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El Paso International Airport, dedicated September 8, 1928

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Mining and Supporting Industries in Chihuahua During the Late Nineteenth and Early Twentieth Centuries: An Environmental History Perspective

By Abbie Weiser

Introduction

Throughout the late nineteenth and early twentieth centuries mining and its supporting industries created an economic, ideological, and physical network in Chihuahua, Mexico. This long-distance economic and trade system of mines, railroads, smelters, and lumber mills transformed Chihuahua's natural and industrial landscapes and connected the environment with industry on a grand scale. Chihuahua's position as a Mexican frontier state with abundant mineral resources, as well as its proximity to the United States, furthered its transnational role in Mexico's economy. The railroad, in particular, transformed Chihuahua's natural landscape as it made access to new lands for lumber possible and shipment of ores across Chihuahua's vast wilderness physically and economically feasible.

Although Mexico's mining industry operated since the mid-sixteenth century with the discovery of silver in Zacatecas and ore deposits in San Luis Potosi, the mining industry still struggled with what historian Samuel Truett in his work on the Sonoran borderscape termed "industrial control of nature" in the late nine-

teenth century.[1] New technologies, such as mechanized mining tools, smelting and cyanidation processes, and the railroad, helped human culture dominate nature in Chihuahua, but natural and mining disasters and disease still made complete dominance over nature impossible. Truett points out the important relationship between social control and environmental and spatial control, which also holds true for Chihuahua during the colonial eras and after Mexican independence. This struggle between human culture and nature is additionally explored by Shawn Miller in his work on the environmental history of Latin America. Miller oversimplifies the complex consequences of mining on the environment and concludes that mining, although detrimental to the environment, wreaked its greatest havoc upon human populations through mining-related diseases and accidents and that "nature... got off easy with a few mineshafts and local deforestation."[2] Conversely, Lane Simonian in his history of conservation in Mexico emphasizes the extreme environmental degradation caused by mining and the railroads and does not focus on the mining industry's effects on human health.[3] Nevertheless, all three historians agree that nineteenth-century liberal and capitalistic goals of economic progress were realized at the expense of Mexico's environment.

During the *Porfiriato* (1876–1911), the Mexican Revolution (1910–1920), and the post-revolutionary era the exploitation of the environment also served as a powerful expression of modernity and as a measure of economic and social advancement. President Porfirio Díaz's contempt of "vacant lands" (typically communal lands belonging to indigenous groups), belief in positivism, and aggressive developmentalist ideology resulted in an economic push to develop, industrialize, and expropriate land from Mexican peasants and Native American groups. Welcoming foreign capital and foreign mining companies (most often American and British), Mexico's liberal government exploited the natural environment while foreign companies took advantage of Mexico's natural resources and labor. Economic development and Mexico's mining industry, however, became tied not only to economic, national, and

[1] Samuel Truett, Fugitive Landscapes: the Forgotten History of the U.S.-Mexico Borderlands. (New Haven: Yale University Press, 2006), 72.

[2] Shawn Miller, An Environmental History of Latin America (New York: Cambridge University Press), 90-91.

[3] Lane Simonian, Defending the Land of the Jaguar: A History of Conservation in Mexico (Austin: University of Texas Press), 61.

political progress, but also to race, class, and social identity and control. Thus, the mining and support industries network that emerged in Chihuahua beginning in the mid-late nineteenth century profoundly affected Mexico's natural and industrial landscapes as well as human health and material culture. The mining and support industries network additionally linked environmental control and the built environment with social and economic development in Chihuahua and categorically accelerated damage to the local environment.

The Natural Landscape of Chihuahua

Chihuahua's geographic location on Mexico's northern western frontier and directly south of the United States made it a strategic site for trade and industrial development. Its size (over 95,000 square miles of land) and natural resources—namely minerals and timber—led investors and the Mexican government to aggressively explore and develop Chihuahua's natural landscape during the nineteenth and twentieth centuries. Efforts at industrial development and expanding the mining industry in Chihuahua were continually shaped by the state's physical terrain, climate, natural and geological resources, and human population.

Consisting of mountain ranges and intermontane plains, Chihuahua in the early twentieth century was still largely rural, despite the growing industrial presence. Chihuahua itself was "bounded to the west and south by the Sierras Madre Occidental and Oriental, respectively, and to the north by the Rio Grande; to the east, it grades into the Gulf Coastal Plain."[4] According to anthropologist and geographer Donald Brand who researched the area during the early 1930s, Chihuahua's climate varied between arid and semiarid with a distinct rainy season during July through September, while its elevation typically increased from the northeast to the southwest and ranged from 1120 meters at the Fresnal-Urrutia depression to 2740 meters along the top of the Sierra Madre Occidental mountains.[5] While the Rio Grande and its tributary, the Rio Concho, are Chihuahua's only chief rivers, a number of streams are present, including the Carmen, Santa Maria, Casas

[4] Jean-Luc Cartron, Gerardo Ceballos, Richard Stephen Felger, eds. Biodiversity, Ecosystems, and Conservation in Northern Mexico (New York: Oxford University Press, 2005), 20.

[5] Donald Dilworth Brand, The Natural Landscape of Northwestern Chihuahua (Albuquerque: University of New Mexico Press, 1937), 33-34.

Image 1: Landscape, Madera, Chihuahua, Mexico, about 1900s, Gertrude Fitzgerald Photograph Collection, PH025, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.

Grandes, and the Palomes-Mimbres.[6] This mix of desert, river valleys, waterways, hilly terrain, and mountain ranges characterized the physical landscape of Chihuahua for all of its modern history *[see image 1].*

Chihuahua's natural landscape also possessed rich geological resources. Common minerals present in Chihuahua included apatite, copper, gold, gypsum, hematite, silver, zinc, mercury, and lead. And Chihuahua's rocks and soils were often studied by nineteenth and twentieth-century naturalists and scientists. For example, Walter Harvey Weed of Washington, D.C. wrote in 1911 that while in Chihuahua he observed that "the rocks are mainly limestones, blue, gray, or white... Southward along the Mexican Central railroad the isolated ranges contain intrusive masses of granite and other coarsely granular rocks, which breaking through the limestones, are often characterized by contact-deposits of copper-ores."[7]

Brand additionally researched Chihuahua's soils in the early 1930s. In his study of the natural landscape of Chihuahua he states that "the soils of the Chihuahuan Basin and Range area are mainly the chestnut brown to light gray soil of low latitude dry climates." He goes on to explain that "soil formation in arid and semi-arid regions is slow in comparison with the rate of removal by wind, water, and gravity, so that the slopes of degradation are

[6] Cartron, 20; Brand, 60.

[7] George Griggs, Mines of Chihuahua, 1911: History, Geology, Statistics, Mining Companies Directory. (Chihuahua, Mexico: El Norte, S.A. Chihuahua, 1911), 233.

poor in soil." This slow rate of soil formation, along with industrial development and cattle grazing, led Brand to notice the "growing amount of erosion" and that "dales are being ripped by sand bottomed arroyos, often bordered by badland forms."[8]

Despite the arid and semi-arid climate of Chihuahua as well as the accelerating rate of mining and industrial development and anthropogenic environmental degradation during the late nineteenth and early twentieth centuries, the early twentieth century still saw a variety of flora and fauna. According to Brand, Chihuahua's arid shrub-grasslands contained steppe grasses, scattered yuccas, cacti, the ocotillo, agaves, nolinas, and dasylirions. He further observed that in less arid areas of Chihuahua grasses, mesquite, creosote bush, and *hojasen* "dominate the landscape," while stream banks housed several varieties of trees including cottonwoods, willows, sycamores, walnuts, and hackberries. Chihuahua also contained the Sierra Madre Occidental Forest, which consisted of a lower zone with juniper and oak trees and an upper zone with pine trees.[9]

Brand additionally recorded the presence of "abundant" waterfowl near lakes, springs, and streams and few reptiles (though the desert does contain a variety of turtles, lizards, and snakes), while mammals present in Chihuahua included bears, the peccary (the *jabalin*), deer, antelope, mountain sheep, jack rabbits, mice and rats, jaguars, foxes, wolves, skunks, squirrels, gophers, and prairie dogs. Bison and Merriam's Elk seemed largely extinct in the region due to hunting and lack of grazing lands. Some insects present in early twentieth-century Chihuahua were gnats, mosquitoes, horseflies, red ants, bees, yellow jackets, fleas, moths, and butterflies.[10] As industrialization increased during the twentieth century, however, local habitats and wildlife became regular victims of the mining, smelting, timber, and railroad industries.

Travel accounts and research studies of the time period often emphasized the physical openness and wild frontiers of Chihuahua, the beauty of its natural landscape, the harsh and dangerous climatic and terrain conditions, and the primitive nature of the "natives," though a few studies mentioned increasing deforestation. In a paper read to the Colorado Scientific Society on April 7, 1906, A.W. Warwick explained that the country "at first strikes

[8] Brand, 23-25.

[9] Brand, 42-48.

[10] Brand, 52-59.

the traveler on the main trails as an uncultivated, uninhabited one, with very sparsely scattered mineral resources, though rich ones." Similarly, the editor of the volume where Warwick's essay appeared, George Griggs, wrote in his introduction to Warwick's study that "Mexico is the mining country of the near future. Although for this continent so old a state there are vast areas that are as little known as the wilds of the interior of Africa, hence we follow Mr. A.W. Warwick in his exploration of a portion rarely traversed by white men with peculiar interest."[11] These essays and travel accounts helped publicize Chihuahua's vast and still mostly wild natural landscape to U.S. companies and investors as well as identified areas that needed additional exploration.

Despite the rapid development of the mining industry during the late nineteenth and early twentieth century and the resulting environmental degradation, Chihuahua's landscape still possessed much beauty and uninhabited wilderness. Weed wrote that "from the Rio Grande at Presidio del Norte westward to Chihuahua, the central plateau presents a broad expanse of rolling, arid table land, with grass and Spanish bayonet, sotol, yucca, and cacti... and intermediate grasslands dotted with bushes."[12] Carl Lumholtz, in his well-known travel account of Mexico, recounted in his journey to Batopilas in the 1890s that the "Barranca de Batopilas... presented an imposing, awe-inspiring sight," and described the physical landscape as "scorched, except for evergreen cacti, the most prominent of which was the towering pithaya."[13]

Other travel accounts echoed these themes of open frontiers, natural splendor, and difficult environmental conditions. W.H. Seamon (later a professor at the State School of Mines—now The University of Texas at El Paso) detailed his 1905 journey from Parral to Calabecillos in southwestern Chihuahua by describing the landscape as well as the cold temperatures during the night. Although Seamon related the harsh environment and rugged terrain, he also described the beauty of the Laguna country.[14] And

[11] Griggs (1911), 36.

[12] Griggs, (1911), 233-234.

[13] Carl Lumholtz, Unknown Mexico: A Record of Five Years' Exploration Among the Tribes of the Western Sierra Madre; in the Tierra Caliente of Tepic and Jalisco; and Among the Tarascos of Michoacan. (Glorieta, New Mexico: Rio Grande Press, 1973), 179-180, 188.

[14] George Griggs, Mines of Chihuahua, 1907: History, Geology, Statistics, Mining Companies Directory. (Chihuahua, Mexico: El Norte, S.A. Chihuahua, 1907), 197-199.

Grant Shepherd in his somewhat romanticized memoir of growing up in the mining towns of Chihuahua wrote about the grandeur of an irrigated *hacienda* in Bachimba as well as detailed the countryside in Chihuahua, which he characterized as "the deep gorges on corkscrew trails, along pleasant table lands thickly timbered, mostly with great pines."[15] Despite these descriptions of abundant resources and natural beauty, however, Chihuahua's natural landscape transformed over time as the mining industry altered the physical environment (especially the forests) and human geography.

