

James E. Talmage and Scientific Consulting in Early Modern Utah

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A devout member of The Church of Jesus Christ of Latter-day Saints, James E. Talmage (1862–1933) is perhaps best remembered today for his classic theological text *Jesus the Christ*.¹ He is also remembered by some for his extensive academic ties to Brigham Young Academy, the Latter-day Saints College, and the University of Utah.² Yet the image many Latter-day Saints have of Talmage sedately writing *Jesus the Christ* in the Salt Lake Temple has seemingly little in common with the trail-worn scientist covered in mining debris who emerges from his journals. Talmage spent much of his time from the late 1890s to 1911 working as an independent mining consultant, and in the early twentieth century, he played a major role as a scientific consultant in many legal disputes involving Utah's burgeoning mining industry.³

1. James E. Talmage, *Jesus the Christ: A Study of the Messiah and His Mission according to Holy Scriptures Both Ancient and Modern* (Salt Lake City: Deseret News, 1915).

2. The Brigham Young Academy was the forerunner to Brigham Young University. Talmage graduated from the academy in 1879 and stayed on as a teacher until 1882. The academy helped pay for Talmage's studies at Lehigh University and Johns Hopkins University from 1883 to 1884, and Talmage resumed teaching at the academy from late 1884 to 1888. He then taught at the Latter-day Saints College until 1894, when he was asked to assume the presidency of the University of Utah. See John R. Talmage, *The Talmage Story: Life of James E. Talmage—Educator, Scientist, Apostle* (Salt Lake City: Bookcraft, 1972), 12, 20–30, 42, 46, 53–55, 78–80, 122–23.

3. In 1911, when Talmage was ordained as an Apostle for The Church of Jesus Christ of Latter-day Saints, much of his consultant work ended, though he continued taking some consulting jobs thereafter.

While this area of Talmage's life is mentioned in a biography written by his son, John R. Talmage,⁴ scholars have tended to focus on the theological, scientific, and educational contributions James E. Talmage made⁵ and have ignored his involvement in Utah's mining and smelting industries.⁶ A well-known and highly educated expert witness, Talmage was sought after for his expertise in applied chemistry and mining, as well as for his reputation as an important religious and civic leader. In this article, I draw on Talmage's journals, correspondence, and research files to provide glimpses into Talmage's experiences as an assayer, surveyor, and legal consultant for the mining industry between 1900 and 1913.

4. John R. Talmage, *Talmage Story*, 160–75.

5. Previous works on Talmage's life include John R. Talmage, *Talmage Story*; James E. Talmage, *The Essential James E. Talmage*, ed. James Harris (Salt Lake City: Signature Books, 1997); and Dennis Rowley, "Fishing on the Kennet: The Victorian Boyhood of James E. Talmage, 1862–1876," *BYU Studies* 33, no. 3 (1993): 480–520. Important studies on *Jesus the Christ* include Malcolm R. Thorp, "James E. Talmage and the Tradition of Victorian Lives of Jesus," *Sunstone* 12, no. 1 (January 1988): 8–13; Clyde D. Ford, "Modernism and Mormonism: James E. Talmage's *Jesus the Christ* and Early Twentieth-Century Mormon Responses to Biblical Criticism," *Dialogue: A Journal of Mormon Thought* 41, no. 4 (Winter 2008): 96–120; and Richard Neitzel Holzapfel, *James E. Talmage's Jesus the Christ Study Guide* (Salt Lake City: Deseret Book, 2014). Scholarship on Talmage's role in modernizing Church teachings and minimizing polygamy-related doctrines include Richard S. Van Wagoner, Steven C. Walker, and Allen D. Roberts, "The 'Lectures on Faith': A Case Study in Decanonization," *Dialogue* 20, no. 3 (Fall 1987): 71–77; Bradley Kime, "Exhibiting Theology: James E. Talmage and Mormon Public Relations, 1915–20," *Journal of Mormon History* 40, no. 1 (Winter 2014): 208–38; Brian William Ricks, "James E. Talmage and the Nature of the Godhead: The Gradual Unfolding of Latter-day Saint Theology" (master's thesis, Brigham Young University, 2007), 117–34; and Matthew Bowman, *The Mormon People: The Making of an American Faith* (New York: Random House, 2012), 161–67.

6. Though not examined in detail here, Talmage's involvement in Utah's smelting companies from 1904 to 1908 was extensive and is significant given recent work on smelters in Montana and Colorado. As environmental history continues to emerge as an important area of western American history, Talmage's support for smelters and miners is an area of research that deserves further consideration. See George Vrtis, "A World of Mines and Mills: Precious-Metals Mining, Industrialization, and the Nature of the Colorado Front Range," in *Mining North America: An Environmental History since 1522*, ed. J. R. McNeill and George Vrtis (Oakland: University of California Press, 2017), 73–107; see also Timothy James LeCain, "Copper and Longhorns: Material and Human Power in Montana's Smelter Smoke War, 1860–1910," in McNeill and Vrtis, *Mining North America*, 166–90.

Education

James E. Talmage was a graduate of Brigham Young Academy, where he taught chemistry until he left in 1882 to further his education at Lehigh University. While he was there, he completed the coursework for degrees in chemistry and geology. In 1883, he pursued advanced training at Johns Hopkins University in Baltimore, and he might have gone on to earn additional formal degrees, but the advance on his salary was rescinded after the Brigham Young Academy caught fire in late 1883, which required the school to shift its relatively meager resources toward rebuilding. Talmage returned home to Provo, Utah, in 1884 and continued teaching.⁷ He taught at other colleges in Utah, and he would eventually earn a PhD from Illinois Wesleyan University in 1896. Talmage's training in science was thoroughly modern, experiment driven, and evidence based. Several of his school notebooks are preserved in the L. Tom Perry Special Collections at Brigham Young University, and they are densely populated with scientific and mathematic notes, formulas, and references to scholarly works of the 1880s. This training was the basis for Talmage's approach to his work as a mining consultant.



James E. Talmage (*left*) was a prominent educator in Utah in the late nineteenth century. He is pictured here with two other Utah educators, John R. Park (*center*) and Karl G. Maeser (*right*). This photograph was taken during or shortly after Talmage's service as the president of the University of Deseret (later University of Utah). Educators P3, 1897, Utah State Historical Society Classified Photo Collection. Used by permission, Utah State Historical Society.

7. John R. Talmage, *Talmage Story*, 53–54.

His academic study of geology and chemistry was enhanced by the knowledge he gained from practical experience with Utah's natural environments. Well before he began working as a consultant, Talmage visited the mines and geological sites all around Provo. As early as 1881, he undertook geological expeditions and visited mines primarily to document the geological history of Utah and to better understand its diverse physical environments.⁸ Talmage continued to investigate mines while he studied outside of Utah as a student at Lehigh University and Johns Hopkins University. During this time, he acquired fossils from phosphorous plants near Lehigh University in Bethlehem, Pennsylvania, and toured regional mines.⁹

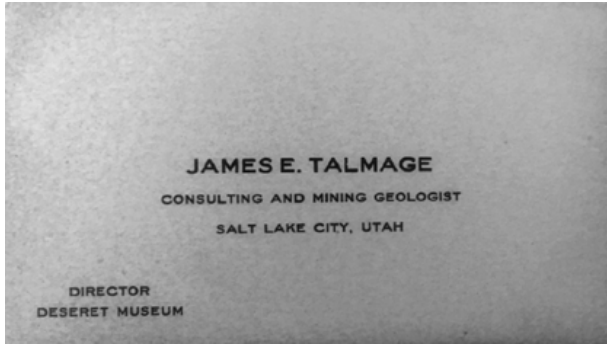
Consultant Work

The early twentieth century was a heady time for Utah's industrial development as massive smelting operations and railroad construction made formerly unprofitable coal, salt, copper, silver, and iron mines valuable.¹⁰ The increased industrialization and larger focus on mining resulted in significant changes to life in Utah. Regarding the conflict between industrial development and the more traditional economies of farming and self-sufficiency, two historians of this period in Utah's development

8. The earliest entry in Talmage's journal regarding gathering mineral samples dates to April 7, 1881. The entry for this day reads, "Spent the day in 'Slate Cañon' collecting specimens and examining aspect of the region. Fine place for collecting 'Micaceous shale' and 'Micaceous-sandstone.'" James E. Talmage, journal, 1:49 (April 7, 1881), MSS 229, series 1, box 1, folder 1, James E. Talmage Papers, L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University, Provo, Utah.

