Tragedy and Opportunity in Mexican Mining during the Revolution: Stories from the Engineering and Mining Journal

By
Mark Wasserman

The Mexican Revolution, the first great revolution of the twentieth century, lasted from 1910 through 1920 in its most violent stage, with another two and a half decades of revolutionary reconstruction that included three major rebellions and other episodes of violence. The first decade of fighting was particularly destructive. Although the estimates vary, it is likely that between 1 and 2.5 million Mexicans perished or migrated. The damages to the nation's economy were substantial and long lasting. Mining, the engine of the Mexican economy, the largest industry, and the primary recipient of foreign investment—mostly from the United States, but also from western Europe—experienced a substantial decline. U.S. investment in the industry fell from US$302 million in 1914 to $222 million in 1920.[1]

This article will provide a brief introduction to the history of mining during the Mexican Revolution, emphasizing primarily foreign-owned companies, through the stories of misfortune and opportunity presented on the pages of the *Engineering and Mining Journal*, the most informative source we have on the region and period. The general theme is that while Mexican mining suffered considerable losses during the revolution—some of the stories here are quite tragic—at the same time a significant sector of the industry continued to operate and some companies took advantage of the hard times to expand their holdings.

Several stages and two starkly different aspects in the history of mining occurred during the revolution. The first stage, 1910 to 1913, saw the overthrow of long-time dictator Porfirio Díaz (1877-1911), the interim government of Francisco de la Barra (1911), and the presidency of the revolution's victor, Francisco I. Madero (1911-1913). For the most part mining companies continued operations during the first phase with only minor interruptions and inconveniences.

The second stage included the ouster and assassination of Madero, the presidency of counterrevolutionary General Victoriano Huerta (1913-1914), his defeat at the hands of a tripartite alliance of the revolutionaries Emiliano Zapata, Francisco Villa, and Venustiano Carranza, and the disintegration of their coalition and subsequent brutal civil war (1914-1915) between Zapata and Villa on one side and Carranza on the other. This was the most damaging period, with mining almost entirely shut down.

The third stage consisted of Carranza's victory and presidency (1916-1920). Mining operations resumed despite some scattered difficulties with guerrillas, particularly in the north. Finally, the fourth era consisted of a prolonged reconstruction from 1920 through the early 1940s, when the industry regained its pre-revolutionary production.

For foreign mining operators the revolution presented two very different aspects. On one hand, there was profound and destructive tragedy: murders, kidnapping, extortion (forced loans, taxes), raids, robberies, destruction and theft of equipment. The most infamous of these incidents occurred in January 1916, when two hundred *Villistas*—followers of Pancho Villa—stopped a train headed from Ciudad Chihuahua to Cusihuiriachi and killed nineteen foreign miners, mostly engineers, sixteen of whom were U.S. citizens.[2] The so-called Santa Ysabel Massacre was only the worst of the sporadic depredations that continued from 1911 through the late 1930s.

On the other hand, there were opportunities: those with capital to invest purchased many abandoned or idled properties for fractions of their value because their original owners simply could not operate in times of wartime hardship. The result of a flurry of investments in the late 1910s and all during the 1920s was that the Mexican mining industry became consolidated under the control of large companies.

The revolution made a highly risky business even more difficult. As we will see from the stories of foreign mining operations in Mexico from the outbreak of the revolution through the 1940s, it was hard to turn a profit in the best of circumstances. In fact, most operators barely managed to scratch out a living. Few mining companies extracted substantial wealth for extended periods.[3]

The preponderance of mining enterprises in Mexico during the nineteenth century and through to the revolution and reconstruction failed. There were, of course, notable exceptions, but these involved operations that invested enormous amounts of capital. In order to obtain success, foreign-owned mining enterprises in Mexico required all of the following six circumstances: sufficient capital to purchase necessary equipment and pay for daily operations; competent management; a steady market for minerals; dependable transportation; a reliable workforce; and the maintenance of good working relations with local, state, and national authorities. Most companies and individuals lacked at least one, and usually more, of these required components. The conditions of the revolution vastly complicated all of these circumstances and made it impossible to acquire the prerequisites for success.

A Brief History of Mining, 1911-1940

The revolution brought the mining industry tough times. Many companies suspended operations for substantial periods because they were stymied by violence, lack of transportation, loss of workers to revolutionary armies, and extortion (sometimes masked as taxes or loans). During the first years of the upheaval from 1911 to 1913 under the presidency of Francisco I. Madero, aside from low metal prices, a new tariff on zinc imports into the United States, and a shortage of dynamite, the industry was minimally affected.[4] In fact the *Engineering and Mining Journal* reported that the revolutionaries treated foreign mining operations quite well.[5]

Another report six months later stated that "conditions were now normal. Mining had suffered the least of any industry," although there were some problems deriving from shortages of fuel and labor and some brief strikes.[6] The overthrow of the dictatorship opened the door for labor unions to seek redress of long-held grievances. Consequently, a wave of strikes occurred.[7] The brief, but menacing revolt of Pascual Orozco, a disgruntled former Madero supporter, in 1912, also caused some disruptions in the northern states.[8] Nonetheless, 1911 and 1912 were record-setting years in terms of production and profits.[9]

Although the Great War in Europe created considerable demand for minerals, the most destructive years of the revolution were from 1914 to 1917, when the series of intense civil wars mentioned above caused widespread abandonment of many properties. Foreign managers and workers fled the country. Until the overthrow of Madero, foreign interests were "comparatively immune from molestation," but thereafter conditions changed, placing them in a "precarious" condition.[10] By the summer and fall of 1913 many mines and smelters had closed because the disruption of rail service had created fuel scarcities. Big camps such as Santa Eulalia and Parral in Chihuahua slowed or shut down operations, leaving thousands without work.[11]

In 1914 conditions grew worse. Rebels looted Chihuahuan mines in January.[12] It had gotten so bad that the American Smelting and Refining Company (ASARCO) built a system of forts, walls, and pillboxes around its smelter in Chihuahua to fend off raids.[13] In 1914 copper production dropped more than a third from the year before and was only half of the record year of 1912.[14] As the fighting intensified, especially in 1914 and 1915, there were, of course, the direct losses from occupying soldiers, who confiscated arms, ammunition, livestock, food, and dynamite; but even more important were the indirect difficulties that arose from the appropriation of the railroads by the various armies.

