



**Figure A.1**  
The layout of London can be shown in considerable detail, including neighborhoods, city parks, and forests at this large scale.

But when you examine the maps in this book, you will note that most, if not all, of them have scales that are not given as ratios or fractions, but in graphic form. This method of representing map scale is convenient from several viewpoints. Using the edge of a piece of paper and marking the scale bar's length, the map reader can quickly—without calculation—determine approximate distances. And if a map is enlarged or reduced in reproduction, the scale bar is enlarged or reduced with it and remains accurate. That, of course, is not true of a ratio or fractional scale. Graphic scales, therefore, are most common in this book.

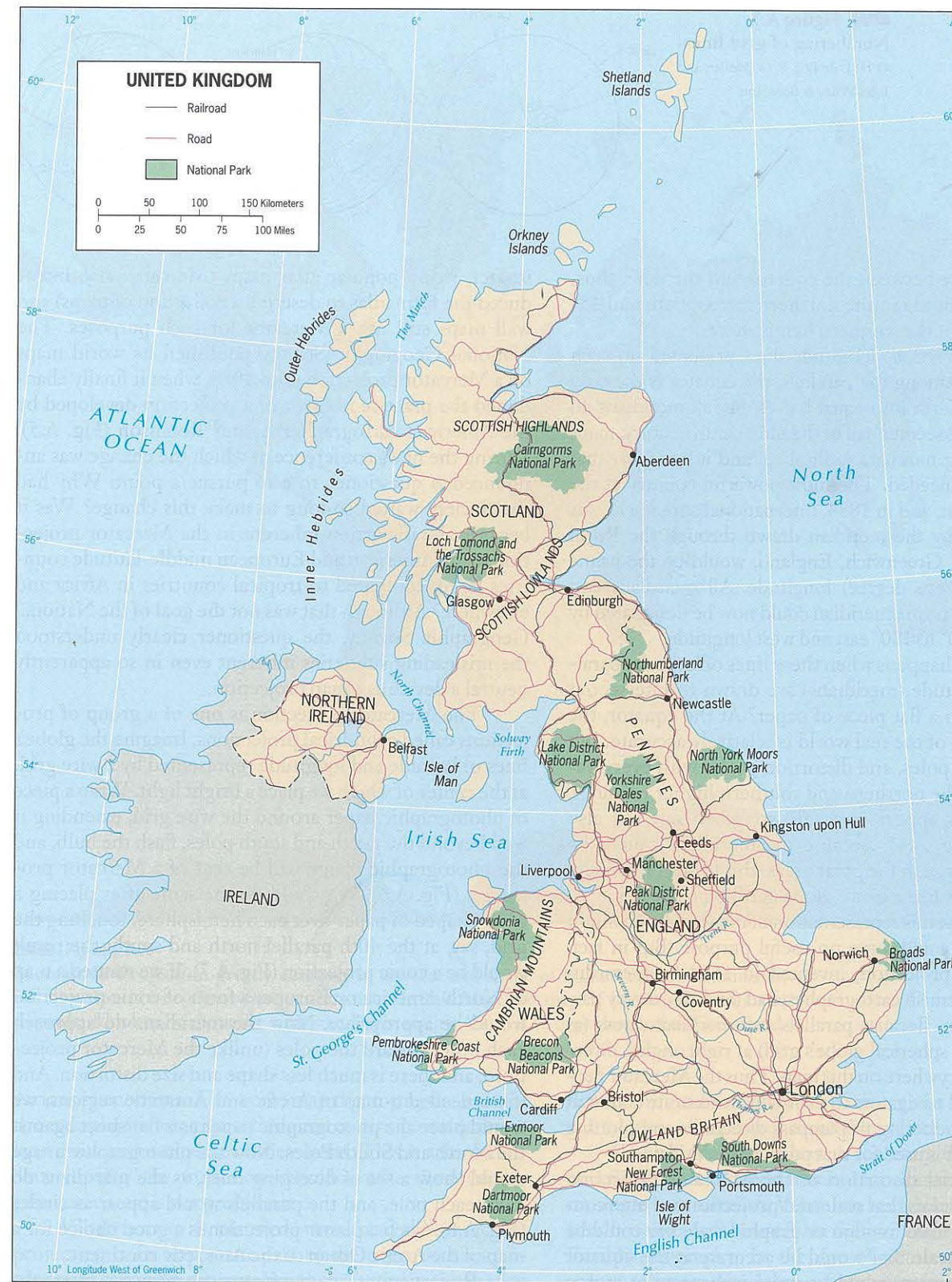
### MAP PROJECTIONS

For centuries cartographers have faced the challenge of creating map projections, ways representing the spherical Earth, or part of it, on a flat surface. To get the job done,

there had to be a frame of reference on the globe itself, a grid system that could be transferred to the flat page. Any modern globe shows that system: a set of horizontal lines, usually at 10-degree intervals north and south from the equator, called parallels, and another set of vertical lines, converging on the poles, often shown at 15-degree intervals and called meridians (see box, "Numbering the Grid Lines"). On the spherical globe, parallels and meridians intersect at right angles (Fig. A.3).

### Numbering the Grid Lines

When cartographers girdled the globe with their imaginary grid lines, they had to identify each line by number, that is, by degree. For the (horizontal) latitude lines, that was easy: the equator, which bisects the Earth midway between the poles, was designated as 0° (zero degree) latitude, and all parallels north and south of the equator were designated by their angular position (Fig. A.3). The



**Figure A.2**  
At this smaller scale, national parks in the United Kingdom are shown, as the map allows the display of a larger area. Notice this smaller scale map shows less local detail. City parks, rail lines, and roads within London are not visible at this scale, but they were visible in Fig. A.1.