9. Talmage, journal, 1:222 (July 31, 1883); Julianna Bratt, "To Lay a Single Stone: A Preliminary Investigation of James E. Talmage as a Scientist and Museum Professional" (Library Research Grants, Harold B. Lee Library, Brigham Young University, Provo, Utah, 2011), 15, https://scholarsarchive.byu.edu/libraryrg_studentpub/16/.

10. For an overview of the development of coal, copper, salt, and silver mining, see Thomas G. Alexander, "Generating Wealth from the Earth: 1847–2000," in *From the Ground Up: The History of Mining in Utah*, ed. Colleen Whitley (Logan: Utah State University Press, 2006), 38–43. For further analysis on copper mining, see Bruce D. Whitehead and Robert E. Rampton, "Bingham Canyon," in *From the Ground Up*, ed. Whitley, 224–25. For an extensive analysis on iron mining, see Janet Seegmiller, "Iron County," in *From the Ground Up*, ed. Whitney, 197–219 (especially 205–6).



James E. Talmage Business Card, circa 1900–1910. Courtesy Talmage Papers, Perry Special Collections.

observed, “At stake were such diverse considerations as job opportunities, enhanced payrolls, air and water pollutants, despoiled land, radically altered farming strategies, and various changes in life-style. In this early period of Utah’s industrial revolution the by-products of change were largely unanticipated. But expected or not they touched the lives of individuals, brought interest groups into being, and triggered a communitywide examination of values and interests.”¹¹ Due to the complex nature of these new developments, Utah needed the services of a qualified, reputable consultant such as Talmage.

With his formal academic credentials and deep knowledge of Utah’s environs, Talmage was well positioned to supplement the relatively low salary earned from his position as the Deseret Chair of Geology at the University of Utah with assaying and surveying services. As a professor, Talmage earned an annual salary \$2,400—not a small amount for the time but no large sum either, given his responsibilities.¹² We do not know how much Talmage generally charged as an expert witness, but in 1912, at or near the height of his prestige, he estimated the cost for his services from \$500 to \$1,000 for a full property inspection.¹³ His

11. John E. Lamborn and Charles S. Peterson, “The Substance of the Land: Agriculture v. Industry in the Smelter Cases of 1904 and 1906,” *Utah Historical Quarterly* 53, no. 4 (Fall 1985): 310.

12. John R. Talmage, *Talmage Story*, 142.

13. Fred J. Holton to James E. Talmage, August 10, 1912, 2, typescript, MSS 1232, box 5, folder 12, James E. Talmage Collection, 1879–1933, Church History Library, The Church of Jesus Christ of Latter-day Saints, Salt Lake City.

financial success as a consultant led him to consider resigning from his chair in the geology department at the University of Utah in 1904–5, and he finally left his formal academic career behind in 1907.¹⁴

Despite working actively as a professor at the University of Utah until 1907 and his increased assignments from Latter-day Saint leaders, Talmage traveled extensively by horse and rail to mines all over the American West as a consultant.¹⁵ In 1911, however, Talmage was called to serve in the Quorum of the Twelve Apostles, and John R. Talmage notes that Talmage’s direct involvement in mining-related consulting declined greatly as a result.¹⁶ Yet his ecclesiastical responsibilities sometimes overlapped with his geological expertise, most notably in the case of the “Dream Mine,” also known as the Relief Mine, in 1913. During this highly controversial situation, Talmage made a thorough analysis of the site and came away convinced that the workers were being taken advantage of. His journal includes significant commentary on his experiences at the Dream Mine in Spanish Fork as well as at the Majestic Gold Mine in Brigham City, sometimes called “the Dream Mine in the north” by contemporaries.¹⁷ His involvement as an Apostle with these mines and his involvement as a consultant in two other significant cases are discussed below to establish a better understanding of Talmage, his work, and the contours of life in early twentieth-century Utah.

Reputation

Talmage considered the consulting jobs he took before agreeing to work for one side or the other. After his expert testimony helped the Excelsior Iron Mining Company secure its patent on a portion of iron veins in Iron County in 1904, Talmage recorded in his journal, “The case has been decided in favor of the parties for whom I appeared. . . . In this case I was asked by each side to investigate and testify; I took the side I

14. John R. Talmage, *Talmage Story*, 165–67.

15. Given his extensive scientific education in chemistry and geology, Talmage was qualified to both map out placer veins and assess the value of mines. He chemically analyzed ore percentages, toured mines, and provided highly detailed reports to mine owners regarding their holdings. An example of his reporting is found in his papers at BYU. See James E. Talmage to A. S. Burrows, October 25, 1910, typescript, MS 229, box 21, folder 1, Talmage Papers, Perry Special Collections.

16. John R. Talmage, *Talmage Story*, 161.

17. Talmage, journal, 15:86–89 (July 16 and 19, 1913).

thought to be right; though perhaps hope of financial gain if considered at all would have indicated other action.”¹⁸

Never one to hold his tongue when matters of geology were at stake, Talmage’s draft of instructions to the lawyers representing Excelsior Iron Mining (owners of the Adams and Armstrong Mines) were quite dismissive of the opposing expert witnesses. Their claim was that certain Iron County lodes were separate bodies of ore, unconnected to a main body of iron ore patented by the Armstrong Mining Company. Of this claim, Talmage wrote, “Is it so that a definition of placer deposits has been constructed to specially suit the wishes of [the defendants] in this case? Would the experts who have defined lodes [as unbroken veins of ore with no geological separation between segments of the lode] dare incorporate [*sic*] such definitions in a professional paper to be read before a gathering of their peers and to be published over their signatures to the world?”¹⁹

These biting remarks provide a glimpse into the language used by scientific authorities to contest their opponents’ claims in early twentieth-century Utah courts. While Talmage’s declamation against his opponents in this case may seem virulent, he was appreciated at court and by his associates in the mining industry. In 1906, a laudatory article in the *Salt Lake Mining Review* noted, “Dr. Talmage, in a most forceful manner, has made his knowledge and experience felt throughout the mining camps of the west, and his recognized ability in his profession has placed him in the front ranks of men possessed of scientific attainments. With big mining men his word is authority, and his recommendation or

18. James E. Talmage, “Personal Journal, James Edward Talmage, Salt Lake City, Utah. For the Year 1904,” 41 (November 4, 1904), MSS 229, Talmage Papers, Perry Special Collections. This case was particularly interesting since the Excelsior Iron Mining Company secured only a small part of a larger disputed section of mining, but Talmage’s satisfaction with the case’s outcome suggests that this was nevertheless seen as a victory within the company and was possibly their intended outcome from the start.

19. James E. Talmage, “Suggestions as to Important Points for Argument,” 3, box 19, folder 21a, Talmage Papers, Perry Special Collections. Ironically, the legal definition of a *claim* included only those parts of a lode that a government surveyor included in the formal claim. While some portion of the iron lode being mined by the opposition was, according to the judge’s final decision, actually part of the Armstrong Mining Company’s surveyed claim, the vast majority of the portions of the lode claimed by Armstrong Mining in its suit were outside of their survey. See also Talmage, “Personal Journal . . . for the Year 1904,” 41.

condemnation of a mining property is final with those by whom he is employed.”²⁰

Talmage developed this reputation through his work as a reliable scientific consultant and expert witness on several important Utah mining-related lawsuits.

Herriman Irrigation Company v. George W. Keel
(Butterfield Mining Company)

The earliest mining-related lawsuit known to involve Talmage began in 1898—the Herriman Irrigation Company, plaintiff, against George W. Keel as receiver of the Butterfield Mining Company, defendant. The city of Herriman had been settled in 1852, and at about that time, the Herriman Irrigation Company was incorporated to control the flow of water in a local stream.²¹ In 1894, the Butterfield Mining Company established a “head gate in the natural channel of the creek, and diverted about one-half of the water then flowing in the stream.”²² The mining company also changed the normal flow of underground water when it constructed two massive tunnels upstream from Herriman—the Queen Tunnel, running 2,900 feet, and the Butterfield Tunnel, running over 8,200 feet. Herriman’s farmers argued that allowing the company to further divert water from the creek would cause a water shortage. Therefore, in 1897, Herriman Irrigation began a lawsuit against Butterfield Mining, naming the company’s receiver, George W. Keel, as the defendant.²³

The case was initially ruled in favor of Butterfield Mining. Herriman Irrigation then appealed, and the case went to the Utah Supreme Court,

20. “Men Who Have Been Foremost in Utah Mining,” *Salt Lake Mining Review* 8, no. 13 (October 15, 1906): 6.

