

appointment with one of the Library's GIS specialists. Soon we will be providing access to spatial data sets in Arc/Info format that have been produced on campus in the College of Agriculture. These data sets will be accessed through the campus network and viewed at the GIS computer using ArcView. In addition, there will be another GIS computer installed in the Science-Engineering reference area that will have ArcView software loaded and provide access to science related spatial data. □

## reviews

### BOOK REVIEW

**How to Lie With Maps, 2nd ed.**  
Mark Monmonier, University of Chicago Press, 1996, xiii and 207 pp., references, appendix, index. \$36.00 hardback (ISBN 0-226-53420-0); \$14.95 paper. (ISBN 0-226-53421-9)

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Spatial information abounds in today's world. We are bombarded with maps in all settings; in school, at work, at home and at play. Everything from political upheavals to weather phenomena such as hurricanes and tornadoes call for maps to explain, clarify and illustrate the event. Personal computers come with atlases as part of the software bundle and desktop mapping is commonplace in business and industry. Tourist centers have touch screen multimedia presentations with regional and local directional maps designed to guide the

viewer to the desired location. Yet, this information can easily be manipulated and twisted to fit the ends of the map maker at the expense of the map user.

The naïveté map reader, however, can be educated and entertained by reading Mark Monmonier's second edition of *How to Lie With Maps*, which familiarizes map users with the problems and pitfalls that can occur when creating or using a map. It is not a volume to instruct in cartographic methods, but rather one to raise the reader's awareness of the cartographic process. It is an engaging volume written in a casual style for the general public. The second edition has thirteen chapters including brief introductory and epilogue chapters, an appendix on latitude and longitude, a list of references and an index. One change from the first edition is an expanded chapter on color with a series of new color plates. Other additions include a forward by Harm DeBlij, a chapter on mapping bureaucracy focusing on the United States Geological Survey and a chapter on the use of maps in multimedia presentations.

The informal yet informational style of the brief introductory chapter sets the tone for the volume and elaborates on the central theme: that all maps must tell little white lies because they are scale models of a three-dimensional object on a two-dimensional surface. This challenges any preconceived ideas the map reader may have about the authenticity of most maps and encourages the reader to develop a new perspective on maps. The next two chapters on map elements and generalization bring the reader up to speed on many of the basic principles of cartography: map projections, symbolization, visual variables, generalization of point, line and area symbols and data classification.

The core of the volume, however, lies in the following five

chapters dealing with mistakes that can occur on maps, both intentional and unintentional. Chapter Four, 'Blunders that Mislead', reinforces the idea that generalization and selection cause maps to tell lies. Therefore the caveat *map user beware* should preface many maps. Specific chapters on the use of maps in advertising, planning, politics and the military contain information on potential mapping problems that can arise in each area. These chapters will be of interest to specialists in each field and give historical perspective to the development of mapping. There are also suggestions for how one might influence local government officials through communicatively effective maps. For example, Chapter 6, 'Development Maps (or How to Seduce the Town Board)' provides an instance of how a property owner could use maps to demonstrate how a new planned tax assessment is too high.

Chapter 9, 'Large-Scale Mapping, Culture, and the National Interest', is new to the second edition. It introduces the reader to mapping in bureaucracies, specifically the United States Geological Survey. The Survey originated in 1879 as part of a project to map public lands west of the 100th meridian. This mapping survey was mainly performed by those trained in mapping at military academies, and thus the definitions of features included on the maps reflect this connection. For example, the author notes that including green tint on topographic maps was originally for military purposes. For instance, the definition of a woodland was defined as, "an area of normally dry land containing tree cover or brush that is potential tree cover...[that is] dense enough to provide cover for troops." Other issues addressed in this chapter include the problems associated with the development of standards and specifications for a map series (such as 7.5 minute quadrangles),



developing a set of uniform map symbols for a specific scale, including politically correct names, and designing appropriate fonts and symbols. Comparison of symbols used in the United States and other countries is also addressed.

