

there is a higher than average concentration on China and Japan (2.5 pages), which is to be welcomed, but one wonders what a short exposition like this could be used for apart from whetting people's appetites (and, unfortunately, no further references are provided).

Derek Maling's more wordy chapter (44 pages) on "mathematical" cartography covers his usual material on projections and measurement. Unlike the rest of the book which targets an introductory audience, Maling's chapter is probably the most detailed. His chapter is useful reference material for the student who needs to investigate the sheet numbering system employed by the *International Map of the World* or whether parallels are $R \sin \chi$ or $R \cos \phi$ (both of which this reviewer has in fact needed). GIS users will benefit from the short remarks on coordinate transformation, although the information on how to make grids is more relevant to surveyors than cartographers in this age of derived maps. The discussion of projections is perhaps more mathematical than that found in other textbooks (readers are invited to react to this with joy or dismay as they prefer) but is otherwise unremarkable.

A chapter on the theory of cartographic expression and design by B. Rouleau follows. This is a chapter heavily influenced by the map communication model and its busy evangelists, the visual variables of J. Bertin. Here, we learn that the purpose of maps is to "represent the correct spatial location of data on [the] plane surface" (page 66). A similar comment from Maling that map quality "refer[s] to the positional accuracy of points of detail" indicates the empiricist approach of the book. How different this perspective is to the discussion of maps' power and influence found in Denis Wood's *The Power of Maps*

or Mark Monmonier's *Drawing the Line*. Is this because there is no introductory text for the general reader on theory in cartography or because that theory has largely turned out to be irrelevant to the practice of cartography? Those of us who reject the second position must surely do more to show how the kind of assumptions about cartography made here actually do play determining roles in cartographic "practice."

The most interesting aspect of K. Kanazawa's chapter on map drawing and lettering is his discussion of relief depiction (hachures, contours, and hill-shading). These pages (p. 130 ff) contain some quite beautiful illustrations that demonstrate the power of a skilled airbrush. It would be a pity if this skill were lost, although the capabilities of good raster-based image editing programs (e.g., PHOTOSHOP or COLLAGE) may encourage graphic artists/cartographers to depict relief landscapes in a new medium. However, the rest of the chapter on scribes, pen nibs, and stick-up lettering is more happily defunct.

For those who need a frequent fix of the minutiae of pre- and post-press production, (and who doesn't?), C. Palm and S. van der Steen run the gamut from process camera photography through offset plate corrections to laminating the finished product. Despite my generally critical comments about the concentration on non-digital production in the book, this chapter is still relevant despite its photo-mechanical approach. The notions of "negative" and "positive," registration, separations (layers), and masks are all employed directly or indirectly in desktop publishing/mapping. At the same time, they have an independent beauty and thrill, as anyone who has designed and produced any kind of document can attest, because they are the

basis of publishing. This returns us to chapter one and the historical development of the printing press.

Without the following two volumes it is hard to put this volume in context. Although many of the techniques described here are dated—if not obsolete—this is not the volume's major failing; people will buy it or leave it as they need. More worrying is the vision of cartography as a collection of techniques that is presented. Many contemporary cartographers reject this description, seeking instead to understand mapping as a way of seeing that involves ideology as much as it does symbolization. This understanding will not be apparent to the "students and technicians" who read this book. Because there is nothing here which cannot be found in standard cartography texts, I recommend skipping this volume and moving straight to Volumes II and III. □

ATLAS REVIEW

Disease and Medical Care in the United States: A Medical Atlas of the Twentieth Century

Gary W. Shannon and Gerald F. Pyle. New York: Macmillan Publishing Company, 1993. 150 + vii pp., 120 maps, 9 graphs, 5 diagrams, 1 table. \$95.00. (ISBN 0-02-897371-2)

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This three-part atlas examines both medical care and health in the U.S. since the turn of the century. It is intended for the general public and students, and this is indeed the audience for which it is most appropriate.

