APPENDIX A

# Maps

The geographer's greatest ally is the map. Maps can present enormous amounts of information very effectively, and can be used to establish theories and solve problems. Furthermore, maps often are fascinating, revealing things no other medium can. It has been said that if a picture is worth a thousand words, then a map is worth a million.

Maps can be fascinating, but they often do not get the attention they deserve. You may spend 20 minutes carefully reading a page of text, but how often have you spent 20 minutes with a page-size map, studying what it reveals? It is difficult to summarize every pattern a map shows in a caption or paragraph of text. Readers should actively read maps by looking for patterns and themes. For example, in chapter 2 on population we study several maps that depict the human condition by country, including birth and death rates, infant mortality, hunger index, and life expectancy. In the text, we can refer only to highlights (and low points) on those maps. But make a point of looking beyond the main issue to get a sense of the global distributions these maps represent. It is part of an intangible but important process: to enhance your mental map of the world.

While on the topic of maps, we should remind ourselves that a map—any map—is an incomplete representation of reality. In the first place, a map is smaller than the real world it represents. Second, it must depict the curved surface of our world on a flat plane, for example, a page of this book. And third, it contains symbols to convey the information that must be transmitted to the reader. These are the three fundamental properties of all maps: scale, projection, and symbols.

Understanding these basics helps us interpret maps while avoiding their pitfalls. Some maps look so convincing that we may not question them as we would a paragraph of text. Yet maps, as representatives of the world all, to some extent, distort reality. Most of the time, such distortion is necessary and does not invalidate the map's message. But some maps are drawn deliberately to mislead. Propaganda maps, for example, may exaggerate or distort reality to promote political aims. We should be alert to cartographic mistakes when we read maps. The proper use of scale, projection, and symbolization ensures that a map is as accurate as it can be made.

## MAP SCALE

The scale of a map reveals how much the real world has been reduced to fit on the page or screen on which it appears. It is the ratio between an actual distance on the ground and the length given to that distance on the map, using the same units of measurement. This ratio is often represented as a fraction (e.g., 1:10,000 or 1/10,000). This means that one unit on the map represents 10,000 such units in the real world. If the unit is 1 inch, then an inch on the map represents 10,000 inches on the ground, or slightly more than 833 feet. The metric system certainly makes things easier. One centimeter on the map would actually represent 10,000 cm or 100 meters. Such a scale would be useful when mapping a city's downtown area, but it would be much too large for the map of an entire state. As the real-world area we want to map gets larger, we must make our map scale smaller. As small as the fraction 1/10,000 seems, it still is 10 times as large as 1/100,000, and 100 times as large as 1/1,000,000. If the world maps in this book had fractional scales, they would be even smaller. A large-scale map can contain much more detail and be far more representative of the real world than a small-scale map. Look at it this way: when we devote a half page of this book to a map of a major city (Fig. A.1), we are able to represent the layout of that city in considerable detail. But if the entire country in which that city is located must be represented on a single page, the city becomes just a large dot on that small-scale map, and the detail is lost in favor of larger-area coverage (Fig. A.2). So the selection of scale depends on the objective of the map.