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BRIEF HISTORY OF TURQUOISE MINING AND TURQUOISE HILL

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Abstract—Turquoise was mined by Native Americans in the Southwest for a thousand years but Europeans operated mines in New Mexico specifically for turquoise only for a few decades when prices were unusually high. The old turquoise mines in the Cerrillos Hills south of Santa Fe were the most famous turquoise mines of the 1800s. Of these mines the Tiffany and Old Castilian mines on Turquoise Hill produced the majority of the quality stones.

Native Americans mined turquoise at several locations in the Southwest for at least 700 years before Europeans came into the area. It was probably prehistoric New Mexico's major export to other areas, though the extent of the trade is uncertain. During the Spanish Period (1598-1821), the Pueblos continued to mine turquoise for their own use and for trade with other tribes. In Oñate's founding of New Mexico in 1598, Tascalan and other Nahuatl-speaking colonists from central Mexico outnumbered Spanish colonists, and within New Mexico, turquoise became known by their word *chalchihuitl*, rather than the Spanish word, *turquesa*. The fact that the Nahuatl word for the stone was adopted by Spanish settlers as well as by native tribes in New Mexico may indicate that the Tascalans had a role in its early colonial mining or trade.

Father Zarate-Salmeron's comments written in the 1620s reflect the Spanish attitude toward turquoise. He said, "... mines of turquoise which the Indians work in their paganism, since to them it is as diamonds and precious stones. At all this the Spaniards who are there (New Mexico) laugh; ..." (Ayer, 1916, p. 217, note 21). Because the Spanish considered turquoise a worthless rock, they seldom mentioned its continued mining or use by the Indians. Mexican and early U.S. Period documents also make no mention of turquoise, as they also considered it worthless.

Ethnographic interest in the Navajos' turquoise jewelry led to the first U.S. Period comments in 1858 by the geologist William P. Blake. The Navajos had turquoise jewelry but did not mine turquoise and Blake was told the stone came from the Pueblo Indians. The Pueblos directed him to the Cerrillos Hills, the source of the turquoise. He was as impressed by the large pit at Mt. Chalchihuitl as Josiah Gregg (1844, p. 106) had been earlier. His 1858 paper and those of Newberry (1859, 1861) made Mt. Chalchihuitl famous. "It is said that the Indians have a tradition that eight or nine of their tribe were once suddenly buried by a fall of rocks from the side of the great pit. Since that time they have been afraid to work in it. . . . The place is occasionally visited by Indians from a distance, but their operations appear to be confined to the surrounding openings (other turquoise pits), or to breaking up masses of rock which were formerly removed." (Blake, 1858, p. 229-230). Blake observed that the large pit had not been worked for a long time and therefore the Pueblos must be getting their turquoise from other pits or old waste rock. Though the above quote from Blake makes this clear, his comments were distorted by later authors, resulting in the idea that at some point between the 1600s and 1858 the Pueblos had stopped mining turquoise and obtained it from old mine dumps. Blake's comment on the pit collapse, which he prefaced with a disclaimer, "It is said . . .", was amplified by numerous authors. D. C. Hyde was reported to have found skeletons and mining artifacts at a depth in the pit which Silliman's mine cross section map (1881) showed as solid unmined rock. This absurd legend of a great mine disaster in 1680 that killed almost 100 Pueblo miners and causing the Pueblo Revolt of that year has no basis and is contradicted by the historic documents of the period. This legend fitted the anti-Spanish prejudices of the 19th Century and has been attacked as baseless by historians since Bandelier (1892). Blake's (1858) story of pit collapse had been related to him by a non-Indian, and having no other explanation available, Blake repeated it with a mild disclaimer. The geologist J. S. Newberry (1859, 1861) who visited the pit within months of Blake's visit does not mention the mine collapse story. The Pueblos probably no longer mined the great pit simply because good turquoise was more readily available in other pits. Newberry (1861, p. 99) observed that turquoise was being worn and highly prized by Apaches, Mohaves and Pueblos as well as Navajos. The fact that turquoise jewelry-making was apparently a widespread business when first noted in the 1850s suggests

that the stone never disappeared as a trade item, and that its mining must have continued throughout the historic period, though seldom noted by Europeans.

