

## **Embodied Contradictions and Post-Industrial Built Environments: From Miner Hospital to Museum of Labor Medicine in Real del Monte, Mexico**

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### **Abstract**

In October of 2004, the *Museo de Medicina Laboral* (Museum of Labor Medicine), opened to the public in Real del Monte, State of Hidalgo, Mexico. The museum, located on the grounds of what had been the *Hospital Minero* (Mining Hospital), was a building complex conceived, built, and operationalized at the height of Mexico's Industrial Revolution and the region's only medical facility specializing in the healthcare needs of miners and their families. Utilizing historical analysis, the hospital reveals contradictions frequently embodied by the era's Modernist built environments. Inaugurated in 1907, the hospital was the culmination of the United States Smelting Refining and Mining Company (USSRMC) and its Mexican subsidiary, Compañía Real del Monte y Pachuca's (CRMYP) efforts to bring healthcare to its employees while maximizing production. On one hand, the hospital's design and operation expressed an optimism wrought by the dissemination of positivist and utilitarian philosophies and economic growth spurred by technological innovation; on the other, growing wealth inequality and deteriorating, often brutal, labor conditions.

Nearly 120 years later, the hospital again embodies a global reality. In contemporary post-industrialist economies, once these built environments cease being productive, they are usually abandoned or demolished; only a few are transformed and repositioned for other uses. As the region's mining industry ceased productivity, the hospital was first abandoned and later rescued by a newly privatized enterprise that donated the medical building complex to a non-for-profit civil association focused on mining heritage. Now the Museum, an architectural expression that fused global and local economic, technological, and aesthetic sensibilities, has become an example of commodified didactic heritage.

Keywords: modernist architecture, post-industrial environments, spatial contradictions, commodified heritage.

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## 1. INTRODUCTION

### 1.1. Argument

The Hospital Minero (Miner Hospital) in Real del Monte, in the state of Hidalgo (Mexico), is a building complex conceived, built, and operationalized at the height of Mexico's Industrial Revolution. Utilizing historical analysis, the hospital reveals contradictions frequently embodied by the era's Modernist built environments. On one hand, the hospital's design and operation expressed an optimism wrought by the dissemination of positivist and utilitarian philosophies and economic growth spurred by technological innovation; on the other hand, the design expressed growing wealth inequality and deteriorating, often brutal, labor conditions. Nearly 120 years later, the hospital once again embodies its global reality. In contemporary post-industrialist economies, once these built environments cease being productive, they are abandoned or demolished; only a few are transformed and repositioned for other uses. Most recently, the Miner Hospital, an architectural expression which fused global and local economic, technological, and aesthetic sensibilities, was transformed into the Museum of Labor Medicine (Museo de Medicina Laboral), an example of didactic heritage.

On February 12, 1906, the United States Smelting Refining and Mining Company (USSRMC) purchased the Compañía Real del Monte y Pachuca's (CRMYP), its mines and claims, marking a convergence of specific geographic conditions, and hundreds of years of geopolitical and economic factors. Located in Hidalgo, CRMYP was the latest acquisition in a global purchasing spree that included mining interests in Peru, Russia, Canada, and across the United States. Optimistic about the company's financial future because of newly introduced technology, particularly electrically powered machinery, the company began operations by replacing outdated technology and reducing dependency on human labor. Consequently, mine productivity dramatically increased; however, so did the number of miners brutally injured or killed during work shifts.

Immersed in the period's sociopolitical and economic tensions, the USSRMC and local miners sought a reconciliatory approach, partnering to build a then state-of-the-art hospital, Hospital Minero de Real del Monte, to serve the miners' medical needs. Nearly 100 years later, after being abandoned, the hospital became part of Mexico's tangible heritage when it was converted into a didactic museum, the Museo de Medicina Laboral (Museum of Labor Medicine). Today, visitors to the museum can not only learn about Mexico's mining history, early twentieth-century medical technology, and the brutal conditions that helped give birth to the country's labor rights movement, but also confront the contradiction between Modernism's promise of progress

and the realities wrought by scientific innovation and a market-driven global economy.

