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RDA and Cartographic Resources by Paige G. Andrew, Susan M. Moore, and Mary Larsgaard. Chicago, IL: American Library Association Editions, 2015, 144p. ISBN: 0838911315, 9780838911310, US$ 65.

Resource Description and Access (RDA) and Cartographic Resources presents a necessary and succinct summary of cataloging cartographic resources. The book includes a background on the development of RDA, how these new practices differ from the past rules, and a detailed set of instructions with examples to clarify any ambiguities. The purpose of the book (2015, 6) "is to provide a concise, pragmatic introduction and overview to using [RDA] to create bibliographic records for cartographic resources." The authors make a few assumptions about the audience for this book. Any readers without 1) some experience cataloging cartographic resources, 2) a familiarity with ISBD punctuation, and 3) an understanding of OCLC practices, will have difficulty understanding some portions of the book and are forewarned. In actuality, for readers new to any of those topics, the resource makes an ideal handbook for reference on straightforward, how-to instructions for most cartographic cataloging. Much of the book's contents can be left to those with greater interest in Functional Requirements for Bibliographic Records (FRBR) and interest in the limitations of applying theoretical models to the most common cartographic resource—a map. This review will analyze and expand on some of the issues raised by the authors concerning the challenges of implementing a bibliographic standard to a distinctly different type of information object. In addition, a complete outline of the manual's strengths and a healthy number of critiques are included for a sense of comprehensive and complete accomplishment of this review.

The authors make clear at the outset that the book provides guidance on cataloging traditional, hardcopy, cartographic resources in *RDA*, as this is the "perceived" greatest demand for any potential readers. This choice steers nearly all discussion and examples in the book to focus almost exclusively on print maps, which makes it an indispensable resource for anyone tasked with cataloging print cartographic resources. To be clear, I agree that the perceived greatest demand for these types of *RDA* books are indeed those readers who are employed at information agencies that historically have housed hardcopy things (i.e., libraries) and mostly encode metadata using bibliographic schemas. Certainly, the most dominant information object housed in these information agencies was the book, and this has left a technological ripple in all information representation done within those agencies. To make books and other text-based items retrievable and manageable, structured information was designed to describe the common attributes users search to discover those types of resources.

Discovery remains paramount to *RDA*, and the (2015, 11) "ideas behind bibliographic description—creator/author, title, edition, place of issuance, issuing body, date of issuance, and so forth—remain." This inherited information structure presents unique decisions for anyone charged with making resources that are not inherently bibliographic findable by describing them using a bibliographic standard (e.g., media objects). Information professionals managing geographic information in other information agencies have the freedom to use any number of metadata schemas appropriate for their users and information. For better or worse, many librarians work with a machine-readable Behemoth in front of them (for the foreseeable future) and a Leviathan binder of rules on a shelf nearby as a reminder of more complex times. For these reasons, the perceived greatest demand for readers of any *RDA* manual is indeed catalogers in libraries. To be specific (Murphy 1969), academic libraries, because after the Second World War many academic libraries were charged with acquiring and cataloging a massive number of print maps to ensure that the U.S. would never be cartographically unprepared in future conflicts.

Still, many cartographic resources exist beyond libraries, and nearly all now are born digital. With a recent market estimate for the geospatial industry at US$ 270 billion per year (Oxera 2013), I encourage geographic information professionals to look to other resources if tasked with creating metadata for digital cartographic resources or geospatial data. In the U.S., the Federal Geographic Data Committee (FGDC) facilitates the development, sharing, and use of geospatial data and encourages the use standards ISO 19100:2003 Geographic information—Metadata and ISO 19115-2:2009 Geographic information—Metadata—Part 2. *RDA* can be used for digital cartographic resources, but may not be useful for some user groups and more laborious when compared to minimal ISO records. The authors acknowledge the difficulties of using *RDA* instructions with digital cartographic resources, and as digital geographic information has replaced hardcopy for anyone using Geographic Information Systems (GIS), *RDA* is not a good fit for the wide variety of information types, because of complex data formats, ancillary files, dynamism, overall voluminous amounts, some proprietary data, and most data requiring domain-specific metadata for appraisal and subsequent use. In short, most geographic information objects, including digital cartographic manifestations, do not match the schema designed for information objects with fewer moving parts.