Mining in Chihuahua

By the twentieth century, Chihuahua's natural and mineral resources had served as a catalyst for decades of economic development, environmental exploitation, and demographic growth on Mexico's northern frontier. According to an essay by E.H. Talbot published in the 1911 Chihuahuan mining directory, "In no other respect has Mexico advanced so rapidly or with such marvelous results in the last decade as in the profitable development and operation of rich mines, many of which have attracted the cupidity of discoverers and pioneers since the coming of the Spaniards."[16] Charles MacAnderson, editor of the *Mexican Mining Journal,* also reflected on Mexico's progress in a 1910 poem entitled "Feliz Ano Old Timer" in which he writes that "Chihuahua is one of the busiest spots in the Mexican mining map."[17] And an entry from the *Encyclopedia Hispano-Americana-Madrid* stated that:

> In the state of Chihuahua there are 100 mining camps and 575 mines. Silver is found in the State of Chihuahua in relatively large masses. If Mexico, deprived of all means of communication, has been able to produce with the rudest kind of material as fabulous production of metals, what will it do in the future, when it will have all sorts of ductile elements and ways of transportation.[18]

These statements revealed not only Mexico's (and its investors) pride in the Mexican mining industry and their efforts at self-promotion, but also demonstrated mining's critical role in Mexico's industrial and economic development, attempts at modernization,

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[15] Grant Shepherd, The Silver Magnet: Fifty Years in a Mexican Silver Mine (New York: E.P. Dutton & Co., 1938), 25-28.

[16] Griggs (1911), 245.

[17] "Feliz Ano Old Timer," Mexican Mining Journal 10, no. 1, (January 1910): 1.

[18] Excerpt from the Encyclopedia Hispano-Americana-Madrid in Griggs (1907), 12.

and in the country's self-imposed and oft-promoted identity as a land full of abundant natural resources.

The long history of mining in Mexico supported the country's strong ties to the industry. Indeed, early silver strikes in the Santa Barbara-San Bartolome region and in the Sierras led to the founding of Spanish settlements and grants of Indian labor during the sixteenth century where "early Spanish settlements were determined by the location of silver deposits and water sources."[19] After Mexican independence in 1821, Mexico sought to join the global economy by extracting and exporting its mineral wealth for profit.

New mining and smelting technologies as well as the coming of the railroad to Mexico further caused the Mexican mining industry to expand as the Industrial Revolution finally arrived in northern Mexico during the mid to late nineteenth century.

New mining and smelting technologies as well as the coming of the railroad to Mexico further caused the Mexican mining industry to expand as the Industrial Revolution finally arrived in northern Mexico during the mid to late nineteenth century. This push to develop and economically advance became tied to efforts to compete in the emerging industrial economy and to promote social improvement, and, therefore, "modernize" Mexico. Economic development accelerated under the presidency of Porfirio Díaz (1876-1911) who, along with his advisors, pushed a developmentalist ideology that expropriated Indian and communal lands that were seen as "empty lands" *(tierras baldias)* for governmental and corporate use. Díaz himself signed several mining claims, such as the *titulo numero 24795* claim made by Octaviano Assizon, Demetrio Morales, Isidoro Gardea, and Filomeno Torres to the Los Alpes mine in Durango on April 8, 1904 and the *titulo numero 22358* claim made by Jesus Solis to the San Juan mine in Chihuahua on July 30, 1903.[20] Photographs of Porfirio Díaz, General Luis Terrazas, and Enrique

[19] Susan M. Deeds, Defiance and Deference in Mexico's Colonial North: Indians Under Spanish Rule in Nueva Vizcaya (Austin: University of Texas Press, 2003), 13, 40.

[20] Mining claims, Box 1, Mexican Mining Collection, MS 015, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.

Creel in the opening section of the 1907 *Mines of Chihuahua* directory highlight the links between mining, politics, and national progress.

Also crucial to the Mexican mining industry and economic development was the influx of foreign capital—largely from American and British companies and investors. According to the *Mines of Chihuahua* directory of 1911, mining in Mexico required less capital than in the United States.[21] Less capital required at the onset as well as cheap Mexican labor translated into increased profits for foreign mining companies and investors during the *Porfiriato.* While Mexico's liberal government under Díaz welcomed and actively sought foreign investors, some Mexicans resented foreigners profiting from Mexico's mines. An article in the March 1910 issue of the *Mexican Mining Journal* addressed these ambivalent feelings toward foreign capital stating that "foreign capital in Mexico is not to be looked down upon as a necessary evil in the development of our natural resources, but rather as a great help to progress and stimulus to development and production along every line."[22] In reality, it was primarily the foreign mining companies and investors who came away with great wealth from mining, railroads, smelters, and the timber industry—not Mexicans—though rhetoric tying foreign capital to increased national and social progress continued throughout the twentieth century, despite low profits for Mexicans and increased damage to the natural environment.

By the late nineteenth and early twentieth centuries Chihuahua became one of the largest and busiest mining regions in Mexico. Miners in Chihuahua commonly extracted apatite; bismuth and bismite (in Ojo Caliente, District Bravos); coal (in Orientales near Ojinaga and Ciudad Juarez); gold (in Placer Santo Domingo, Cerro Colorado, Batopilas, and other mining districts); gypsum (in Naica, Santa Rosalia and other districts); hematite (in Uruachic), silver (in Batopilas, Morelos, Urique, Parral, and others); zinc (in Calera, Almoloya, and other areas), copper, mercury, and lead.[23] Chihuahua remains a top producer of lead, zinc, and cadmium in the early twenty-first century.[24] Evidence of the scope of Chihuahuan mining also appears in the monthly "updates" column in the *Mexican Mining Journal,* where mining news from Chihuahua was

[21] Griggs (1911), 252.

[22] Mexican Mining Journal 10, no. 3, (March 1910): 1.

[23] Griggs (1911), 255.

[24] Catron, 56.

often the longest section in the column. This section of the journal regularly mentioned notable mines and companies of the times, such as the La Dinamita, Esmeralda, Alianza, La Union, Las Plomosas, Sierra Mining Company, Batopilas Mining Company, La Cumbre, El Rayo, and the Montezuma, and occasionally reported on mining engineers and other employees, recent discoveries, and other mining activities.[25] During 1907 ores shipped from five stations (Chihuahua, Parral, Jimenez, Ciudad Camargo, and Villa Ahumada) in Chihuahua totaled 442,300 tons.[26]

One of the best-known mining districts in Chihuahua was the Batopilas Mining District—unique for its designation as "one of the few mining districts where the major ore mineral is native silver."[27] In Batopilas, "famous" mines included Santo Domingo, Rubi, Diamatite, Gloria, Descubridora, Cuatro de Julio at Urique, the Lluvia de Oro at Morelos, the San Gil, Dolores and San Antonio. Production value from the Batopilas Mining District alone was $2.5 million in 1907.[28]

As mining became more lucrative for foreign investors, mining investors sometimes commissioned research reports by geologists and other mining experts about Chihuahuan mines that they were thinking of either buying or investing in.[29] While often highly profitable, mining enterprises were dependent on the global market economy and could fail as mineral deposits were either not found or were quickly depleted. This fact led to the often transient nature of mining and its reputation as financially risky.

Decades of governmental and foreign environmental control and exploitation, however, did not lead to economic and social advancement for most Mexicans. Although lists of mine owners in Chihuahua included many Mexicans, there were also some Anglo owners as well as large companies, such as the Santo Domingo Mining Silver Mining Company, the La Guzapares Mining Company, and the Batopilas Mining Company. The Batopilas Mining

[25] Mexican Mining Journal 8-21 (1909-1921).

[26] Griggs (1907), 191.

[27] Gregg Wilkerson, "Batopilas Mining District, Chihuahua," Economic Geology 83, no. 8, (December 1988): 1721-1736.

[28] Mexican Mining Journal 10, no. 1 (January 1910): 17.

[29] "Report on San Miguel Quicksilver Mine near Camargo, Chihuahua," January 4, 1928; "Report Upon the Mining Properties of the San Julian District in the State of Chihuahua, Mexico," 1901-1914, Box 1, Mexican Mining Collection, MS 015, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.

Company actually had its head corporate office at 45 Broadway in New York City and owned mines in Chihuahua including the Todos Santos, Giral, Roncevalles, Cabuchin, Descubidora, Santa Maria, Cinco de Mayo, Animas, San Miguel, and the Porfirio Díaz. The company owned nine Bartlett concentrators, 125 stamp mills, a 250 ton cyanide plant, and employed over 1,000 workers.[30] Historian William French in his work on the working class in Mexico concluded that "as mining and milling became even more capital intensive, mine ownership... came to be concentrated in fewer and fewer hands." Mine owners also sought to increase profits by replacing Mexican peon labor with American mining machinery, which was characterized "by the border press as the definition of modernity itself."[31]

Nevertheless, Mexican peon workers and mining engineers (primarily upper-class Mexicans and Anglos) were central to the mining industry. During the colonial era the Spanish relied on forced Indian labor. Deeds writes that "The labor needs of the new mines converted surrounding Tarahumara and Concho *Rancherias* into prime targets for labor brokers, who pressed Indians into service in mines and cutting wood for charcoal."[32] She further characterizes these seventeenth-century workers as a "partly voluntary, partly coerced labor force," which largely consisted of black slaves, free mulattoes, *mestizos,* and Indians and other local inhabitants.[33]

By the late nineteenth and early twentieth centuries, the mining labor force was hierarchical in nature, with rank (mostly skilled v. unskilled labor) largely determined by race and class. *Mestizos* and Indians (males, of course) made up the majority of the Mexican mining working class. These men (often youths) were almost exclusively relegated to systematic unskilled labor and therefore were more likely to be exposed to danger from silicosis and mining accidents. A photograph in the January 1916 issue of the *Mexican Mining Journal* entitled "Scene in a Mexican Mine" shows five indigenous youths clad only in loincloths working while a full-clothed, light-skinned overseer looks on *[see image 2].*[34] Similarly,

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[30] Griggs (1907), 324.

[31] William E. French, A Peaceful and Working People: Manners, Morals, and Class Formation in Northern Mexico (Albuquerque, University of New Mexico Press, 1996), 19, 21.

[32] Deeds, 90.

[33] Deeds, 60.

[34] Mexican Mining Journal 20, no. 1 (January 1916): 20.

Image 2: "Scene in a Mexican Mine," Mexican Mining Journal, *January 1916, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.*

a 1902 American Institute of Mining Engineers publication contains a photograph of an Indian worker in the Parral area carrying ore on his back while dressed only in a hat, shabby sandals, and a loincloth.[35]

Shepherd's memoir also relates the difficult working conditions that unskilled laborers faced. He wrote that before mechanical improvements in the 1880s, workers carried heavy loads of ores "up ladders for five hundred feet, more or less."[36] And according to French, "historians of mining in Mexico maintain that mining became more tolerable, as pneumatic drills and power machinery freed peons from the exhausting work of dragging two-hundred-pound sacks of ore up ladders in suffocating temperatures..." but that more recent studies "place these conclusions in doubt."[37] These harsh work conditions and the social and economic ramifications of Mexico's mining culture, shaped by foreign

[35] Patricia Haesly Worthington, El Paso and the Mexican Revolution (Charleston, South Carolina: Arcadia Publishing, 2010), 34.

[36] Shepherd, 65.