The discussion of classification begun in Chapter Three is continued in Chapter Ten, 'Data Maps: Making Nonsense of the Census.' This chapter gives clear examples of how data classification and areal aggregation can affect geographic pattern. Classification of choropleth maps with equal intervals, quantiles and natural breaks is logically discussed and clearly illustrated. The use of a number line to investigate the nature of the distribution is one technique or method of examining the data that might not occur to novice map users. The reader is urged to be aware that any map is the result of a series of choices regarding classification, aggregation and symbolization. Therefore, any map is just one of many maps that could have been made. Changing the choices will change the look and message of the finished product.

Color plates have been added to the expanded chapter entitled 'Color: Attraction and Distraction.' Information on additive and subtractive primaries and differences between emitted and reflected light expand the reader's understanding of how color works. Plate Seven contains a color version of a map included in the political propaganda chapter (Chapter 7). By showing the location of a proposed incinerator with concentric circles of red shading from dark to light, the reader is provided with a vivid image of the incinerator's impact on the surrounding area. Comparison of the color map with the same map in black and white provides a clear example of the effective use of color. Equally impressive are the contrasting hues to show qualitative differences on Plate Four, the color sequences for choropleth

maps on Plate 6 and an illustration showing simultaneous contrast on Plate Ten.

Another new chapter, 'Multimedia, Experiential Maps, and Graphic Scripts' is timely, given the recent proliferation of interactive computer presentations. Through an example of a hypothetical statistical business mapping program the reader is guided through a series of choices in order to obtain a finished map product. Options under the map user's control are the choice of variable, geographic area, time period, and display options including number of classes and colors. Control of the map is thus shared by the mapmaker and map user, with the mapmaker setting the limits or choices the map user is given. The author encourages the map user to be aware of a program's limitations in handling map data, to ask questions, be curious, and try a variety of options to get at the underlying meaning of the data.

A major strength of Monmonier's book are the excellent examples in the planning, advertising, political and military chapters. In particular, the advertising chapter has a light tone with clear examples and perhaps some new ideas for those working in this field. The attempt to appeal to a broad base of professionals and people with varying interests and backgrounds should be applauded. The use of the color plates in the second edition greatly enhances the color chapter, at the cost of slightly increasing its price. Another welcome change from the first edition is an expanded bibliography that breaks down sources for each chapter. The list includes many volumes readily accessible in larger public libraries and journals available in most university libraries. The index is very useful and complete.

There are only a few minor editorial problems within the volume. First, the chapter summaries tend

to be somewhat uneven. For example, Chapter Six, 'Development Maps', gives a clear, concise summary paragraph, but in Chapter Four, 'Blunders that Mislead' there is only a ending discussion of a figure. Second, some re-organization might improve the content structure. For instance, the two and one-half page appendix on latitude and longitude is short enough to be included in Chapter Two with little disruption to the flow of thoughts in that chapter. Chapter Ten also might be better placed following the chapter on generalization as it expands on classification ideas introduced in Chapter Three. Third, some of the figures, particularly in Chapter 9, have been reduced to a point where their effectiveness is diminished. A series of four topographic maps in Figure 9.7 designed to illustrate an interesting anecdote on the appearance and disappearance of a railroad through four different editions of the same quadrangle, are illegible. As it stands now, the black contour lines dominate the maps and identification of cultural features, such as the railroad in question, are impossible to distinguish. This story would benefit from clearer illustration, either through enlargement or the addition of color. Fourth, the addition of the color plates is generally effective, but unfortunately, the printing process has generated a purple color instead of blue. The text refers to a sequence of blues and the plate clearly shows a series of purple colors. The double ended hue plan is to show red at one end and blue at the other and instead it is red and purple. The problem is one of minor inconsistency between the text and the plates and should be corrected for future printing runs. Finally, one missing item that would be useful is a glossary. Many words are italicized when first used in the text, but these should be placed in a glossary, for the benefit of the cartographic novice. All of these prob-



lems are all minor and will not distract the average reader nor diminish the books effectiveness.