### 1.2. Development Plan

First, the essay situates the hospital within a philosophical, sociopolitical, and economic context across a regional and global scale. It includes Real del Monte's geography, mining legacy and cultural history, to explain how the hospital was conceived at the height of the region's mining productivity. Subsequently, the essay analyzes the development of the hospital's design, construction, and operation to demonstrate how the hospital revealed, and later the museum's curated collection (including the buildings themselves) exhibits, various Modernist ideas derived from Modernism. Next, the case study documents within a larger sociopolitical and economic context, why the hospital, was first ceded to the public sector, then abandoned, and finally transformed into a museum. Currently, as part of the region's built heritage, the museum maintains itself by commodifying a historical narrative forged by globally influenced, but site-specific, regional economic realities.

### 1.3. Theoretical Framework

This essay utilizes Perry Anderson's argument that Modernism is not defined by a singular philosophy or aesthetic approach, but rather as a historical movement that disrupted older sociocultural norms and possessed a sense of urgency (1984, 112-13). One strain of Modernism, rooted in French positivism and British utilitarianism philosophies, promoted rationalist scientific processes to identify and address a range of social, economic, and technological challenges. For its part, Modernist architecture "grappled" with this strain of Modernism, by engaging in its "discourse" through spatial expressions (Goldhagen 2005, 145).

As countries embraced, or were subjected to, globalized trade and industrialization, these philosophies, generating Modernist built environments across the world, like the hospital, which embodied the era's zeitgeist and its intrinsic aporic contradictions. Because as Sophie Forgan argues museum "[b]uildings are artefacts in themselves, created at considerable expense and reflecting the intellectual and material context of the society in which they were founded," it is possible to examine the museum's spatial identity through a material culture lens (2005, 574). Where spatial identity is a "perceived image" produced by aesthetic and functional characteristics, which generate recognizable spatial expressions (Rogers, Castree, and Kitchin 2013). Today's museum, seen as an iteration of a continuous spatial history, memorializes multiple, but convergent, spatial identities: site specific conditions, i.e., climate, topography, and geology, informed by local, regional, and global, technological, sociopolitical, and economic

forces, to produce a built environment that embodied its then contradictory realities. Today, the museum is part of the region's tangible heritage precisely because visitors can experience how the hospital embodied, and now the museum exhibits, Modernism's aporic zeitgeist.

#### 1.4. Methodology

The essay examines the Museo de Medicinal Laboral as a case study that cross-references quantitative data, i.e., mining production and market values, with qualitative spatial analyses. Methodologies include the use of primary and secondary sources: Primary research was undertaken through on-site visits and consultation of primary documentation, i.e., contemporaneous periodicals, advertisements, corporate prospectuses, financial reports, trade journals, and other archival sources associated with the historic period. In addition, museum patrons and staff, including those who oversee its day-to-day operations, as well as members of the Archivo Histórico y Museo de Minería, Asociación Civil (AHMMAC), were interviewed. Secondary sources include peer-reviewed journal articles, booklets, books, blogs, contemporary newspaper articles, and other published material focused on the museum.