[37] French, 21.

capital and Mexican and Anglo notions of race and class, helped a distinct Mexican mining working class emerge during the mid-late nineteenth century that interacted with and extracted from the local environment in Chihuahua.

This combination of Mexican miners and foreign capital resulted in an escalation of mining activities during the late nineteenth century as mine owners and foreign investors sought to attain high profits and "industrial control" over the environment. Intensive and extensive mining often left areas depleted of minerals and the use of dynamite and mechanized tools, such as the pneumatic drills, irrevocably altered the landscape. Simonian relates that in Zacatecas, even during the early seventeenth century, the landscape was damaged by mining activities and that missionaries noted the increasing lack of forests and wildlife, such as hares, rabbits, partridges, and doves.[38]

By the late nineteenth and early twentieth centuries damage to Chihuahua's environment augmented dramatically as mining activities expanded rapidly across the Chihuahuan landscape and more fuel was needed for mining operations. According to scientist Jean-Luc Catron, mining in Mexico affected "wildlife, vegetation, groundwater, surface water, soils, air, and cultural resources." While specific environmental issues varied from mine to mine, frequent environmental problems included: the contamination and drawdown of groundwater aquifers, erosion, acid mine drainage, dust and air pollution from tailings and road surfaces, smelter emissions, and landscape clearing (for lumber). Catron contends that mining areas not only suffered from heavy environmental pollution, but were also "effectively sterilized as rehabilitation of old pit mines is virtually nonexistent and generally not feasible."[39] Mercury, in particular, contaminated soil, streams, and human beings in mining areas—with often deadly results during the colonial era. In the nineteenth century cyanide contamination was more common as the amalgamation process of separating ores using mercury was replaced by cyanidation processes.[40] Catron explains that by using "a sodium cyanide solution that is allowed to percolate through the crushed stone dissolving gold and silver... cyanide rapidly degrades into carbon and nitrogen in sunlight or in contact with the atmosphere." He writes that cyanide became

[38] Simonian, 42.

[39] Catron, 57.

[40] Miller, 87-91, 96-99.

a larger environmental problem when it came in contact with water as cyanide was extremely damaging to aquatic life and easily contaminated water sources. Areas around gold mines especially suffered from cyanide contamination as small gold processors preferred to use the cyanidation process in separating gold from the rocks.[41]

The rise of large-scale smelting operations to process the ores and the need for timber for mine construction, company towns, and railroad construction further contributed to environmental degradation. A photograph in the February 1916 issue of the *Mexican Mining Journal* shows the Palmilla Mining Company property in Parral where the land appeared almost completely barren and the rocky terrain of the landscape is covered with unattractive rectangular buildings and mine shafts.[42] Even during the mid-twentieth century, miners showed a disregard for the environment. A former miner, Arturo Morales, stated that in Ocampo during the early 1940s "we violated all the rules of the game... we didn't think about the environment. We just thought it was normal whatever we did... but we thought very, very little or we didn't even use the word environment."[43] Morales's statements about miners' lack of concern for the local environment help relate the long history of environmental neglect in the Mexican mining industry. It was not until 1992 that a mining law helped protect the environment, but even that law was subject to modifications by powerful mining associations.[44]

The rise of large-scale smelting operations to process the ores and the need for timber for mine construction, company towns, and railroad construction further contributed to environmental degradation.... Even during the mid-twentieth century, miners showed a disregard for the environment.

Nature, however, fought back as miners often dealt with mining diseases (primarily silicosis), mine cave-ins, mine flooding, and mine fires. During the 1940s mine fires were responsible for

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[41] Catron, 58.

[42] Mexican Mining Journal 21, no. 2 (February 1916): 54.

[43] Interview with Arturo M. Morales Dominguez by W. Noel McAnulty, Jr., Oct. 14, 1995, "Interview no. 899," Institute of Oral History, University of Texas at El Paso.

[44] Catron, 58.

the closure of the San Pedro mine in San Luis Potosi as the mine was filled with highly pyritic ore, which was prone to spontaneous combustion. Extreme temperatures also limited mining activities as temperatures varied from 120 degrees in the summer to freezing temperatures in the winter.[45] Additionally, flooding curtailed transportation of mined ores as railroad tracks were occasionally flooded during Mexico's rainy seasons. And poor or nonexistent roads as well as the size of Chihuahua and its natural landscape of mountains and canyons and vast size often hampered efforts to explore new mining areas and construct new rail lines and roads. Despite damaging the environment through mining on a grand scale, humans never attained complete mastery over nature in Chihuahua.

Mining Support Industries and Chihuahua's Natural Landscape

The coming of the railroad to Mexico's northern frontier during the mid to late nineteenth century was critical to the mining industry's success and Mexico's efforts at economic development. The railroad, along with the mining, smelting, and timber industries, formed a trade and commerce network across Chihuahua's landscape that physically transformed the local environment as Mexico's role in the global economy expanded. With adequate transportation, Mexico's mines moved materials and ores to smelters and other destinations efficiently and at reduced costs. The railroads additionally allowed the opening of the frontier and the mining industry to grow as access to new mines and forests was now possible and supplies, such as lumber, coal, and beef, were able to easily reach mining towns. Telegraph and telephone lines also now covered the Chihuahuan landscape, which aided communication among the various components of the mining/support industries network.[46]

By 1907 there were sixteen major railroads in Chihuahua including the Mexican Central (which covered 834 km); the Rio Grande, Sierra Madre, and Pacific (200 km); the Chihuahua and Pacific (288 km); the Kansas City, Mexico, and Orient (275 km); the Parral and Durango (56 km); and the F.C. Mexicano del Norte

[45] Interview with Robert F. Limon by W. Noel McAnulty, Jr., November 6, 1995, "Interview no. 892," Institute of Oral History, University of Texas at El Paso.

[46] Griggs (1907), 190.

Image 3: Railroad station/train pass, Nor-Oeste de Mexico, *about 1910s, Madera, Chihuahua, Gertrude Fitzgerald Photograph Collection, PH025, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.*

(56 km). Other railroads in the State of Chihuahua were smaller (ranging from 8 to 55 km) and owned by mining companies. These railroads included the Chihuahua Mining Company, the Naica Mining Company, the Cananea Consolidated Copper Company Railway System, the Palmarejo Mining Company, the Moctezuma Lead Company, the Calera Mining Company, the Batopilas Mining Company, and the Concheno Mining Company. Street railways in cities, run by electricity or animals, also aided transportation of ores and people and supplemented Mexico's railway system.[47]

One of the largest railroad companies in Mexico was the Mexico Northwestern Railway Company (the *Nor-Oeste de Mexico*), which was organized in 1909 in Canada by Dr. F.D. Pearson with capital totaling seventy-five million dollars *[see image 3].* Soon after the Mexico Northwestern bought both the Chihuahua and Pacific Railway and the Rio Grande Sierra Madre and the Pacific Railway, the company finished a one hundred sixteen mile gap. Rail lines now connected Juarez to Chihuahua City by the way of Madera—a distance of approximately five hundred miles.[48]

The presence of the railroads, in particular, altered the environment as the need for timber for railroad, mining, and housing construction supplies and fuel led to increased deforestation

[47] Griggs (1907), 191.

[48] J.F. Hulse, Railroads and Revolutions: The Story of Roy Hoard (El Paso, Texas: Mangan Books, 1986), 24.

in Mexico and the exploration of new mining and timber areas. Rising rates of deforestation led Simonian to conclude that the railroads caused extreme environmental degradation. He states that "Both directly, and indirectly, the 'iron horse' consumed Mexico's forests. Enormous quantities of wood were used for stations, posts, ties, and fuel." According to Simonian, wildlife also suffered from the railroads as "big game hunters gained access to many new areas" and "mining and lumbering, which followed the railroads, destroyed critical habitats." During this time period advertisements appeared in U.S. publications (in perhaps what can be now considered the opposite of modern ecotourism) urging big game hunters to visit and hunt in Chihuahua, which further damaged habitats and reduced wildlife.[49]

The mining industry was so dependent on the railroads that when the Mexican Revolution began in November 1910, and railroads were increasingly targeted for violence and bridges were frequently destroyed, mining and railroad owners strongly protested to the Mexican government.[50] Mining engineer Fred W. Bailey described the trains as running "only during daylight hours, and sometimes not at all, if the revolutionists had been active in destroying railroad tracks and bridges."[51] Lumber and smelting operations were also affected by the Mexican Revolution as the lack of safe and reliable transportation via the railroads severely limited industrial output, and several lumber mills, such as the Pearson mill in Madera and the Durando Milling Company, were forced to temporarily close or scale back their activities.[52] The January 1915 issue of the *Mexican Mining Journal* lamented a slump in business due to transportation problems, and although the journal proclaimed that the "cyanide famine" had passed, there was still a shortage of dynamite.[53] The mining/supporting industries network was further tested during the Mexican Revolution by President

[49] Simonian, 61.

[50] Report, about 1913, Folder 3, Box 12; Letter to the Office of the Secretary of Communications and Public Works, Mexico from Y. Bustamante, Box 16, about 1913, John H. McNeely papers, MS 167, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.

[51] Interview with Fred W. Bailey by Robert H. Novak, January 24, 1974, "Interview no. 115," Institute of Oral History, University of Texas at El Paso.

[52] Telegram from P.C. Thede to H.B. Woodcock, January 13, 1913, Folder 1, Box 12; Letter to J.O. Crockett to P.C. Thede, February 14, 1913, Box 12, John H, McNeely papers, MS 167, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.

[53] Mexican Mining Journal 14, no. 1 (Jan. 1915): 1.

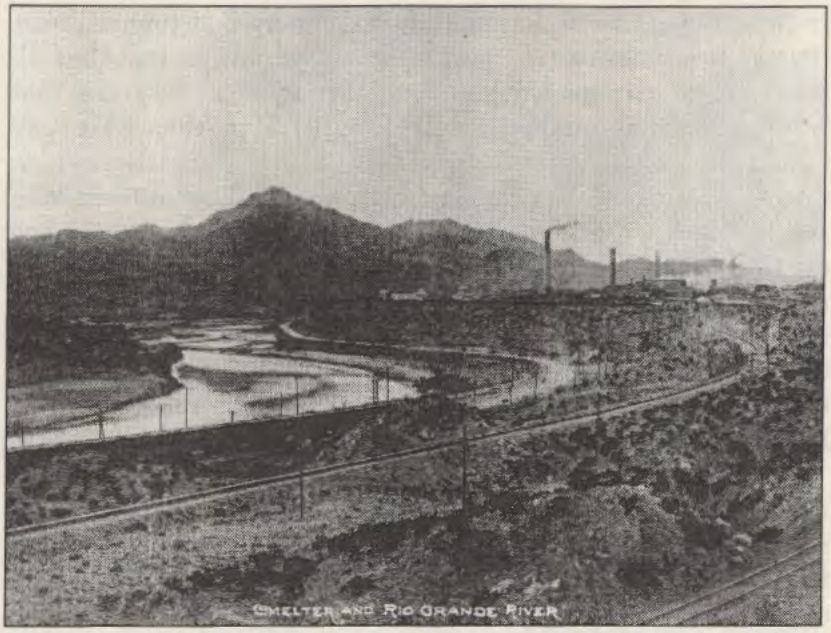


Image 4: ASARCO Smelter, Sidney Adams papers, MS 550, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.

Wilson's April 22, 1914 order for Americans to leave Mexico, which caused most Americans to abandon Chihuahuan mining operations, their homes, and stores. An article in the September 1914 issue of the *Mexican Mining Journal,* nevertheless, states that by July mines and most supporting industries were fully operating again.[54] This "break" in exploiting the environment, however, was not long enough for nature to "regenerate," and ten years of revolutionary warfare produced its own environmental consequences for Chihuahua.

