

1-1-1971

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Recommended Citation

Townley, John. "The New Mexico Mining Company." *New Mexico Historical Review* 46, 1 (2021).
<https://digitalrepository.unm.edu/nmhr/vol46/iss1/4>

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THE NEW MEXICO MINING COMPANY

JOHN TOWNLEY

IN A PROCLAMATION written to assure the inhabitants of New Mexico that the bloodless American occupation of 1846 was not to be the precursor of rapine and religious oppression, Brigadier General Stephen W. Kearny guaranteed “. . . to protect the persons and property of all quiet and peaceable inhabitants.”¹ However, if the native militia had had some foreknowledge of the drastic shift in real and personal property from local to Anglo hands in the century following the Mexican War, the defense of the province might have been much more spirited.

Almost any traveler to New Mexico during the period of Mexican sovereignty commented at length on the possibilities of developing the resources of the area. Just a month before the arrival of Kearny's Army of the West, it had been noted that the placer gold deposits south of Santa Fe needed only the application of intelligence and energy to reward the entrepreneur handsomely:

The old Placer is a very promising place for mines. The gold ores there were discovered by mere accident in 1828, and gold washings established; but besides that, the ground is barely touched, and will yet open rich treasures to the mining enchanter, who knows how to unlock them.²

The traveler, Dr. Wislizenus, was correct in his analysis of the possibilities of Old Placers, but he could not have foreseen that the deposit, like so many of the resources of the province, was to profit territorial officers rather than the professional miner.

The gold deposits of the Oso, later Ortiz, mountains were discovered in 1828.³ Just twenty-five miles south of Santa Fe, they consisted of both lode and placer occurrences. A rush of men and families from New Mexico and other northern Mexican states presaged events in California two decades later. Most of the argonauts chose to work the placer deposits of Arroyo Viejo, though there were a few lode mining operations.

In 1833 the commander of the garrison established at Arroyo Viejo, Lt. don José Francisco Ortiz, was granted some six hundred varas (about 1,500 linear feet) along the Santa Rosalía outcrop. To support this mining venture, Ortiz requested rights to water, pasturage, and use of any natural resource on four square leagues (approximately 100 square miles) of territory surrounding the portal of the mine.⁴ The grant of surface rights was approved, but did not prevent other miners in the district from utilizing the same privileges. Exclusive use of the area incorporated in the grant was never claimed by Ortiz, who did not question joint occupation of the territory. The grant stipulated that surface rights alone were awarded, and these would revert to the state upon the conclusion of mining activity.

Between 1833 and 1846 the Ortiz mine was the largest producer of bullion among the lode properties of the district. Ortiz operated a mercantile store in addition to his continuing duties as commander of the garrison. The community of Dolores grew up around Ortiz' headquarters at Oso Spring. A mill, store, and family home were built at the site and many other individuals involved in local mining chose to center their activities in the same vicinity. The remains of the structures are plainly evident today. Ore from the Ortiz mine was brought down the mountain by mule and stockpiled until sufficient was present to justify a run through the arrastras.⁵

Ortiz lived in Dolores until 1840. At that time, he built a home in Santa Fe on the present site of the Federal Post Office and divided his time between the capital and Dolores. In 1842 he was on active duty during the Texan invasion and leased the mine during his absence. Again called to duty in 1846, Ortiz was officer of the