Mining operators could not get supplies, equipment, fuel or manpower into the camps. Coal was very hard to obtain because the armies used it to run the trains. Without coal smelters and processing plants could not function. It was almost impossible to procure dynamite and, as a result, mines could not be worked. Cyanide used for milling ores was scarce as well.

A report from San Blas, Sinaloa, published in the *Engineering and Mining Journal* in March 1915, complained that "we have been in the thick of the war and for six months have had 500 to 4,000 soldiers in the vicinity." The various opposing sides had taken turns occupying the camp.[15] At the end of 1915 a petition from large mine owners sent to president Venustiano Carranza proclaimed that the "mineral industry in Mexico at the present time is virtually dead." Less than 3 percent of the mines were operating.[16]

A report written in 1916 by a consortium of forty-five U.S. companies outlined the Mexican experiences of eleven of the companies: with scattered, limited exceptions, all shut down from 1913 through 1916, most notably early in 1915.[17] The mine owners complained of widespread ore theft and lack of government assistance in preventing the thievery. There was a hint of recovery in 1916, but a typhus epidemic, threatening decrees, the recurrence of banditry, and the inability of the government to assure safety for mining personnel stymied any reconstruction.[18]

In 1916 no government could protect the foreign companies. Transportation was difficult at best, for the railroads were in "deplorable condition."[19] The companies claimed to have invested more than $125 million, employing 62,216 workers with a yearly payroll of more than $18 million,[20] and estimated their losses as at least $7,246,031, excluding lost potential profits.[21] The report further claimed that "the general evidence before us makes it clear that . . . steps have been taken, whether deliberately or ignorantly, to frustrate the resumption of business activity and to jeopardize the safety and existence of industrial undertakings for which American citizens are responsible."[22]

The mining companies complained of increased taxes on mining property and of "arbitrary and unlawful threats of confiscation if operation of mines is suspended for more than 60 days continuously or 90 days intermittently in any one year."[23] Mining executives feared that a new tax on mining claims at the beginning of February 1916 would affect thousands of speculative properties, almost all of which would have to be abandoned.[24]

In 1916, 1917, and 1918 general conditions continued to be uncertain. By mid-1916 Americans had begun to return to Cananea, and some other Sonoran camps were reopening.[25] However, the *Engineering and Mining Journal* reported that in October 1917 conditions in Chihuahua were "worse than they have ever been, because there was no semblance of government."[26] As the violence was lessening in 1917, the promulgation of Mexico's new constitution created considerable anxiety about the future of the industry because of its provisions harshly restrictive of foreign ownership of subsoil rights. Mining became even more of a gamble than ever because the likelihood loomed of government confiscation of subsoil resources. The *Engineering and Mining Journal* moaned in January 1918 that "banditry," transportation problems, and the proposed new mining tax had dealt a death blow to the industry.[27]

Conditions improved in 1918, as a decline in guerrilla activity—called banditry by the authorities—allowed the reopening of a large smelter in Chihuahua and a number of large silver and lead mines in the major mining camps.[28] But in 1919 there were two hundred federal soldiers stationed in Santa Eulalia, Cusihuiriachi, and Madera because of threats by bandits to destroy property and kill Americans.[29] At the beginning of 1919 the *Engineering and Mining Journal* declared "Mexico is rotten to the core. . . . Stealing, suffering, and sickness were [*sic*] rampant."[30]

"Bandit" raids had gotten to the point in March 1919 that the large U.S. companies in Chihuahua ordered their American employees to leave.[31] The larger foreign companies survived by buying supplies sufficient to feed their employees (selling corn at cost), their own railroad cars, and even their own engines for the trains. They could pretty much break even. The smaller companies, lacking the capital for such purchases, fared far worse.[32]

After the most difficult days of the civil wars, relative peace allowed the industry to recover in fits and starts during the 1920s.[33] As 1920 began, even though several of the larger companies resumed operations, these were only the ones closest to the safety of nearby towns. Owners feared that if they accumulated too many supplies, guerrillas would take them; camps that required stockpiling provisions were thus untenable. Villa continued to wreak havoc, although he no longer could organize large forces.[34] By mid-year, some firms had begun to reinvest in new equipment.[35] At long last, the government lifted restrictions on the sale of dynamite in October, 1920.[36] But the end of the year brought a foreboding of events to come, when eight thousand coal miners went on strike in northern Mexico with the wholehearted support of government officials.[37] Labor unrest would become a fact of life for mine owners for the succeeding two decades.