In his introductory chapter Monmonier includes a statement of purpose: "This book's principal goal is to dispel this cartographic mystique and promote a more informed use of maps based upon an understanding and appreciation of their flexibility as a medium of communication." The author has more than succeeded in achieving this goal. *How To Lie With Maps*, despite its somewhat cynical tone, is a positive contribution to cartographic literature. It can be used as a review volume for cartography students, who tend to enjoy the relaxed, conversational style. The discussion of visual variables in Chapter Three, for example, is a clear and concise summary that provides a good review. This will hopefully encourage students to be aware of map blunders and to be more critical in their interpretation and evaluation of maps. It should also be a required volume for planners, business professionals, advertisers and others creating maps for the general public.

Monmonier is to be applauded once again for raising the cartographic consciousness of the general public. DeBlij's closing comments in the forward concisely sum up the book: "This fascinating volume deals with such serious issues in a lively, often humorous, always engrossing way. Read it, and the maps you view henceforth will have new meaning." □

#### ATLAS/SOFTWARE REVIEW

**Atlas de Suelos de la Republica Argentina.** Aeroterra S.A. Buenos Aires: Fundación ArgenINTA, Instituto Nacional de Tecnología Agropecuaria, 1995. Atlas can be purchased from WBA Trading Limited, Inc., P.O. Box 2501, Kensington, MD 20981-2501 (\$200).

System Requirements: CD-ROM drive, IBM DOS format, Windows 3.0, PC 386, 4 MB RAM.

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The CD-ROM Soils Atlas of Argentina is the result of a cooperative effort between a government office, the National Institute of Agricultural Technology (INTA), and a private company, Aeroterra S.A. This effort was led by Carlos Scoppa and Gustavo Macarini of INTA, and Carlos Viola and Omar Baleani of Aeroterra S.A. The CD-ROM atlas was produced by digitizing and updating information from the book form of the *Atlas de Suelos de la Republica Argentina* published by INTA in 1985. This task involved digitizing 1:500,000 and 1:1,000,000 scale soils data and adjusting the information to the Gauss Kruger Coordinate System, Zone 3. However, a tremendous amount of useful ancillary data was also been added to the CD-ROM atlas that significantly increases its utility.

The digitized soil maps have been subdivided by provinces and can be called up either at the national or provincial scale. The associated soils database contains 31 information fields. These fields include Soils Cartographic Units and the Orders, Suborders, and principle components of Groups which comprise these units. These categories correspond to the USDA Comprehensive Soil Taxonomic System which is now being adopted in Argentina and worldwide. A corresponding image file (in a separate subdirectory) contains photographs of both contextual landscapes and soil profiles for most of the soil orders. Other information fields include principle, secondary, and tertiary limitations of the soil units, and a productivity index of

the soil units. Information is also given for the drainage, hydric characteristics, fluvial erosivity, eolian erosivity, slope, salinity, sodicity, and superficial and subhorizon textures of the principle components of the soil groups.

In addition to the cartographic soil data and associated soil data base, the atlas contains a wealth of related data. Supplemental physical geographic information includes topography (300 meter contours), hydrography (principle water courses), subterranean groundwater basins, and various types of climatic data (Koeppen climate types, mean annual temperature, minimum and maximum average temperature, mean annual precipitation, average mean humidity, and average atmospheric pressure). These data are in both cartographic and tabular form. In a separate subdirectory national coverage of LANDSAT 5 imagery is included. LANDSAT TM images are also contained in this subdirectory, but only of selected areas. Additionally, the atlas incorporates cartographic and tabular data on political divisions, population centers, highways, railways, and airports.

Supporting textual information is supplied in a separate subdirectory. The text includes information on the creation and use of the atlas, data sources, and descriptive and analytical data on Argentine soils.

The principal utility of the atlas is its flexibility in data manipulation and combination. For example, one can easily overlay a national or provincial soil map with isoline data on topography, temperature, or precipitation to quickly portray the effects of these variables on the spatial variability of soil development. A user can then easily call up images of the landscapes and profiles associated with these soils and corresponding textual information.