
Illness and Mortality in Nineteenth-Century Mormon Immigration

Shane A. Baker

Between 1840–69, some seventy thousand converts to The Church of Jesus Christ of Latter-day Saints emigrated from Great Britain, Scandinavia, Germany, Switzerland, Italy, France, Australia, the Hawaiian Islands, and elsewhere to the United States to join with fellow members of the Church in the spirit of a premillennial gathering.¹ Although the process of immigration was successful for the majority of these people, still the threat of illness, and possibly even death, lingered as a significant risk for those who chose to make the journey. Travel during the nineteenth century was neither an easy nor a particularly safe undertaking, and many of the immigrating Saints fell victim to sickness, disease, and injury. A significant number of the migrants died en route, failing to ever achieve their goal of living with the body of the Saints in “Zion.” Although mortality and fatality rates for Latter-day Saint immigrants appear to approximate or be slightly below those found among comparable immigrant groups of the period, still hundreds of early convert immigrants fell ill or died during the immigration process, most often from acute diseases or accidents.

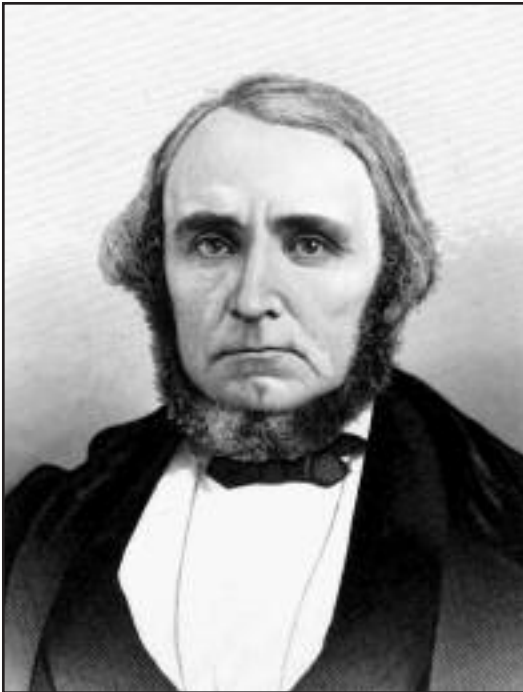
The possibility of debilitating illness or death was probably never far from the minds of the migrants as they contemplated the challenges of the call to gather to Zion. The reality of this threat was poignantly reflected in the text of the LDS hymn “All Is Well,” written by William Clayton in 1846 and made popular during the pioneer and early Utah settlement period:

SHANE A. BAKER received a B. S. and M. A. in Anthropology from Brigham Young University (1984, 1990). He is the Assistant Director for Historic Archaeology in the Office of Public Archaeology at BYU. The author wishes to express appreciation to Dr. Fred E. Woods for his significant contribution to this paper and to give special thanks to Katie A. Baker, his wife, for her assistance.

And should we die before our journey's through
 Happy day! All is well.
 We then are free from toil and sorrow, too;
 With the just we shall dwell!²

Clayton's hymn became an anthem that rallied the spirits of the thousands of men and women who would follow the overland immigration route to the Great Basin. A study of disease and death as factors in the immigration process demonstrates their role in shaping some aspects of the migration phenomenon and illustrates the particular faith and courage with which challenges were met by the early Saints.

Patterns of Mormon Immigration and Associated Health Implications



William Clayton
 Etching courtesy of LDS Church Archives

The concept of “gathering” as a tenant of the restored gospel was first revealed to the Prophet Joseph Smith in 1830.³ Between 1830–38, Kirtland, Ohio, and Jackson, Clay, Caldwell, and Daviess Counties in Missouri were the primary areas where Latter-day Saints assembled. Beginning in 1839, Nauvoo, Illinois, and other smaller settlements in Hancock County served as the central places of collective gathering. Large-scale European immigration did not commence until 1840 when it became a standard procedure and practice until 1890. Between June 1840–February 1846, the

number of immigrants to Nauvoo from Great Britain alone may have numbered as many as five thousand.⁴ The earliest immigrants from the first missionary efforts of the late 1830s and 1840s in England and subsequently

Scandinavia, continental Europe, and other parts of the world came to the United States on sailing vessels. Although a few voyages arrived at eastern ports, such as New York or Boston, the majority of the immigrants during the Nauvoo period landed at New Orleans and then took passage up the Mississippi River on river boats that delivered them directly to Nauvoo.