The authors allude to another paradox presented by the move to *RDA* from *Anglo-American Cataloguing Rules*, Second Edition (*AACR2*) for actual catalogers. The dream of *RDA* to allow for data to live across platforms in a magical semantic land and the reality that a generation trained using Machine-Readable Cataloging (MARC) tools remains for the foreseeable future (2015, 3): "RDA itself was built to be platform-independent, the reality is that for now catalogers will continue to use the MARC21 data content standard and place information in fields and subfields that make up its structure using OCLC." In effect, practicing librarians will need to continue molding all information objects they describe into a bibliographic form built to represent books. This manual is a perfect helping-hand to guide those cartographic catalogers that have one foot on the dock of a majority-print infrastructure and one foot on the boat that could take us all to the promised land of linked data.

Given that the most common cartographic resources is a map, some context of what is a map assists further discussion. A map is an information representation of a geographic reality. A map (Wood 2010) abstracts one particular view of geographic reality and serves as a surrogate to enable users to experience the realities beyond human limitations of time and space (e.g., bird's-eye view). In Lewis Carroll's (1893) *Sylvie and Bruno Concluded*, one character claimed to make a useful map of the entire country that had a scale of one mile to one mile. Unfortunately, the character could not use the map because the farmers of the country would not let him open it, as it would block out the sun and kill their crops. The necessity for any map to distort reality has presented a number of challenges for cartographers throughout history. Representing a round object on two-dimensions requires compromising some quality of space (i.e., shape, area, distance, direction). Representing particular attributes, given the richness of the real-world's geographies, requires removal of everything not related to the map's purpose. Representing particular spaces requires representing data with a defined ratio to the real world. All these distortions are necessary to fit multi-dimensional geographic realities onto two-dimensional sheets, as globes are not very portable and the digital maps we zoom and pan around on are a relatively recent happening. A great deal of geographic information was created and continues to be created in these two dimensions. However, a substantial portion of two-dimensional maps was not (e.g., Ptolemaic Atlases) and is not (e.g., subway maps) created with the scientific approaches of modern cartography. Scientification of maps was espoused by Arthur Robinson and others that arose out of need for more reliable geographic information for combat in the Second World War. Accuracy and precision remain paramount for many methods using GIS that solve real-world geographic problems. Scale, projection, and coordinates are necessary metadata to inform users of the fitness-of-use of geographic information.

The manual rightfully concentrates on the scientifically created cartographic resources, as those have the mathe-

matical data of scale, projection, and coordinates. The authors give examples of cataloging other types of cartographic resources, but items without scale, projection, and coordinates require less geographic and cartographic expertise, as those fields are left blank. It is worth acknowledgment that "scientific" geographic information (Bishop 2015), with its standardized cartographic approaches, presents the majority of maps cataloged, but that not all representations of geographic realities remain affixed to the graticule (i.e., network of lines) with a zero degree longitude that conveniently passes through the country whose language I use to write this book review. This critique of cartography is a simple example, but information professionals should be aware that inherent biases exist (Monmonier 2008) in all cartographic resources based on the creator's viewpoint, purpose, and methods.

To discuss a different type of language, the authors dedicate the second chapter to methodically working through FRBR Group 1 entities: work, expression, manifestation, and item (WEMI). Work attributes unique to cartographic resources include coordinates and equinox. These work attributes fasten these resources onto the geographic or celestial references from scientific cartography to determine what part of the world is being represented (e.g., Africa). A creator of the work "Africa" would be the cartographer or agency producing the information representation of a geographic reality that bounds that continent. Expression attributes that relate to cartographic resources are scale, projection, and several others. The continent could be expressed in any number of ways depending on the purpose of the cartographic resource produced. For example, Africa projected in the Gall-Peters projection presents the geographic reality where area is preserved and shape is distorted. "With 78 percent of the records in WorldCat having only one manifestation" these distinctions do not have much practical use for catalogers of any material and this is even more true for cartographic resources. Cartographic resources (14) rarely have revisions that would not be considered a new manifestation. Each re-projection of the same data of Africa creates a new expression and a new manifestation. The authors provide many examples to provoke thought on how complicated WEMI applications are with cartographic resources and by extension all geographic information. For example, scanning a hardcopy cartographic resource at different resolutions creates different manifestations of the same expression. Also, the Geoweb resources that are continually being updated create infinite manifestations of the same expression.