Closely connected to the mining and railroad industries was the smelting industry, which processed and refined mineral ores. Ores were transported from Chihuahuan mines by the railroads to smelters on both sides of the U.S.-Mexico border. Smelters added to the transnational nature of the mining/support industries network and to its environmental implications. Chemical emissions from smelting significantly damaged the environment as soil and air became contaminated with lead, arsenic, sulfur dioxide, and other chemicals *[see image 4].*

The need for wood for fuel to power the smelters also contributed to the accelerating rate of deforestation during the late

[54] Mexican Mining Journal 18, no. 9 (September 1914): 224-225.

nineteenth century. Although researchers attempted to investigate alternatives to using wood or charcoal for fuel, a study on the use of "electric furnaces as substitute for or adjunct to the blast furnace" cautiously concluded that electric furnaces could only be used as a substitute for smelting copper sulphide ores (because the research study had only experimented with those) and that more research still needed to be conducted.[55] Clearly, fuel supplies for smelting were tenuous and non-sustainable during the early twentieth century. Even smelting operations, such as the one in the silver mines of Santa Eulalia, that processed smaller amounts of ores required large energy supplies. James Kimball in an essay in the 1907 *Mines of Chihuahua* directory wrote of Santa Eulalia, "At present ten blast furnaces, each of a capacity of 2500-3000 pounds of ore per day, are in operation, their small supply of ore being drawn from the older as well as newer mines."[56]

Smelters were additionally affected by the Mexican Revolution, though most attempted to operate as normally as possible. In July 1912 an article in the *Mexican Mining Journal* proclaimed that the Chihuahua Smelter experienced steady work and had "five furnaces in operation and a sufficient supply of ore and fuel to last for two or three months," despite the revolutionary activity nearby.[57] The vulnerability of Chihuahua's railroads, however, disrupted and limited smelting operations during the Mexican Revolution era as ores and supplies became increasingly difficult to consistently transport.

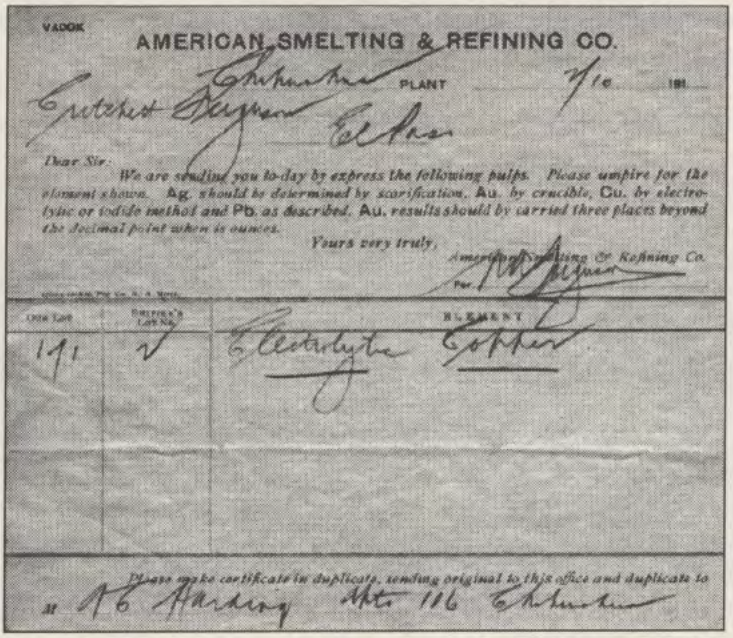
Smelters also depended on local assayers and metallurgists, such as the Custom Assay Office (also known as Critchett and Ferguson) of El Paso, to conduct assays and mineral analyses of ores and sampling work of car lots. Critchett and Ferguson's clients included the Western Copper Company, the American Smelting and Refining Company, the Pioneer Smelting Company, and the Sonora Ore Buying Agency *[see image 5].*[58] The addition of assayers and metallurgists added another component to the growing complexity and transnational nature of the mining/support industry network as miners and mining companies were able to get

[55] Mexican Mining Journal 18, no. 4 (April 1914): 156.

[56] Griggs (1907), 308-309.

[57] Mexican Mining Journal 14, no. 7 (July 1912): 47.

[58] Correspondence, Critchett and Ferguson Assayers records, MS 025, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.


VADOK

AMERICAN SMELTING & REFINING CO.

PLANT

Dear Sir:

We are sending you to-day by express the following pulps. Please umpire for the element shown. Ag. should be determined by scarification. Au. by crucible, Cu. by electrolytic or iodide method and Pb. as described. Au. results should by carried three places beyond the decimal point when in ounces.

Yours very truly,

American Smelting & Refining Co.

Per

Please make certificate in duplicate, sending original to this office and duplicate to

Image 5: Express order from ASARCO to Critchett and Ferguson, Critchett and Ferguson Assayers records, about 1910s, MS 025, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.

detailed metallurgical analysis of mined ores.

As the mining industry, smelters, and the railroads continued to expand, they became progressively more dependent on the timber industry for building supplies and fuel sources, especially during the early twentieth century. Although Mexico's first national forestry law was passed in 1861, the law was often ignored and rarely enforced. During the *Porfiriato* woodlands were habitually sacrificed to economic development. Indeed, Simonian argues that "The *Porfiriato* marked the greatest assault on Mexico's forests since the colonial era."[59]

Throughout this time period the mining and railroad industries became even more intertwined. Knowledge about and access to railroads as well as timberlands became necessary for successful entrepreneurs *[see image 6]*. The Pearson group, which owned the Mexican Northwestern Railway Company, also controlled the Madera Company, Ltd.—"a Canadian corporation which owned 1,047,750 hectares... of timberland." The Madera Company, Ltd. formed and operated several lumber manufacturing companies in Mexico and a lumber finishing plant in El Paso (the El Paso Mill-

[59] Simonian, 61.

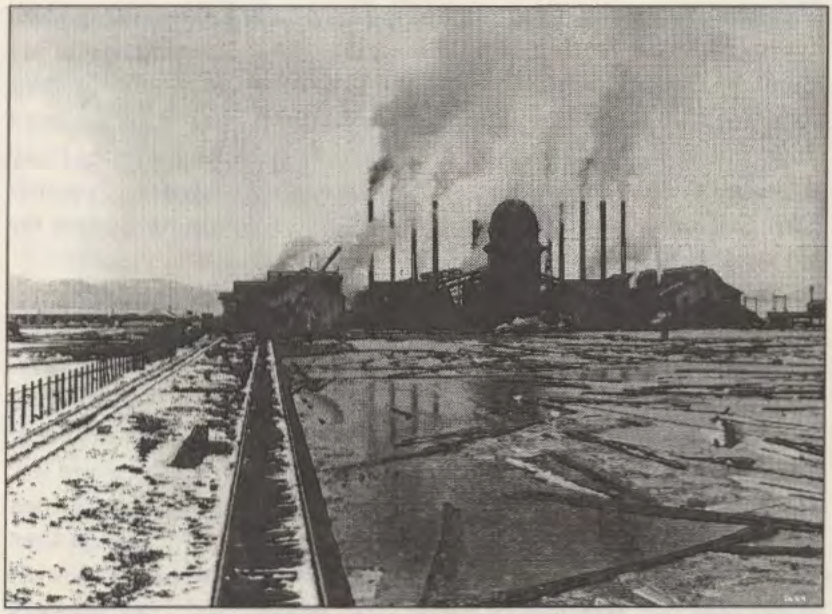


Image 6: Lumber Mill in Madera, Chihuahua, Mexico, about 1910s, Gertrude Fitzgerald Photograph Collection, PH025, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.

ing Company).[60] Roy Hoard, who came to El Paso in 1910, later became chief executive of the *Nor-Oeste de Mexico* Railroad and the Madera Company partly because of his extensive knowledge about and previous experience working in the timber industry.[61] According to Truett, William Cornell Greene also recognized the need to consolidate his mining interests with access to railroads and timber. Truett states:

> In 1902, Greene created the Greene-Gold-Silver Company to exploit mines in eastern Sonora and western Chihuahua. By 1905, he had bought dozens of mines in these states... Greene also set his gaze on timberlands in Chihuahua. He purchased over a million acres... in 1904, and in 1905 he bought a million more... for his newly formed Sierra Madre Land and Lumber Company. To connect these mines and forests to U.S. markets, he also bought the Rio Grande, Sierra Madre, and Pacific Railroad, which ran southwest from El Paso to Terrazas, Chihuahua, just north of his Chihuahua lands.[62]

[60] Hulse, 24.

[61] Hulse, 25.

[62] Truett, 98

Greene additionally sought to alter the natural landscape by placing barbed wire fencing around his properties, draining one of his mines by drilling a hole through the bottom of the mountain, constructing two large sawmills, and wanting to extend his railroad through the Sierra Madres.[63] While Truett is unclear whether any of these changes occurred, it shows Greene's willingness to transform the local environment and attempts to dominate nature for economic benefits.

Because access to timberlands became essential for large-scale mining enterprises, mining properties with timber were seen as highly desirable in the late nineteenth century. In a report on the mining properties of the San Julian District in Chihuahua, John Taylor of Taylor and Sons, London, wrote that "the property consists of 33,000 acres of thickly wooded land on which there are 24 mining concessions."[64] By the mid-twentieth century mines still relied on lumber mills. Miner Arturo Morales recounted that at the Ocampo mining district there was a mill, which "ran with steam and our steam was wood... cut locally" and that workers were "constantly cutting down trees to fuel the mill."[65]

Travel accounts also related the extreme reliance on the timber industry as well as the physical changes in Chihuahua's natural landscape from deforestation. Weed wrote about seeing a railroad that "will carry great quantities of firewood and mill-material to Parral... A stick of wood as large as one's wrist is worth a cent at Parral."[66] Seamon lamented in 1907 that while leaving Ojito "the trail passes over a rolling mesa, with small lagunas, grass covered slopes and some timber. Most of the timber has been cut since the advent of the railway and much of the former beauty of the region is lost."[67] In his scientific research Brand concludes that most important environmental changes in the forests of Chihuahua occurred from "the extensive cutting down and grubbing out of mesquite, juniper, and oak over large areas around such centers of

[63] Truett, 99.

[64] "Report Upon the Mining Properties of the San Julian District in the State of Chihuahua, Mexico," 1901-1914, Box 1, Mexican Mining Collection, MS 015, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.

[65] Interview with Arturo M. Morales Dominguez by W. Noel McAnulty, Jr., Oct. 14, 1995, "Interview no. 899," Institute of Oral History, University of Texas at El Paso.

[66] Griggs (1911), 234.

[67] Griggs (1907), 198.

fuel consumption as the *haciendas,* mines, missions, and *presidios."* He stated that:

> Within the memory of living residents of the Casas Grandes area, the lower slopes of the Cerro de Montezuma and other hills marginal to the Arroyo de la Tinaja valley have been completely cleared of an extensive oak, juniper, and mesquite cover. To this removal of vegetational cover has been attributed the shorter period of flow in the Arroyo de la Tinaja that has forced the Mormons of Colonia Juárez to abandon an irrigation system in the lower valley. Lumbering, as yet, has reduced the forest to a marked extent only in the immediate vicinity of the larger communities in the Sierra Madre. Altogether, it may be assumed that the vegetation of northwestern Chihuahua has remained virtually unchanged during historic times. Exception must be made, of course, for the fuel or lumber clearings around the settlements, and for the areas of most intensive grazing of cattle.[68]

While deforestation occurred with mostly no thought to the environmental repercussions, in the early twentieth century some in the Mexican mining industry worried about the sustainability and expense of wood sources. Efforts by mine owners and companies to secure properties with abundant timber reflected these concerns. An article in the January 1910 issue of the *Mexican Mining Journal* stated that "in many of the mining districts of Mexico timber for the mines is scarce and expensive."[69] The article (and veiled sales advertisement) recommended chemical preservatives to prevent damage to lumber used in mine construction. Although these preservatives may have helped limit damage (mainly from decay, fire, insects, marine borers, and mechanical wear) and kept fewer newer trees from being cut down, they introduced new chemicals to the environment and workers were exposed to them—adding to possible health risks.