New Orleans remained the port of choice for inbound immigrants for a considerable period. This preference was due largely to economic factors and the advantageous position of New Orleans in terms of accessibility to the Mississippi River. After the Church removed to the Great Basin in 1847, many immigrants continued the practice of traveling to New Orleans and up the Mississippi and Missouri Rivers to outfitting posts before embarking on the final overland leg of the journey to Salt Lake. This route would predominate the immigrant flow until the spring of 1855 when Brigham Young instructed Latter-day Saint immigration agents to cease using New Orleans and to use the eastern ports of Philadelphia, Boston, and New York instead.⁵ This decision was based largely on health issues involving a high incidence of disease that affected travelers following the Mississippi River route.

Following the decision by Church leaders to reroute immigration to the East Coast, the majority of the Latter-day Saint immigrants landed at New York, which for economic reasons became the primary port of entry.⁶ From there, travelers were required to procure overland transportation, which usually consisted of a mix of rail and water craft, to reach trail heads on the western frontier. Although Mormon cultural impressions of the overland journey to Utah focus on the wagon and handcart portions of the passage, these actually constituted only a part of the journey. The other less-well-known aspect was the often difficult and harrowing “sail then rail” portion of the trip required to reach trail heads in the Midwest. Between 1831–69, 90 percent of the Mormon immigrants made a portion of their journey by water; and between 1840–69, 40 percent utilized railroads for some part of the journey.⁷

Throughout the 1850s, the trail head for the final overland portion of the trip to Utah was a continually shifting destination that moved with the improvement of overland transportation and the westward expansion of the railroad. During this period, the trail began at one of several locations, including such places as St. Louis, Westport, Jefferson City, Alexandria, and Churchill, Missouri; Keokuk, Iowa City, and Council Bluffs, Iowa; Fort Leavenworth and Atchison, Kansas; and the communities of Florence and Omaha, Nebraska.⁸ As work on the transcontinental railroad pushed westward from Omaha, the outfitting camps moved progressively closer to Utah with the advancing railhead. Completion of the transcontinental railroad in 1869 meant that Latter-day Saint immigrants could take the train all the

way to Utah.

Each of the alternative travel routes to Utah during the period of nineteenth-century immigration presented particular health and safety challenges related specifically to the mode of transportation. Health and safety risks were directly affected by the duration of the trip, a risk factor determined primarily by the type of transportation utilized and the route selected.

During the sail era of transoceanic travel of the 1840s, an Atlantic crossing from Liverpool, England, to New York took an average of five weeks. The trip to New Orleans took an average of nineteen days longer but was considered advantageous because of factors previously noted.⁹ The complete trip from Europe to Utah often required up to six months of travel time. With the advent of steam-powered ships and trains, transit time was shortened considerably. In particular, after the completion of the transcontinental railroad, the journey from Europe to Utah could be made in slightly more than three weeks.¹⁰

This disparity in travel time played a key factor in the risk of disease and illness suffered by Mormon immigrants. Although it was not necessarily an easy or comfortable trip, there was certainly less opportunity for illness to strike the post-1869 steamship/rail immigrant compared to the pre-1869 sail/rail/wagon immigrant who was almost six months getting to Zion. Immigrants traveling on square-rigged sailing vessels were at sea for five weeks and ran a much higher risk of illness because of prolonged confinement with large numbers of people and little or no skilled medical attention.

Perils on the High Seas

The nineteenth century was a period characterized by a massive movement of emigrants from Europe to the Americas and other parts of the world. Between 1815–1930, more than fifty-two million people left Europe for other countries. Of this number, approximately thirty-three million came to the United States.¹¹ Mormon immigration was only a single aspect of this much larger global migration phenomenon, and the health risks encountered by the Saints were similar to those experienced by other travelers of the time. In the early part of the century, Atlantic passage was uncomfortable, hazardous, and extremely slow, taking three to ten weeks. Estimates suggest that between 1836–53, about 1.5 percent of emigrants from European ports to New York died on board or immediately after arrival.¹² These figures declined substantially after the middle of the century when a shortened passage was possible because of the introduction of steam-powered ships.