21. *Herriman Irrigation Co. v. Keel and Butterfield Mining Co.*, 25 Utah 96, 69 Pac. 719 (Utah 1902).

22. *Herriman Irrigation Co.*, 25 Utah at 98.

23. The Butterfield Mining Company was conveyed to George W. Keel by Michael Gibbons in December 1892, and “by order of the Third Judicial District Court of the State of Utah, for Salt Lake County, in the case of Wood Grocer and Produce Company, etc. v. Butterfield Mining Company, George W. Keel was, January 7, 1902, appointed receiver of all property and effects of the Butterfield Mining Company”; George W. Woodruff, “Patten et al. v. Conglomerate Mining Co.,” *Decisions of the Department of the Interior and the General Land Office in Cases Relating to the Public Lands* 35 (July 1, 1906–June 30, 1907): 619.



Water being diverted in Herriman, Utah. In 1897, the Herriman Irrigation Company sued the Butterfield Mining Company for diverting too much water from a local stream. Talmage was hired as a consultant in the case. A. A. Clark Company, Herriman Ditch, September 1913, Shipler Commercial Photographers Collection. Used by permission, Utah State Historical Society.

which on March 19, 1899, remanded the case for a new trial to determine what percentage of water was due to Keel and Butterfield Mining.²⁴ This required further geological analysis of the area, and James E. Talmage was hired as a consultant to determine how much water had been diverted by Butterfield Mining and what percentage should be required to flow through to Herriman. Talmage described several of his visits to the holdings of Butterfield Mining in his journal:

24. "Big Water Case on Trial," *Salt Lake Herald* 29, no. 332 (May 1, 1900): 3. The Utah Supreme Court's first ruling is found in *Herriman Irrigation Co. v. Butterfield Mining and Milling Co.*, 19 Utah 453, 57 Pac. 537 (Utah 1900).

May 2 [1900]. Went to Revere by morning train, thence to Butterfield Cañon and vicinity horseback. I was accompanied by Bro. E. S. Hinckley²⁵ of Provo, and at Revere we were joined by Bishop C[r]ane of Herriman.²⁶ Spent the entire day examining the geological structure of the region. Traversed the celebrated Butterfield tunnel its full length of 9000 feet into the hill.²⁷ Reached Herriman at 7 p.m., from which place we drove to the City [Salt Lake City], reaching home shortly before midnight. The journey was made necessary by the circumstances attending an important trial now in progress in the District Court, in which the Herriman Irrigation Company contends for the right to certain waters, which they claim have been diverted by the Butterfield Mining Co. and others through the construction of the tunnel. In this case I have been subpoenaed as a witness, to give evidence on certain geological matters. . . .

25. Edwin Smith Hinckley (1868–1929) was a geologist and alumnus of Brigham Young Academy. He earned a bachelor’s degree in geology from the University of Michigan in 1895 and then returned to Provo, where he taught at Brigham Young Academy. He served as a counselor to BYU President George H. Brimhall in 1904, following the academy’s transition into a university. Hinckley also served as dean of the Church Teachers College at BYU. Given his close ties to Brigham Young Academy and his background in geology, he was a natural choice to accompany Talmage on this geological excursion, and he also served as a witness for the plaintiffs. Cory Nimer, “Contributions of the Class of 1891: Edwin S. Hinckley,” *Special Collections Blog*, Perry Special Collections, February 27, 2016, <https://sites.lib.byu.edu/special-collections/2016/02/27/contributions-of-the-class-of-1891-edwin-s-hinckley/>.

26. James Stannard Crane (1857–1915) was called to serve as bishop in Herriman in 1897. Born in Pulham, Norfolk, England, he immigrated to Utah in 1866 and was baptized in 1867. In 1901, he was the vice president of the Herriman Irrigation Company. Andrew Jenson, *Latter-day Saint Biographical Encyclopedia: A Compilation of Biographical Sketches of Prominent Men and Women in The Church of Jesus Christ of Latter-day Saints*, vol. 1 (Salt Lake City: Andrew Jenson History, 1901), 580.

27. The Butterfield tunnel is largely forgotten today. A French company began construction on the tunnel in 1892, and \$250,000 of labor and heavy machinery was invested. The tunnel was the main thoroughfare along a section of land with numerous lodes on either side. In theory, it allowed the company to more easily access each of its valuable claims. The tunnel’s main purpose, however, was to drain water buildup that would otherwise make mining impossible. One history noted that “in 1895 [the tunnel] reached a length of 8,200 feet. . . . Beginning in 1923, the U.S. company [United States Smelting, Refining and Mining] extended the Butterfield tunnel another 10,000 feet to its final length of 18,400 feet.” Don Strack, “Butterfield Tunnel,” UtahRails.net, updated November 1, 2018, <https://utahrails.net/bingham/butterfield-tunnel.php>.

May 5 [1900]. Spent entire day examining the Butterfield Minning [*sic*] Company's property and adjacent formations. Went to Revere by early morning R. G. W. train, thence horseback over the hills to Bingham Cañon[,] Butterfield Cañon[,] etc.²⁸ Bishop Crane and Bro. George Miller of Herriman met me at the railway and accompanied me during the day.²⁹ Barlow Ferguson one of the attorneys for the plaintiff took part of the journey, but remained to visit in Bingham.³⁰ We reached Herriman sometime after 9 p.m., too late to permit of my returning home. Spent the night at Bishop Crane's. Ill tonight, partly from exertion at great altitudes, but more particularly through my having encountered foul air in a tunnel of the Queen mine today. I was passing through a tunnel and had just gone beyond a door dividing the passage when my candle went out from "choke-damp" present, and I almost lost consciousness.³¹

Though Talmage survived his encounter with chokedamp (also known as blackdamp), this incident illustrates just one of the many hazards that Talmage faced as a consultant for mining companies.

The contradicting testimony of expert witnesses on either side of this case led Judge Henry H. Rolapp, the appellate court judge responsible for setting the water due to either side, to organize a visit to the site of controversy in person. Talmage described the trip in his journal:

May 21 [1900]. Proceeded by train to Revere thence by team to Herriman and Butterfield cañon, and then went horseback over part of the ground concerned in the suit at law between the Herriman Irrigation Co., and the Butterfield Mining Co. The journey was undertaken by

28. The R. G. W. was the Denver & Rio Grande Western Railroad line—the most extensive narrow-track railroad in the United States in the nineteenth century. Further information can be found in Robert G. Athearn, *The Denver & Rio Grande Western Railroad: Rebel of the Rockies* (Lincoln: University of Nebraska Press, 1977).

29. George John Miller (1871–1941), a longtime resident of Herriman, was the president of the Herriman Irrigation Company. "Obituaries and Vital Statistics Gathered from S. L. and Intermountain Territory," *Salt Lake Telegram*, October 6, 1941, 18.

30. Barlow Ferguson (1859–1926) was a successful Utah lawyer. He graduated from the Brigham Young Academy in 1880 and privately studied law until he passed the bar before the state supreme court in 1886. In 1892, he formed the firm of Ferguson and Cannon with John M. Cannon, son of George Q. Cannon. "Barlow Ferguson," *Biographical Record of Salt Lake City and Vicinity* (Chicago: National Historical Record Co., 1902), 111–12.