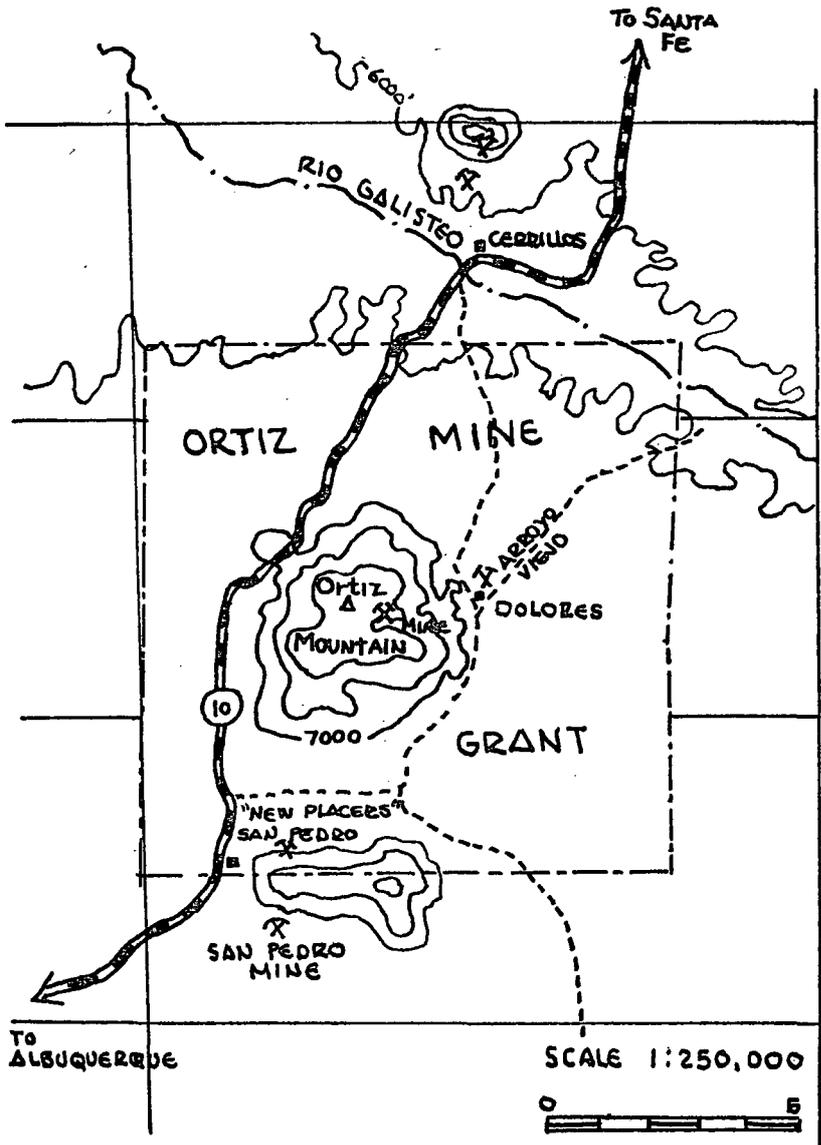
day when James Magoffin and Captain Philip St. George Cooke arrived ahead of Kearny's army to confer with Governor Armijo. The emissaries were offered the hospitality of the Ortiz home and resided there during the secret negotiations.⁶ Following the war, Ortiz continued to reside in Santa Fe and died there on July 22, 1848, leaving his estate to his wife.

To the incoming American administrators of the province, the presence of a large, and equally profitable, gold deposit near enough to the capital to be secure from Indian attack, offered obvious opportunities for development. The first mission of the officers of the Corps of Topographical Engineers was to survey and evaluate mining possibilities.⁷

Nevertheless, despite continued investigation and some slight American participation in lode mining, the situation at Old Placers remained unchanged until 1854. The few hundred placer miners resident in the district continued to wash the alluvial deposits in the time-honored ways, and the lode mines produced fitfully, if at all. One reason for the lack of enterprise might have been the preoccupation with California and migration of many of the native miners to that area.

In 1853 John Greiner, ex-Indian Agent and then Secretary of New Mexico Territory, succeeded in purchasing the Ortiz Grant from Maraquita Montoya, Ortiz' widow. The sale was registered in Santa Fe in December 1853 but had been made earlier in the year. Greiner had climbed the territorial bureaucratic ladder, beginning in 1851 with his appointment as Indian Agent. Soon afterwards he became acting Superintendent of Indian Affairs, then was named Territorial Secretary in September 1852.⁸ Although he held the second highest administrative post in the territory, Greiner always had an eye on the main chance.