Possibly the most commonly noted ailment found in Mormon immigrant diaries for the period of ocean crossings by sail was seasickness. Although not necessarily life threatening, the discomforts caused by motion sickness exacerbated the existing difficulties of overcrowding and contributed to a decline in sanitation. Returning missionary Dan Jones wrote the following of his 1849 crossing in the *Buena Vista*:

Everyone went to lie down, but hardly anyone could sleep; and even though the wind was not stormy and the sea was not rough, still it was sufficiently rough to make almost everyone so sick that I shall not forget that night for a long time. Though hardly anyone could sleep, yet no one slept less than myself and a few of the other elders, as we were back and forth comforting and assisting the sick as much as we could throughout almost the entire night. . . . [The sick] could hardly walk by themselves across the deck without someone guiding them.¹³

Seasickness created major sanitary problems. In the early part of the century, sailing vessels were usually equipped only with chamber pots for sanitary use by sick passengers. Rough seas often forced immigrants to remain below decks with the access hatches securely locked down. These steerage passengers were berthed in bunks made of wooden slats that measured approximately six feet square and were often used to sleep four to six people.¹⁴ One can only imagine the unhealthy and putrid conditions that resulted from circumstances involving a large company of immigrants locked “between decks” in rough weather for a lengthy storm. During his crossing of the Atlantic Ocean, William Clayton remembered that “such sickness, vomiting, groaning and bad smells I never witnessed before and added to this the closeness of the berths almost suffocated us for want of air.”¹⁵ Herman Melville’s line from *Redburn: His First Voyage* is descriptive of what the conditions were like: “To hold your head down the fore hatchway was like holding it down a suddenly opened cesspool.”¹⁶

The unsanitary conditions contributed to other health problems of a more serious nature. A wide variety of acute diseases are mentioned in journal entries of shipboard passengers. These include many that are recognizable, although no longer common today, in addition to some that are difficult to identify because of antiquated terminology. Those mentioned in contemporary accounts include king cough (croup), congestive fever (malaria), ague (malaria), black canker, consumption (tuberculosis), measles, typhoid fever, inertia, and cholera. One of the most serious threats onboard ship was that any number of highly contagious diseases could be easily spread in the cramped quarters. A single person infected with measles or chicken pox, but not outwardly sick, could quickly infect a large number of people, resulting in epidemic-like conditions during a voyage. On the 1854 passage of the

Clara Wheeler, twenty-one children and two adults died of measles. Measles also claimed a number of Danish immigrant children on the *John Boyd* in 1855 and on the *Franklin* in 1862. The outbreak on the *Franklin* led to the death of forty-three children under the age of eight and five adults, resulting in a total fatality rate of 11 percent of the company of 413.¹⁷

One of the most serious and feared diseases encountered by sailing immigrants was cholera. This deadly disease struck frequently and left immigrant groups reeling from high fatality rates. In 1854, a group of 220 Mormons traveled from Liverpool to New Orleans on board the *Germanicus*. The ocean leg of the voyage was protracted into a lengthy, sixty-nine-day passage after the ship spent several days becalmed in the Carribean. While their ship lay nearly motionless, the passengers suffered from excessive heat, with the temperature in the shade on the upper deck reaching 110 degrees Fahrenheit and with temperatures in the enclosed space between decks peaking at 120 degrees. Despite these hardships and a water shortage, the company arrived in New Orleans in relatively good health, having suffered only four deaths en route. However, while the ship lay docked at the quarantine island off of New Orleans, a major outbreak of cholera occurred among the group and during the subsequent journey up the Mississippi River, and 24 of the 220 Mormon passengers (11 percent) died from the disease. A similar outbreak had previously ravaged another Danish immigrant group in the spring of 1854.¹⁸ It was these devastating outbreaks of disease that led Brigham Young to change immigration patterns to avoid the unhealthy conditions that frequented the warm coastal climate of New Orleans and the lower Mississippi drainage.