The short economic depression of 1921 and 1922 sent ore prices plummeting. Some companies cut wages and reduced their work forces.[38] The continuing reluctance of foreign capital to invest, the lack of new discoveries, and the abandonment of the most isolated camps continued to hamper recovery.[39] Another forewarning of the future occurred when the Chihuahuan state government notified all mining companies that they had to operate schools in their camps at their cost.[40] This decree greatly increased overhead. Later in 1921 the government ended the tax exemptions on imports for the mining industry.[41] More government regulations would come.[42] The state of Guanajuato passed a law that enabled its governor to takeover any mine that tried to close in the event of a strike of its workers.[43]

Although peace reigned for the moment, in 1922 isolated mining camps were sometimes at the mercy of "bandits," and small companies with fewer resources had to shut down because they could not pay for adequate protection. Federal troops in residence were often worse than the bandits.[44] Recovery continued, nonetheless. One report in the *Engineering and Mining Journal* claimed that in June 1923 more mines were operating in Mexico than at any time since 1910.[45]

A prolonged boom from 1924 through 1929 mitigated, but did not fully eliminate, crucial obstacles such as high taxes, inadequate and expensive transportation, complicated labor laws, demanding workers, and lack of capital—the last an especially acute problem for the smaller operators.[46] Added to these issues was the thorny problem of ore thefts, often quite organized, with local authorities often in cahoots.[47] All in all, during the 1920s U.S. investments in Mexican mining increased by $26 million, but still remained well short of their 1914 levels.[48]

The Great Depression that began in 1929, increasingly pro-labor legislation, a growing number of strikes, and continued controversies about subsoil rights all combined to complicate conditions in the Mexican mining industry during the 1930s. As the market for minerals deteriorated, companies attempted to reduce the number of their employees and to cut wages. These measures encountered considerable resistance from both employees and from the revolutionary governments at different levels. In mid-1930, for example, ASARCO asked to cut wages and reduce employees, which led to a long negotiation with the local Junta de Conciliación y Arbitraje, under whose jurisdiction such matters fell. A compromise resulted which cut the work week but not the workforce.[49] At least one strike took place almost every year during the decade at ASARCO.[50]

The *Engineering and Mining Journal* reported that in just the first six months in 1935 twelve hundred strikes occurred in various industries.[51] Workers struck for higher wages, payment for time lost during the strike, restoration of the jobs of workers fired because of union activities, and removal of objectionable managers or supervisors.[52] The Depression and the strikes continued into the 1940s.[53]

The interwar period from 1920 to 1940 brought both a monumental battle over the ownership of subsoil rights and the emergence of a powerful labor union movement that obtained crucial support from the revolutionary national government and many state governments. Both of these developments threatened foreign companies.

The Mexican Constitution of 1917 nationalized subsoil rights, including, of course, minerals. Article 27 provided for the inalienable dominion of the State over the subsoil, and stipulated that the subsoil could be held only under concessions which included the obligation to maintain regular workings.[54] It also contained a number of provisions for labor, including the eight-hour day, the six-day week, limitations on overtime, equal pay for equal work, regional minimum wages, workers' compensation, the right to strike, and employers' obligations to provide housing, schools, and health care.

Article 123 regulated the conditions of labor, instituting limits on the ability of employers to fire employees. Although it took more than a decade for Mexico's Congress of the Union to pass enabling legislation, mine owners were deeply threatened.

Tragedies and Outrages

The disruptions wrought by the successive civil wars within the revolution were manifold: uncertainty impeded capital investment; markets may have been strong during the European War, but few means existed to transport minerals to ports to ship them abroad; labor was often scarce, as miners went off to fight voluntarily or involuntarily; managers periodically fled in search of safer employment; and relations with the various rebel factions and governments proved unreliable, if not dangerous. Although most foreign mining companies and their workers and managers suffered no more than temporary closings or unemployment or anxiety, there were a number of notorious depredations.

On January 17, 1913, five "bandits" (rebels) rode into the camp of the Nueva and Buena Vista Anexas Mining Company in Hostotipaquillo, near Guadalajara, and attempted to steal five mules. The superintendent shot and wounded one of them as they escaped. However, the bandits killed three workmen. The remaining miners barricaded themselves in the mine, a mile away, waiting for the bandits to return with reinforcements.

One hundred and fifty strong, the bandits returned and engaged in a fire fight lasting several hours. Eventually they found the engineer, a man named Gorow, "filled him with bullets and tore his gold teeth out while he was still alive, stabbed him, and smashed his head with rocks and threw him down a precipice." The bandits then compelled the local police to capture and arrest the miners and supervisors for the murder of the workmen.[55] In February, 1914, in the same Hostotopaquillo region, bandits abducted the assistant manager of the Espada Mines Company for ransom, asking for three thousand pesos but settling for five hundred.[56]

In early 1913 rebel followers of Pascual Orozco wreaked havoc in Chihuahua, one of the major mining states. Mining companies endured raids and resultant shortages of food, fuel, and other supplies. A hundred so-called bandits raided Los Azules mining camp, operated by El Rayo Development Company, in January, capturing the manager for a thousand-peso ransom.[57] In July the manager and a handful of employees of Compañía Minera de los Reyes in Jalisco held off an attack by thirty bandits. Foreign miners stymied an assault on the Mezquital Mining Company that same month, although the bandits made off with clothing and supplies.[58]

Things got worse as the year went on. In August, retreating Carrancistas destroyed the Lampacitas Coal plant in Coahuila, causing a million dollars in damage. The rebels demanded an additional fifty thousand pesos in protection money.[59] In September 1913 revolutionaries killed Morris P. Root, superintendent of El Tigre mine in Tepic.[60] The next month another manager, Rudolf Weninger, was murdered at the Penoles Company in Durango.[61]

