulf hurricanes [and] repeated reports" of inadequate levees (24)? Shouldn't these maps have taken into account the abundance of information available on the inevitability of the disaster due to foreseeable interactions between known hurricane paths, inadequate levees, and an over-reliance on cars for evacuation?

Later in the chapter, under the heading "Moral Philosophy," Koch names and discusses four major ethical approaches: consequentialism (utilitarianism), rule-based ethics (deontology), virtue ethics (Aristotelian), and moral realism (Jamesian pragmatism). He then posits that, "for the average mapmaker, ethics is primarily deontological" (32), in that not only do "they have an obligation not to steal another's work," but they are also "expected to tell the truth as best they can" and not "manipulate data in a manner that is self-consciously untruthful" (31). However, he notes, all maps lie due to abstraction and generalization, despite the upright cartographer's intentions to be as objective as possible. Near the end of this chapter, Koch states that, "One must look at actions *and* consequences, rules *and* results, in evaluating a map (or story or statistic) and our responsibility for and to it" (34). Further, he writes, we must serve the public, rather than just our employers or ourselves.

Chapters 3 and 4—"The Tobacco Problem," and "The Morals of the Map: Stress and Distress"—are derived from Koch's paper in *Cartographic Perspectives*, "'False Truths': Ethics and Mapping as a Profession" (2006). The third chapter starts with the potential problems arising from mapping long-lived tobacco smokers. Consider the cartographer who creates a "false truth" by using only a portion of a data set to produce a map that suggests longevity results from tobacco use: is that cartographer simply a mindless drudge, or are they complicit in the falsehood? By way of illustration, Koch considers the career of Arthur Robinson and the ethics of Robinson's cartography. Robinson was, clearly, a great cartographer and teacher,

but one who was grounded in military cartography, and whose cartographic "ethics . . . began and ended with the resulting maps' military utility" (43). He did not ask his subordinates, or his students, to think about the ends to which their maps would be used, or to question the data they were asked to map—because for him, it was of no concern. Joe Bryan and Denis Woods' book, *Weaponizing Maps* (2015) deals with just this issue, and covers pertinent, additional ground.

At the start of Chapter 4, Koch describes the scenarios he has employed to engage students in the ethical challenges of persuasive mapping. One of the problems these scenarios addressed was the choice between earning a living or forgoing wages for some "higher" principle. Many of the students would become distinctly uneasy after being asked to consider that statistics are frequently partial, or at least incomplete, and that facts may be biased. Nonetheless, Koch would pointedly ask that, if maps can kill, or can at least contribute to killing—as noted in the promotion of "a smoking campaign targeting seniors" (58) or as part of a military mapping operation—what does it mean for the job at hand?

Koch also describes how he, on one occasion, organized a debate on the Tobacco Problem (from Chapter 3) at a mapping medicine seminar at the University of Regina, one that resulted in a wide variety of responses and a great deal of sometimes-heated discussion. In discussing the question of whether data were always neutral, he also described to the seminar the use of "redlining" maps in the 1930s to delineate and classify neighborhoods based on economic indices. Subsequently, these ostensibly objective maps—created to further public good—were used to entrench racial discrimination and economic division through denial of loans for homes and businesses in the redlined areas.

> Here we have at least three ethical imperatives in conflict. The first assumes racial equality is the issue and that redlining violated its promise. The second is purely economic or at least business based. Banks are obliged to do whatever is needed to maximize their returns for shareholders. If African Americans or any other groups are a poor financial risk, well, numbers don't lie: too bad for them. Finally, there is the question of the role of the government and the

manner in which it enacts its moral suppositions. (62)

This neighborhood classification, which some commentators have pointed out served largely to *create* the conditions it supposedly reported, resulted in what could be characterized as "ethically bad maps, albeit well drawn" (62). Koch finishes the chapter with a quick note on the number of books available on lying with both statistics and with maps, with the point that there is no great trick to choosing a scale, projection, dataset, and classification scheme to make a persuasive map proving any point one wants.

