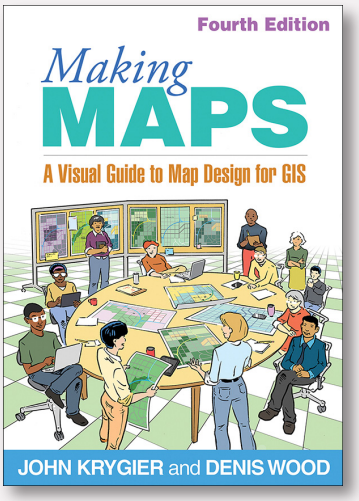
DOI: 10.14714/CP108.2069



MAKING MAPS: A VISUAL GUIDE TO MAP DESIGN FOR GIS, FOURTH EDITION

By John Krygier and Denis Wood

The Guilford Press, 2025

306 pages

Softcover: $62.00, ISBN 978-1-4625-5606-9

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The fourth edition of John Krygier and Denis Wood's *Making Maps* will be comfortingly familiar to readers of the previous edition. While some changes and updates have been made, and will be discussed in this review, the overall feel and quality remain unchanged. *Making Maps* gives a comprehensive overview of the major decisions that a mapmaker needs to make when creating a map, and presents them in step-by-step chapters, in the order in which they should be addressed. It begins with an assessment of the purpose of the map, and then moves on to dealing with data and the choice of mapping tools, before ultimately offering advice for handling things like color, words (text), symbols, and generalization. The authors profess to speak to three main types of readers: generally educated folks without mapping experience; students of geography, cartography, and/or GIS; and GIS professionals looking to improve their cartographic abilities.

The chapter structure of the new edition is largely unchanged from its predecessors, although there has been some rearrangement of the later topics. Twelve topical chapters,

1. "How to Make a Map,"
2. "What's Your Map For?",
3. "Mappable Data,"
4. "Map Making Tools,"
5. "Geographic Framework,"
6. "The Big Picture of Map Design,"
7. "The Inner Workings of Map Design,"
8. "Color on Maps,"
9. "Words on Maps,"
10. "Map Generalization and Classification,"
11. "Map Symbolization," and
12. "Map Symbol Abstraction,"

are followed with "A Note to the Users of *Making Maps*," "Acknowledgments / About the Authors," and an "Index."

Each chapter contains succinct overviews of relevant topics, paired with thoughtfully selected map examples that highlight the points being made. Some of the example maps are historic or famous, but many are custom works created for the new edition. The penultimate page of each chapter features a few quotations about maps from authors, thinkers, and—occasionally—cartographers, and this touch gives a whimsical and philosophical bent to the text. Chapters close with a page of suggested further reading, and this bibliography is an incredibly valuable resource and helpful springboard for researching any cartographic topic.

The thesis of the book, if it can be said to have one, is that maps are a form of communication, and it is the goal, message, and expected audience of the map that should guide the maker in determining the "best" way to make the map. In this book there are no absolutes, only gradients of better and worse choices for the cartographer's message—given the tools and data available to them, and their intended

audience. Each chapter is brimming with sample maps and other useful graphics that clearly demonstrate the effect of mapmakers' choices. For example, the illustrations in the section "Visualizing Visual Differences" (150–51) provide a handy, compact guide to type size, symbol differentiation, and the perceptibility of light symbols over dark backgrounds and vice versa. One map, *The Flight of Voyager*, appears in different forms in many different chapters—each exploring a different aspect of map design. In the Chapter 7 section on visual differences the map uses simple, black, and almost undifferentiable symbols to indicate a wide variety of feature types—creating what the authors call "a nasty, unintelligible mess" (152–53). Comparing this variant of the map to the clear and easy to parse versions the reader has seen in previous chapters is a particularly effective demonstration of the importance of establishing a visual symbol hierarchy. Showing the many variants of this one map drives home the importance of each of the mapmaker's design choices. Each map and graphic throughout the book has been thoughtfully designed to illustrate the impact of the cartographer's choices on the intelligibility of the map. Every decision has an impact on the map's effectiveness at conveying meaning, and, ultimately, on the meaning conveyed.

Another beautiful feature of this book is that it is software agnostic. The authors sum up techniques that have worked for mapmakers for centuries, without getting bogged down in specific tricks for certain software packages. The principles given in each chapter work equally well across both paid and open-source software, or even pen and paper, and the book's lessons can be applied to static maps destined either for print or for digital display. That said, this text does not offer any specific guidance for interactive web maps, although many of the same principles would certainly apply.