31. Talmage, journal, vol. 10, May 2 and 5, 1900.

order of the court. Party comprised Judge Rolapp³² before whom the case is tried, Mr. Keel (one of the defendants) Attorney George Sutherland³³ and Engineer Doremers [Doremus]³⁴ (for the defendants); and on the plaintiff's side,—Bishop Crane of Herriman, Attorney Barlow Ferguson, and myself. We spent the entire day on the ground, and part of the night in the Butterfield tunnel. Passed the night at Mr Keel's residence near the tunnel mouth.³⁵

Following this visit to Herriman and the Butterfield Canyon, Judge Rolapp ultimately decided in favor of Butterfield Mining, which meant it could appropriate 80 percent of the water from the Butterfield Stream for whatever purpose it desired. Judge Rolapp noted, "It is true that a conclusion was reached by plaintiff's experts, based upon various theories, to the effect that they could account for no other cause for the drying up of these springs except the excavation of the defendants' tunnels,

32. Henry H. Rolapp was an "Ogden judge and prominent Mormon businessman" who "held a number of offices in Weber County, was a State Board of Corrections member, and in 1895 served in the territorial Supreme Court. Prominent in LDS affairs, he became the president of the Eastern States Mission in 1928." John Gary Maxwell, *Robert Newton Baskin and the Making of Modern Utah* (Norman, Okla.: Arthur H. Clark, 2013), 282 and n. 4.

33. George Sutherland (1862–1942) was not a member of the Church but attended the Brigham Young Academy in the late 1870s and early 1880s. He eventually received his legal credentials from the University of Michigan Law School. In 1900, he was "elected to a term as Utah's congressman, and in 1905 he returned to Washington as a U.S. senator." He would go on to be elected president of the American Bar Association in 1916. Popular among Washington, D.C., Republicans, Sutherland was nominated by Warren G. Harding for the U.S. Supreme Court in 1922, and he served until 1938. Since Sutherland's early education occurred at the Brigham Young Academy, he and Talmage were likely at least somewhat familiar with one another. See W. Paul Reeve, "A Utahn, George Sutherland, Served on the U.S. Supreme Court," *History Blazer*, January 1995.

34. Abraham Fairbanks Doremus (1849–1933) was a native of Salt Lake City. He was a well-recognized specialist in irrigation and railroad construction. He served in a variety of public offices, including as the city engineer of Salt Lake City, as the state engineer of Utah, and on the state board of health. He was also the Republican candidate for mayor of Salt Lake City in 1898, eventually losing to John Clark. See *Men of Affairs in the State of Utah: A Newspaper Reference Work* (Salt Lake City: Press Club of Salt Lake City, 1914), 146; see also *Sketches of Inter-Mountain States Utah, Idaho, Nevada* (Salt Lake City: Salt Lake Tribune, 1909), 115.

35. James E. Talmage, journal, vol. 10, May 21, 1900.

but the reasons offered for such conclusion were wholly unsatisfactory to my mind.”³⁶

Judge Rolapp was apparently dissatisfied with Talmage’s and Hinckley’s testimonies on behalf of Herriman Irrigation. In 1901, a professional engineering and mining journal reported that a “decision was rendered at Salt Lake City, Utah, Jan. 28, by Judge Rolapp, in the case of the Herriman Irrigation company vs. George W. Keel et al. The action was to restrain the defendants in their mining operations through the Butterfield tunnel from interfering with the flow of water from the plaintiff company’s springs. Judge Rolapp’s decision was in favor of the defendant. In his opinion the flow from the tunnel is percolating and seepage water, and not from the Herriman Irrigation company’s springs.”³⁷ The judge’s decision, however, was immediately appealed.

The case then appeared again before the Utah Supreme Court in 1902, and on July 19, it ultimately found that the Butterfield Mining Company had a right to use the percolating and other water on their property but did not have exclusive control of the water, which included the Butterfield Creek and the underground streams and springs, which had potentially been diverted through construction of the Butterfield tunnel.³⁸ The Utah Supreme Court ordered that the water be divided evenly at the head gate, minus 8 percent from Herriman Irrigation to account for seepage and percolating water native to the Butterfield Mining property.³⁹ The court ruled that the damage to local water systems done by Butterfield Mining was done *damnum absque injuria*—in other words, the damage was incidental to Butterfield Mining’s acceptable use of the land, and the only question was how much of the water they were entitled to take. This decision is what the court had ruled in 1899 when it first remanded the case to Justice Rolapp’s appellate court.⁴⁰

Utah Supreme Court Justice George W. Bartch⁴¹ found that Butterfield Mining’s claim that the water it diverted would not affect the water

36. Herriman Irrigation Co., 25 Utah at 105.

37. “A Decision in Utah on Underground Water,” *Municipal Engineering* 20 (January–June 1901): 174.

38. Herriman Irrigation Co., 25 Utah at 121.

39. Herriman Irrigation Co., 25 Utah at 117.

40. Herriman Irrigation Co., 25 Utah at 121.

41. George W. Bartch (1849–1927) was born in Pennsylvania, was admitted to the bar in his home state in 1884, and moved to Canon City, Colorado, in 1886. In 1888, he moved to Salt Lake City, and in 1889, President Harrison selected him as a probate judge. After Utah achieved statehood in 1896, Bartch

flow to the community was backed by expert opinion. The company's expert witnesses, Charles Stevenson⁴² and A. F. Doremus, claimed that rather than losing water to the mines, the natural topography of the land and a loss of groundcover and trees had changed the water retention level, resulting in decreased water flow to natural springs.⁴³ While this expert testimony was damaging to Herriman Irrigation's claims, the company had their own expert witnesses, James E. Talmage and Edwin S. Hinckley, who testified of precisely the opposite—that mining operations had seriously damaged the natural flow of water in the Butterfield Stream to Herriman's farmers and other citizens downstream.⁴⁴

Justice Bartch described Talmage as a "geologist of known ability" but relied on Judge Rolapp's observation that there was nothing to support Herriman Irrigation's claim that its streams and other waters were threatened by Keel's mining operations—rather, the fault lay with the citizens of Herriman for clear-cutting vegetation around their streams.⁴⁵

Chief Justice James A. Miner concurred in general but found Talmage and Hinckley to be more credible, writing, "It is quite manifest from the facts and circumstances shown that about one-half of the water flowing out of the tunnels was diverted from the plaintiff's springs . . . by the construction of the tunnels."⁴⁶ This led Miner to conclude that the water that could be rerouted by Butterfield Mining should amount to one-half of

was elected to the state supreme court. He was re-elected in 1900 and served twice as chief justice, from 1899 to 1900 and 1905 to 1906. "In Memorium, Honorable George W. Bartch," 1927, Alta Club, Special Collections, J. Willard Marriott Library, University of Utah, Salt Lake City.

42. Charles L. Stevenson (1834–1902) was the secretary of the Irrigation Commission for Utah. In preparation for the third National Irrigation Congress, held in Denver in 1894, he helped write and compile *Irrigation in Utah* (Salt Lake City: Utah Irrigation Commission, 1895).

43. Herriman Irrigation Co., 25 Utah at 104.

44. Herriman Irrigation Co., 25 Utah at 105.

45. Herriman Irrigation Co., 25 Utah at 105.

46. Herriman Irrigation Co., 25 Utah at 116. Chief Justice James A. Miner (1842–1907) was an Episcopalian and a Republican when he was appointed an associate justice to territorial Utah in 1890 by President Harrison. He was elected as the first chief judge of Utah's supreme court in 1896; his term ended in 1903. "James A. Miner," MichMarkers.com, accessed April 23, 2019, <https://www.michmarkers.com/default?page=Lo898>; "Biographical Sketch of Judge Miner," *Deseret Weekly*, August 30, 1890, 341.

the total amount diverted by the head gate to account for water formerly flowing to the springs that fed Herriman's irrigation canals.⁴⁷

A third concurring opinion written by Judge Robert Baskin quoted Talmage's testimony at length: "From the statement that from 1852 to 1893 the springs which are now dry flowed continuously without appreciable variation, and in 1893 the tunnel encountered water which flowed out of the tunnel, and more water was encountered, as the tunnel was constructed until 1895, when all the springs dried up, I would say the sources of the springs had been tapped, and their water passed out of the tunnel."⁴⁸ Providing much-needed clarity, Baskin goes on to state that this had all been worked out by the courts in the 1899 case. At that time the court had returned the case to the appellate court, ruling "that the defendant company did not acquire a right to any of the water flowing from said tunnels except such as was developed by percolation, and that the plaintiff retain[ed] the right to all the water flowing in the natural channel of Butterfield creek."⁴⁹ The only question facing the courts was how much of the water coming out of the tunnels had percolated from the defendant's land and how much was from the Butterfield creek's other sources, which lay outside of the company's control. While the defendants were free to take the percolating water and route it for their own use, the formerly aboveground water remained the property of Herriman Irrigation.