In chapter 3, a comparison is made between *AACR2* and *RDA*. This portion should ease any concerns an experienced cataloger may have about the *RDA* changes. One point repeatedly emphasized in the book is that for cartographic resources not much has changed, but enough has changed for a chapter. Prior to *RDA* (31), "the chief source of information for cartographic resources is the entire item itself." "Take what you see" permeates *RDA* instructions, and since cartographic resources are designed for users to see the entire information represented, there is not much digging required to locate any needed information beyond turning the map over and checking the back. Common cartographic practice is to write the entire map title in uppercase, and when practicing "take what you see" catalogers will copy the title in the same manner and no longer alter anything to title case. Readers should refer to the book for a more encyclopedic coverage of what changed and what did not, as these critical aspects get excessively detailed quickly (i.e., removal of periods). *RDA* has slain almost all abbreviations and odd Latin phrases that only catalogers could understand anyhow. Oddly, making records more machine- and human-readable reduces keystrokes and specialization for catalogers. Core elements in *RDA* remain those most used by users: title, creator, scale, and physical description. Some units of measurement are still permitted to be abbreviated as computers and humans actually understand "in." for inches.

Chapter 4 gives a step-by-step accounting of each MARC field in *RDA* and could be used in conjunction with the appendices as a key reference resource for any cataloger. Each field's discussion includes prose referencing the *RDA* instructions and both common and uncommon examples to apply the instructions. For experienced catalogers using *RDA* with other materials, much of the chapter is a review. The section on cartographic mathematical data (scale, projection, and coordinates) serves as required reading for anyone working in the area, not only because of *RDA* changes, but also the additional advice given by the authors that goes beyond *RDA* and instructions for anticipated shortcomings found in *RDA*. For example, *RDA* suggests if a scale is not found to consult a similar resource to locate scale. Since scale indicates how data was collected and determines how a map could be used, consulting a similar resource would be very imprecise at the least and dangerous at the most. The authors encourage unknown scales to be indicated in the record as "Scale not given" and reduce the chance of misleading users by providing a scale not derived from the item. Overall, the book points users to further resources as needed (e.g., http://boundingbox.klokantech.com/) and in some cases informs readers what they do not need to learn more about (e.g., decimal degrees). Here is the best example (65): "the good thing for the cataloger is that it is not necessary to know why a given projection was chosen for the creation of the cartographic resource, nor what the different kinds of projections are, nor how they are applied." This commentary

harkens back to the delineation between the roles of information providers and geographers/cartographers and reinforces the reader's confidence by assuring them they do not need to know everything about geography or cartography to catalog cartographic resources. *RDA*'s "take what you see" ethos simplifies the information representation work needed to create surrogates of these information representations of geography.

Conclusion

The book's authors are incredibly accomplished scholars in this area, and other similar works to consult covering cataloging cartographic resources are almost exclusively written by one of these three authors. Larsgaard and Andrew co-edited *Maps and Related Cartographic Materials: Cataloging, Classfication and Bibliographic Control*. Extensive cataloging training is reviewed in all three editions of Larsgaard's classic *Map Librarianship: An introductio*n. Prior to this manual, the first author created the most recent *Cataloging Sheet Maps*: *The Basics* in 2003. The second author serves as the liaison for the Map and Geospatial Information Round Table (MAGIRT) to the Library of Congress's MARC Advisory Committee. Basically, the authors are a dream team of cataloging cartographic resources and the book does a markedly high-quality job with a challenging and changing subject. The *Journal of Map and Geography Libraries (JMGL)* and *Cataloging and Classification Quarterly* both contain many other noteworthy contributions on this topic. Inevitably another book will be required, but until then, this manual presents a substantial review of differences between *AACR2* and *RDA*, application of FRBR's WEMI model for cartographic resources, and how to implement *RDA* in MARC, all in tolerable portions. For now, only the MARC record can capture information representation using *RDA* for cartographic resources in participating libraries, and for those tasks it is best not to question it, as there is a world to catalog. This book makes the present less daunting.

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