CHAPTER VII

CONCLUSION

This study defined two epidemic regions along the Oregon Trail—the cholera region and the dysentery region. Specific physical and human geographic features were responsible for their development. Regions successfully infected by the *Vibrio cholera* were well-populated or linked directly to other well-populated semi-urban and urban areas where other Asiatic cholera epidemics had already taken form. Regions infected by the opportunistic organisms responsible for dysentery lacked the heavy population required of Asiatic cholera, and were typically places engaged in the early stages of development as pioneer towns and cities. The most common bacteria linked to this illness were most likely one or more species of *Salmonella*.

Asiatic cholera is differentiated from dysentery by its unique distribution along the Oregon Trail. Due to its dependency on a nidus located in estuarine and deltaic ecosystems, Asiatic cholera lost its ecological support once it diffused inland and its passage through the Rocky Mountains prevented by cooler temperatures brought on by the rising elevation of the trail and the changes in the topography of the river shoreline. An even more likely reason for this cessation of cholera diffusion westward into Wyoming was the ability of *Vibrio cholerae* to rapidly take the lives of the most susceptible people such that by the time Fort
Laramie was reached, the possibility of infecting new people so as to continue the diffusion westward in active epidemic form was eliminated.

Since Asiatic cholera epidemic regions transmit their infection in a combined hierarchical/non-hierarchical nature, the first regions infected along the Trail were the partially developed semi-urban locations-- forts--where transportation to and from by way of rivers brought cholera carriers to places where local events of economic importance took place. By entering this dense population setting, the organism responsible for Asiatic cholera was able to infect large numbers of emigrants making their way further westward along Platte River and the Great Plains and caused radially diffusing epidemics of Asiatic cholera from the fort settings.

Once a fort was departed, this Trail epidemic followed a linear diffusion pattern from one camp ground to the next until it infected nearly all the pioneers who were susceptible. By reaching Fort Laramie, it caused a much smaller outbreak, killing off any remaining susceptible people. During the remaining portion of the overland journey through Wyoming, this Asiatic cholera epidemic dissipated due to human fatalities and topographic and climatic changes along the Oregon Trail.

The diffusion of the second diarrhea epidemic of the Trail, opportunistic dysentery commenced in the same region where Asiatic cholera ceased to cause fatalities. Less inhibited by local climatic and physiographic features, its westward diffusion was first and foremost related to livestock activities in relation to local topography, forming niduses wherever animal carcasses lie. The most infectious
parts of the Trail were located close to late pioneer settlements with poor sanitation practices.

Perpetuating this cause for the dysentery problem were the various forts and trading posts where contaminated meats were often sold by nearby merchants. Still further west along the trail, malnutrition became a growing problem and caused many pioneers to become more susceptible to the disease. In the end, some of these victims effectively carried opportunistic dysentery to Portland, Oregon around January 1853.

In sum, the physical and human geographic features responsible for the prevention of vibrio diffusion from Wyoming to Oregon were equally responsible for the development of an opportunistic dysentery region. Whereas the geographic behavior of Asiatic cholera is due primarily to its history as both an endemic and epidemic disease in specific ecologically-definable regions, the geographic behavior of dysentery is less restricted in its diffusion pattern. This review of the historical behavior of diseases and their interpretations by mid-nineteenth century medical geographers, when used in the context of modern ecological disease approaches, demonstrates the value of utilizing historical evidence to interpret two otherwise identical disease patterns and develop new methods of evaluating spatial and temporal disease diffusion patterns. The early stage of economic development of Oregon State prevented diseases like Asiatic cholera from striking the Pacific Northwest but did little to prevent pioneer diseases like opportunistic dysentery from developing into epidemics in these communities.