The March 1910 issue of the *Mexican Mining Journal* also advised using chemical preservatives and argued that the problem of preservation of timber "besides having an ethical side has an economical aspect which the majority of our mine operators overlook or fail to appreciate." The journal warned that Mexico would either have to start importing timber or switch to a sub-

[68] Brand, 51.

[69] Mexican Mining Journal 10, no. 1 (January 1910): 1.

stitute material, such as structural steel.[70] The *Mexican Mining Journal* additionally reprinted a paper from the annual meeting of the Coal Mining Institute of America, which stated that the timber shortage/expense problems must be remedied by: reforestation, reducing loss by decay, timber economy in mines, adopting methods of mining that reduced the timber needed for maximum recovery of coal, and finding substitutes for wood. In particular, the article recommended using portable sawmills, "dressing" the timber (removing the bark and letting the wood air dry), and using chemical preservatives, such as paint, creosote, carbolineum, and a combination of creosote and zinc chloride.[71] These warnings about timber sustainability, however, failed to resonate as deforestation in Mexico rapidly increased and national forestry laws failed to be enforced during this time period.

The Mining Industry and Human and Material Culture's Imprint on the Environment

Mexico's push to industrialize and extract its natural resources transformed not only Chihuahua's physical landscape, but also profoundly affected human culture and its relationship to the local environment. As mining enterprises and the mining/support industries network grew during the late nineteenth and early twentieth centuries, even greater environmental and social control was sought by the elite and Mexico's liberal government as labor became increasingly tied to investment capital. Thus, industrial and economic control became intrinsically tied to social and environmental control as most aspects of workers' lives were heavily regulated—pay, housing, company stores, and health care—with clear environmental consequences. In his work on the Mexican working class French concludes that the amount of foreign capital invested in mining projects was deeply connected to the social and economic control of workers.[72] Because of the often transient nature of mining and the idea that one must be "settled" to be civilized, company officials and Progressive-era reformers were particularly afraid that the Mexico's working class would succumb to the "trinity" of vice: drinking, prostitution, and gambling and were frequently looked upon with suspicion and trepidation. In his memoir Shepherd mentioned how workers tried to steal silver

[70] Mexican Mining Journal 10, no. 3 (March 1910): 16.

[71] Mexican Mining Journal 14, no. 4 (April 1915), 135-136.

[72] French, 14.

by placing mine particles in their hair, and described how mine supervisors regularly watched for dishonest workers.[73]

The creation of mining towns and colonies during this time period often created transformations in the built environment, while the increase in mining activities and industrialization led to greater demographic growth. This growth placed additional pressure on Chihuahua's natural resources—especially timber. According to census records, Chihuahua had 112,964 residents in 1823, 405,707 residents in 1910, and 613,696 residents by 1940. This rise in the human population caused Chihuahua's built environment to grow dramatically as residents required more housing, public facilities, and access to material goods. Consequently, the *"Censo de Edificios"* of 1940 recorded that Chihuahua contained *"4018 edificios de mamposteria; 559 de ladrillo, 10,706 de madera, 70,829 de adobe; 2237 de embarro y 2473 de otros materials, con un total de 90,822 edificios."*[74]

Mining culture with its class and work hierarchies made its way into towns, housing, and other social and cultural entities. The mining town combined human exploitation of the environment with the elite's aspirations for modernity and affinity for rigid class structures and the working class's hopes for social and economic advancement. Within these mining towns and colonies social clubs were often designated for "foreigners" or even for only Americans, and company housing was regularly based on strict social and mining hierarchies. In an interview Dr. Jose A. Quintana, Sr. of the San Antonio colony recounted that housing for Americans and "first class workers" was separate from regular laborers. He further related that hotels in company towns often offered different standards in accommodations and amenities based on position within the mining social hierarchy.[75] According to French, mining companies also controlled public space. By moving brothels and gambling houses to the outskirts of these towns, companies sought to regulate the morality of their workers and shaped the town's built environment and culture.[76]

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[73] Shepherd, 219.

[74] Francisco R. Almada, Geografia Humana del Estado de Chihuahua (Mexico: s.n., 1942), 231, 238.

[75] Interview with Dr. Jose A. Quintana, Sr. by W. Noel McAnulty, Jr., December 15, 1995, "Interview no. 904," Institute of Oral History, University of Texas at El Paso.

[76] French, 71.

Image 7: Company houses, Madera, Chihuahua, Mexico, about 1912, Gertrude Fitzgerald Photograph Collection, PH025, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.

Race, class, and work position mattered in mining work and in living conditions. Because Mexicans habitually occupied the bottom-rungs of the mining working force, they were systematically excluded from better housing and other marks of social progress. While sometimes Mexican laborers lived in towns, many others lived in company housing, which was often inferior to housing provided for "foreigners." Photographs of company houses for Pearson employees in Madera show neat rows of identical clapboard houses with electric lines in front *[see image 7]*. These houses not only had electricity, but indoor plumbing as well. In contrast, photographs of "low paid" workers' houses show small wooden houses, situated in clumps together and with dirt yards, laundry on fences, and cattle in front of the structures *[see image 8]*.[77]

Even in the mid-twentieth century housing arrangements were still regularly managed by mining companies according to position within the company, and mining camps were segregated between foreigners and Mexicans. According to Margaret Humphreys, wife of a mining engineer, the San Francisco del Oro mine "had two camps: one for the Mexican population and one for the foreign population. The San Luis camp had its own school and then we had our own school." Humphreys goes on to relate that

[77] Photographs about 1910-1912, Folders 11-12, Box 1, Gertrude Fitzgerald Photograph Collection, PH025, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso.

Image 8: "Part of town where low paid workers lived," Madera, Chihuahua, Mexico, about 1900s, Gertrude Fitzgerald Photograph Collection, PH025, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.

except for the annual 16th of September celebration, there "wasn't too much interaction."[78] Amelia Rosas de Valadez, a secretary for several Mexican mining companies, also detailed the hierarchical nature of housing, which persisted even in the 1950s. She mentions that "All the bosses were American... the lower jobs they gave to the peones, to the workmen... In Matehuala they used to work at least 800 people, 800 workmen, and some thirty confidential employees... higher employees had houses just because they were employees."[79]

Also due to increased population growth and the need for mining supplies and material goods in mining towns and camps, merchant stores and professional offices more frequently dotted the Chihuahuan landscape by the early twentieth century. The 1907 edition of *Mines of Chihuahua* included advertisements for: La Pluma (a bookseller and binding company); J.W. Thompson (groceries, shoes, and dry goods); the Banco Minero; Tlapateria Chihuahuense; Sherwin-Williams paints; La Equidad (an insurance com-

[78] Interview with Margaret M. Humphreys by Michelle G. Benavides, April 23, 1996, "Interview no. 907," Institute of Oral History, University of Texas at El Paso.

[79] Interview with Amelia Rosas de Valadez by Michelle G. Benavides, November 26, 1996, "Interview no. 915," Institute of Oral History, University of Texas at El Paso.

Image 9: Catalog, about 1910, Zork Hardware Company records, MS 122, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.

pany); Robinson House ("A Strictly American Hotel"); La Violeta (jewelry and watch shop); W.H. Seamon Chemist and Assayer; The Chihuahua Candy Factory; La Francia Maritima (millinery, fans, perfumes, and dresses); the Chihuahua Lumber and Manufacturing Company; the Jockey Club restaurant; the Palace Hotel; the Mexican Chemical Company; and also listed numerous professionals (attorneys, notaries, and interpreters).[80] Some American businesses, such as the El Paso-based Krakauer, Zork, and Moye, sold mining supplies (such as *picos para minerals, picos para batear, lamparas de acetileno para minas, faroles con refector, jaulas de seguridad para minas,* and *carros para minerales),* household goods, and other items both in the U.S. and in Chihuahua *[see images 9 and 10].*[81]

Company stores (mostly from mining and lumber companies) also added to Chihuahua's built environment and affected human culture. Workers were primarily given vouchers to be redeemed at stores owned by the companies—usually out of workers' wages—or were offered credit at local stores. Companies, therefore, were able to influence workers' purchases and where and how they shopped. One example of a "company store" was the Pearson Company Store in Madera where workers chose goods from many rows of tall shelving holding various cans of food and other household items *[see image 11].*[82] French relates that miners protested these controlling practices and fought for two main changes: "first, the liberty to spend their wages where they pleased; and second, payment in cash to new workers during the first few days

[80] Griggs (1907), front section.

[81] Catalog, about 1910, Zork Hardware records, MS 122, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.

[82] Photograph, early 1900s, Folder 7, Box 1, Gertude Fitzgerald Photograph Collection, PH025, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.

Image 10: Mining picks in catalog from about 1910, Zork Hardware Company records, MS 122, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.

at work to offset the hardships at this critical time, when they had not yet established credit in local stores."[83] Company profits and the global metal markets further influenced workers' purchasing power and consumption of material goods. As French explains, "between 1900 and 1910, boom and bust in the mining economy caused fluctuations in the price of basic commodities and the cost of renting a room."[84]

Mining additionally affected human culture and its imprint on the environment through health issues. Miller wrote that dur-

[83] French, 50.

[84] French, 116.

Image 11: Pearson "Company Store," Madera, Chihuahua, Mexico, about 1900s, Gertrude Fitzgerald Photograph Collection, PH025, C.L. Sonnichsen Special Collections Department, The University of Texas at El Paso Library.

ing the colonial era "silver and mercury mining were like epidemic diseases, more significant as destroyers of human beings than as transformers of the landscape... silver mining in Spanish America is responsible for the deaths of hundreds of thousands due to mercury poisoning, silicosis, cave-ins, carbon monoxide, explosions, poor treatment, and overwork."[85] Except for large-scale mercury poisonings, all of these health issues continued to be problematic in the late nineteenth and early twentieth centuries. Before Mexican health regulations mandated company doctors and hospitals in the mid-twentieth century, camps sometimes had only a first aid station and often little thought was given to the health of workers and how environmental contamination and anthropogenic pollution affected human health. Dr. Quintana stated that not until 1940 did the Minera Frisco camp have a modern hospital (based on El Paso's Hotel Dieu) with trained staff.[86] Mining accidents and silicosis (a lung disease caused by breathing in silica dust) remained common and retired miners were matter-of-factly com-

[85] Miller, 90-91.