A significant number of the recorded deaths that occurred during pioneer immigrant transoceanic crossings were women who gave birth aboard ship. The leading cause of death was probably puerperal fever, a systemic infection caused by the introduction of staphylococcus or streptococcus bacteria into lesions of the birth canal caused by the birthing process. Since there was no clear understanding of what caused the disease, inadequate measures were taken to ensure that delivery attendants used any kind of antiseptic precautions to prevent infection. It was not uncommon for births at sea to result in the deaths of both mother and baby.

Infants were also at particular risk during the ocean voyage. Nursing mothers would sometimes stop producing milk because of dietary insufficiencies, and adequate replacement food choices for unweaned infants were lacking.¹⁹ Adults and older children were able to cope with the substandard fare and low-protein diets that many immigrants were faced with; but infants, who tended to be abundant in the Mormon companies, were less able to weather these dietary challenges. In 1849, Thomas Clark described

his crossing aboard the *James Pennell*. “We lost three children, which were weaned just before they were brought on board; all the rest of the babes have done well,” he wrote. “I think it would be well to inform the Saints not to wean their children just as they come; for if they do, they will be likely to lose them before they get across.”²⁰

Although not necessarily typical of all families, the story of the George Goddard family is painfully informative. Goddard, his wife, and seven children took passage on the *Essex* in 1851. Goddard’s wife gave birth during the ocean passage, but the child lived only a half hour and was buried at sea. Later, in Memphis, while waiting for the paddle wheeler they were on to be repaired, a second child died. The family reached St. Louis in January of 1852 and remained for a short time to try to raise money for the rest of the journey west. While there, another child died. Still later, while on the plains, two more children succumbed to cholera—making five deaths in the nine months it took them to travel from England to Utah.²¹

Cholera—Scourge of the Overland Immigrant

Cholera proved to be one of the deadliest diseases that nineteenth-century immigrants faced, not only at sea but especially during cross-country travel. The malady struck quickly and killed with amazing rapidity. In less than a day, a person could progress from apparent health to total incapacitation. It was both the suddenness and mysteriousness of the disease that terrified many travelers of the period.²² It must be remembered that medical science was very much in its infancy in the 1800s, and doctors were unable to explain many of the disease processes that are understood today in light of modern germ theory and sophisticated advances in medical diagnostics and epidemiology.

At the time, there were a number of accepted theories that attempted to explain the cause of the disease and the appropriate measures to prevent and cure it. Some speculated that the illness was caused by bad air, exhalations of deadly gases from the ground, changes in the atmosphere, comets, indigestible vegetables, seafood, green corn, watermelons, strawberries, peaches, pears, cabbage, opium, or animalculae (insects too small to be seen). Others suggested that it was simply caused by something contagious and left it at that.²³ The disease was sometimes treated through bleeding, which was still a common medical treatment for a wide variety of illnesses during this time period. Other treatments included the administration of calomel (mercurous chloride), opium, mercury, rhubarb, mustard, jalap (a Mexican plant root used as a cathartic), sulphur, or weak lye.²⁴ Botanics (physicians specializing in the use of plants and natural curative agents) pre-



Rebecca Winters's Grave Site, near Scottsbluff, Nebraska

Rebecca died 15 August 1852 of cholera. A friend chiseled the words "Rebecca Winters, age 50" on an iron wagon tire to mark her grave. In 1902, a monument (above) was erected by Rebecca's descendants, after Burlington Railroad surveyors found the iron marker and changed the right-of way to protect the burial plot. However, the grave was on the wrong side of the railroad tracks from the highway, which created a safety problem for the Burlington-Santa Fe Railroad. In early September 1996, hundreds of relatives, historians, and journalists gathered at the site as the grave was opened and relocated.