As early as January 1852 only six months after obtaining office, he had written business connections in his native Ohio regarding the possibilities of the Placers.⁹ Three months later, he sent samples of gold recovered from the mines to a fellow politician, Elisha Whittlesey, and suggested a plan to gain title to the properties. A letter to Whittlesey outlined his intentions:



Having long had a desire to secure an interest in the celebrated Placer Gold Mines, twenty-seven miles south of Santa Fe, by far the richest of any mines in the Territory, and supposed to be, by those best acquainted with them, equal to any in California, I was glad to learn that an opportunity offered of getting the control of the whole of the Placer Mountains, and at once made every effort to accomplish the object.¹⁰

By the summer of 1853, Whittlesey had formed a company in Ohio and collected the funds necessary to purchase the Ortiz grant. Greiner was advised and entered into negotiations with Ortiz' widow, Maraquita Montoya. The purchase was made in Greiner's name and it is doubtful that he disclosed his agentship for the Ohio group. On August 9, 1854, the transfer of the property from Greiner to the New Mexico Mining Company was made. In a letter to Whittlesey dated February 22, 1854, Greiner described the purchase:

The Santa Rosalia Mine, owned by Ortiz, was the first one discovered, and was assigned to him by the Mexican Government, with two leagues square of land and the Oso spring of water, Ortiz having taken every precaution to hold possession according to law. Dying without issue, he left his wife, by will, heir to all his property, among which was the right, title etc., to the Placer mine. These papers I purchased, and took from the widow a warranty deed for the mine, the spring of water, the land, and a large house, in good repair, standing at the village near the mines.¹¹

Greiner left New Mexico, and his office, shortly after concluding the sale and transfer. He returned within a few years and was again appointed to office in 1864 as Disbursing Officer of the U.S. Depository and Receiver of the U.S. Land Office.¹² An inheritance of \$130,000 caused him to return east in 1866.

The New Mexico Mining Company was a privately held firm. Acting upon Greiner's enthusiastic recommendations, the Ohio-based concern believed that the necessary capital to develop the

Ortiz lode could be raised among the few partners and the resulting profits distributed without recourse to corporate organization. It was hoped that once the mine was brought into production, the capital for further improvements would come from the proceeds of the mill.

The company representative during 1854-1858 was N. M. Miller. He undertook to salvage the buildings and equipment that had been left at the mine and millsite when the Ortiz lessees terminated their operations in 1842. Miller's decision, based on the amount of capital at his disposal, was to continue the simple milling procedures followed by Ortiz and to carefully explore the lode in an effort to find and work only the best quality ore.

The Ortiz vein was dry to the depth of 150 feet and the gold mineralization was uncomplicated by the presence of other metals. It was easily separated by mercury amalgamation after being crushed. Ore occurred in discontinuous chimneys and pockets. They were often connected by thin veinlets of high-grade ore, but frequently were self-contained and isolated. The first discoveries were outcrops of the upper portions of several pockets which were followed underground and the best rock stoped out. Miller stripped out what remained of the Mexican ore bodies and put several men to crosscutting along the vein in an effort to discover new bonanzas. The ore contained an average of three ounces of gold to the ton and brought \$60 at the Mint or \$100 in greenback dollars.

The arrastras at Oso Spring were cleaned and repaired, while the house was converted into offices and living quarters for the superintendent. As during the Ortiz regime, ore came down the mile-and-a-half trail by mule and was stockpiled until the mill was activated. Between 1854 and 1858 the company financed the limited operations through income and contributions from the partners. Production was steady, but was never enough to build up the funds necessary to purchase equipment and hire crews for systematic exploration underground.

