which photographs are subject. They also discuss orthophoto maps, and satellite image maps from various public and private sources. This chapter finishes with a discussion pointed at dynamic image maps, most particularly ArcGIS Earth. This seems unnecessarily limited, because, while many in the GIS community use this program, it is not nearly as widely used by the map reading public as Google Earth, or even Bing Maps (which at least gets a mention).

Chapter Eleven covers the critical issues of map accuracy and uncertainty on maps. The authors identify the differences between uncertainty, error, and bias, as well as between map precision and accuracy. The types of accuracy and the sources of error are also discussed. Because the sources of error are often difficult for the average map reader to detect, this chapter includes helpful sections on communicating accuracy and uncertainty through metadata, reliability diagrams, legend notes, symbols, and notations—the last of which are the means most likely noted and understood by map readers.

Part II deals with map analysis, the purpose of which "is to reduce what might appear to be a muddle of information on a map to some sort of order that you can understand and describe to other people" (294). Chapter Twelve covers distance finding, including the means of determining distances, whether by physical measurements on the map or by coordinate distance, along with the potential error factors of each. Also discussed is the concept of functional distance, including travel time maps and isochrones. Chapter Thirteen is concerned with direction finding and compasses, with the relations between true vs. grid vs. magnetic north, with magnetic declination, and with compass direction systems. This straight-forward chapter is completed with plenty of well illustrated guidance for direction finding and determination on large and small scale maps. The fourteenth chapter covers position finding and navigation with a map, and with how to estimate one's ground position and relative distances to other features. This chapter also includes a discussion of GPS use for wayfinding and navigation. There is an overview of GPS, describing how it works, its potential accuracy and errors, and how its outputs are expressed. Land, marine, and air navigation methods complete this chapter.

Chapter Fifteen, which deals with spatial feature analysis, covers areal determination with the use of grid cell counting while maintaining awareness of measurement accuracy. Coordinate methods are outlined, with the use of mechanical, electronic and polar planimeters discussed, along with the configuration of irregular surface areas. In addition, the authors explain the concepts of area, perimeter, and centroid. It is shown how volumes can be calculated using the discrete ordinate, grid cell, and random sample methods. Lastly, the computation of shape measure, area correspondence, and compactness values are described. Chapter Sixteen concerns surface analysis, touching on the means used to determine slope, gradient, aspect, illumination, curvature, profiles, and cross sections. The authors provide an important discussion of how much vertical exaggeration is appropriate for particular profile and cross section scenes. Visibility analysis, through the setting of viewpoints and viewsheds finishes off this chapter.

Chapter Seventeen presents spatial pattern analysis, starting with consideration given to the particular parameters captured by spatial pattern measures of point, line, and area feature counts. Most of this chapter, however, focuses on pattern analysis and on the mathematical tools involved, followed by a short introduction to using GIS for spatial pattern analysis. The eighteenth chapter covers spatial association analysis, including: an examination of the types of spatial association, how to judge association visually with bivariate maps and scatterplots, and how to measure it through a variety of formulas and statistics. The authors round off this chapter with a look at the movement and diffusion of point data.

Part III deals with map interpretation, and, despite being the shortest part of the book, it is as equally important as the others. The authors note that "interpretation is the most demanding of all map-use endeavors. It is also the most exciting" (478). Chapter Nineteen covers interpreting the lithosphere, or, more properly, geomorphic and geologic terrain analysis. The authors discuss and illustrate basic landform features and types, followed by a presentation on geologic maps and cross sections. The twentieth chapter, interpreting the atmosphere and biosphere, starts with basic weather maps, media weather maps, and weather satellite image maps. I would suggest that a future edition should include a link to **hint.fm/wind**, which provides a near real-time animated depiction of current wind flow. The next section of Chapter Nineteen covers climate maps, including average annual precipitation, monthly climate maps, climate types, heating degree-days, and solar radiation. The last section, covering the biosphere, deals