Photo courtesy of LDS Church Archives

scribed a unique type of medicine. A common formulary recommended by these herbalists called for a mixture of one gallon of fourth-proof West India rum, one gallon of molasses, one quart of number six (Thomson's lobelia) and two ounces of cayenne pepper. This was to be taken in three daily doses for prevention and one-half glass every half hour to treat active cases.²⁵

Cholera is not endemic to the western hemisphere and did not appear in the United States until 1832.²⁶ By that time, smallpox and yellow fever, two of the most deadly diseases of the previous two centuries, had been largely controlled, only to be replaced by this new illness capable of causing equally devastating, widespread epidemics. The causative organism is an aerobic water-borne bacteria. It thrives in warm tropical bodies of water and most often reaches humans through the ingestion of contaminated water or food. The microorganism attacks the digestive tract where it causes an acute and life-threatening infection of the small intestine. Infected individuals excrete the bacteria in both vomit and stools, which can in turn further contaminate water or food sources. The bacteria can be present in both symp-

tomatic and asymptomatic cases.²⁷

A major cholera epidemic began in India in 1817. From there the disease spread to Afghanistan and Persia and thence into Russia by 1829. By 1830, the disease was widespread throughout the major cities of Russia and was disseminated by international travelers and immigrants to western Europe. By early 1831, it was present in the Baltic and appeared in England later that year, quickly spreading throughout England, Scotland, Wales, and Ireland. Northern Europe experienced an epidemic in 1832; and in that same year, the disease made its first appearance in the United States, having been brought there by the large number of Irish immigrants who came to America.²⁸ Transmission during subsequent global pandemics was even more rapid as steam-powered modes of transportation sped up the movement of people. Serious outbreaks occurred throughout Europe in 1853–54, 1859, the mid-1860s, and the early 1870s.²⁹ Five separate epidemics ravaged Great Britain during the nineteenth century, causing the death of an estimated 130,000 people.³⁰

The disease does not appear to have ever been endemic or persistent in the United States but was reintroduced at least four separate times during the nineteenth century. After the initial appearance of cholera in the 1832–34 epidemic, North America was free of the disease until the winter of 1848–49. Between 1849–54, however, no twelve-month period passed without an occurrence of cholera somewhere in the United States. The disease then disappeared abruptly and was not seen again until 1866.³¹

The unfortunate timing of the cholera outbreaks coincided with some of the heaviest periods of Latter-day Saint immigration. Journal accounts confirm that cholera was a very real danger to Mormon immigrants and was the cause of considerable suffering and loss of life. As previously noted, it was present in and around New Orleans and the Mississippi waterways and was responsible for the deaths of numerous European Mormon immigrants who contracted it in the area during the period between 1849–54.

The disease attacks suddenly and with very little warning. Although a mild type of infection can occur with few side effects, it is usually quite virulent in its assault. Following a brief incubation period of from one to three days, the disease usually appears as a sudden, overwhelming attack of acute painless diarrhea and spasmodic vomiting. The diarrhea is characterized by copious watery stools, which may amount to a volume of three to four gallons or more in a twenty-four-hour period. This leads quickly to a critical state of dehydration, which produces painful cramps and, if untreated, circulatory collapse.³² The onset of circulatory problems causes the victim to become cyanotic (pale or blue in color from a lack of oxygen) with a gaunt, hollow-eyed appearance, accompanied by extremities that are cold and con-

torted. The cramps were often so painful that victims writhed on the ground in agony. Death frequently followed within a day or even hours of the onset of the first symptoms.³³ The fatality rate for untreated cases was 50 percent, and often survivors were left with some long-term side effects. It generally affected all ages and both sexes equally, but healthy, robust individuals were generally more immune to the acute form of the disease. Malnutrition, intestinal parasites, or other chronic disease conditions made a person more susceptible to the disease. Insufficient food, combined with inadequate sanitation, represented the greatest factor that led to serious outbreaks among Mormon immigrants at sea.

Although Brigham Young was able to reduce the incidence of cholera among immigrants by redirecting sea travel from New Orleans and the Mississippi, there was little he could have done to shelter the Saints from exposure along the overland trail. Significantly, Cholera was the leading cause of death among immigrants on the Oregon-California Trail between 1840–60 and presented a similar threat to LDS immigrants on the Mormon Pioneer Trail.³⁴ Exposure to the disease remained a prevalent risk that was not fully overcome until rail travel shortened the trip, thus making it much safer.