[86] Interview with Dr. Jose A. Quintana, Sr. by W. Noel McAnulty, Jr., December 15, 1995, "Interview no. 904," Institute of Oral History, University of Texas at El Paso.

pensated for health-related issues on a pay scale based on the severity of the disease (mostly silicosis and tuberculosis) and the amount of time that the individual worked in the mines during the 1950s.[87] In the late nineteenth and twentieth centuries, however, workers received little or no compensation and were often forced to resort to begging and charity when their mining careers ceased due to ill health or accidents.[88]

Sanitation in mining towns and camps was also frequently a concern among Progressive-era reformers as hygiene was viewed as an important mark of modernity, and was often connected to race and class. The February 1912 issue of the *Mexican Mining Journal* contained an article on the need for disinfecting miners' dwellings to increase sanitation and to prevent the spread of diseases. The article stated that although most miners were transients and did not care about sanitation, disinfectants were clearly needed in miners' houses, and recommended chemicals (that were often detrimental to human health and the environment), heat, and light to combat disease. In particular, the article advised fumigation methods using formaldehyde (in candles or gas) or bichloride of mercury or cresol (crude carbolic acid), disinfecting bedding, clothes, and other fabrics with steam, and keeping rooms well-lit.[89] Asbestos, now a known carcinogenic, was additionally recommended in company buildings and houses to help prevent fires.[90] While proper hygiene and cleanliness was important in helping to prevent the spread of diseases, sanitation (particularly the use of fumigation chemicals) often had negative consequences for the environment and sometimes even human health.

Sanitation in mining towns and camps was also frequently a concern among Progressive-era reformers as hygiene was viewed as an important mark of modernity, and was often connected to race and class.

Anglo women, often the wives of American mining engineers, such as Kathryn Byrd were concerned with sanitation and health

[87] Interview with Amelia Rosas de Valadez by Michelle G. Benavides, November 26, 1996, "Interview no. 915," Institute of Oral History, University of Texas at El Paso.

[88] French, 113.

[89] "Disinfecting Miners' Dwellings," Mexican Mining Journal 14, no. 2 (February 1912).

[90] Mexican Mining Journal 21, no. 2 (February 1916): 57.

as well. She recounted that while she had clean water in Parral that was not the case in other mining camps. Byrd additionally mentioned trying to sanitize her house by "boiling everything," and her efforts to start a baby clinic in Charcas, San Luis Potosi during the mid-twentieth century to "teach the mothers about child-care and nutrition." The baby clinic opened and soon expanded its services with a Mexican nurse and local doctor who examined babies and treated them with medication, though the clinic closed after Byrd left Charcas.[91] For miners and mining towns, health and hygiene, race and class, human and material culture, the built environment, and nature all became increasingly interconnected as the mining industry evolved over the decades.

Conclusion

The late nineteenth and early twentieth centuries witnessed the rapid growth of the Mexican mining industry. Mexico's liberal government under Porfirio Díaz, hoping for economic, social, and national advancement, marketed its environment and natural resources to the world economy to secure investment capital. Chihuahua's local environment became part of an extraction-based economy that exploited its natural resources and working-class and peon laborers. The Mexican government also took advantage of Chihuahua's geographic location next to the U.S. as it sought to enlarge the Mexican mining industry and increase Chihuahua's transnational economic role. During this time period exploitation of the environment through mining was viewed as both "modern" and critical to Mexico's economic development and progress as a nation.

The Mexican mining industry's growth additionally resulted in its reliance on various supporting industries, including the railroad, smelting, and timber industries. These industries formed a physical and economic network, which facilitated and promoted industrial development, the mining industry, and trade. The mining industry, in particular, relied on the railroads to provide transportation of ores and access to timberlands, smelters, and markets, while the timber industry was vital for building supplies for mines, houses, store, and railroads and for fuel sources. This support industry network required ever-increasing amounts of timber and

[91] Interview with Kathryn Byrd by Michelle G. Benavides, May 9 and 14, 1996, "Interview no. 912," Institute of Oral History, University of Texas at El Paso.

caused new lands to become physically accessible and eventually economically exploited.

With economic development, monetary profits (primarily for foreign mining companies and investors), and industrial progress came large-scale environmental degradation as the mining/support industries network expanded and transformed Chihuahua's natural landscape. Consequently, deforestation, loss of wildlife, and anthropogenic soil, air, and water pollution increased dramatically during this time period. Aside from some concerns about the scarcity of timber for mines and railroads and the eventual high cost of timber in the early twentieth century, little thought was given to the environmental implications of industrial development and the expansion of mining activities.

Human culture was also deeply affected by the mining industry as efforts to impose "industrial control" over the environment were only partially successful. While humans exploited and damaged Chihuahua's natural environment, nature retaliated with natural disasters, disease, and mining accidents. More specifically, the mining industry altered the physical landscape and influenced human culture by contributing to demographic growth and additions to the built environment through company towns, housing, and merchant stores. Mining culture with its strict social and work hierarchies, Mexico's aggressive economic development policies, and notions about race and class further caused Mexico's mining industry to become tied not only to economic expressions of modernity, but also to ideas about and practices regarding socioeconomic identity and control over Mexico's working class. Human health and hygiene, moreover, became increasingly linked with modernity, race and class, and attempts to dominate nature. Ultimately, Chihuahua's mining and support industries network physically and ideologically connected environmental exploitation with human culture and economic benefits, and resulted in profound and extensive damage to the natural environment throughout the late nineteenth and early twentieth centuries.

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In Memoriam

REBECCA McDOWELL CRAVER

MARGARET O. DUPONT

AL LOWMAN

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El Paso County Historical Society

• EVENTS •

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Election of officers and directors is held at the October meeting. Exact dates, times, places and other pertinent information concerning all activities are announced in our newsletter, *El Conquistador,* which is published approximately fourteen days prior to each general meeting.

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Remembering Tío Pete

By Magda C. Flores

Growing up in Fabens I was aware of a man who lived in the two-story house on Main Street and raised peacocks. Only later did I realize that this "Peacock Man" was my great-great uncle, Pedro (Pete) Rey, the brother of my great-grandfather, Cruz Rey.

In recent years I have learned a lot more about my Tío Pete, as he was known in the family. His great-grandfather, Ysidro Rey, brought his family to the San Elizario area in 1805 where he served in the military.[1] Stationed at the San Elizario Presidio, Ysidro served as Lieutenant Governor.[2] The family remained in the area from that time moving between Guadalupe, D.B., Chihuahua and San Elizario. Pedro Rey was born to Jose Angel Rey and Paulina Escajeda Rey in Guadalupe on June 29, 1888.[3] He attended public school but never received a formal education.

Although he grew up in Guadalupe and built his house in Fabens, he also lived in Sunset Heights at 631 Prospect Avenue with his sister Paulina Rey Provencio and her family.[4]

Tío Pete was a very talented man. Much of his career was spent at the Popular and White House department stores in El Paso. According to a story in The El Paso *Times,*[5] when Tío Pete was 12 years old, he was hired by a family friend, Adolfo (Adolf) Schwartz, as an errand boy for The Popular Department Store. By 1923, the

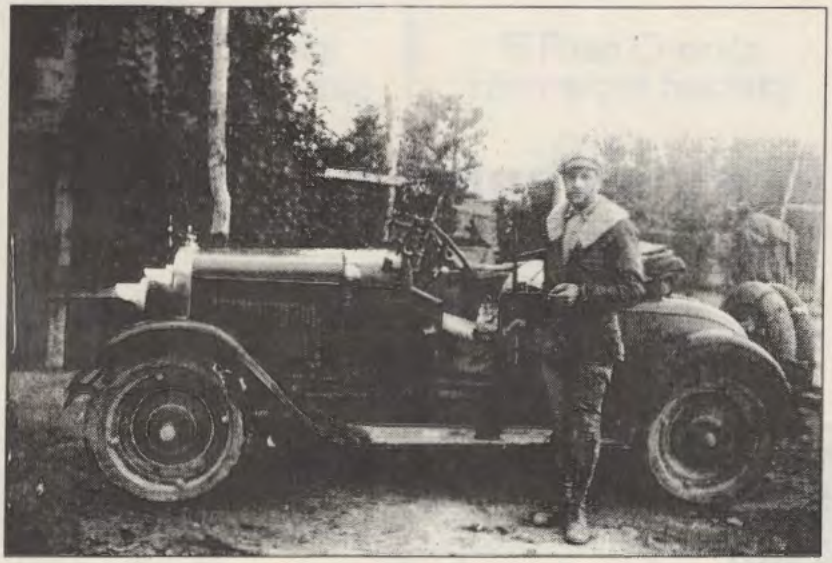
[1] http://www.montes-family.com/.ReyFamily.shtml (2 February 2011)

[2] Ibid

[3] "United States Social Security Death Index" index, Family Search (https://familysearch.org/pal:/MM9.11/JY5P-YY6:acccessed 19 March 2013), Pedro Rey, April 1978.

[4] *Worley's Directory of El Paso, Texas* (John F. Worley Directory Co., Dallas, Texas, 1913)

[5] *The El Paso Times,* April 4, 1978



Pedro Rey as a young man.

City Directory lists him as a window trimmer. He later moved to the White House Department Store and in 1929 became the display manager at the White House.[6]

His niece, Maria Gracia Ramirez relates this story.[7] When Tío Pete worked at the White House, an executive from New York was visiting. He left Tío Pete at the store and told him to get the window ready while he went to lunch. To the executive's astonishment, Tío Pete had finished designing the window by the time he returned from lunch. He was impressed and asked Tío Pete where he had gone to school thinking that he studied at a design school. Tío Pete answered that he had gone to school in Guadalupe. Of course that was the name of the public school right across the border in Mexico where he grew up and not a design school.

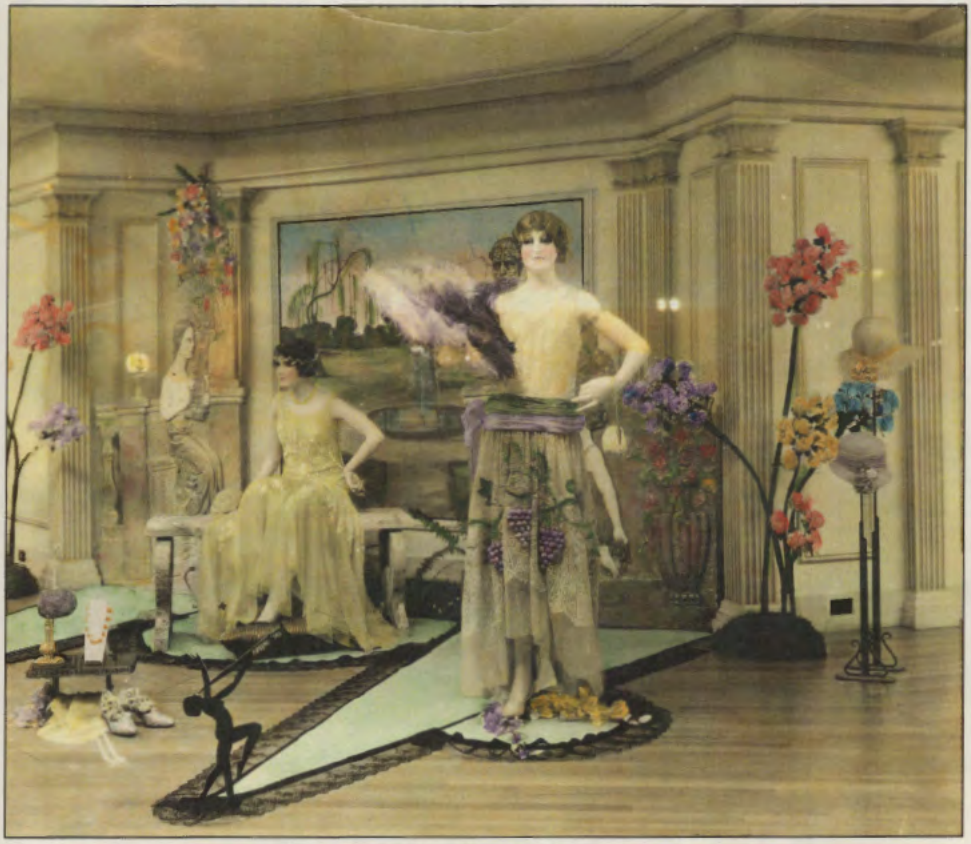
His windows were astounding and inventive. I have donated copies of pictures of a few of his designs to the El Paso County Historical Society.