J. P. McNulty, who lived on Turquoise Hill for many years and was the manager of the American Turquoise Company mines, said that the Pueblos had no fear of entering and working the turquoise mines and that they did so on many occasions. McNulty allowed them to work the Castilian mine, but tried to keep them from taking the valuable blue stones from the Tiffany mine (Muniz Claim) (Andrews, 1936, p.45).

The arrival of the railroad in 1881 brought tourists which gave the Pueblos a small new market for their turquoise jewelry. By 1900, the Pueblos were getting most, if not all, of their turquoise from traders who purchased it from the growing number of western turquoise mines or the copper mining industry.

In the 1880s, Europeans living in New Mexico first began to value New Mexico turquoise. The change may have been brought about because the price of turquoise was rising as the ancient turquoise mines of Persia ran out of the mineral. In the 1880s, investors, some of which were associated with the fine jewelry industry of the East Coast, started investing in Cerrillos turquoise mines and promoted its turquoise as equivalent in quality to Persian turquoise. The Old Castilian Mining Claim of December 5, 1879 is the first mining claim filed for turquoise in the United States. In early 1880, William Parmaly and Warner purchased the Old Castilian from the original claimants along with four other claims on Turquoise Hill (Hayward, 1880). Parmaly filed proof of labor for the Castilian claim until 1883 when it was reportedly purchased by D. C. Hyde (Lake, 1901).

Enos Andrews purchased the Mount Chalchihuitl mine area with its mineral rights before the 1872 mining law took effect, for the old Spanish silver mines in that area. D. C. Hyde, working with a group of New York promoters, acquired Mt. Chalchihuitl in 1879. They formed the Grand Reserve Consolidated Gold and Silver Mining Company, and used the fame of the Mt. Chalchihuitl pit to promote the sale of their stock in the East. Although they claimed that they shipped some quality turquoise, the company was basically promoted as a gold and silver company. Mt. Chalchihuitl did not have much remaining high-quality turquoise nor did it have any gold or silver. The company started the shafts and tunnels at Mt. Chalchihuitl in 1880 (Hayward, 1880) to help promote the sale of company stock but there are no signs that work progressed beyond that reported by Silliman (1881) from his 1880 visit. D. C. Hyde managed the local operations of the company and even set up a little museum at the mine to show prospective investors Indian artifacts he said came from the mine. Jones (1904, p. 273) said their work at Mt. Chalchihuitl was "without any success" in finding good turquoise. Although there are conflicting reports, it appears that little work was done at Mt. Chalchihuitl when the shafts failed to locate gold, silver or good turquoise (after late 1880 or early 1881). Prospectors undoubtedly checked the numerous prehistoric turquoise pits around the district as turquoise prices rose in the 1880s. Other than the mines on Turquoise Hill only one other turquoise mine was developed and patented in the Cerrillos District (commonly referred to as the O'Neil Turquoise mine). During the period of high prices some companies talked of starting turquoise mines in the area, but no records of their developing mines were located.

Conflicting statements on the ownership of the claims on Turquoise Hill during the 1880s make ownership during the period uncertain. The American Turquoise Company traced its title to the major mine, now called the Tiffany, back to the claim filed by Pedro Muniz, the Muniz

Claim. By 1890, the American Turquoise Company had made claims on three sides of the Muniz Claim to protect against encroachment and they acquired the Castilian Claim in 1893. Michael O'Neil told Lake (1901) that the Castilian was sold to D. C. Hyde, the ex-manager of Mt. Chalchihuitl, around 1883, and that it changed ownership several more times before the American Turquoise Company bought it (Lake, 1901).