Conditions did not improve in 1914. In February one American and two Britons were killed in Jalisco. They were captured, disarmed, then stabbed and mutilated.[62] In another instance, an unnamed Englishman was killed and robbed of his gold teeth in August 1914.[63] Two additional attacks occurred in Sonora in June and August 1914. Two bullion transports were robbed by Yaquis. In the latter case the rebels got twenty-one thousand pesos and killed a driver. El Oro Mining and Railway Company had to pay a twenty-thousand-peso assessment to the Constitutionalists (followers of Carranza) in August 1914.[64] Pancho Villa allowed ASARCO to operate, but held thirty of its employees for a ransom of thirty thousand pesos.[65] Many large companies suffered losses through forced loans, "contributions," and robberies during the year.[66]

The year 1915 was the worst for El Oro mining district in the State of Mexico. The mines of the region were in a conundrum as the year began because they had no supplies or transportation, but the governor of the state insisted that they continue to operate. Shortly after the victorious rebel factions split apart in 1914, General Lucio Blanco occupied the camp, which set off a wave of pillage and killing. Many foreigners were murdered. Stable hands met their demise when they could not account for the same number of saddles as horses. Blanco only stayed for a few days, but worse was to come, as his soldiers were followed by the Zapatistas, who arrived on February 14, 1915. During a wild one-day occupation the entering army shot down people in cold blood, raped women, looted stores, and robbed payrolls.[67]

In 1915, too, Pancho Villa demanded that ASARCO reopen its Chihuahua smelter and tributary mines or he would operate them with his own forces. The company protested that the lack of transportation hampered its operations, although it was willing to restart its smelter in order to alleviate the widespread unemployment in the state. Villa took over the smelter and confiscated silver and lead ore that ASARCO was unwilling to process because it lacked technical staff.[68]

The rough treatment continued through the late 1910s. In July 1916 an official of the Greene-Cananea Copper Company claimed that his subsidiary had had to pay two hundred thousand pesos in forced loans.[69] Meanwhile, despite a series of brutal defeats, Pancho Villa remained in the field in the north. Holding a grudge against the U.S. for recognizing and arming the Carranza government, he was particularly tough on American companies.

In January 1919 Villa raided Santa Eulalia, a Chihuahua mining district. He told ASARCO's local managers that he would destroy the company's Chihuahua smelter and its Parral mines unless ASARCO paid him a large sum. The military zone commander, General Jesús A. Castro, sent two hundred soldiers to Santa Eulalia and placed a permanent garrison at the smelter. Nonetheless, Villa occupied Parral in April.

Villa's agent, Colonel Baltasar Piñones, informed ASARCO that the company was to pay fifty thousand pesos to prevent Villa from sacking the city, and Villa held the staff of the Veta Grande Unit for ransom. The managers only had three thousand pesos in cash, which they turned over to Piñones, promising to pay the balance. A few days later Luz Corral de Villa, Pancho's wife, picked up the remaining forty-seven thousand pesos.[70] In May 1919 the general manager of the Alvarado Mining Company personally delivered fifty thousand U.S. dollars to Villa to purchase protection.[71]

Violence continued in other regions as well. Bandits murdered Edward Leonce DuFourcq in April 1919 in Puebla, where he worked as assistant general manager of the Tezuitlan Copper Company.[72] Shortly thereafter Theodore Paterson, manager of the Aranzazu Copper Mine of the Mazapil Copper Company, was murdered by two hundred workmen who threw stones at him and eventually dynamited him in a shack where he had sought refuge. They allegedly killed him because he had tried to prevent the theft of ore.[73]

Even in the relative peace of the 1920s, the difficulties continued. The manager of La Dorada Mine in Chihuahua was taken by bandits, who demanded five thousand dollars in December 1921.[74] In late 1922 the management of the Mexico Mines of El Oro, a British company operating in the State of Mexico, tried to bring rampant ore thefts at their mines under control. The company apprehended several miners, but local authorities did not cooperate. The fired employees soon began to terrorize the assistant manager and his family with anonymous threats, and a bomb was thrown into one manager's house. The company got the assistance of a troop of soldiers and a detective agency, but it was impossible to contain the widespread ore thefts. All of the other companies in the district experienced the same problem.[75]

In a similar incident, Charles F. Sturtevant, a mine superintendent at Mocorito, Sinaloa, fired two of his employees for cause in June 1924. One of the men subsequently accosted Sturtevant with a knife. The superintendent convinced the man that he would have his job back if he returned in the morning. The worker did show up for work the next day, whereupon he was apprehended and brought to the local jail. Unfortunately for Sturtevant, the local authorities released him after only a few days. He then killed the superintendent.[76]

Later that year B. F. Barker, the auditor of the European Mining Company, along with eight others, was killed when bandits blew up a Chihuahua and Orient train with a fifteen thousand dollar payroll aboard just south of Ciudad Juárez.[77]

In November 1927 forty bandits kidnapped a number of employees from the Betel Mine and demanded a ransom of five thousand dollars apiece. The company could afford only a small payment. Federal troops, however, captured several of the bandits' relatives and threatened to execute them unless they released their hostages.[78] The bandits complied.