I would be remiss not to mention what is probably my favorite part of the book—the "Geographic Framework" chapter—which contains some of the clearest graphics and explanations I've come across about map projections, distortion, geoids, ellipsoids, and datums. The means used—primarily Tissot indicatrix circles and comparisons between projections—are not unusual, but are assembled and explained exceptionally neatly and succinctly. Following the style of the rest of the book, this chapter is succinct but thorough and introduces the reader to correct geographic terminology without being overly technical.

The book opens with a multi-page illustrated story (comic) about two neighbors who want to stop a city plan to widen the road in front of their homes. One of the women has just purchased *Making Maps* from the bookstore and they set off to make their own map to counter the city's proposed connector road. The comic story line reappears between some chapters and at the end of the book (spoiler alert: they stop the connector with the help of maps). I must admit that while I find this meta framing of the text a bit corny and would rather go straight into the "meat" of the book, it does, however, contribute to the authors' overall message that maps shape narratives, and that maps can be created by anyone with a little know-how. At the 2025 NACIS Annual Meeting, I attended a talk by Natalie Correa entitled "CartoGraphic; Sketch Mapping with Comics" in which she spoke about engaging general audiences in sketch mapping about their lived experiences side by side with creating comics to further draw out temporal narratives and emotional qualities from their memories. She pointed out the similarities in the way readers parse both comics and maps, and suggested that the interplay of sketch maps and comics could deepen the meaning of both. Perhaps reading a comic as an introductory framing to *Making Maps* is a logical entry point for readers who are new to mapmaking, and may help prepare them to understand and respond to the compelling narrative quality of well made maps.

While the text and example maps from the previous edition remain largely unchanged, there are some significant additions and revisions. The authors have reorganized the book by moving the previous edition's closing chapters—"Words on Maps" and "Colors on Maps"—forward to the middle of the book, perhaps to better reflect their order in map creation. In Chapter 1, "How to Make a Map," there are added sections on "Principles of Feminist Data Visualization" and "Principles of Indigenous Data Sovereignty and Mapping" (26–27) that reflect current discussions on inclusivity and widening perspectives beyond historical power structures. New mobile device screen sizes have been added to their explanation of paper versus digital maps in the "What's Your Map For?" chapter (44–45), as have new pages on "Interacting on Screens" and "Visual Story Telling" (46–47). Chapter 3, "Mappable Data," has new text on "Aggregating" (71) and "Districting and Redistricting" (72), and Chapter 4, "Map Making Tools" has added sections on "Workflow" (91) and "Artificial Intelligence" (93) that include a list of the names of commonly used commercial and open-source

software programs. The final chapter—"Map Symbol Abstraction"—has had significant updates, including: more full color maps, an expanded section on cartograms, new writing about multivariate choropleth symbolization, and an explanation of isopleth (surface/heat) maps. Most of the updates to maps in this new edition serve to more closely align the examples with the explanatory text, to use more current data—such as those from the 2020 US Census—or both. Very little has been removed, apart from the page on visual variables within the "Color on Maps" chapter.

In composing *Making Maps*, Krygier and Wood have emphasized readability by focusing on relevant example maps and demonstrative graphics, each supported by short, succinct, text blocks. They also favor simple, plain-language explanations of relevant terms over fussy acronyms and technical jargon. This enhances accessibility for all readers regardless of prior experience with mapmaking or GIS, and lends a concision that allows the book to be read in a variety of ways: a thorough study, a casual skim, or a quick look-up.

Most aspiring and current mapmakers—whatever their level of GIS or cartography experience—can learn something from *Making Maps* and benefit from having a copy handy on their shelf. The additional and updated example maps keep the text relevant, and the additional types of maps discussed—cartogram, isopleth, multivariate choropleth—show an awareness of gaps in prior editions as well as the interests of readers. That said, the updates are not so extensive that owners of the Third Edition should feel compelled to switch to the Fourth Edition immediately. As was true with the prior version, the software agnostic nature of the text makes it a long-lived resource. Unlike books about specific programs or technologies that are out of date as soon as, or even before, they are published, any recent edition will resonate and be a useful reference text for many years. Krygier and Wood's ability to distill huge amounts of information into such a concise, understandable book is truly remarkable. Clearly, they have read and thought extensively about all facets of mapmaking, and their massive knowledge base is used to the reader's benefit. The Third Edition of *Making Maps* has, for some time, been the book I have most frequently referenced while making maps, and that will change only because I now own the new Fourth Edition.