During this period, a cavalry trooper recorded an overnight stay at the Placers in his diary:

August 3. With Captain Ewell en route for Santa Fe. Last night camped at the Placer Mine. Now worked by two Americans. I descended into the excavation 700 feet [?] below the surface by means of a windlass and bucket. Saw them wash out of one panful of dirt \$15. It was done in less than ten minutes.¹³

By 1858, the partnership agreed that incorporation was the answer to their dilemma. The question was how to proceed; the act required passage by the Territorial Legislature. The solution was to make most of the officers of the Territory and influential legislators stockowners in the proposed company.

The first section of the proposed act to incorporate the New Mexico Mining Company listed Abraham Rencher, then governor, Henry Connelly and Miguel A. Otero as prominent stockholders. Only the larger holders were listed and it can be assumed that many of the five thousand, \$100-par shares had been distributed among the members of the legislature. The bill was passed and approved on February 1, 1858. Sale of the shares occupied the next eleven months, but on January 15, 1859, the company was "regularly organized at the Executive Office, the Governor of the Territory being present and presiding on the occasion."¹⁴ There are few better auguries for a commercial enterprise than for its first official act to take place in a governor's office, with the governor heading its management, particularly when the governor is a leading shareholder.

During the biennium 1859-1860, over \$20,000 was invested in milling equipment at Oso Spring. A forty-five horsepower steam boiler and engine drove five stamps, which fed two enlarged arrastras that further crushed the ore.¹⁵ Three other seeps were improved and channels cut from them to the pond created immediately below Oso Spring by an earthen dam. As capital flowed into the company treasury through sales of shares, the underground crews were enlarged, and both production and exploration rose significantly.

As an indication of the influence of the New Mexico Mining

Company in territorial politics, one can point to the confirmation of the company's title to the Ortiz grant by the Surveyor General's office in November 1860. John S. Watts, attorney for the firm, asked the Surveyor General of New Mexico to examine the title and forward his recommendations for confirmation to Congress. The request was made on November 8; by the 24th, after reviewing the deeds and hearing testimony from persons who had earlier participated in the sale of the grant to John Greiner, a favorable recommendation was forwarded to Congress.¹⁶ This action was taken at a time when the Surveyor General was asking for additional staff to handle the heavy backlog of surveying and title-search duties inherent in his office.¹⁷ This backlog did not prevent the New Mexico Mining Company case from being given the highest priority.

On March 1, 1861, Congress confirmed the grant as specified in the Surveyor General's recommendation and established its area as 69,458.33 acres. The bill that was submitted to Congress did not show the name of territorial Governor Abraham Rencher as one of the claimants. When the company requested an act of incorporation from the territorial legislature, Rencher's name was prominently displayed among the stockholders as an indication of the influence of the firm. However, it was omitted from the Special Act submitted to Congress, as were the names of any other appointive officer, then serving in New Mexico and having an interest in the corporation.

The process by which the grant was confirmed is perhaps legally questionable. Ortiz had been given subsurface rights in 1833 for only the Santa Rosalía vein. The use of the four square leagues had been awarded for support of the mining activity alone. Retention of the surface rights was dependent on continuing operation of the mine. This had been stipulated in the original grant. Should the mine be abandoned, the government would reclaim the area surrounding the mine and the rights to wood, water, and pasturage involved. No grant of subsurface rights to the added area was ever made or intended by the Mexican government.

Nevertheless, the Surveyor General, a political appointee, treated the grant as fully awarded to Ortiz in fee simple. His recommendation made no distinction between the mining claim and the grant of surface rights. The grant was treated as a single award. His survey was extended to include the full distance described in the original grant, notwithstanding the presence of private real property at Dolores and the mining claims of others who had worked in the district undisturbed in their possession since 1828. In fact, the company had taken particular care since obtaining title in 1854, not to question any of the titles to land belonging to families residing at Dolores or to miners working claims within the extended borders of the grant. Until Congress had confirmed their title, no adverse action was desired through the courts. Miners continued to come and go over any of the property claimed by the company without any attempt to limit access or claim trespass.