The case was significant because it weighed Herriman citizens' water rights against Butterfield Mining's right to use the water flowing through the ground underneath its properties. The case had the potential to drastically affect water usage rights throughout Utah. If Butterfield Mining had been found to be at fault for improper usage or abandonment of the percolating water and other waters, the company would have lost control of a precious asset that helped run their mining tunnels and develop aboveground property that the Keels owned in the region upstream from Herriman.

On the other hand, a ruling that gave entire control of the water flowing into the Butterfield Creek to the mining company would have set a precedent of allowing people's water to be appropriated and redirected by other people upstream, potentially leading to the destruction of whole communities across the state. As Judge Baskin noted in his 1902 opinion on the case, "It is a matter of common knowledge, and

47. *Herriman Irrigation Co.*, 25 Utah at 117.

48. *Herriman Irrigation Co.*, 25 Utah at 120.

49. *Herriman Irrigation Co.*, 25 Utah at 121.

the courts will take notice of the facts without proof, that irrigation is the life of agriculture in this State.”⁵⁰ He went on to note that if the court ruled in favor of Keel and his mining company, most of the water in the state used to irrigate crops and make life possible would be put at risk.⁵¹ Although Talmage was not able to entirely secure Herriman’s water rights with his testimony, his witness testimony was quoted by the judges and considered useful, bolstering his reputation as a consultant.

Grand Central Mining Company v. Mammoth Mining Company

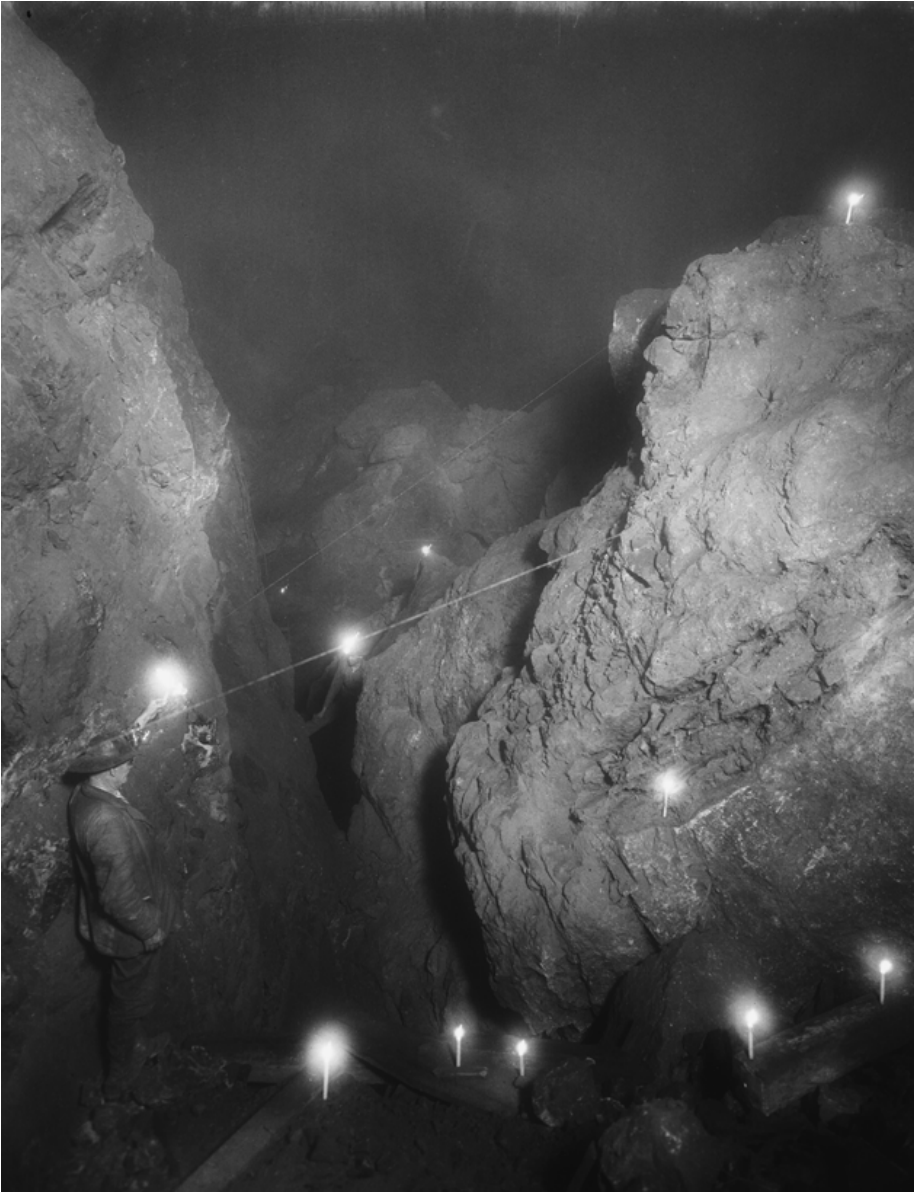
In late 1901, the Mammoth Mining Company hired Talmage as an expert witness in one of the lengthiest legal disputes in early twentieth-century Utah—*Grand Central Mining Company v. Mammoth Mining Company*.⁵² This case, involving two Tintic District silver mining companies in Juab County, resulted in twenty-seven findings by Utah’s supreme court in 1904 at a time when most decisions had only one to three findings. The case was important in establishing how lower courts in Utah could instruct juries and how the legal boundaries of mines and veins were established. The case involved \$300,000 of silver that Grand Central Mining accused Mammoth Mining of mining from their Silveropolis holdings.⁵³ The complexity of the case was such that numerous diagrams mapping out the holdings of the two companies were included in the official Utah Supreme Court case report, which carries on for over a hundred pages.

50. Herriman Irrigation Co., 25 Utah at 124.

51. Herriman Irrigation Co., 25 Utah at 125. Baskin was one of three Utah Supreme Court justices when the case came before the court in 1902. One of the most significant leaders in late nineteenth- and early twentieth-century Utah who was not a member of The Church of Jesus Christ of Latter-day Saints, Baskin was a noted opponent of the Church in political matters. However, his advocacy for statehood and willingness to accept the Church’s turn from polygamy at face value were critical factors in ending Utah’s territorial status. See Maxwell, *Robert Newton Baskin*, 284.

52. The Grand Central Mining Company began mining near the town of Mammoth, Utah, in 1895, and Apostle and future senator Reed Smoot was on its initial board of directors. Its stockholders included, among others, Apostle George Q. Cannon. The Mammoth Mine was discovered in 1870 and mined by various companies, including the Mammoth Mining Company, until 1980. See Philip F. Notarianni, *Faith, Hope, & Prosperity: The Tintic Mining District* (Eureka, Utah: Tintic Historical Society, 1982), 15, 53.

53. *Grand Central Min. Co. v. Mammoth Min. Co.*, 29 Utah 490, 83 Pac. 648 (Utah 1905).



Interior of the Grand Central Mine. Chief Con. Mining Co., View in Cave Grand Central Mine #5, photographed by Harry Shipler, 1926, Shipler Commercial Photographers Collection. Published by Utah State History; digitized and digital file hosted by J. Willard Marriott Library, University of Utah; physical item located at the Utah Department of Heritage and Arts. Used by permission, Utah State Historical Society.

The crux of the court's decision was the failure of geologists, including Talmage, whose services were retained by Mammoth Mining in 1902, to locate a specific apex linking several ore bodies in the geology of the land that was contested by the parties.⁵⁶ Mammoth Mining's final appeal was dismissed by the U.S. Supreme Court in 1909.⁵⁷ Talmage became involved in 1902, and his journal records regular trips between Provo, Salt Lake City, and Nephi while the case was being tried:

January 1 [1902]: On this New Year's day I find myself away from home. I am detained in Nephi, Utah, to which place I have been called as a witness on geological structure in a noted mining suit now on trial in the court here—The Grand Central Mining Company vs. The Mammoth Mining Company. The present needs of the case call for the examination of certain maps and the construction of others, and I am compelled to remain over the holiday. Thanks to present facilities for long distance communication, I was able to call up the loved ones at home by telephone and express the season's greetings over the wire. I was on duty in the map room until midnight. . . .