Chapter 5 starts with an examination of the ethics and morals of mapping poverty and disability. There are a great many ways of measuring these subjects, and there are a great many ways to map each of those different measures. Each can be justified on grounds of "objectivity," but their validity as a characterization of the situation is undermined by the fact that they are often presented in isolation from the contextual complexities that give them meaning. Koch examines a number of maps and data sets of United States and world poverty and inequality, and finds that they all fail to do more than trigger "a kind of moral unease without an imperative to act" (93). There is no imperative, because the maps do not illuminate the "context in which collective responsibility is demonstrable" (93).

"An Education Example" is the sixth chapter, and it starts with an examination of school funding maps for the New York City area. A legal challenge that sought redress for, and prohibition of, discriminatory funding practices provides the stage for reviewing a number of maps prepared from the wealth of available economic, geographic, and social data. Despite the shortcomings of the various maps, including missing data and irregularities in data compilation, they do illustrate unequal educational opportunities, and Koch's follow-up graph and table for 2016 indicate that moderate funding improvements were made. The New York City lessons are then applied to a similar, long-standing situation in Buffalo, New York. Koch concludes the chapter with a section on Supply-Chain Ethics, where poverty leads to ill health and underfunded schools, with predictable failures of education and other opportunities. The author writes that, "as cartographers . . . we usually ignore the ethical supply-chain that carries the links of cause and effect to individual outcomes or specific circumstances" (114). He goes on to say that this results in

tunnel vision, and an inability to link one dataset to another—a situation that begs for a holistic mapping that would allow a more complete picture to be seen.

Chapter 7, "Mapping Injustice as Transportation," opens with the refusal of Rosa Parks to accept segregation on the buses in Montgomery, Alabama, and goes on to discuss transportation accessibility. Koch offers an image of the 1933 London Underground map, which, alongside its successors around the world, hints that accessibility is limited to those who can handle stairs and walkways, especially when the elevators go out of order. He proceeds to proactively redesign the London transit map to show only the wheelchair-accessible stations, reducing the number of nodes in the system by two-thirds. Both of the London Underground maps—the official one and Koch's limited access version—are "objective," but each operates under different assumptions. The question then becomes: is the level of service available to wheelchair users commensurate to that afforded the non-disabled? Koch's map suggests that it is not.

Chapter 8, "Ethics and Transplantation," deals with organ transplants and addresses the unethical practices of "organ tourism" and "premature harvesting." On page 140, Koch presents a map, produced by the United Network of Organ Sharing (UNOS), dividing the United States into the eleven districts it uses to administer organ registration and distribution. But he then points out that it ignores many substantial, related issues, such as the lack of rural access to transplant hospitals, and the often-prohibitive cost of transplantation that is borne by the patient. In response, he offers his own map—with an odd thematic color order and a strangely disjointed slice of southeastern Alaska placed to the west of the rest of the state (which is itself in a different projection)—showing heart transplant waiting times, with point locations of transplant hospitals categorized by the number of transplants performed. This map, unlike the UNOS map, brings to prominence the 11 states that in 1999 had no transplant hospitals at all. He points out, too, that socio-economic inequities "were and are inherent in the US graft organ system of collection and distribution," (148) and that these are tied to ethnicity and race, but admits that no national-level data are collected on this. Koch finishes this chapter with three tables of organ donations and recipients in Buffalo, New York City, and Los Angeles, broken down by race and ethnicity. In summary, he states, "the ethics of graft organ transplantation

are enfolded in the greater issues of inequalities of income, education, and healthcare" (157).

Koch uses an "ethical-moral equivalent" of Tobler's First Law of Geography—"The closer we are geographically to those in need, . . . the more we are called on to help" (162)—to open Chapter 9, "The Ethics of Scale." Writing about the maps in Michael Kidron and Ronald Segal's *The State of the World Atlas*, Koch notes that it has gone through nine editions since 1981, but that in that time it "has not provoked an international movement to disarmament, income equality among nations, or an international fight against poverty" (166). This is largely due, he writes, to the way matters of scale interact with our sense of involvement and responsibility. He notes the problem North Americans have empathizing with the poor of smaller countries (such as Bangladesh and Haiti), especially when mapped at a world scale, and even with poor communities in Mississippi or the indigenous First Nation Cree. To illustrate this scale issue, he compares a set of choropleth maps of childhood poverty rates by state (169), with county-level poverty maps from earlier in the book (78). The state-based maps smooth out intra-state variations, and even suggest that there are states where childhood poverty is not a problem—a conclusion hard to reach when viewing the county-based map. Koch notes that none of his ethical questions are about the maps, the methodology, or the algorithms employed, since mapped numbers are just facts out of context. The issue is what is done with the numbers. "As professionals, we are trained to ignore our individual ethical sensibilities. We are trained as well to ignore the broader context" (172). Koch emphasizes the importance of using maps to make people think and act both locally and globally, and asks each of us, as mapmakers, how we will do that.