Correspondent E. J. Bumsted reported in February 1929 that mining in isolated areas was a risky business indeed. He was hired to manage a silver mine in Nayarit, south of Tepic. People warned him that there was rebel activity in the region. He first met with the local rebel leader, Lorenzo Arriola, who permitted him safe passage to the camp, where Bumsted resumed mining operations. Somewhat later, however, Guadalupe Flores succeeded Arriola as commander and promptly demanded payment of twenty thousand pesos. Bumsted paid the extortion and left for a safer position.[79]

The outrages continued even into the 1930s. In January 1931 a foreman at ASARCO in Santa Barbara, Chihuahua, was kidnapped and held for ransom. He escaped.[80] The last report of lawlessness encountered in the *Engineering and Mining Journal* was in July 1938, when a payroll truck was held up for 122,000 pesos near Parral.[81]

It is worth noting that foreigners were not necessarily designated for especially harsh treatment. The U.S. consul at Piedras Negras put conditions in perspective in early 1915: "Although in most instances the natives themselves are the greatest sufferers, Americans residing here are occasionally subjected to abuse, insult, and extortion at [the rebels'] hands; to say nothing of the aggravating conditions under which all business is carried on."[82]

Opportunities amidst Disorder

There is no doubt that the revolution took a heavy toll on the mining industry. But with mining in shambles opportunities arose to purchase distressed properties. One official summed up the situation: "Disorder suits us: mining claims are cheap, competition scarce. In our business it's better to be lonely than crowded." "Skittish" mine owners, confronted with the considerable uncertainties of prolonged civil war, short on cash, were "glad to sell out for a song."[83]

The highly capitalized American Smelting and Refining Company led the way toward consolidating the industry, actively expanding its mine holdings. What is extraordinary about ASARCO's history in Mexico is how its executives exploited the wreckage of the revolution, especially the fierce civil wars between 1913 and 1920, to the company's enormous advantage.

With its huge financial resources ASARCO went on a buying spree of Mexican mines and smelters. In 1910 ASARCO acquired the National Metallurgical Company, and through that company the Tiro General Mine, both in San Luis Potosí, and the Potosí Central Railroad. Between 1910 and 1912, it obtained a number of properties in the Pachuca region of the state of Hidalgo. In 1913 the company bought the famed Velardeña mine for $350,000. From 1915 to 1920 it purchased nearly all of the productive mines in Veta Grande. In 1916 the company invested heavily in railroad rolling stock, purchasing ten engines and 165 railroad cars.[84] In 1917 it acquired the Compañia de las Minas de Cobre de Magistral. From 1917 to 1920 it expanded its mine holdings in Hidalgo de Parral, Chihuahua, one of the country's oldest and most productive mining centers.[85]

From 1919 to 1922 ASARCO and the other major smelters scrambled to acquire mines. They formed or expanded their exploration departments and bought new properties, concentrating mainly on those near railroads or population centers.[86] The pace of acquisitions picked up after President Alvaro Obregón established a semblance of peace in 1920 after he overthrew Venustiano Carranza. ASARCO bought the Mexican Northern Mining and Railway Company, the Towne Mines, Inc., and Las Plomasas, La Alfareña, Los Lamentos, and La Taviche mines in 1923 for at least US$3.1 million.[87]

ASARCO also invested heavily in coal production after 1919, when it bought the Santa Rosita coal fields from the Madero family for US$1.5 million and spent large sums on their development.[88] The company acquired an additional sixty-seven properties in the Sierra Mojada region of Coahuila in 1921.[89] It also bought distressed properties in other districts all over the state.[90]

ASARCO was willing to pay considerable sums for risky properties. It obtained the San José de Gracias mine in Sinaloa for US$150,000 in 1921, for example, which had been confiscated by the Carranza government seven years earlier and returned to its Mexican owners.[91] In 1924 ASARCO took over the Veta Grande and turned Villa Escobedo—"a crumbled mass of adobe huts…abandoned"—into a burgeoning camp with fifteen hundred employees.[92] It built new plants in Parral and Santa Eulalia, investing millions.[93] All in all ASARCO poured US$10 million into various construction projects in 1925 alone.[94] In February 1927 the *Engineering and Mining Journal* reported that ASARCO had invested US$35 million in Mexico.[95] The investment continued apace through 1929.[96] ASARCO expanded further during the 1930s, despite the Depression, acquiring major holdings in Cuatro Cienegas, Coahuila; Santa Bárbara, Chihuahua; and Catorce, San Luis Potosí.

ASARCO was not the only company that saw opportunity in the calamity of the Revolution. The United States Smelting Company actively sought acquisitions at the beginning of 1916.[97] The Penoles Company, a subsidiary of American Metal Company, was also looking to buy. Eventually Penoles purchased mines in Santa Eulalia. American Metals bought property in Durango and in Santa Eulalia, as well.[98] In 1916, through its subsidiaries, American Metals obtained the Torreon smelter, formerly operated by the Madero family, and the Agujita coal mines. Two years later the company bought San Toy in Santa Eulalia. It also leased the smelter of Companía Fundidora y Afinadora de Monterrey, with plans to enlarge it.[99]

Between 1919 and 1922 there was an "active scramble" for mines. Many of the major foreign mining and smelting companies formed or expanded their exploration departments in Mexico and competed to acquire new properties.[100] Penoles became the largest mine operator in north-central and eastern Mexico by 1919.[101] It invested large sums to purchase mines and processing plants. Even after experiencing some setbacks because of low ore prices, labor disputes, and fuel shortages, Penoles continued to buy properties into 1923.[102] Both the Santa Gertrudis Company and the United States Smelting and Refining Company expanded their holdings in the Pachuca region. In 1919, the *Engineering and Mining Journal* reported that, in one week alone, six firms bought seven properties.[103]

By the next year several other operations began to improve and expand their existing holdings. Even Mexican investors began to rejoin the industry, the *Journal* noting in October 1925 that "one of the notable features of the mining situation in Mexico at this time is the investment of domestic capital."[104] During 1927 the *Journal* reported that American Metals (Penoles) had invested US$25 million and Phelps Dodge (Greene-Cananea) US$10 million in Mexico.