The legal actions taken by the company had been pursued apart from operations at the mine. Exploration had revealed several undiscovered ore shoots and production was favorable. The new milling equipment had increased the amount of rock that could be worked per day, so income was considerably higher and recovery better than by the *arrastra* separation process.

With the advent of steam power, the coal resources of the Madrid area were utilized. Coal was plentiful, of good quality, and near enough to be freighted handily.¹⁸ The company opened a seam of anthracite and built a wagon road to connect the colliery with Dolores. Management said that coal was a better fuel and was half again as cheap as the *piñon* they had been using.¹⁹ Following the example set by the mine, other enterprises in New Mexico began to experiment with coal as an alternative to wood.

Mining continued throughout 1860 and 1861. In 1862, for reasons that are not known, a lease of the grant was made to Samuel Ellison, then district court judge. Ellison continued the same practices followed by the company and paid a royalty on production. By working three shifts at the mine and mill, Ellison averaged \$750 per day in gross output.²⁰ In less than five months,

the Confederate occupation of central New Mexico resulted in the abandonment of the district. Ellison accompanied the Union territorial government when it retreated from Santa Fe to Fort Union. The invasion brought mining to a halt for the next two years.

The first sign of renewed life in the New Mexico Mining Company came through an announcement that it intended to reopen the mines with "vigour."²¹ The company profited from the large amounts of risk capital created by Civil War prosperity by kiting their stock in the east. In an effort to give an aura of scientific detachment to their enterprise, the company retained Professors E. T. Cox and R. E. Owen to make a report on the mining potential of New Mexico. The gentlemen arrived in Santa Fe in October 1864 and departed early in December. The optimistic conclusions of their report were used by the company to substantiate the claims put forth in puffery published for eastern investors.²²

The renaissance in activity at Dolores was to include both the lode and placer resources of the grant. The principal stockholders in the NMMC were approached by George M. Willing, who had devised a means of bringing water from the Pecos River to the Placers by a combination of ditches and pipelines.²³ Willing estimated that over \$350,000,000 could be recovered from the placer deposits near Dolores if they could be hydraulically worked as in California. An estimated \$800,000 was needed to build the ditch and the same men who owned the lode deposits saw an opportunity to profit through developing the placers.

The company's first approach was to contact members of the territorial legislature privately and solicit their assistance in generating a loan to the company to be used in building the ditch. The case was fought in the newspapers and on the floor of the Assembly. The amount required was above the annual revenues of the territory and beyond the capacity of the populace to support. Finally, the proposal was dropped and the funds solicited through corporate ownership.

Beginning in 1867, a subsidiary company was formed to build the ditch and sell water to the NMMC. Titled the Pecos and Placer Mining and Ditch Company, an imposing name for a group

possessed of nothing more tangible than an idea, they succeeded in raising several thousand dollars and negotiated contracts for a few miles of the Pecos River portions of the ditch.²⁴ Appropriate celebrations were held when the first earth was turned, but lack of income soon forced construction to halt. The plan for bringing quantities of water to the Placers was exhumed several times in later years, but remained no more than a plan. The problems of obtaining rights-of-way and adequate financing always proved too formidable for private enterprise.

With placer mining beyond their ability to mechanize, the NMMC returned to the faithful lode deposits. A happy combination of adequate capitalization and capable management developed in 1865 and produced three years of bonanza for the firm. The boiler-room sales tactics by eastern brokers produced treasury receipts; and conflicts over policy within the territorial Indian agency resulted in Dr. Michael Steck's taking the post of mining superintendent. The operations of the company under his direction were to be the most profitable and energetic.

Steck began his administration of the grant by working to increase the monthly revenues by any means available.²⁵ Resigning the Indian Agentship in May 1865 he spent the first few weeks in Dolores reviewing the resources of the grant and assessing their marketability. Modifying the existing steam engine to serve as power for a sawmill, Steck produced dimension lumber for the under-supplied Santa Fe market.²⁶ Previously, planed lumber had to be brought overland by freight. Steck used timber from the Ortiz mountains to feed the sawmill, while he pushed rebuilding of the stamp mill and re-opening of the mine.