Jan. 7: Obtained leave of absence from the University and proceeded to Nephi by evening train in response to a call from court. . . .

January 8: Went to the witness stand during the afternoon and remained under direct examination until adjournment.

Jan. 9: On the witness stand during the entire day. Cross examination began during the afternoon.

Jan. 10: Cross examination continued. This was followed by re-direct and re-cross. Finished at 4.15 p.m.

Jan. 11: In company with Mr. Tyler—an expert witness on the Grand Central side I went to Mammoth by morning train.⁵⁸ We spent the rest

all other claims to a whole vein of silver that crossed into Grand Central Mining's property. Mammoth Mining was unable to locate the geological apex that would have allowed them to prove that their property line went as far as they said it did, and while geologically the vein was one body, legally only the aboveground property lines could be used to determine ownership, which fell to Grand Central Mining. See *Mammoth Mining Co. v. Grand Central Mining Co.*, 213 U.S. at 72–77 (1909).

56. This failure should not be construed as Talmage's; rather, the apex Mammoth Mining wanted to find did not exist at the location they needed it to.

57. *Mammoth Mining Co.*, 213 U.S. at 72–77.

58. Sidney W. Tyler (1841–1910) was a mining engineer and geologist who lived in Denver, Colorado. "Obituary," *Engineering and Mining Journal* 89, no. 14 (April 2, 1910): 735.

of the day examining certain recent work done by the Mammoth Company on their property. . . .

Jan. 15: Returned to Nephi by evening train in response to summons from court.

Jan. 16: On the witness stand during morning . . . session of court giving testimony as to the results of my recent visit to the Mammoth mine. Returned home by evening train. . . .

January 22: Called to Mammoth by telephone message from Nephi. Rebuttal testimony is now being put in by the Mammoth Company (defendant and cross-complainant in the case) and further examination is wanted. Was joined at Provo by my fellow witness—Mr. Sidney W. Tyler of Denver—and together we proceeded to Mammoth. . . .

January 23: Entire day spent in the Mammoth mine and in surface examinations of new excavations.⁵⁹

One depiction of Talmage as an expert witness for Grand Central Mining in early 1902 demonstrates Talmage's "forceful" behavior on the stand. The *Salt Lake Herald* reported the results of a cross-examination from the opposing side following Talmage's testimony:

Mr. Zane, the cross-examining attorney, rigidly insisted upon specification by the witness of limits to the Mammoth vein along the course from where it leaves the west side line of Mammoth lot 38 to where it enters the Grand Central claims northwest of that point and becomes the Grand Central vein. The witness with equal firmness insisted upon a distinction between the vein proper and offshoots or branches thereof, showing that the Betsy stope ore bodies running out to the north and the southerly ore bodies on the 600 and 500 levels of the Mammoth workings are clearly on the so-called "back fissure," and therefore are to be regarded as branch of and not within the main vein.

Touching the question of apex, the witness was directed to locate the apex of the vein point through the Grand Central claims, and did so, at the same time stating that the apex must not be confounded with outcrop inasmuch as the former may not reach the surface.

The vexed question of dip and strike was fully dwelt upon and a distinction between pitch and dip emphasized by the witness.

At the afternoon session Dr. Talmage's cross-examination [continued]. . . . The subject was illustrated by blackboard drawings of outcropping dikes in which dip, pitch and strike were clearly apparent above the surface. The meaning was then applied to the ore bodies in

59. Talmage, journal, 1–3 (January 1–23, 1902).



Mammoth Mine, photographed by Harry Shipler, ca. 1905, Shipler Commerical Photographers Collection. Used by permission, Utah State Historical Society.

dispute, the witness maintaining that the great vein in question, after departing on its strike from the west side line of Mammoth lot 38, pitches in the direction of its strike northwesterly into the claims of the Grand Central.⁶⁰

While Talmage was able to argue that the apex of the contested mineral body was in an area owned by Mammoth Mining, he was unable to locate the “legal” apex—defined by Chief Justice George W. Bartch as a specific point along a vein indicating the direction of mineralization or providing some other geological feature that could be used as a marker or boundary. According to the testimony quoted by Justice Bartch in his 1905 report, when asked directly, Talmage responded that he knew of no such feature.⁶¹

60. “Dr. Talmage Pinned Down,” *Salt Lake Herald-Republican*, January 11, 1902, 6.

61. *Grand Central Min. Co.*, 29 Utah at 543–44.

Talmage's testimony during the trial was considered highly useful by Utah's supreme court. Even in a losing cause, his remarks clarified the geological and legal situation of the mines. Chief Justice Bartch described Talmage as a "geologist and expert of eminent ability."⁶² Indeed, Talmage's testimony was vital in establishing the boundaries of Grand Central Mining's and Mammoth Mining's holdings. For example, the official Utah Supreme Court case report recorded, "Dr. Talmage, testifying for plaintiff, corroborated the testimony of Prof. Jenny, and speaking of the Finn tunnel, from station o3 north, he says: 'As you go through that tunnel from its mouth to its face there are absolutely no indications of mineralization.'"⁶³

Not all parties were thrilled by Talmage's presence as a witness in this case. The case was tried before a jury from 1901 through 1902, when Talmage was a popular speaker and university professor known throughout Utah. He also had strong ties to The Church of Jesus Christ of Latter-day Saints. Understandably, there was some concern during the jury trial that Talmage's prestige would carry undue weight with the largely Latter-day Saint jury. The *Salt Lake Tribune*, despite its well-earned reputation during this period as an anti-Mormon paper, nevertheless mocked Grand Central's lawyers when they protested Talmage's presence on the stand: "It is said that some of the jurors made notes when Dr. Talmage was on the stand. A trifling incident, indeed! Yet it annoyed the lawyers on the other side, and they have repeatedly cited the jurors to that portion of the court's instructions relating to undue weight to certain testimony, and extracts from the testimony of Dr. Talmage, or even the mention of his name causes uneasiness."⁶⁴

Though Mammoth Mining eventually lost the case on appeals, Talmage's reputation as an expert witness was not tarnished. Chief Justice Bartch quoted Talmage as saying, "I fail to find any continuation of the great ore bodies. . . . After diligent search for an outcrop on lot 38 I have failed to find it."⁶⁵ His failure to find such bodies or an outcrop was the key point in Mammoth Mining's losing the case, but his honesty reinforced his reputation as a reputable witness.

62. Grand Central Min. Co., 29 Utah at 556.

63. Grand Central Min. Co., 29 Utah at 540-41.

64. "Closing of Arguments," *Salt Lake Tribune*, January 31, 1902, 3. There are no reports in the court records that the jury gave undue weight to Talmage's testimony.

65. Grand Central Min. Co., 29 Utah at 542.

The Dream Mine

Possibly the most controversial mine analyzed by Talmage was John A. Koyle's Relief Mine in Spanish Fork, Utah, commonly referred to as the Dream Mine. Several historians have written on the Dream Mine's history, so only a brief introduction is presented here.⁶⁶ In 1894, John Koyle of Salem, Utah, began telling associates that he had seen a vision of a valuable mine in Spanish Fork.⁶⁷ He immediately organized members of his community to begin excavating his "Dream Mine" and formally incorporated the Koyle Mining Company in 1909.

By 1895, despite repeated failures to locate valuable minerals of any kind and the failure of at least one of Koyle's visions to guide them to anything of value, an incredible effort was made to dig down through the mountain site where the mine was located. The company issued stock certificates in 1909 to fund expansion of their mining operations, and stockholder meetings continued to be held annually despite the absence of anything of value coming out of the mine.⁶⁸ Many sources on the Dream Mine cover Talmage's experiences there in July 1913. For example, one source notes, "While the Dream Mine attracted volunteer laborers and faithful investors, it also drew the attention of the LDS Church, worried that the faithful were being fleeced. In 1913, Mormon Apostle James E. Talmage, a trained geologist, examined a sample from the Dream Mine and declared the ore worthless."⁶⁹ Many historians

66. Previous studies include Joe Stanley Graham, "The Dream Mine: A Study in Mormon Folklore" (master's thesis, Brigham Young University, 1970); and Jay M. Haymond, "Dream Mine," in *Utah History Encyclopedia*, ed. Allan Kent Powell (Salt Lake City: University of Utah Press, 1994), 147. More recent work includes Kevin E. Cantera, "A Currency of Faith: Taking Stock in Utah County's Dream Mine" (master's thesis, University of Utah, 2008); and Ian Barber, "Dream Mines and Religious Identity in Twentieth-Century Utah: Insights from the Norman C. Pierce Papers," *Princeton University Library Chronicle* 70, no. 3 (Spring 2009): 433–69.