No better example exists of the indomitable foreign investment in Mexican mining than the San Francisco Mines of Mexico, Ltd., founded in England in 1913, which operated in San Francisco del Oro, Chihuahua. Its owners managed to survive the revolution and from 1921 increased the company's production five-fold; by 1935 it employed more than twenty-four hundred workers.[105] Similarly, the El Potosí Mining Company, located in Santa Eulalia, Chihuahua, had risen from the ruin of the revolution to become the largest lead producer in Mexico.[106]

The Revolution and the Mining Industry

The revolution devastated the mining industry in Mexico, which took more than two decades to recover its levels of production, value, and investment of 1910 or even 1914. Foreign companies owned the preponderance of the mining property and thus endured the heaviest losses. Smaller operators without sufficient capital to weather the difficulties presented by years of brutal civil wars—disruptions to transportation, rampant theft and extortion, scarcities of manpower and supplies, and lack of cooperation from various levels of government—simply could not continue. Many of the larger operators gave up as well. This created considerable opportunity for those companies with capital and the patience to wait until the new regime restored peace and stability.

Stories of murder and mayhem, really only a tiny minority of the experiences of mining companies during the revolution, may present a distorted view of conditions. However exaggerated the picture of these rare occurrences, they were, nonetheless, important, because they pointedly exhibit the horrors of war—unreasoning, erratic, and brutal—and the difficulties in conducting business in those circumstances. Such incidents were the clear indication of the uncertainties and fear that pervaded. It was impossible to operate when people were afraid to go to Mexico. Entrepreneurs would not invest when not only investments were at risk, but lives as well.

The mining industry was concentrated to a large extent in the north central core of the country, exactly the region where the heaviest fighting occurred. The contesting armies, especially those of Villa and Zapata, were chronically underfunded and undersupplied, so mining camps, with their payrolls, stockpiled provisions and supplies, and explosives, were obvious targets. At least through the end of 1915 the revolutionary factions were evenly matched and as a consequence control of territory shifted often, leaving the mining companies to pay over and over to one band of soldiers and then to another. In the initial stages of the revolution the top rebel leaders may have tried to control unnecessary pillaging, but undisciplined soldiers were not easily brought into line. Forced loans, kidnappings, and extemporaneous taxes were inescapable facts of warfare.

Mining, however, did not entirely shut down everywhere all the time. Most important, the potential for future profits was always an attraction, no matter how difficult the times. Unlike during the era of Porfirio Díaz, when small-time operators swarmed over the country, after 1913 these entrepreneurs would have an increasingly difficult road. But larger companies, like ASARCO and American Metals, with their considerable capital to invest, were willing to gamble on reaching agreement with the revolutionary regimes and to do battle with growing worker militancy. They were to furnish the backbone of the industry's recovery.

Mark Wasserman is Professor of History at Rutgers, The State University of New Jersey, New Brunswick. He is the author of Pesos and Politics: Business, Elites, Foreigners, and Government in Mexico, 1854-1940 *(Stanford University Press, 2015), which won the Mining History Association's Clark C. Spence Award in 2017 for the best book in mining history. He is also the author of* Everyday Life and Politics in Nineteenth Century Mexico: Men, Women and War *(University of New Mexico Press, 2000).*

Notes:

1. Linda Hall and Don Coerver, *Revolution on the Border: The United States and Mexico, 1910-1920* (Albuquerque: University of New Mexico Press, 1988), 106-25. They title their chapter "Mining and Revolution: A Losing Proposition." Since foreigners were dominant in the mining industry this article focuses on foreign companies. There is little doubt that Mexican mine owners suffered through the same experiences or worse.
2. *Engineering and Mining Journal* (hereafter *EMJ*) 101, no 4 (22 Jan. 1916): 191-2.
3. Many enterprises, moreover, reinvested their profits and did not distribute dividends to stockholders.
4. Marvin D. Bernstein, *The Mexican Mining Industry, 1890-1950* (Albany: State University of New York Press, 1964), 97.
5. *EMJ* 91 (6 May 1911): 925; cited in Bernstein, *Mexican Mining*, 98.
6. H. J. Baron, "Chihuahua after the Revolution," *EMJ* 92 (7 Oct. 1911): 685-6. Baron reported that Mexican owners suffered the most damages.
7. Bernstein, *Mexican Mining*, 98. A large strike of five thousand miners occurred at the end of 1912 in Mapimí, Durango. (*EMJ* 95 (4 Jan. 1913): 40.)
8. *Mexican Mining Journal* 15 (Nov. 1912): 43-4.
9. Bernstein, *Mexican Mining*, 98. The Mines Company of America took US$540,000 in profits from its Dolores, La Dura, and El Rayo mines. (*EMJ* 95 (18 Jan. 1913): 206.)
10. *EMJ* 95 (9 May 1913): 922.
11. *EMJ* 95 (3 May 1913): 922; *EMJ* 96 (19 July 1913): 184, and (1 Nov. 1913): 851.
12. *EMJ* 97 (31 Jan. 1914): 293.
13. Bernstein, *Mexican Mining*, 108. Conditions were not uniform all over the country. In Sonora reportedly "the operation of the mines is going on as if nothing had ever happened." (*EMJ* 97 (24 Jan. 1914): 241.) Zacatecas, however, was closed down due to railroad destruction. (*EMJ* 97 (28 Mar. 1914): 648.) Batopilas was safe enough in September 1914 for Americans to return. (*EMJ* 98 (5 Sep. 1914): 457.) Eastern Guanajuato faced no interruptions as of the end of 1914 because it was far from the fighting. ("Mexican Mining in 1914," *EMJ* 99 (9 Jan. 1915): 123-4.)
14. *EMJ* 99 (7 Apr. 1915): 705.
15. *EMJ* 99 (20 Mar. 1915): 555.
16. "Mexican Mining Taxes," *EMJ* 100 (25 Dec. 1915): 1037-8.
17. "The Effect of the Revolution on American-Mexican Mining Interests: May Operations be Resumed?" (Memorandum submitted on behalf of forty-five companies to the American-Mexican Claims Commission, Sep. 1916), 9-10.
18. "Effect of the Revolution," 11-12.
19. "Effect of the Revolution," 14.
20. "Effect of the Revolution," 15.
21. "Effect of the Revolution."
22. "Effect of the Revolution," 8.
23. "Effect of the Revolution," 15.
24. *EMJ* 101 (5 Feb. 1916): 278.
25. *EMJ* 102 (22 July 1916): 199, 202.
26. *EMJ* 104 (3 Nov. 1917): 810-1.
27. *EMJ* 105 (12 Jan. 1918): 120-1.
28. *EMJ* (17 May 1919): 871.
29. *EMJ* 107 (8 Mar. 1919): 464.
30. "Mining in Mexico in 1918," *EMJ* 107 (11 Jan. 1919): 112-3.
31. *EMJ* 107 (22 Mar. 1919): 541.
32. "The Mexican Problem," *EMJ* 107 (10 May 1919): 830-3.
33. However, two major rebellions during the decade, the de la Huerta revolt in 1923-4, and the Cristero rebellion of 1926-9, seriously threatened the revolutionary regime.
34. H. H. Taft, "Improvement in Northern Mexico," *EMJ* 109 (31 Jan. 1920): 305.
35. *EMJ* 109 (5 June 1920): 1288, and (12 June 1920): 1333. The Greene Cananea Copper Company declared a dividend of US$750,000 (*EMJ* 109 (12 June 1920): 1341), only to shut down in December because of economic conditions (*EMJ* 110 (4 Dec. 1920): 1100).
36. *EMJ* 110 (30 Oct. 1920): 883.
37. *EMJ* 110 (6 Nov. 1920): 919.
38. *EMJ* 111 (15 Jan. 1921): 121.
39. Bernstein, *Mexican Mining*, 127.
40. *EMJ* 112 (17 Dec. 1921): 989.
41. *EMJ* 112 (20 Aug. 1921): 306.
42. Chihuahua adopted a new state constitution and new radical labor and agrarian laws, which greatly worried foreign employers. Small-scale operators were discouraged from returning because of the unfavorable business climate. The risks were too high. "Internal Affairs of Mexico, 1910-1929," 812.63/637, U.S. Department of State, Record Group 59, U.S. National Archives, Washington, D. C. [hereafter NARA].
43. *EMJ* 113 (10 June 1922): 1017.
44. *EMJ* 114 (19 Aug. 1922): 311.
45. *EMJ* 115 (16 June 1923): 1081.
46. John W. Dye, "Annual Report on Mining in Ciudad Juárez," 24 Feb. 1925, in "Internal Affairs of Mexico," 736; Arthur Barrette Parsons, "The Mexican Situation," *EMJ* 121 (13 Feb. 1926): 272-87. Again, conditions varied. From August 1926 to July 1927 there were twenty-six important mine closings, the majority because of low prices and most of the rest because their veins played out. (*EMJ* 124 (3 Dec. 1927): 907.)