Trials on the Trail

Cholera was not the only problem that faced immigrants once they began the overland trek to Utah. One trail scholar noted:

Injury, sickness and death were commonplace. Emigrants suffered cuts; broken bones; gun wounds; burns; scaldings; animal, insect and snake bites; stampedes; overturned wagons; shifting freight; drownings; quicksand; black scurvy [acute fever with hemorrhagic skin lesions]; black canker (probably diphtheria); cholera; typhoid fever; ague [malaria]; quick consumption (tuberculosis); headaches; piles [hemorrhoids]; mumps; asthma; inflammation of the bowels; scrofula [lymphoid tuberculosis]; erysipelas [streptococcal skin infection]; diarrhea; small pox; itch; and infections of all kinds, including puerperal fever.³⁵

A recent study of mortality rates among immigrants on the Oregon-California Trail found that following cholera, the second and third leading causes of death on the trail were attacks by hostile Indians and exposure. In both of these cases, a few unfortunate incidents increased the percentages of fatalities represented by these causes. In the latter, the study included the two hundred Mormon immigrants who perished in the ill-fated 1856 Willie and Martin handcart companies.³⁶ In addition, danger lurked in stream and river crossings. Drowning was found to be the fourth most common cause of



Mormon Trail Handcart Train
Picture courtesy of Utah State Historical Society

fatalities, despite the fact that much of the overland trail lies in desert-like areas.

Data suggest that an average fatality rate for overland immigrants may have been around 6 percent, although exact figures are hard to derive because of deficiencies in the historic data.³⁷ Although this may seem high, Americans in the early 1800s suffered from a relatively high death rate of about 3 percent per annum, primarily because of the absence of adequate medical care, including modern antibiotics and immunizations to treat and prevent acute diseases.³⁸

Both the original Pioneer Company of immigrants led by Brigham Young and the Big Company that followed them to the Salt Lake Valley enjoyed relatively good health, with only seven deaths reported in these first two groups.³⁹ Their rates of illness and fatality appear to be unusually low. The immigrant companies that subsequently followed appear to have experienced health problems at about the same rate as other contemporary cross-country migrating groups.

Cholera was a ubiquitous problem in the trail-head cities along the Missouri River and continued to afflict immigrants as they moved west along the trail until they reached the area of Scottsbluff, Nebraska, after which it became much less common, most likely because of cooler temperatures found in higher elevations along the western stretch of the trail beyond that

point.⁴⁰

However, as cholera decreased as the immigrants moved west, another mysterious illness took its place. An illness termed “mountain fever” was reported as having been encountered by various immigrant groups in the area from the Platte region to the Sacramento River. The illness was characterized by nausea, severe headaches, and a form of dysentery. The Mormon pioneers first encountered it when they reached South Pass in 1847. The disease was seldom fatal and usually was limited to a couple of days in duration. It has often been speculated that the disease was Rocky Mountain spotted fever, transmitted by the bite of ticks infected with the rickettsia spirochete. However, it is more likely that the “mountain fever” encountered by the Mormons was Colorado tick fever, which is also transmitted by the bite of a tick infected by a virus. Symptoms are similar with severe headaches, muscle and joint pains, and fever. The acute febrile stage of the diseases starts suddenly, with a brief remission of the fever followed by a second period of relapse, each of which lasts two to three days.⁴¹ The victim usually recovers completely without any lasting side effects.

Historic accounts document that Brigham Young himself was a victim of one of these trail fevers. His entry into the Salt Lake Valley was delayed because of his incapacitation and inability to travel. The day he entered the valley he was prostrate with a fever and was still confined to a makeshift bed in a carriage. The probable cause was more than likely a case of Colorado tick fever.

Conclusion

Mormon pioneer immigrants of the nineteenth century experienced a monumental endeavor fraught with considerable difficulty and danger. Both transoceanic and transcontinental travel was attended with increased risk because of a wide variety of acute diseases, communicable illness, and accidental injury. It was not an undertaking to be taken lightly.