67. Kevin Cantera, "A Currency of Faith: Taking Stock in Utah County's Dream Mine," in *Between Pulpit and Pew: The Supernatural World in Mormon History and Folklore*, ed. W. Paul Reeve and Scott Van Wagenen (Logan: Utah State University Press, 2011), 125–58; James R. Christianson, "An Historical Study of the Koyle Relief Mine. 1894–1962" (master's thesis, Brigham Young University, 1962). Other sources give the date as 1893; see Carma Wadley, "The Stories They Tell," in *From the Ground Up*, ed. Whitney, 85–86.

68. See Cantera, "Currency of Faith," 125–27.

69. Cantera, "Currency of Faith," 138–39.

have not noted several letters between Talmage and Koyle from earlier in 1913, which shed additional light on Talmage's visit in July 1913.

On May 5, 1913, Talmage wrote Koyle with a request for information about his mining venture. Koyle responded on May 7 with a detailed account of the work done to that point and an invitation to come view the site. Bemused by Koyle's detailed account, Talmage replied that he would be interested to learn the source of Koyle's certainty regarding the geological features he expected to encounter as the work progressed and also kindly thanked him for the invitation to visit, which Talmage declined for the time being.⁷⁰ Talmage's case files at the Church History Library indicate that he had been following the Relief Mine since 1909, but it seems he gathered only general information about Koyle and the mine until taking a more active role in 1913.⁷¹

Talmage's journal account of his experience in the Relief Mine is much more detailed than all but one other account he recorded about his mine examinations, suggesting the significance of this visit in his mind. He recorded,

July 16 [1913]: By a very strong impression to do today what I have long contemplated doing, I left by early train, went to Spanish Fork, there procured a horse and buggy and drove to the foot of the mountain east of Salem. The purpose of my visit is to examine the "Relief Mine," commonly known as the "Dream Mine." Many rumors of this alleged mine have reached me and much has been said concerning supposed inspiration by which the work has been undertaken and prosecuted. I had previously some correspondence with Bishop John H. Koyle of Leland ward, Nebo

70. James E. Talmage to John A. Koyle, May 5, 1913; John A. Koyle to James E. Talmage, May 7, 1913; James E. Talmage to John A. Koyle, May 9, 1913, MS 1232, box 6, folder 14, Talmage Collection, Church History Library.

71. Talmage's papers contain items related to the Dream Mine dated before 1913, but it is unclear when Talmage obtained them. The Church History Library catalog's finding aid notes that the case files contain a "copy of mining agreement, lists of stock holders, copies of Talmage's reports about the Koyle and Holton dream mines, and First Presidency correspondence with Nebo Stake presidency about John A. Koyle." "Koyle Dream Mine, 1909–1913," Topical Files, MS 1232, box 22, folder 1, Talmage Collection, Church History Library. Scott Kenney noted a reference on April 22, 1913, from the First Presidency's meeting minutes, recording a response to a query from Martin Anderson of Toquerville, Utah, asking if the First Presidency had "authorized" the Dream Mine, to which they responded that they had not, and they would not recommend investment in it. Scott G. Kenney, Scott G. Kenney research materials, MSS 2022, box 2, folder 14, Perry Special Collections.

stake, at whose instance the work has been done. . . . I found thirty men engaged in the work, each of whom is working for stock in the company, all having faith in the divine direction by which they say the mine was located. Brother Bradford and I accompanied by Brother Koyle and others inspected the workings from top to bottom. These workings consist of an irregular shaft, in places vertical, in others running on inclines, changing direction frequently, and extending to a present depth of over 1100 feet. The shaft penetrates the limestone of the region and is absolutely devoid of any evidence of mineralization in the mining sense of the term. The "leader" which Brother Koyle professes to have been following appears at the surface as one of the innumerable fault slips which appear on the western face of the Wasatch, incident to the profound fault by which that noble range has been elevated.⁷² After returning to the surface I met Brother Koyle and all the brethren here engaged and told them that from the standpoint of geological structure and all the known laws of mineral occurrence their effort is absolutely without promise of success.⁷³

Following this blunt assessment of their labors, the miners bore Talmage a number of testimonies to the validity of Koyle's claims. Talmage's journal records his response: "I told them I had made the subject a matter of prayer and had asked . . . to be able to recognize the facts and the truth, and testified to them that while their free agency was, of course, their own and not to be interfered with by me, that I considered it would be well for them to abandon this work and to take themselves to useful and profitable labor."⁷⁴

The miners and Talmage went their separate ways, though rumors that Talmage had endorsed the Relief Mine plagued him for years, leading him to issue a strongly worded denunciation of the Relief Mine on May 14, 1928: "Immediately after making the [1913] examination . . . I emphatically declared that I regarded the alleged manifestations as spurious, and that the setting forth of any such claims . . . to prospective purchasers of stock was wholly unjustifiable and fundamentally wrong. I reaffirm this position now."⁷⁵

72. A "leader" is a man-made or natural weakness in a rock formation that can be worked through to a theoretical deposit.

73. Talmage, journal, 15:86 (July 16, 1913). Note that this portion of Talmage's journal has been quoted from by numerous sources on the Dream Mine over the years. See notes 66 and 67 herein.

74. Talmage, journal, 15:87 (July 16, 1913).

75. James E. Talmage, "Dream Mines," 2 (May 14, 1928), typescript, MS 1232, box 22, folder 5, Talmage Collection, Church History Library.

Majestic Gold Mine

The Dream Mine was not the only controversial mine Talmage visited in July 1913. On July 21, Talmage traveled to Brigham City, Utah, to evaluate a mine there. He met with Dr. Fred J. Pack, professor of geology at the University of Utah, and with Carter Grant, Heber J. Grant's nephew,⁷⁶ and together they met with the owner of the Majestic Gold Mining Company, Fred J. Holton, a Brigham City lawyer.⁷⁷ Holton declined to travel with them to inspect the site of his mine. Arriving on site, they found seven men tunneling into a "quartzite bedded rock of the region [with] no trace of a mineralized fissure or other indication of metaliferous deposit."⁷⁸ Following their examination of the diggings, Pack and Talmage held a two-hour "informal meeting" with the miners during which Talmage questioned each man to learn why he had become involved with Majestic Gold Mining. He recorded his impression of their answers in his journal:

They all claim that they were impressed by the story told by Holton, and bore impassioned testimony to its truth. This story is to the effect that in his desire to procure means which would enable him to devote his time to Temple work for the dead, Brother Holton fasted and prayed and received visitations of heavenly personages and manifestations of divers kind by which he learned that in this locality immense bodies of rich gold ore lay hidden; and that he is the man through whom it is to be brought forth to be used primarily in building temples and in vicarious labor for the dead.⁷⁹

76. Talmage, journal, 15:89–90 (July 21, 1913).

77. The Majestic Gold Mining Company should not be confused with the Harrington-based Majestic Mine, which produced substantial quantities of copper and gold. Regarding Majestic Gold Mining, in 1911, the *Salt Lake Mining Review* reported, "A gold mine has been found in Box Elder canyon, three miles southeast of Brigham City, Utah, by Fred J. Holton, an attorney of that place. The vein is reported to be three feet wide with values averaging \$19 in gold to the ton." "Dips, Spurs and Angles," *Salt Lake Mining Review*, October 30, 1911, 16. A number of positive references regarding Majestic Gold Mining also appeared in the *Salt Lake Herald-Republican*. For example, an April 5, 1913, note mentions that Majestic Gold Mining had closed on a massive real estate purchase near Brigham City. See "Brigham City Briefs," *Salt Lake Herald-Republican*, April 5, 1913, 7. Despite these positive reports, no new reports regarding Majestic Gold Mining appear after 1913, indicating the mine's lack of success.