Turquoise prices rose during the 1880s. In 1893, a pea-sized, finished quality-blue stone sold for 8 to 20 dollars (gold was \$20/ounce) which meant its price was greater than gold by weight. The American Turquoise Company kept all outsiders off of their property and kept production a secret. This was done to promote the concept that quality blue stone was very limited in supply and should command a very high price. Though the Burro Mountain turquoise deposits were discovered by 1880, they were not developed until after 1882 (Jones, 1904, p. 275–276). In 1893, a prehistoric turquoise mine in the Jarilla Mountains north of Orogrande, New Mexico was widely publicized. As new deposits in the southwest were brought into production by a variety of companies, supply of turquoise could not be controlled and prices declined. Between 1858 and 1893, the Cerrillos deposits were the only widely publicized old turquoise mines in North America, and as a result, it was assumed that all prehistoric turquoise came from them. This is the major reason for the legend of the Aztec's turquoise coming from the Cerrillos mines. This idea was published as early as 1861. "The Cerrillos furnished a great part, if not all, the chalchihuitl, so much worn for ornament, and so highly prized by the ancient Mexicans." (Newberry, 1861, p. 99). It was not until the 1890s that numerous other prehistoric turquoise mines in the southwest were discussed and the prehistoric turquoise mines of Old Mexico were not found until even later.

In many deposits, the quality turquoise is close to the surface and prehistoric mining was generally done by pits or trenches. No record of the size of the "Old Indian Prospect" claim of 1880, that probably became the Muniz Claim (Tiffany mine), has been located except Hayward's (1880, p. 70) description of it as a 24-foot-deep shaft. The current eastern open stope at the Tiffany is 15 ft wide by 59 ft long, but only part of this appears to have been mined prehistorically. Hayward (1880, p. 70) described the "Old Castilian" only as a 30-ft shaft. However, Lake (1901) reported that the Castilian had a pit 75 ft long, 30 ft wide, and 16 ft deep on May 10, 1880, before U. S. period mining started. That was a slight exaggeration, as the pit today is only 54 ft long and 32 ft wide, but has been deepened to around 40 ft. The size of the Mt. Chalchihuitl pit was also exaggerated in most reports and was only four or five times this size.

The only record of Spanish mining on Turquoise Hill in the New Mexico Archives is the "Nuestra Senora de los Dolores" (Our Lady of Sorrows) mining claim granted in 1763 (Spanish Archives of New Mexico (SANM), roll 5, frame 122-125) and again in 1764 (SANM, roll 1, frame 300-306) and the sale of part of the claim a few months later (SANM, roll 3, frame 1263-1266). Combining the descriptions of the claim's location from these three documents tells us that the claim was on the south side of Turquoise Hill (Chalchihuite), about 3 mi (1 league) south of the Cerrillos ranch, and about 14 mi (4 leagues) south of Santa Fe. Hayward (1880) said that only two of the new mining claims on Turquoise Hill were old mines. Our Lady of Sorrows Mining Claim of 1763-64 was probably one of these, either the Old Castilian or the Old Indian Prospect. On the basis of the names given them by the miners in 1879 they must have thought that the Old Castilian was the old Spanish mine.

We can only speculate why the claim was filed in 1763. The claimants may have found a few threads of gold in the turquoise and assumed they would find paying deposits if they dug deeper. All but two of the dozen mining claims filed on Turquoise Hill in 1879-1880 claimed they had gold. None of the turquoise deposits in the Cerrillos area have ever yielded significant gold. McNulty's correspondence with the New York office of the American Turquoise Company indicates that they occasionally found streaks of what they thought was gold in the turquoise and that they wanted him to look for paying amounts of gold (McCraw, 1994 personal commun.: her book, "Tiffany Blue," on the history of the American Turquoise Company's Cerrillos mines is seeking a publisher). None was ever found.