Many of the immigrants paid with their lives in the effort to follow the advice of Church leaders to gather with the Saints in Zion. The exact number of Saints who died is not known, but estimates suggest that between 1846–69, some forty-two hundred to five thousand perished during some phase of the journey. Some 670–700 died crossing the Atlantic or the Pacific, while another 3,400–4,300 died during the overland journey. The period from 1846–48 stands out as the years with the highest death rate and most intense affliction. Some data suggest that overall death rates were lower than the 4 to 6 percent that characterized groups on the other overland trails, despite the fact that Mormon immigrant parties typically includ-

ed larger numbers of young, elderly, and infirm than did the average immigrant group of the day, which was comprised primarily of young, healthy adults.⁴²

The equanimity and determination with which the Latter-day Saint immigrants faced these trials are a testament to their faith in the cause in which they were involved.

Notes

1. Stanley B. Kimball, *Historic Resource Study: Mormon Pioneer National Historic Trail* (Denver: National Park Service, 1991), 4.
2. "Come, Come, Ye Saints," *Hymns of The Church of Jesus Christ of Latter-day Saints* (Salt Lake City: Deseret Book, 1985), no. 30.
3. See *Doctrine and Covenants of the Church of Jesus Christ of Latter-day Saints* (Salt Lake City: The Church of Jesus Christ of Latter-day Saints, 1981), 29:7–8; 37:3
4. Andrew Jensen, "Church Immigration," *The Contributor* 12, no. 12 (October 1891): 441, cited in Fred E. Woods, "Gathering to Nauvoo: Mormon Immigration 1840–1846," *Nauvoo Journal* 11, no. 2 (fall 1999): 45.
5. Brigham Young to Franklin D. Richards, 2 August 1854, "Foreign Correspondence," *Latter-Day Saints' Millennial Star* 16 (28 October 1854), 684, cited in Woods, "Gathering to Nauvoo," 49.
6. Woods, "Gathering to Nauvoo," 61, note 46.
7. Stanley B. Kimball, "Sail and Rail Pioneers before 1869," *BYU Studies* 35, no. 2 (1995): 7–8.
8. *Ibid.*, 9.
9. Woods, "Gathering to Nauvoo," 49.
10. Richard L. Jensen and William G. Hartley, "Immigration and Emigration," in *Encyclopedia of Mormonism: The History, Doctrine and Procedure of The Church of Jesus Christ of Latter-day Saints*, ed. Daniel H. Ludlow, 4 vols. (New York: MacMillan, 1992), 1:674.
11. Dudley Baines, *Emigration from Europe 1815–1930* (Cambridge: Cambridge University Press, 1995), 1–2.
12. *Ibid.*, 40.
13. Dan Jones to Brother Davis, 18 April 1849, *Mormon Immigration Index*, CD-ROM (Salt Lake City: Intellectual Reserve, 2000), n.p.
14. David H. Pratt and Paul F. Smart, "Life on Board a Mormon Immigrant Ship," in *World Conference on Records: Preserving Our Heritage*, 13 vols. (Salt Lake City: The Church of Jesus Christ of Latter-day Saints, 1981), 5:5.
15. James B. Allen and Thomas G. Alexander, eds., *Manchester Mormons: The Journal of William Clayton, 1840 to 1842* (Salt Lake City: Peregrine Smith, 1974), 173, cited in Pratt and Smart, "Life on Board a Mormon Immigrant Ship," 7.
16. Cited in Pratt and Smart, "Life on Board a Mormon Immigrant Ship," 7.
17. Conrad Sonne, "Under Sail to Zion," *Ensign* 21, no. 7 (July 1991): 8. See also Pratt and Smart, "Life on Board a Mormon Immigrant Ship," 7.
18. Janet E. Worrall, "Germanicus Passengers: From England to Early Settlement in Utah and Idaho," *Utah Historical Quarterly* 53, no. 1 (winter 1985): 40–45.
19. Pratt and Smart, "Life on Board a Mormon Immigrant Ship," 3.
20. *Latter-Day Saints' Millennial Star* 11, no. 23 (1 December 1849): 363, cited in

Pratt and Smart, "Life on Board a Mormon Immigrant Ship," 9.

21. George Goddard, "Autobiography," in Kate B. Carter, comp., *Our Pioneer Heritage*, 20 vols. (Salt Lake City: Daughters of Utah Pioneers, 1974), 17:174–75.