The hiatus in production from the Ellison lease in 1862 until 1865 had resulted in deterioration of the milling facilities and underground workings. Pending restoration of the mill, Steck directed the major efforts of company miners toward blocking out new deposits of free-milling ores. By April 1866 he had the mill operative and spent the rest of the year in milling rock as fast as it could be delivered to Dolores.²⁷

The superintendent was careful not to fall victim to the trap that

so often condemned mining ventures. He made his primary expenditures in labor and milling costs, areas where the cost was quickly realized in the proceeds from the rock worked in the old five-stamp mill. The purchase of larger equipment was deferred until the ore reserves of the vein had been blocked out and potential profits estimated. The shaft and stope network was expanded and exploration drifts driven into heretofore unexplored parts of the lode. By October 1866 Steck had enlarged the stopes and reached the water level in the main shaft at 140 feet.²⁸

In late December 1866 sufficient capital brought into the company treasury, combined with a two-year ore reserve blocked out, justified the procurement of additional stamping equipment. Steck traveled to St. Louis to place the orders. The *St. Louis Democrat* of January 11, 1867, noted his arrival with the following statement:

Dr. Steck of the Placer Mining Company of New Mexico arrived last Friday with a considerable amount of gold dust. He left an order for a 10-stamp mill. It is said that the quartz of Placer Mountain, about thirty miles from Santa Fe, turns out some \$300 per cord. With a small 5-stamp mill, Dr. Steck extracted 200 ounces in the space of two months. These mines have been worked, at times, for some 150 years. The present association is the result of efforts commenced five or six years ago, to establish a company for the reopening of the old works. Other lodes have been discovered in a westerly direction from this point, which give evidence of richness.²⁹

After spending the winter months in the east, Dr. Steck returned to Santa Fe in May 1867. Anticipating the greater volume of rock that could be separated with fifteen stamps working, he began to stockpile ore at Dolores. By mid-summer, over eight hundred tons of \$75 to \$100 ore were waiting processing.³⁰ The new stamps were operating in August and the weekly cleanup of the mill totaled \$1800.³¹ Steck's efficiencies were favorably noticed by his erstwhile adversary, General Carleton, and the company was given a prominent place in the governor's message to the Assembly for 1867.

One of the major costs of operating the mine was transportation of the ores from the stopes to the mill. Traditionally the rock had

been carried by mule because the road down the mountain was almost impassable at best. The amount of ore that could be carried was low and was increased only by adding to the number of animals employed.

To reduce this cost, a narrow-gauge railroad was designed between the mine and mill. The trackway followed generally the old trail, and required less widening than a wagon road between the two points. When finished, the railroad was approximately one and a half miles long. Loaded cars came downhill under gravity, relying on brakes to keep speed to fifteen miles per hour. Dr. Steck set production at one hundred tons per day, which was five times the normal scale. The track was constructed of hardwood, with a metal strip nailed to the top. Two cars were used. The mill was fed adequately by this system, and worked at top capacity for the remainder of 1868.³²

The profits accumulated during 1868 far surpassed those of any previous year. The dividends and bonuses collected during Steck's three years as superintendent enabled him to become financially independent. He requested to be relieved of his position and trained a Colonel Anderson, late of the Corps of Engineers, as his replacement. When Steck left New Mexico in late 1868, the position of the New Mexico Mining Company had never been stronger.