47. Thomas McEnnelly, Dec. 18, 1925, "Internal Affairs of Mexico," 751.
48. Bernstein, *Mexican Mining*, 143.
49. *El Correo de Chihuahua*, 12 July 1930, 1, 4, 21 July 1930, 1, 30 July 1930, 1, 4.
50. The Great Depression caused ASARCO and other companies to attempt to reduce wages and hours and the size of their labor force. Most states had laws that required the companies to obtain permission to cut the number of workers and the length of the work week. Unions, of course, objected strenuously to any such measures. ASARCO, for one, had already experienced strikes during the 1920s, in 1920, 1923, 1924. (*EMJ* 110 (14 Aug. 1920): 333-34; *El Paso Times*, 28 Sep. 1923, 8, and 1 Oct. 1923, 10; W. M. Parker Mitchell to Secretary of State, 19 Sep. 1923, Thomas McEnnelly to Secretary of State, 11 Dec. 1923, and McEnnelly to Secretary of State 2 Jan. 1924, "Chihuahua City, Confidential," v. 22-28, U.S. Department of State, Record Group 84, NARA.
51. *EMJ* 136 (July 1935): 358.
52. Lee R. Blohm, Chihuahua City, to Secretary of State, 20 Sep. 1935 (812.5045/241, 245), Blohm to Secretary of State, 21 Mar. 1948 (812.5045/711), "Internal Affairs of Mexico, 1930-1939," 812.5045, U.S. Department of State, Record Group 59, NARA.
53. *EMJ* 141 (Jan. 1940): 82, and (Mar. 1940): 78-9.
54. Bernstein, *Mexican Mining*, 116.
55. *EMJ* 95 (19 Apr. 1913): 815.
56. *EMJ* 97 (14 Feb. 1914): 394.
57. *EMJ* 95 (18 Jan. 1913): 202.
58. *EMJ* 86 (26 July 1913): 184.
59. *EMJ* 96 (13 Sep. 1913): 519.
60. *EMJ* 96 (20 Sep. 1913): 570.
61. *EMJ* 96 (18 Oct. 1913): 763.
62. *EMJ* 97 (16 May 1914) 1028-9.
63. *EMJ* 98 (18 July 1914): 136.
64. *EMJ* 98 (24 Oct. 1914): 764.
65. *EMJ* 97 (2 May 1914): 928.
66. Walter M. Brodie, "Present Conditions in Mexico," *EMJ* 98 (18 July 1914): 126-7.
67. "El Oro District during 1916," *EMJ* 101 (29 Jan. 1916): 209.
68. "More Mexican Mining Law," *EMJ* 100 (23 Oct. 1915): 688, and (30 Oct. 1915): 736.
69. "Annual Report of the Greene-Cananea Copper Company," *EMJ* 102 (8 July 1916): 110.
70. Horace D. Marucci, "The American Smelting and Refining Company in Mexico, 1900-1935" (Ph.D. diss., Rutgers University, 1995), 394-5.
71. *EMJ* 107 (10 May 1919): 833. Also in May, Villa captured two Americans, one of whom was a bishop in the Mormon Church.
72. *EMJ* 107 (26 Apr. 1919): 768.
73. *EMJ* 108 (2 Aug. 1919): 169.
74. *EMJ* 112 (24 Dec. 1921): 1032.
75. T. H. C. Mitchell, assistant general manager, to Sir Ernest M. Clarke, 26 Dec. 1922, Pearson Papers, Science Museum, London.
76. *EMJ* 118 (9 Aug. 1924): 201.
77. *EMJ* 118 (25 Oct. 1924): 662.
78. *EMJ* 125 (4 Feb. 1928): 208.
79. *EMJ* 127 (23 Feb. 1929): 524.
80. *EMJ* 131 (12 Jan. 1931): 32.
81. *EMJ* 139 (July 1938): 77.
82. "Annual Report on Commerce and Industry for 1914, Piedras Negras, Coahuila," 23 Feb. 1915, Buckley Collection, Nettie Lee Benson Library, University of Texas, Austin, 131.
83. Cited in William K. Meyers, "Pancho Villa and the Multinational: United States Mining Interests in Villista Mexico, 1913-1915," *Journal of Latin American Studies* 23, no. 2 (May 1991): 146.
84. *Mexican Mining Journal*, Jan. 1916, 1.
85. R. R. Manahan, "Historical Sketch of the Mining and Milling Operations of American Smelting and Refining Company in Mexico, 1899 to 1948" (1948, copy of unpublished manuscript in author's possession), 7-8.
86. J. C. Pickering, "Mexico, a Field for Investment," *EMJ* 120 (5 Dec. 1925): 892-5.
87. Manahan, "Historical Sketch." Mexican Northern Mining and Railway Company consisted of Parral Consolidated, Alvarado Mining and Milling in Parral, Chihuahua, and the Parral and Durango Railroad Company. The Towne Mines, Inc., included Compania Metallurgica Mexicana, Montezuma Lead Co., Somberete Mining Co., and the Mexican Lead Company. Las Plomasas, La Alfareña, and Los Lamentos mines were in Chihuahua, and La Taviche in Oaxaca.
88. *Excelsior*, 10 Nov. 1919, Buckley Collection, 153.2; *EMJ* 113 (20 May 1922): 887.
89. *EMJ* 111 (4 June 1921): 963, and (11 June 1921): 1003.
90. *EMJ* 112 (27 Aug. 1921): 353.
91. *EMJ* 112 (1 Oct. 1921): 553.
92. Henry B. Ott, American vice-consul, Chihuahua, to Secretary of State, "Report on Safety and Protection of Americans in Parral," 27 Mar. 1924, "Confidential File, 1922-1928," Record Group 84, NARA.
93. *EMJ* 118 (13 Dec. 1924): 948; A. B. Parsons, "New A.S.R. & Co. Projects in Mexico," *EMJ* 118 (15 Nov. 1924): 786-7; *Boletín Comercial* (Chihuahua), 15 Oct. 1924, 23-4. The company invested 1.5 million pesos in Parral in 1924 on a cyanide processing plant.
94. *EMJ* 118 (15 Nov. 1924): 786.
95. *EMJ* 123 (5 Feb. 1927): 258.
96. *EMJ* 123 (18 June 1927): 907, and 124 (3 Dec. 1927): 1021; *Boletín Comercial*, 15 Dec. 1928, 21.
97. Willard S. Morse to the Executive Committee, 20 Jan. 1916, and W. M. Drury to Morse, 19 Jan. 1916, ASARCO Archive F16: 245-6, Durango Miscel-

laneous, Marucci Boxes in possession of the author, Highland Park, NJ.

98. Bernstein, *Mexican Mining*, 120.
99. Bernstein, *Mexican Mining,* 110; *EMJ* 110 (11 Sep. 1920): 539, and 103 (16 June 1917): 1088, and 111 (8 Jan. 1920): 80.
100. Pickering, “Field for Investment,” 892-5. Evidently, companies were still wary of isolated districts, so, at least at first, they limited investments to camps near population centers or railroads.
101. Bernstein, *Mexican Mining*, 120; *EMJ* 110 (25 June 1921): 1082.
102. *EMJ* 111 (8 Jan. 1921): 79, and 116 (28 July 1923): 168.
103. Bernstein, *Mexican Mining*, 102.
104. *EMJ* 120 (17 Oct. 1925): 630.
105. *EMJ* 137 (Aug. 1937): 379ff.
106. A. H. Hubbell, “Mining in Mexico Today,” *EMJ* 137 (Mar. 1936): 119ff.