In 1936 while Tío Pete was working at the White House, he designed an entry for the Sun Carnival Parade that was named the first Sweepstakes Grand Prize winner.[8] Its theme was Texas Under France and featured King Louis XIV and members of his

[6] Ibid

[7] Interview, Maria Gracia Ramirez, April 2011

[8] *El Paso Times*, April 4, 1978



Pedro Rey Window Design

court. A picture of the float was printed in the Sun Carnival edition of *Password* (Volume 53, No. 3, Fall 2008).

When the Silk Association of America met in El Paso, Tío Pete was presented a bronze medallion honoring him for his designs.[9] The inscription reads: "An award given to Mr. Rey in 1923 in recognition of his excellent window designs for the Popular Dry Goods Co. during the National Exposition of Everything in Silk." I only learned of this after visiting the Centennial Museum at The University of Texas at El Paso. In 1969, Tío Pete donated a number of historical paintings and artifacts to the museum and the medallion was among the items donated.

In addition to the medallion, Tío Pete donated a portrait from Spain of a Madonna and child estimated to be at least 600 years old

[9] Inscription on the medallion in the collection of the Centennial Museum at the University of Texas at El Paso

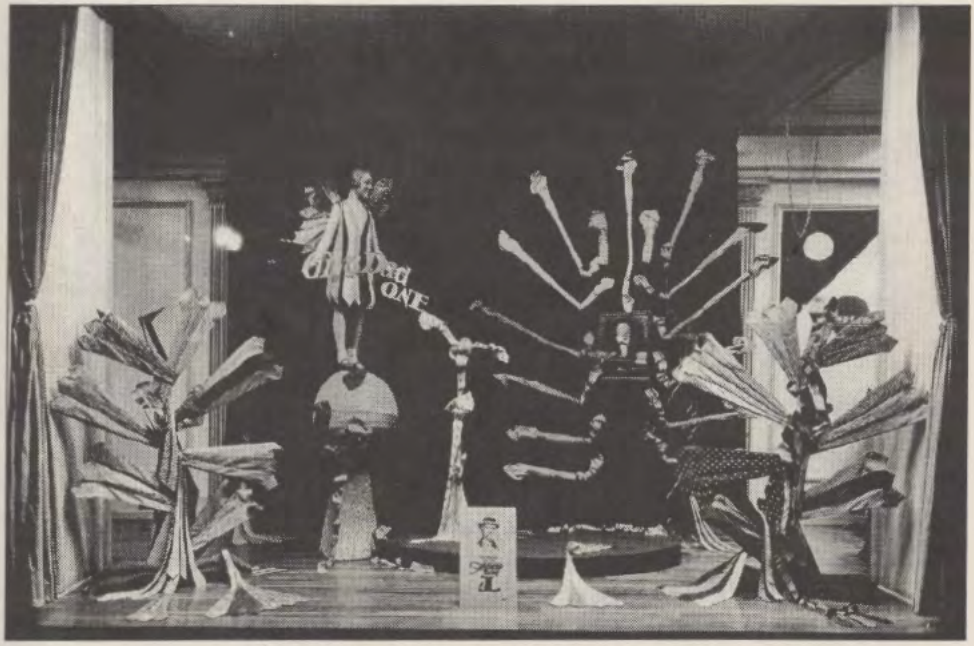
Pedro Rey in his home at Fabens. Pictured are many of the items Mr. Rey donated to the Centennial Museum at The University of Texas at El Paso.

and a portrait on a metal substance of our Lady of Sorrows holding a dove also estimated to be 600 years old.[10] Both paintings had been in the Rey family for generations and had been on display in his home in Fabens. In fact, his home was set up as a museum and he displayed a number of items including religious figures carved out of wood by Native Americans, a dried pressed flower reportedly taken from the grave of George Washington right after his death, and law books printed in the 1600's in Latin and Spanish.

My cousin Vida Vasquez Taylor remembers going with her mother to visit Tío Pete in the early1970's.[11] She was gathering information for a history project and went to interview Tío Pete. They talked for a few minutes; then he took them on a tour of the house. Her most vivid memory of the tour is when he opened a closet and showed them the outfit in which he wanted to be buried.

[10] *El Paso Times*, April 4, 1978

[11] Interview, Vida Vásquez Taylor, March 2013



Display of ties for Father's Day by Pedro Rey

This included a silk ascot and a smoking jacket. Tío Pete had a flair for life—and the afterlife!

Tío Pete retired from the White House in 1958 and returned to Fabens.[12] He passed away on April 1, 1978 at the age of 89. His services were held at Our Lady of Guadalupe Church in Fabens, Texas, where he had volunteered his time and talent decorating altars and designing wedding arrangements. A descendent of one of San Elizario's pioneer families, he was buried at the San Elizario Cemetery.

His house still stands on Main Street (now called Alameda Avenue or Texas 20) in Fabens and is occupied by a direct descendant of his. I have never visited the home. Like so many others, I wish that I had made a point to talk to my uncle, visit his museum, and learn about his life and experiences during his lifetime. Unfortunately, I did not do that; so all I can write about are a few moments in his life that were either observed or written about by someone else.

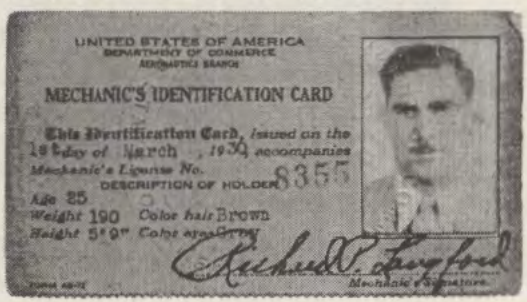
[12] *El Paso Herald Post,* March 21, 1962

Recollections of a Pioneer Flyer's Wife

By Marjorie McBroom Langford

My husband, Richard P. (Dick) Langford, started flying lessons in 1928, from Scenic Airways in Tucson, Arizona, where he was a senior at the University of Arizona's College of Law. After graduating, he returned to El Paso and studied in my father's law office to prepare for the Texas State Bar Exams, which he passed and was certified to practice in May, 1929. Before we were married in June, he was offered a job as manager of the new El Paso Scenic Airways branch.

He was fascinated with aviation and this job pleased him tremendously. He continued taking flying time with Scenic Airways and later, with R&L Airways (owned and operated by him and Clarence Robey). He obtained his Airplane and Engine Mechanic License on March 1, 1930 and on June 16, 1930, his Transport Pilot license. R&L Airways remained in operation until Dick was shot accidentally on July 1, 1933 and, as a result of the accident, lost his right leg.


UNITED STATES OF AMERICA
DEPARTMENT OF COMMERCE
AERONAUTICS BRANCH

MECHANIC'S IDENTIFICATION CARD

This Identification Card, issued on the 1st day of March, 1930 accompanies Mechanic's License No. 8355

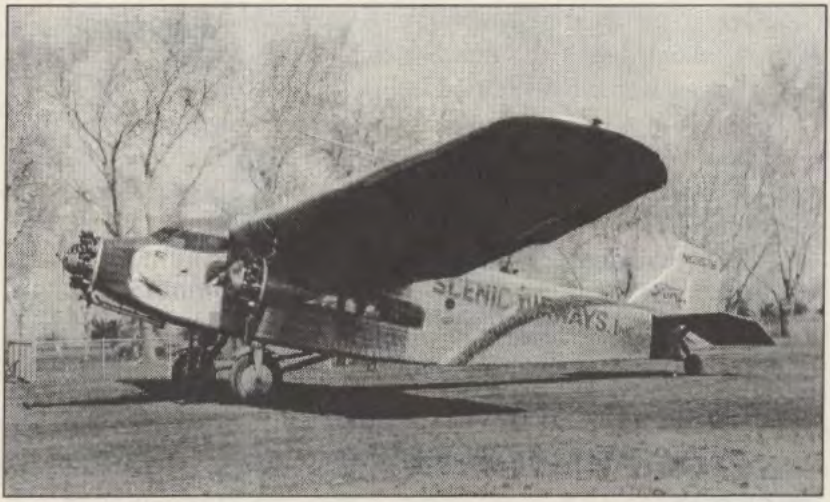
DESCRIPTION OF HOLDER

Age 25
Weight 190 Color hair BROWN
Height 5' 9" Color eyes GRAY

Richard P. Langford
Mechanic's Signature

As he began to recover, his first thought was, "How shall I support my family?" So he turned back to the legal profession which he served in various capacities with honor and distinction. He retained an interest and love for aviation and things mechanical. He was appointed to serve on the airport board, with special pleasure, from April 24, 1947 until June 18, 1954, under Mayors Anderson, Duke, Ponder and Hervey.

An interesting comment on changes in the times is that it never occurred to me, nor do I believe it occurred to him, that I



should seek employment. Our two sons were small and I was fully occupied at home.

But this is about flying experiences between 1929 and 1933 and we must remember how different airplanes and conditions were.

Most wings and fuselages were made of light, but strong, wood plus bracing wires over which they put carefully cut and sewn cotton or linen fabric. This was sprayed with several coats of acetate dope which shrank the material to make it taut as a drum head. Varnish and pigment could be used as desired.

Many propellers were laminated wood and had to be turned by hand to start the engine, much like cranking an old car.

A well-equipped instrument board had: thermometer, air speed indicator, compass, rate-of-climb indicator, clock, altimeter, fuel tank gauge, tachometer and oil pressure gauge.

Dick was as proud of his airplane and engine mechanic's license as of this pilot's license. Much of the company's income was derived from repair work.

When the "Powder Puff Derby" or Womens National Air Race (a cross country race for women) was held each summer, they worked all night. El Paso was designated as an overnight stop. Repairs to engines or other parts of the plane were always needed. Participants in this race were called "Flying Flappers."

Planes were not pressurized nor did they have radios so they did not fly very high and pilots were always on the look-out for a place to "set down" in case of a forced landing. Wind direction was determined by the way smoke or sand or what-have-you was blowing.

One of the local papers ran a daily column titled "Municipal Airport" which listed the number of planes landed that day plus pilots' names and other kindred information.

Biggs Field had one building, a balloon hangar, and the staff was Major Sanger, Sergeant Brooks, and a few other enlisted men.

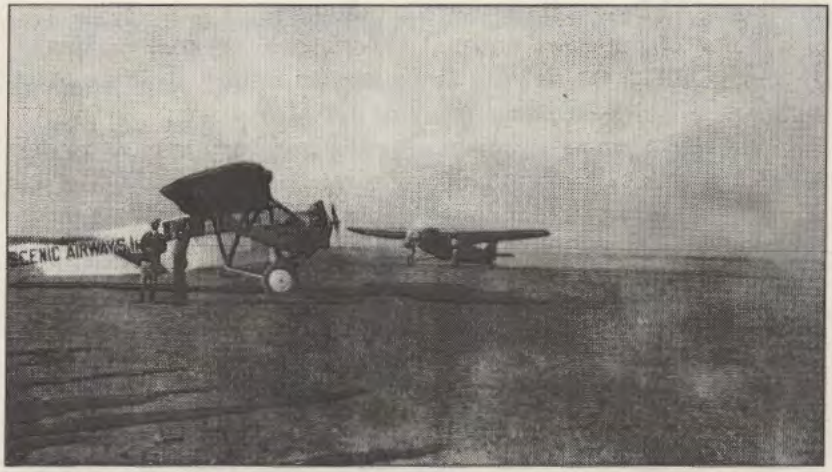
In May, 1929, Pasotex Petroleum Co. placed the beacon on the point of Mt. Franklin.