Part I, which comprises twenty pages, summarizes the history of death registration in the U.S. and changes since 1900 in the size of the national population, its age composition, and per capita income. National standards for registration of deaths were implemented in 1900, but only ten states and the District of Columbia initially met them; all states have satisfied them since 1933. Between 1900 and 1990, the U.S. population more than tripled. Over the same period, life expectancy at birth increased from 47 to 75 years, and remaining life expectancy at age 65 increased from 12 to 17 years. Maps in this first section of the atlas depict the population density, racial composition, and per capita income for each state at four points since the turn of the century. The maps of racial composition are difficult to interpret, since census definitions shifted during the period under consideration and no doubt will change again as we become better attuned to the complexity of biological reality.

Part II, which comprises two-thirds of the volume, surveys "geographic patterns of infirmity and mortality." It begins with a consideration of tuberculosis, the leading cause of death in the U.S. in 1900. Today, tuberculosis remains globally an important public health issue, but it is numerically insignificant as a cause of mortality in the U.S. However, the rise in tuberculosis rates among low-income, minority populations is reason for concern, especially because of the appearance of drug-resistant strains. "Urban Tuberculosis Cases, 1985" depicts this phenomenon by using graduated circles and color to portray 1985 tuberculosis rates for "racial" groups in U.S. cities.

The sophisticated and effective presentation of information about influenza and AIDS in this atlas reflects the authors' specialization in research on these diseases. The

influenza epidemic of 1918-19 killed over a half-million people in the U.S. This is five times the number of U.S. troops who died from battle-related deaths in World War I and a quarter more than the number who died in World War II. The maps depict the diffusion of influenza globally in two waves in 1918 and nationally for four different times since 1900. In "AIDS Quotients for the Period, 1981-1983," "AIDS Quotients for 1984," "AIDS Quotients for 1985," and "AIDS Quotients for 1986," one of the most informative map series in the atlas, the "AIDS Quotient" is used to portray the prevalence of the disease in each state in relation to that of the country as a whole for four different times.

The bulk of the atlas relies on series of four maps to depict changes over time in a particular variable. Most of the diseases included in the atlas are examined as causes of mortality. All of today's leading causes of death—coronary heart disease, cancer, cerebrovascular disease, and accidents (specifically, motor vehicle fatalities)—are covered. The atlas also includes interesting material on infant mortality and Alzheimer's disease.

The third and final part of the atlas consists of just over twenty pages. It addresses the distribution of physicians, dentists, hospitals, and public mental hospitals. The authors point out that, at the turn of the century, "hospitals were shunned by everyone but the very poor." One of the most dramatic changes in recent decades has been the deinstitutionalization of the mentally ill. In 1955, more than half a million patients were in long-term, state-supported facilities for the mentally ill. The number today is about 100,000.

While *Disease and Medical Care in the United States* offers a fairly solid introduction to the history of

diseases and health care in the U.S., it is not as attentive to the needs of its intended audience as it could have been. For example, most of the users of the atlas are likely to be relatively inexperienced in map interpretation, and yet the authors provide neither their rationale for presenting maps in a certain way nor guidance for the reader in how to approach them. In addition, the colors used on most of the maps are not very attractive. Furthermore, there are numerous errors and points which are unclear, especially on the graphs. One might conclude that, since no individual is credited with producing the maps and graphs, and since both Shannon and Pyle are primarily medical geographers, this project would have benefited by the inclusion of a third author who was more skilled in cartography.

Despite the shortcomings of the atlas, it will be of great interest to students of medical geography and others interested in changing patterns of health and health care. It pulls together a great deal of information that is otherwise not readily available. Straightforward description in the text does generally ameliorate problems presented by the graphics. Shannon and Pyle's atlas can be fruitfully employed to provide the historical background for the forthcoming *U.S. Mortality Atlas* being produced by the National Center for Health Statistics. Using over eight hundred Health Service Areas (composed of multiple counties) rather than the fifty states as the spatial units, the latter work will be more useful for analyzing contemporary patterns of mortality. It will also be more satisfactory cartographically. □