The flush condition of the company caused the new superintendent and directors to expand the operation without the careful estimation of ore reserves practiced by Steck. Anderson hired a new crew of miners to open stopes in the Brehm lode, a low-grade, free-milling gold vein near the original Ortiz mine. The ore from this location, plus the rock from the Ortiz vein, overloaded the 15-stamp mill. Colonel Anderson left for the east in January 1869 to buy a new 25-stamp plant.³³

He returned in April and began construction of a building to house the combined forty stamps. Under Anderson, the work force grew to include over forty miners and sixteen support/administrative personnel. Men were taken from the mining operation to install the new equipment, and production dropped drastically. It

was hoped to add another sixty tons per day to the mill's capacity and recover the lost revenue, but problems in setting up the stamps delayed the completion of the plant.

The events of 1869 cancelled out the promise shown in earlier years. After the treasury was emptied in doubling the mill's capacity, the ore shoots in the mine bottomed out at ground-water level. Because of the mistaken belief that the ore would continue to hold out, no exploration drifts had been pushed along the veins. Anderson was fired and replaced by W. C. Rencher, son of the former governor and editor of the *Santa Fe Democrat*. Under Rencher, the mill ran on ore taken from the sides and pillars of the old stopes. By June 1870 these few bits of ore had been processed and the mine went on standby status. Although it was leased several times in the succeeding years, the grant was never again to be operated on a profitable basis.

Although the faltering management of a mining operation by a newspaper editor who owed his position to nepotism may seem absurd, in view of the personalities and policies involved in the grant from the beginning, this situation approached the norm. With the exception of Michael Steck, those interested in the Ortiz mine were primarily occupied with other matters, other professions. The grant was a milch cow to be suitably drained, if possible, then abandoned for another of the opportunities that continually arose in territorial New Mexico for the fortunate men who enjoyed appointive office. These gentry faithfully emulated the New England missionaries described in James Michener's *Hawaii*, who came to the islands to do good and ended by doing very, very well.

NOTES

1. Hubert Howe Bancroft, *History of Arizona and New Mexico* (facsimile edition, Albuquerque, 1962), p. 417. The text of the proclamation is reproduced as a footnote.
2. Frederick Adolphus Wislizenus, *Memoir of a Tour to Northern Mexico, Connected with Col. Doniphan's Expedition in 1846 and 1847*, U.S. Senate Miscellaneous Documents, Number 26, 30th Cong., 1st Sess., 1847-1848, p. 31.
3. Josiah Gregg, *Commerce of the Prairies* (Norman, 1954), pp. 118-20. There is still doubt as to the actual date of discovery. Gregg arrived some years later and depended on hearsay.
4. John M. Townley, "Mining in the Ortiz Mine Grant Area, Southern Santa Fe County, New Mexico" (unpublished M.A. thesis, Department of History, University of Nevada, 1968), pp. 51-53.
5. Otis E. Young, "The Spanish Tradition in Gold and Silver Mining," *Arizona and the West*, vol. 7 (1965), p. 304. This article thoroughly examines Spanish mining techniques and particularly describes the arrastra.
6. Philip St. George Cooke, *Conquest of New Mexico and California in 1846-1848* (reprint, Albuquerque, 1964).
7. J. W. Abert, *Report on His Examination of New Mexico in the Years 1846-1847*, U.S. Senate, Executive Document No. 23, 30th Cong., 1st Sess. Abert visited Dolores and several other active and inactive districts. Immediately following the occupation of Santa Fe the population of Dolores was 200.
8. Ralph P. Bieber, "Letters of William Carr Lane, 1852-1854," *NMHR*, vol. 3 (1928), pp. 181-89.
9. John Greiner (transcribed by Tod B. Galloway), "The Private Letters of A Government Official in the Southwest," *The Journal of American History*, ed. by Francis Trevelyan Miller, vol. 3 (1909), pp. 541-54.
10. Anon., *The New Mexico Mining Company: Preliminary Report for the Use of the Stockholders* (New York: Baker and Godwin, Printers, 1864), p. 6.
11. *Ibid.*
12. Lansing B. Bloom, "Historical Society Minutes, 1859-1863," *NMHR*, vol. 18 (1943), p. 421. Greiner applied for membership in the Society in 1859. He was inducted into the Santa Fe Masonic lodge in 1857; therefore his absence from New Mexico was between the years of 1854 and 1857. Upon his return, he had acquired the title of Major.