22. Madge E. Pickard and R. Carlyle Buley, *The Midwest Pioneer: His Ills, Cures, and Doctors* (New York: Henry Schuman, 1946), 27.

23. *Ibid.*, 28.

24. *Ibid.*

25. *Ibid.*, 29.

26. Charles E. Rosenberg, *The Cholera Years: The United States in 1832, 1849, and 1866* (Chicago: University of Chicago Press, 1962), 1.

27. Robert Berkow, *The Merck Manual* (Rahway, New Jersey: Merck Sharp & Dohme Research Laboratories, 1982), 106–8.

28. Robert T. Divett, "His Chastening Rod: Cholera Epidemics and the Mormons," *Dialogue: A Journal of Mormon Thought* 12, no. 3 (fall 1979): 6.

29. J. N. Hayes, *The Burdens of Disease: Epidemics and Human Response in Western History* (New Brunswick, New Jersey: Rutgers University Press, 1998), 135–36.

30. Sheldon Watts, *Epidemics and History: Disease, Power and Imperialism* (New Haven: Yale University Press, 1997), 167.

31. Rosenberg, *The Cholera Years*, 4.

32. Berkow, *The Merck Manual*, 106–8.

33. Rosenberg, *The Cholera Years*, 3.

34. Richard L. Rieck, "A Geography of Death on the Oregon-California Trail, 1840–1860," *Overland Journal* 9, no. 1 (spring 1991): 14.

35. Kimball, "Sail and Rail Pioneers before 1869," 17.

36. Rieck, "A Geography of Death on the Oregon-California Trail, 1840–1860," 14–15.

37. John D. Unruh Jr., *The Plains Across: The Overland Emigrants and the Trans-Mississippi West, 1840–60* (Urbana: University of Illinois Press, 1979), 516.

38. Raymond N. Doetsch, *Journey to the Green and Golden Lands: The Epic of Survival on the Wagon Trail* (Port Washington, New York: Kennikat Press, 1976), 44.

39. Doetsch, *Journey to the Green and Golden Lands*, 98.

40. Herbert C. Milikien, "'Dead of the Bloody Flux': Cholera Stalks the Emigrant Trail," *Overland Journal* 14, no. 3 (autumn 1996), 6–7.

41. Doetsch, *Journey to the Green and Golden Lands*, 84–85.

42. Susan Easton Black, "Do We Know How Many Latter-day Saints Died between 1846 and 1869 in the Migration to the Salt Lake Valley?" *Ensign* 28, no. 7 (July 1998): 40–44.

When considering mortality in the context of nineteenth century Scotland, it is useful to bear in mind that over the period three Registrars General oversaw civil registration in Britain, there being separate systems for England and Wales, Ireland and Scotland. Researchers comparing cause of death statistics across the British Isles should therefore be wary of taking the available data at face value. The death certificates also give the length of the last illness, and in three-fifths of those first day deaths where this information is shown, the duration of the last illness was one hour or less. ple, mortality in two states that are often compared to emphasize the importance of health behaviors—Nevada and Utah. Two-thirds of Utahans are Mormon; LDS adherence requires abstinence from alcohol, coffee, and tobacco. Two-thirds of Nevadans live in Las Vegas-Paradise. Ranking states by their all-cause mortality rate for WNH aged 45-54, we find that Nevada ranked 9th highest among all states in 2014; Utah ranked 31st. Heart disease mortality was twice as high in Nevada in 2014 as it was in Utah (119 per 100,000 vs 59 per 100,000). The Nineteenth-Century Mormon Migration. By Glen M. Leonard. Authors' original spelling has been retained, following standard historical practice. See reasons for spelling variations in "Nineteenth-Century Spelling," *Ensign*, Aug. 1975—including uncertain spelling conventions and spelling as an expression of personality. Illness, accident, and other physical discomforts were always a possibility. The first days out of Liverpool on a sailing boat or steamer seasickness was a common reaction; some people remained bedridden for the entire ocean crossing. At New Orleans and up river, fevers, cholera, and dysentery attacked weary travelers.