long lots, Spanish and Mexican land grants, and donation land claims. Discussions of regular systems follow this section with the ancient Roman centuriation system, the US Public Land Survey System (including its problems) and the Canadian Dominion Land Survey. Lastly, the authors efficiently deal with various types of legal and technical documents: surveyed land records, subdivision plats, the cadaster, cadastral maps, engineering plans, and land information systems.

The sixth chapter, new to this edition, is on map design basics, and begins with an introduction warning readers against the use of tools that enable quick and cheap map production, but which do not "automatically result in well-designed maps that communicate your message clearly and accurately" (121). The chapter divides its discussions into three sections: Cartographic Abstraction, Map Design Considerations, and Web Map Design. Cartographic abstraction is broken down into the elements of cartographic selection, vector and raster generalization, classification, and symbolization. In the first element of the first section, the authors promote personal responsibility on both sides of the cartographic transaction: "Although it is the responsibility of the mapmaker to choose the themes and features wisely, it is the map reader's responsibility to understand that only a limited selection of all possible features is shown on the map" (123). The map design considerations section is separated into 12 components with appropriate discussions. The third section, on web map design, outlines the ways web maps are special and provides four basic design considerations (size and resolution, geographic extent and scale, projection, and symbols and text) of concern for maps used on desktop and laptop computers versus tablets and smartphones.

Nearly all of Chapter Six is well written, and would likely instill in students a desire to seek out and pursue a full map design course. However, minor complaints about several figures intrude. Figure 6.2, borrowed from *Thematic Cartography and Geographic Visualization* (Slocum et al. 2009), is unjustifiably fuzzy, with badly degraded text. The scale-dependent effects of generalization operations shown in Figure 6.3 practically disappear because the illustration has been reduced in size by some undisclosed, but apparently dramatic, amount (it was "resized to fit the page" [125]). The resizing renders the whole illustration nonsensical. Figure 6.7 is another that caught my eye: the figure caption and the text state that map is "centered correctly at 96 degrees" (128) and "positioned correctly with the central meridian" (129), respectively, but this is clearly untrue. The central, vertical, meridian is obviously the 90° line.

Chapter Seven considers qualitative thematic maps, with helpful presentations of the concepts of homogeneity, principles of symbolization, single-theme, and multivariate maps. The chapter finishes with introductions to mapping qualitative change on static and dynamic maps. Again, scan resolution is problematic in Figures 7.8 and 7.11, two maps from the *Atlas of Oregon* (Loy et al. 2001). The eighth chapter deals with quantitative thematic maps. Unfortunately, three more figures copied from the *Atlas of Oregon* (Figures 8.2, 8.4, and 8.46) display the same problems as the examples in Chapter Seven. Nonetheless, Chapter Eight quite adequately covers the differing types of quantitative data for points, lines, and areas, as well as the variety of classification schemes available, noting the advantages and disadvantages of each. The important distinctions between choropleth and dasymetric maps are covered, while cartograms, prism maps, and continuous surface maps are also presented in their various types and styles. Plenty of warnings are given, such the authors' note that "incorrectly made dot density maps can be confusing, if not downright misleading" (200). In addition, multivariate maps and multiple display maps are presented in their many forms, and several varieties of quantitative change maps are discussed.

Chapter Nine treats the topic of relief portrayal and presents a logical overview of the different absolute and relative relief mapping methods, oblique perspective maps, combined methods, and stereoscopic views. Examples of different relief shading views of Mount Saint Helens provide clear demonstrations of relief reversal and single versus multidirectional hillshading. I would suggest, however, that the image pairs in Figures 9.18 and 9.19 could have been combined in one three-image figure, because both use the same left-hand image and yet are placed side-by-side. Specific digital and dynamic portrayals of relief are handled with discussions of fly-throughs, interactive methodology, Shuttle Radar Topography Mission data, the National Elevation Dataset, Coastal Relief Model, and Lidar.

Image maps, or maps made from satellite imagery and aerial photography, are concisely considered in Chapter Ten. The authors provide appropriate coverage of black and white, color infrared, and high and low altitude photography, along with the potential geometric distortions to