That same year the city boasted the unique distinction of air transportation in all directions. Neither "Scenic" nor "R&L" was an airline but Standard Air Lines flew to Los Angeles; Southern Air Transport, and later Texas Air Transport, went to Dallas; Midcontinent Air Express to Denver; and Mexican-owned C.A.T. Lines to Mexico City. Advertisements stressed six hours flying time to Dallas, compared with 23 by train, and 16 hours saved to Los Angeles.

On our honeymoon we went from here to Phoenix on a Scenic plane which was in El Paso with some of the wedding party and from there to Los Angeles by Standard Air Lines.

Scenic started in Arizona with sight-seeing trips over the Grand Canyon. The El Paso branch featured flights to Carlsbad with a trip through the Caverns returning the same day.

Dick flew one of the two planes which took Paramount officials and cameramen to make the first movies ever taken in the caves. They used magnesium flares to produce sufficient light. As this was long before the caverns had elevators, they carried all their equipment in. The pictures were featured on a movie news reel. I remember Dick always said this was Fox Movietone News... the clipping mentioned Paramount and I do not know which is correct.



Most business was charter work and student instruction AND just flying people over the city for their first airplane ride. The metal tri-motor Ford was referred to as "monster" and "modern goliath" and carried 12 passengers!

Understandably, much effort was devoted just to get people to come to the airport. Frequently, one of the pilots would do simple acrobatic maneuvers or they would have a wing-walker or parachute jumper to hold the crowd. Dollar days and penny a pound specials were offered.

One plane was equipped for crop dusting which was a very hazardous job. Another was equipped for aerial photography. The latter was often used by A.S.& R., the refineries and other businesses. Several planes had dual controls for instruction. There were always calls for charter flights in cases of emergency, such as sickness, lost people and planes.

Scenic got into some sort of legal or financial trouble and decided to move all the planes out of the state. So, the first New Year's Eve after our marriage, Dick took off in the afternoon of a cold, dreary day. With his heavy clothing and parachute, he could hardly wedge himself into the open cockpit. I was pregnant and worried and felt not a little sorry for myself. He got to an emergency landing strip the army maintained at Lordsburg.... safe but completely chilled. Next week all planes returned but Scenic closed soon after and R&L began.

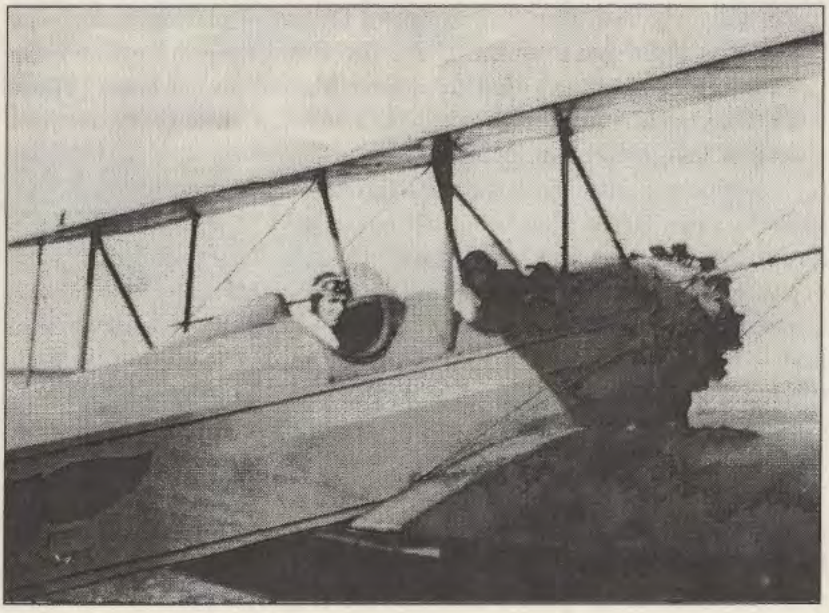
I never complained about the nature of Dick's work but he made every effort to get word to me when he was delayed. Once he had to land at a Gas Co. pumping station in the Hueco Mountains and was unable to phone me, but an employee there contacted

another in El Paso and that person called me.

Some of the most unusual experiences occurred in Mexico. October 1, 1978, the El Paso *Times* carried a story about an international prisoner exchange involving Jeff Meers.

He was a young man whose father had been shot and killed when Jeff was 17 years old. Many of his friends thought this had a disastrous effect on him. Anyway, six years later (1930), a waiter in a Juárez café was pointed out to him as the murderer. Jeff shot him on the spot but made no effort to get away. He was arrested, tried, and taken to state prison in Chihuahua. Some of his friends raised money and chartered a plane to fly him to this country as it seemed he was free to leave the prison and go into town almost at will. Dick was given the job and went to Chihuahua. Jeff was out and talked to his friends but he refused to leave. In 1933, he was exchanged for a Mexican prisoner being held here. The swap took place on the Juárez-El Paso bridge.

The most bizarre experience was in 1931 when a movie actor named Art Acord committed suicide in a Chihuahua City hotel. The Hollywood American Legion raised money to charter a plane to bring his body out and contracted with a local mortuary to make all proper arrangements with the Mexican authorities. One Reyes Bustamante was sent by the funeral home to handle all preliminaries. Dick flew down when called. Shortly after his arrival, Mr. Bustamante asked Dick to take him and a friend for a hop



over the city. He said his friend had never flown and very much wanted to. Dick demurred but finally consented and they took off. As soon as they were up the "friend" put a gun in Dick's back and ordered him to fly to a certain spot and land. Under the circumstances, Dick complied and it proved to be an isolated spot. Both of the men immediately jumped out, grabbed up the body which they had placed there and shoved it in the plane. Mr. Bustamante stepped in with it. Then Dick saw a car drive up and its occupants started shooting at the plane so he took off and made a bee-line for the border. Instead of handling things as he had been instructed, Dick's live passenger had used the old "mordida system," or graft, and had paid some compadre to STEAL THE BODY! He was eager to explain, but Dick was so furious, he said, "You get in back with that body and don't speak to me again."

As soon as possible, Dick notified the mortuary and insisted that they get things cleared up with the Mexican Government because, of course, until that episode was straightened out, Dick could never get clearance to take a plane in or out of the country. It was a long time before he would go to Juárez again even though they were convinced that Dick had no voluntary part in the shenanigans.

Another time (November 1930), some hunters chartered the Ryan to go into Mexico to a remote spot near Villa Ahumada. The weather was bad and they were heavily loaded with usual hunting equipment. The natives near-by had never seen a plane before and literally came out of the bushes, crowding around to see this strange sight. Some even licked the plane. Dick spent the night there and was extremely anxious until he got off the next day because the people had absolutely no conception of the hazard they caused or the danger they were in by milling around so close.

That covers the Mexico experiences but plenty of things were going on around here.

Dick used to laugh and say that the only time he was tempted to use a parachute was when he was flying a plane with a water-cooled engine. I've forgotten whether he was flying a test hop or doing some acrobatics to hold a crowd, but suddenly, there was a burst of something he thought was smoke. He had un-buckled his seat belt and was standing when he realized it was steam! He figured he could cope with that and brought the plane down without mishap.

Sometimes the only thing a child wanted for a birthday was a ride in an airplane and several parents brought such a child out to gratify that wish. Dick always enjoyed these hops... the kids were so thrilled.

Air ships were ferried across country. Sometimes planes, which had been repaired here, were delivered to their owners who had gone on ahead. Other times, a plane would be purchased at the factory and either Dick or Clarence would fly it home.

Once Dick was bringing a new ship back when the motor quit and he had to land in a wheat field. He discovered that the vent in the gas cap had been painted over so he fixed that and tried to settle up with the farmer who owned the field but the owner said, "No, I don't think much damage has been done." Dick took off. Naturally it took quite a long time to get off the ground and he was literally threshing wheat with his propeller. By that time, the farmer must have had a different idea about damage but Dick had his troubles too because all the stuff he was getting in the engine caused him two more forced landings before he got home.

In August 1929 the Graf Zepplin flew over El Paso. They made several flights around it so people could see it from the air.

May 24, 1932 there was a run on a Tucson bank. The Federal Reserve here sent an armed man with $200,000.00 by chartered plane. Weather was bad. The man was scared and his gun would slip to the floor and Dick would hand it to him. Because of the storm, they went around the worst of it and arrived late and from a different direction from the one in which they were expected. Some fellow who was waiting said with relief, "We thought you had gone to Mexico." But everything turned out all right. The money saved the day and the bank remained open.

These pictures show a Heath aeroplane, powered with a Henderson motorcycle engine. It was made by friends and students of Dick's in Hillsboro, New Mexico, or, more exactly, at their home at near-by El Oro Mines. They brought it to the El Paso airport

and guess who did the test flight? This was the only really foolish thing I ever knew Dick to do when flying. He could only turn in one direction and the exhaust fumes were bad, but he brought it down safely and I was most thankful as were all others present.

One thing they did in April 1930, was sanctioned by the U.S. Department of Commerce but would certainly raise a furor today. Clarence Roby flew a plane carrying a marksman from the El Paso Police Department to shoot down Mexican Golden Eagles which were preying on lambs. Leroy Cleveland, a sheep rancher near Marfa, chartered the plane.

It so happened that the last charter flight Dick made was late June 1933 to take Dr. Harry Leigh, an obstetrician and pediatrician, to the Cleveland ranch to care for Mrs. Cleveland who was pregnant. It was a super house-call.

Perhaps Dick compensated, in the eyes of the environmentalists, for the eagle episode by flying at about the same time the plane from which California poppy seeds were strewn along the east side of Mt. Franklin. Even today the golden carpet of flowers delights us in the spring when conditions are favorable.

Thank you for letting me share memories with you.

(These recollections were written in January 1981, seven years after Dick died, at the urging of the family.)

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THURSDAY, MARCH 26, 1970

Everyday Events

By W. J. HOOTEN

A new interesting angle has developed concerning the poppy fields on the mesa near the Trans-Mountain Road and near Northgate.

We have been hearing considerable discussion about the sowing of poppy seed in that area.

An El Paso woman, who didn't want her name used, phoned and said she was almost positive that it was Attorney R. P. (Dick) Langford who flew the plane that seeded that vicinity with poppies.

I happened to know that Dick Langford was one of El Paso's early aviators.

We called him and he verified that it was he who flew the plane that sowed the poppy seed.

Dick Langford did not remember the exact date, but it was some 40 years ago or so. He said the area was seeded because on the mesa just north of the old Municipal Airport there were a few poppies that were wild, and large crowds went out to see them when they were in bloom. He said it was thought that if the mountainside were covered, it would offer that much more of an attraction. Hence the seeding from an airplane flown by Dick Langford.

That's one point that has been settled. Now I'd like to know how many times that area was seeded with poppies.

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El Paso County Historical Society

ORGANIZED MARCH 18, 1954

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The purpose of the society shall be to study the history of the city and county of El Paso and of the surrounding territory; to conduct and to foster research in the history of the area; to acquire and preserve documents, papers and other objects of historical interest and value pertaining to this area; to make such material available for the information of the community; to publish and encourage the publication of historical writing pertaining to this area; to develop public consciousness of the rich heritage of our historical background; and to engage in such activities which would contribute to the restoration and maintenance of the Richard F. Burges House, home of the Society.

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