13. Charles E. Brooks and Frank D. Reeve, eds., "James A. Bennett: A Dragoon in New Mexico, 1850-1856," NMHR, vol. 22 (1947), pp. 167-68.
14. Anon., *The New Mexico Mining Company*, p. 17.
15. Waldemar Lindgren, et al., *The Ore Deposits of New Mexico*, U.S. Geological Survey Professional Paper 68 (Washington, D.C., 1910).
16. Charles H. Gildersleeve vs. New Mexico Mining Company, Court Record (Santa Fe, 1890), paragraphs 3539-3571. This volume is probably the best source of information on the legal machinations of the New Mexico Mining Company.
17. Bancroft, p. 648.
18. Willis T. Lee, *The Cerrillos Coal Field, Santa Fe County, New Mexico*, U.S. Geological Survey Bulletin 531 (Washington, D.C., 1913), p. 286.
19. Rossiter W. Raymond, *Report on the Mineral Resources of the States and Territories West of the Rocky Mountains*, Executive Document No. 54, Report to the House of Representatives, 40th Cong., 3rd Sess., 1869, pp. 404-18.
20. Anon., *Compilation of Facts Relative to the Mining Property Known as the San Pedro and Cañon del Agua Grants* (Washington, D.C., 1866), p. 20.
21. *Santa Fe Weekly Gazette*, July 23, 1864, p. 2.
22. R. E. Owen and E. T. Cox, *Report on the Mines of New Mexico* (Bloomington, Ind., 1865). "Dr. Owen was for nine years a Professor of Chemistry and Geology at Western Military Institute. He is now a Professor at Indiana State University and State Geologist of Indiana. Professor Cox has been State Geologist of both Kentucky and Arkansas." *Santa Fe Weekly Gazette*, Nov. 12, 1864, p. 2. The report was partially published in *ibid.*, Nov. 26, 1864, pp. 1-2. The remaining portions were printed in the Dec. 3, 1864, issue. Owen and Cox left for the east via the next coach.
23. *Ibid.*, April 8, 1865, p. 2. The *Gazette* endorsed the enterprise then and in the long series of proposals made to condemn public lands along the proposed right-of-way. Similar proposals were made frequently during the nineteenth century.
24. *Santa Fe Weekly New Mexican*, Feb. 11, 1868, p. 1.
25. William A. Keleher, *Turmoil in New Mexico* (Santa Fe, 1951), p. 434. Dr. Steck came to New Mexico in 1852 as an Indian Agent, working with John Greiner, who initially purchased the grant from Maraquita Montoya. He was very effective in his post and settled many long-standing conflicts between the Indians and other residents of the territory. He was ardently pro-Union and attempted to keep southern New Mexico loyal in

1860-61. Steck violently disagreed with the Indian policy of General James H. Carleton, commander of the Military Department of New Mexico. Believing that the General intended to kill any Indian male on sight, Steck brought the conflict to the press and published continuing articles condemning the policy. He finally resigned over the removal of the Navajo nation to the reservation of Bosque Redondo. *Ibid.*, p. 506, note 137.

26. *Santa Fe Weekly New Mexican*, May 25, 1866, p. 2.
27. *Ibid.*, April 6, 1866, p. 2; April 27, 1866, p. 2.
28. *Ibid.*, Oct. 6, 1866, p. 2.
29. *Mining and Scientific Press*, Feb. 9, 1867, p. 87.
30. *Santa Fe Weekly New Mexican*, June 8, 1867, p. 2.
31. *Ibid.*, Aug. 31, 1867, p. 2.
32. *Ibid.*, Aug. 4, 1868, p. 2.
33. *Ibid.*, Jan. 19, 1869, p. 2.