78. Talmage, journal, 15:90 (July 21, 1913).

79. Talmage, journal, 15:90 (July 21, 1913).

In response, Talmage asked Pack to describe the geological structure of the area, which Talmage described as “devoid of any shadow of promise of mineral occurrences.” Talmage then harshly condemned the project, describing it as “inspired of evil.” In contrast to his approach at the Dream Mine, where he told the men that they could do as they desired, Talmage directly declared that his response to the men was “the Word of the Lord” unto them.⁸⁰

At least one individual associated with Majestic Gold Mining, Carter Grant, was highly impressed by Talmage’s words to the men. In a letter written in 1914, Grant explained that while he had initially determined to follow Talmage’s counsel, he instead increased his investment in the Majestic Gold Mine, losing more money. He then determined to have nothing more to do with the project, and he and Talmage corresponded several times in subsequent years.⁸¹ As a coda to this experience, however, Grant became involved with Koyle’s Dream Mine in the late 1920s and, in 1931, made a statement regarding its authenticity and Koyle’s prophecies to Talmage.⁸²

Talmage’s inspection of the Majestic Gold Mine in 1913 was not his first experience with Holton or his mining company. Talmage sent a letter, dated August 5, 1912, to Holton threatening legal action and telling him to cease using Talmage’s name in connection with the mine.⁸³ Holton responded, claiming he had met with Talmage to discuss the cost of having Talmage inspect the mine. At that meeting, Talmage viewed a sample of gold from the mine, pronounced it favorable, but then had nothing more to do with the project since Holton could not afford his services. In his efforts to organize labor and funds for the Majestic Gold Mine, Holton, according to his letter, mentioned that Talmage had pronounced the gold good.⁸⁴ Holton was much aggrieved by Talmage’s letter

80. Talmage, journal, 15:90 (July 21, 1913).

81. Carter E. Grant to James E. Talmage, July 2, 1914, MS 1232, box 5, folder 4, Talmage Collection, Church History Library.

82. “Statement Made by Carter E. Grant, September 9, 1931, to James E. Talmage (As Revised by Carter E. Grant),” 1–2, typescript, Norman C. Pierce Papers, box 2, Department of Rare Books and Special Collections, Princeton University Library, as cited in Barber, “Dream Mines and Religious Identity in Twentieth-Century Utah,” 464 n. 67.

83. James E. Talmage to Fred J. Holton, August 5, 1912, Talmage Collection, Church History Library.

84. Fred J. Holton to James E. Talmage, August 10, 1912, 2–3, Talmage Collection, Church History Library.

and stated that it was unbecoming of an Apostle of the Lord to write such a letter and pronounced a dire fate upon Talmage's head if he did not repent.⁸⁵ There seems to have been no further correspondence or meetings between the two men until Talmage made his visit in July 1913.

Following his inspections of the Majestic Gold Mine, Talmage met with the First Presidency on August 1, 1913. Talmage's journal entry for August 1 noted that he was "engaged greater part of the day in consultations with the First Presidency."⁸⁶ The next day the *Deseret Evening News* carried a lengthy statement from the First Presidency declaring,

We feel it our duty to warn the Latter-day Saints against fake mining schemes which have no warrant for success beyond the professed spiritual manifestations of their projectors and the influence gained over the excited minds of their victims. We caution Saints against investing money or property in shares of stock which bring no profit . . . to anyone but those who issue and trade in them. Fanciful schemes of "redeeming Zion" [referring to one of Koyle's reported motives] or providing means for the "salvation of the dead" [referring to Holton's reported motives] or other seeming worthy objects, should not deceive anyone acquainted with the order of the Church, and will result only in waste of time and labor.⁸⁷

Talmage responded positively to this announcement in his journal, noting, "The need of such utterances is plainly shown from the misleading efforts of a certain few relating to mining and other ventures in which they claim divine direction."⁸⁸

The timing of Talmage's meeting with the First Presidency and the statement against "fake mining ventures" seem to be correlated. His journal notes several meetings with the First Presidency and the Quorum of the Twelve Apostles between July 16, 1913, and when the statement was issued on August 2, suggesting that Talmage's on-site visits played some role in the Church's decision to issue the statement. However, Talmage's writings do not indicate if he directly assisted the First Presidency in writing the August 2 declaration.⁸⁹

85. Holton to Talmage, August 10, 1912, 1–8.

86. Talmage, journal, 16:104 (August 1, 1913). See also Talmage, journal, 15:88, 91 (July 17 and 23, 1913), where he notes attending council meetings in the Salt Lake Temple with the First Presidency and Twelve.

87. "A Warning Voice," *Deseret News*, August 2, 1913, 1.

88. Talmage, journal, 16:104 (August 2, 1913).

89. Kenney's transcription of the First Presidency minutes does not mention the Relief Mine in the entries for July or August 1913. First Presidency Counselor

Following Talmage's 1913 visit to the Majestic Gold Mine, work there seems to have come to a halt. Fred J. Holton lost his sight around 1930, and in 1932 James E. Talmage received a conciliatory letter from Holton asking forgiveness for responding to Talmage with righteous indignation in 1912. The letter also requested Talmage's prayers to help cure Holton's blindness.⁹⁰ Talmage wrote a kind note in response, stating,

You refer to correspondence that passed between us . . . just twenty years ago this month. . . . I assure you, with full brotherly sincerity, that if there was any incident or circumstance even suggesting forgiveness on my part, such forgiveness is full and complete.

You and I saw matters pertaining to the operation of the Majestic Mining Company in different lights; and I have no doubt that at the time you thought you were in the right I am glad to feel the spirit of your last letter expressive of your present views on these

I prayerfully trust that the Lord will comfort you.⁹¹

Conclusion

Talmage's career in assaying and geological surveying adds depth to our understanding of his life and experiences. It also contributes to the history of science in the American West. Studies of the assayers and surveyors, whose work was essential in establishing the American mining industry in the nineteenth and twentieth centuries, are uncommon in histories of the American West. While labor history includes exceptional studies of the grueling conditions miners faced and the heavy-handed and sometimes violent tactics used by owners to manipulate their labor force, historians have generally ignored the role played by scientific

Anthon H. Lund's journal entry for August 2, 1913, states only that the *Deseret News* announcement was made when "we" (presumably the First Presidency) learned that Holton and Koyle were claiming divine sanction for their mining efforts and preying upon vulnerable members in their communities; while the First Presidency likely learned that information from the investigations conducted by Talmage, other reports may have motivated their response. See Scott G. Kenney research materials, April 21–22, 1913, MSS 2022, box 2, folder 14, Perry Special Collections; and John P. Hatch, ed., *Danish Apostle: The Diaries of Anthon H. Lund, 1890–1921* (Salt Lake City: Signature Books, 2006), 509.

90. Fred J. Holton to James E. Talmage, August 16, 1932, Talmage Collection, Church History Library.

91. James E. Talmage to Fred J. Holton, August 17, 1932, Talmage Collection, Church History Library.

professionals in American mining.⁹² One historian of scientific consulting notes an “oft-repeated observation” that “science was supposed to be the handmaiden of industry” in nineteenth-century American society.⁹³ Talmage’s journals thus provide a valuable window into the role that scientific consultants played in the mining industry during this time.

Additionally, despite opposition to mining during Brigham Young’s lifetime, the experiences of James E. Talmage demonstrate a shift in the thinking among Church members about the risks and rewards of mining during the late 1890s and early 1900s. Though some Latter-day Saints, such as Jesse Knight, had been involved in mining much earlier, that James E. Talmage, a confidant of the First Presidency and eventually an Apostle, was involved with the mining industry shows that Church leaders’ thinking regarding mining had changed considerably since the 1850s. This growing acceptance was not without its own stops and stutters, as demonstrated by Church members’ involvement in the Relief and Majestic Gold Mines, but this shift in economic interests among Latter-day Saints can be seen as part of bringing the Church into the twentieth century.

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92. George E. Webb, “The Chemist as Consultant in Gilded Age America: Benjamin Silliman Jr. and Western Mining,” *Bulletin for the History of Chemistry* 15/16 (1994): 9–14.

93. Paul Lucier, “Commercial Interests and Scientific Disinterestedness: Consulting Geologists in Antebellum America,” *Isis* 86, no. 2 (June 1995): 246.