included here. It would have been a meatier piece of work.

And I find it curious the Atlas contains a number of maps lifted from the authors' previous works, maps done first in black and white, but here colored without any authorial comment on the changes made to those earlier maps. Comparing a map from the *AIDS Atlas*, 1992, to its colorized version in this *Atlas*—the first black and white and the second color—says much about coloration that is important. At the least, it would have been honest to note when changes were made. To read about why the authors decided to colorize their older maps, about the benefits and drawbacks, would have been useful.

These concerns are not, however, fatally limiting flaws. They may be missed opportunities but even so, the result is greater than its individual chapters. The 2004 *Atlas* shows what can be done within a publisher's commercial template when intelligent, informed authors seek to develop a text with maps that serve public understanding of a subject that is complex and whose science is clearly incomplete. As a general resource for those who are not specialists in infectious disease the resulting volume is without peer. As a first reference—for a library or a medical geographer/cartographer's home library, it is that rare *Atlas* that is worth its price, and perhaps a little more. For the young epidemiologist or public health expert, it is a resource he or she will turn to again and again over the next few years.

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Mapping the News: Case Studies in GIS and Journalism
By David Herzog
Redlands: ESRI Press 2003
148 pages, with full-color illustrations throughout
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The Case Studies Series from ESRI Press provides actual accounts of Geographic Information System (GIS) use by and for many professions, including transportation, law enforcement, education, and government. GIS is helping these individuals to plan transportation corridors, analyze crime patterns, inform the public, and provide emergency response scenarios worldwide. In my own province of civil engineering, GIS technology monitors utility infrastructure systems, manages tax assessment data, directs emergency personnel, aids in the development and planning of neighborhoods, and provides a variety of municipal mapping services.

Mapping the News describes the impact of GIS technology on the field of journalism, and focuses on its use in newspaper reporting. Whether using GIS maps to illustrate an article or performing a complex GIS analysis for an investigative report, journalists across the country are taking advantage of this technology to enhance the storytelling process.

The author of this book is a former investigative reporter who currently teaches journalism, so he is able to tackle this subject as both participant and instructor. He begins with an overview of GIS mapping technology and describes some of its general uses in the public and private sector. Maps have been used in journalism for many years to show us where the headline stories occur, or to provide color-coded comparison studies of different areas. Maps have also been used to help readers better understand the concept of place. Even a simple relativity query, such as establishing the distance between two locations, becomes an abstract proposition without a map to guide us. A good map provides a source of visual reference that is virtually unsurpassed by any other means.

But GIS takes mapping one step further by linking digital maps to tables of related data that pertain to the geographic features appearing on the computer screen. Each line of information stored in these tables is referred to as an attribute. Attributes regarding a geographic location can include demographics, topography, or in-depth government information, such as tax assessment or housing data. Because GIS maps are created in a layered format, the user is able to look at a single geographic element in an area, such as flood

locations, or combine this element with others, such as roadways, housing, and business locations, to see how they relate. The same layers can be interchanged, added, or subtracted from the whole as needed to provide the customized information needed for a variety of stories, rather like shuffling a stack of transparencies behind the computer screen.

A GIS also allows the user to query the database to locate or highlight specific map features by attribute. In one example, GIS highlights the locations of public schools in and around Newport, Rhode Island, that are within five hundred feet of a leaking underground storage tank. In essence, GIS allows a journalist to perform a variety of analytical and investigative functions with one software program that might otherwise take hours of cross-referencing to accomplish.

GIS is widely utilized by government agencies with access to vast quantities of demographic, economic, social, and political data they often share with the public for little or no cost. Related geographic data can be accessed directly over the Internet through a variety of local, regional, and national organizations. Combine this plethora of resource material with the emergence of GIS software as a simplified desktop computer program, and its appeal to journalists becomes apparent.

The author explains the basic terminology and principles involved, demystifying concepts like geocoding, which is the process used to link street addresses and related attribute data to their geographic locations on the map, or extolling the importance of color and symbology in the creation of thematic maps. The explanations are brief and understandable without being overly simplistic. Ample color illustrations, mostly in screenshot format, are provided as reference throughout the volume. The screenshots offer a unique opportunity to view each GIS project in much the same perspective as the journalist creating it would have on a simulated computer screen.

The main portion of the book is comprised of actual case studies demonstrating how journalists are using GIS to analyze trends, perform research studies, and ultimately map the headlines. Many of the stories presented are truly monumental in proportion, such as the *Miami Herald's* Pulitzer Prize-winning coverage of how poor construction practices contributed to the devastation wreaked by Hurricane Andrew in 1992, or the *Dallas Morning News* story noting the proximity of many public housing projects to air pollution and toxic waste sources, or the *Washington Post* story tracing disqualified ballots by race during the 2000 presidential election. Other stories reflect more general interests, such as the *San Diego Union-Tribune* analysis of local demographic changes based on Census 2000 data.