In his tenth and final chapter ("It's . . . Complex"), Koch makes a number of commendable remarks: "Maps and statistics are techniques that, like the rhetorician's persuasive speech, can be used to advance almost any argument, any proposition" (178). "In charting, graphing, mapping, and writing, we define and refine a dataset's selective message" (179). "Across a two-dimensional plane, maps reveal the results of our ethical choices in a landscape we understand as our own. Seen this way, the map is the practical endpoint of an ethical supply chain that begins with a set of shared moral definitions and resulting injunctions that underlie propositions enacted in the construction of

the mapped landscape" (180). "Professionals like NACIS members have little knowledge of the means by which their ethical aspirations and moral sensibilities can be understood, let alone deployed in the experiential world" (182). "It is . . . easier for the artist, cartographer, journalist, or statistician to ignore the ethical propositions of an assignment than to question them" (186).

Tom Koch's book serves as "a call to awareness . . . that . . . our choices matter" (187). The issues raised in *Ethics in Everyday Places*: *Mapping Moral Stress, Distress, and Injury* are important matters, and, as its author points out several times, it is often much easier to live with the ethical distress of ignoring the issue than to handle the practical consequences of acting on moral imperatives.

The value of its ethical message aside, I do have some practical criticisms. This book contains a large number of poorly constructed maps. In many cases, their poor symbolization and other problems are part and parcel of, or bound up with, the ethical problem under discussion. However, in some instances, such as Koch's redrawn newspaper map of the Iraq War (46), it is hard to sort out the author's mistakes from what might have been problems in the original map. Occasionally, his text simply does not reflect what is

on the map—for example, where he writes of triangles and circles on a vector version (12) of John Snow's famous map of cholera (13), which clearly shows diamonds and hexagons. It is hoped that some of the typos and errors in mapping practice can be corrected in a subsequent edition—it would make matters clearer. Overall, despite my quibbles, I really liked this book, and wish that all cartographers would take the time to read it and to ponder the author's suggestions. I think, too, that this book should serve as an excellent teaching tool for upper-level undergraduate and graduate-level cartography and GIS students.
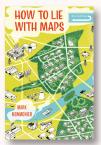
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HOW TO LIE WITH MAPS, THIRD EDITION

By Mark Monmonier

The University of Chicago Press, 2018

241 pages, 97 b/w figures, 17 color plates, $22.50, softcover.

ISBN: 978-0-226-43592-3

Review by: Evan I. Levine, Brown University

The production and consumption of spatial data is at an all-time high, as satellite imagery and crowd-sourced information proliferate past the point of ubiquity. Given these circumstances, this third, revised, edition of Mark Monmonier's *How to Lie with Maps* has arrived at a fortuitous time indeed. The University of Chicago Press has produced a handsome, updated volume, with some welcome additions, revisions, and reorganizations. In this edition, Monmonier's focus remains on the same themes previously explored in *How to Lie with Maps*, centering his

attention squarely on the cartographic paradox: how is it that maps can be objective and yet must—because they all require a certain degree of selection, reduction, and simplification—at the same time, lie? The author aims to help his readers develop a critical and informed eye for maps, a perspective that allows them to differentiate the good from the bad (whether intentionally or inadvertently misleading), and, in this way, to create a culture of healthy skepticism towards all forms of media.

Reviews of the first two editions of *How to Lie with Maps* have highlighted the book's popularity and success, as it broke free from its academic origins to reach a wide audience of both academics and laypersons. In the twenty-two years since the publication of the second edition, however, much has changed in cartography and in the global political and social climate. With that in mind, it is important to explore whether Monmonier's take on maps remains relevant, and if his approach to cartographic (in)fidelity remains appropriate. I find that the answer, on both counts,