The legend of gold in Cerrillos turquoise seems to persist in spite of Genth's 1890 article with a subsection titled "Gold in Turquoise from

Los Cerrillos, New Mexico". "In many collections, specimens of gold enclosed in or associated with a bluish green mineral are represented as turquoise with gold from the celebrated locality of Los Cerrillos, New Mexico." (Genth, 1890, p. 115). Such specimens may have been distributed by Hyde or his associates a decade earlier. Genth examined two such specimens sent to him and in neither one was the bluish green mineral with gold real turquoise. One was a "chromiferous clay" and the other "a quartz with an admixture of about 19 per cent chrysocolla". He also examined Cerrillos turquoise specimens and found not even a trace of gold. He corresponded with Bandelier and said, "at my request, the distinguished archaeologist Dr. Ad. F. Bandelier, under, Santa Fe, New Mexico, April 15th, 1890, informs me that he never had seen any gold, associated with turquoise, from Los Cerrillos, and that he had never heard of anyone who had found gold together with turquoise." (Genth, 1890, p. 115).

The American Turquoise Company had more than its share of law suits and legal battles for control of the company (McCraw, personal commun., 1994) but was largely controlled by individuals associated with the big New York jeweler, Tiffany and Company, and that is why the mine on the Muniz claim became known in New Mexico as the Tiffany Mine. Only one mining claim on Turquoise Hill not owned by the company was ever patented (Elisa Claim), other than two patented by J. P. McNulty. McNulty was the local mine manager for the American Turquoise Company from the 1880s until they closed around 1914 (McCraw, personal commun., 1994). The Tiffany Mine was the major producer of quality blue stones, though O'Neil claimed that the Castilian had produced a half million dollars worth of turquoise for one of its owners in the 1880s (Lake, 1901). O'Neil had claims adjacent to the Castilian that he was promoting and thus he may have exaggerated the earlier production of the Castilian. The mines on Turquoise Hill other than the Castilian and Muniz claims were small, and produced few quality stones. They were probably developed mainly as claims to be sold to investors and as outlets for stones highgraded from the Tiffany. The American Turquoise Company bought some of the turquoise mines discovered in the Burro Mountains near Silver City, New Mexico in an effort to control production. However, as more and more prehistoric turquoise mining areas were discovered in the west and came into production prices declined. Around 1907 the American Turquoise Company started restricting Tiffany Mine production and after 1912 production and shipments were sporadic (McCraw, personal commun., 1994). The Tiffany Mine was sold (EMJ, 1914, p. 808) and the last production reported (Finlay, 1921-1922, p. 77) in 1914.

The decline in the price of turquoise made it less sought after as a precious stone, and fine European-style turquoise jewelry went out of fashion. The dramatic rise in demand in the second half of the 20th Century for Native American turquoise jewelry has not raised prices even close to its relative value of a century ago. J. P. McNulty stayed in Cerrillos until his death in 1933 and his two patented claims and the company records passed to his descendants (McCraw, personal commun., 1994). Some local New Mexicans did part-time mining as late as 1939 (as shown by Museum of New Mexico photos) for the Indian market. However, significant production stopped in 1914, although the old waste rock piles have been worked for small pieces of turquoise to the present time. Since the American Turquoise Company went bankrupt, their mining claims have passed through a number of hands. The current owners of the claims are working to preserve the Tiffany mine and the mining history of the area by developing it as a tourist attraction. The New Mexico Abandoned Mine Land Bureau is working with them to safeguard the old mines.

Native Americans mined turquoise in the southwest for a thousand years, but European mining of turquoise in New Mexico only took place during a few decades when quality stones were highly valued. Turquoise prices have risen since the 1960s, but have not even approached the relative value of a century ago when turquoise was equivalent in price to gold. The large supply of turquoise from copper mines, other countries, and manufactured synthetic stones have caused prices to stay low.

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