The Hurricane Andrew story is presented as the first major use of GIS in investigative reporting, and the author leads us through the process beginning at the aftermath of the storm in August 1992. Because construction practices in southern Florida were believed to be among the most stringent in the nation, a group of reporters wondered how the storm damage could have been so devastating. Area contractors claimed that nothing could have been done to lessen the damage inflicted by such a powerful storm, but many homeowners remained unconvinced. The reporters set out to prove either that the impact of Hurricane Andrew was truly unpreventable or that human factors contributed to the massive devastation.

GIS links tabular data to geographic locations by means of unique identification numbers, such as property addresses or tax assessment parcel numbers. The *Miami Herald* reporters were able to obtain a Dade County database that contained surveys of storm damage in tabular format, documenting the level of damage to each residence and whether or not it was still habitable. Because this database included the tax assessment identification number for each storm damaged property, reporters were able to merge the storm damage data with local property assessment data, such as the construction date, value, and location of each of the properties involved. A local hurricane researcher provided a hardcopy map of wind contour, which displayed the hurricane wind speeds experienced in each geographic area. The reporters digitized this information and incorporated it into their GIS database for further analysis.

After seeing no clear pattern to the storm damage based strictly on wind velocity and location, the reporters mapped the damage again by date of construction for each of the homes involved. In doing so, they discovered that the newest homes had suffered the most damage. Further investigation uncovered major design and construction flaws in the damaged homes, as well as serious inadequacies in the building inspection process. This combination of factors had largely contributed to the devastation caused by Hurricane Andrew.

As a result of this investigative reporting, new and tougher building codes were adopted in the hardest hit areas of Florida. The *Miami Herald* won the Pulitzer Prize for public service in 1993 and successfully launched GIS as a major reporting tool in newspaper journalism.

A recurring theme throughout many of the case studies presented was the difficulty journalists often had when trying to reconcile the public's need to know with its contradictory desire for privacy. Compromises are usually necessary, as when the *Charlotte Observer* attempted to measure the impact of busing on area children and had to settle for data that does not include the names or even the exact home addresses of the students in question.

Even when data is freely and wholly available, the

GIS process is not always straightforward. Although today's GIS software programs are presented as comparatively easy to navigate in relation to earlier versions, diverse data formats must still be reconciled before maps can be created and the results analyzed. This is not an instantaneous process.

Various ESRI software extensions, such as Street-Map USA and Spatial Analyst, are also employed in some of the case studies, and their unique capabilities are briefly but satisfactorily touched on. The author clearly presents the challenges involved in bringing the journalistic idea to fruition, whether through issues of software and data incompatibility or simply gaining access to the necessary resources.

Each case study is presented in stand-alone format, making the book equally suitable for casual browsing or in-depth reference purposes. The reader is taken through the journalistic process in a concise, authoritative manner, providing an inside look at how each story was conceived, researched, documented, and illustrated through GIS technology.

The book also examines the use of MapShop, an Internet mapping service that allows users without traditional GIS programs to create the locator graphics that often accompany news stories. MapShop was developed by ESRI and the Associated Press. The service is available by subscription to news organizations or for more limited use by the general public. The maps can be created on the Internet inside a browser, then downloaded for use and editing in various graphics programs.

The *Chicago Tribune* used MapShop in its coverage of the November 2001 plane crash in Queens, New York. A color-coded map of the crash site was created to show where the scattered wreckage was found and how much greater the death toll would have been had the plane crashed into one of the more densely populated neighborhoods only a few blocks away.

Two valuable appendices complete the book. The first offers tips for new GIS users who are looking for everything from general information to creative inspiration. The second offers available GIS data sources suitable for new or experienced users. A variety of useful websites are presented. Some, such as the National Institute for Computer-Assisted Reporting (www.nicar.org) and Environmental Systems Research Institute (www.esri.com), offer GIS training and resource material suitable for journalistic applications. Others, such as the U.S. Census Bureau (www.census.gov) and U.S Geological Survey (www.usgs.gov), offer geographic and related data products for public use. I explored many of the websites provided and found the information there to be timely and helpful.

I have only two negative comments about the book, and both are relatively minor. I found some of the illustrations to be rather small, perhaps to accommo-

date the book's 7.5"x 9" paperback format. This factor made it difficult to truly appreciate many of the mapping examples presented, particularly where a large geographic location or a high concentration of reference points was displayed. The descriptions accompanying the maps tended to compensate somewhat, but the full-page illustrations scattered thinly throughout the volume left me wanting more.

I was also disappointed that only case studies involving ESRI software products and related services were discussed, perhaps because the book was published by ESRI Press. Although ESRI is quite deservedly one of the most well-known and hallowed names in GIS technology, I would like to have learned if reporters are using other GIS alternatives for journalistic expression, and how these products might or might not compare.

The previous paragraph aside, I would definitely recommend this book to anyone with an interest in journalism or GIS, whether that individual is on the newsroom floor, involved in the classroom, creating maps for the public, or ensconced in an armchair as amateur sleuth or observer. I found the book to be very informative, and I came away charged with many new ideas for interweaving the writing and mapping processes I enjoy so much. I also look forward to discovering other books in *The Case Studies Series.* I have experienced firsthand what GIS can do in the municipal mapping and civil engineering realm, and I am eager to follow its continuing evolution as a research and analytical tool with seemingly endless applications for the masses.