## 2. CONTEXT

### 2.1. Geography

To fully understand how a mining hospital embodies a confluence of geographic, economic, social, and political forces, it is important to examine the local, regional, and national context in which the hospital was conceived. The establishment of Real del Monte (hereafter Real) about 70 km northeast of Mexico City, can be traced to mining-related activities during the pre-Hispanic period.<sup>1</sup> The town's approximately 11,150 residents live nestled in the Sierra Pachuca Range, situated 2,718 m above sea level, where temperatures occasionally dip below 0°C generating light, but infrequent, snowfall during the winter, in a transitional area between the western slopes of the mineral-rich Sierra Madre Oriental and the eastern edge of the Central Mexican Plateau (PueblosAmerica 2022, para. 1) (Figure 1). Like the rest of Hidalgo, Real and its surrounding region lacks significant groundwater sources. Though rainfall can be acutely heavy, it is highly sporadic and confined to the summer months. Thus, major hydraulic, food and power infrastructure was required for a larger long-term population settlement. Real's biome is typical of a transitional topography with xeriscapes hosting depleted forests. Over the last 500 years, surrounding forests were directly decimated by the mining industry which used wood for construction materials, i.e., mine rafters and wall blocking, and for fuel; and indirectly, by

using wood in the construction of the town's changing built environment as it accommodated changes in urban scale, physiognomy, and morphology.

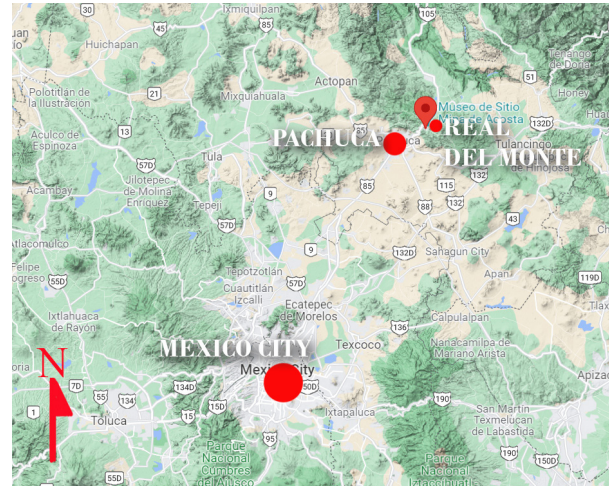


Figure 1. Central Mexican Plateau, courtesy Google Earth, January 7, 2022.

### 2.2. Pre-Hispanic and Viceregal Era

Real's region was a well-known mountain pass utilized by several Mesoamerican cultures, including the Toltecs, Chichimecs, and Otomí. The Otomí christened the area *Maghotsi*, or *Paso Alto* (High Pass), because it was routinely used to cross from the Gulf of Mexico's coast to the Mexica capital of Tenochtitlan (Gobierno del Estado de Hidalgo 2010, 10). As early as 1324, the Chichimecs were mining silver and other minerals throughout the Sierra Pachuca area (7).

In 1531, ten years after the Spanish conquered the Mexica Empire, the Spanish Crown officially recognized the region's potential mineral wealth and placed the region and its inhabitants directly under the Crown's purview, thereby acquiring the *Real* (Royal) name. Then in 1552, Alonso Pérez de Zamora, a former soldier in Hernán Cortés' army, began mining operations; and shortly after, in 1555, Bartolomé de Medina would perfect the mercury-based "patio" method for silver and gold extraction, greatly increasing yields (Mendizábal 1941, 255).

### 2.3. Foreign Investment

Like most newly incorporated innovative technologies, initial applications maximized yields, even for mines previously considered exhausted; yet, like all technologically driven cycles, subsequent yields inevitably dropped as technology reached extraction capacity limit. Real was a profitable mining region during the Viceregal period, especially after 1750, when owner Pedro de Romero and Terreros (1710-81) introduced

<sup>1</sup> Officially renamed Mineral del Monte after Mexico's independence in 1821.

new water-management techniques that generated a silver mining bonanza. Significantly, in 1766, the first labor strike erupted in New Spain when miners led by Nicolás Zavala (the museum's cultural center namesake) protested unfair wages and working conditions. Only with Viceroy Joaquín de Montserrat's (in office 1760-66) direct intervention did miners return to work. By the last years of the eighteenth century, however, the mines had been abandoned, as decreasing profits no longer justified operational costs (Mendizábal 1941, 305).



**Figure 2.** “Little Portion” circa late nineteenth century, Cornwall England, courtesy of Unique Homestays.

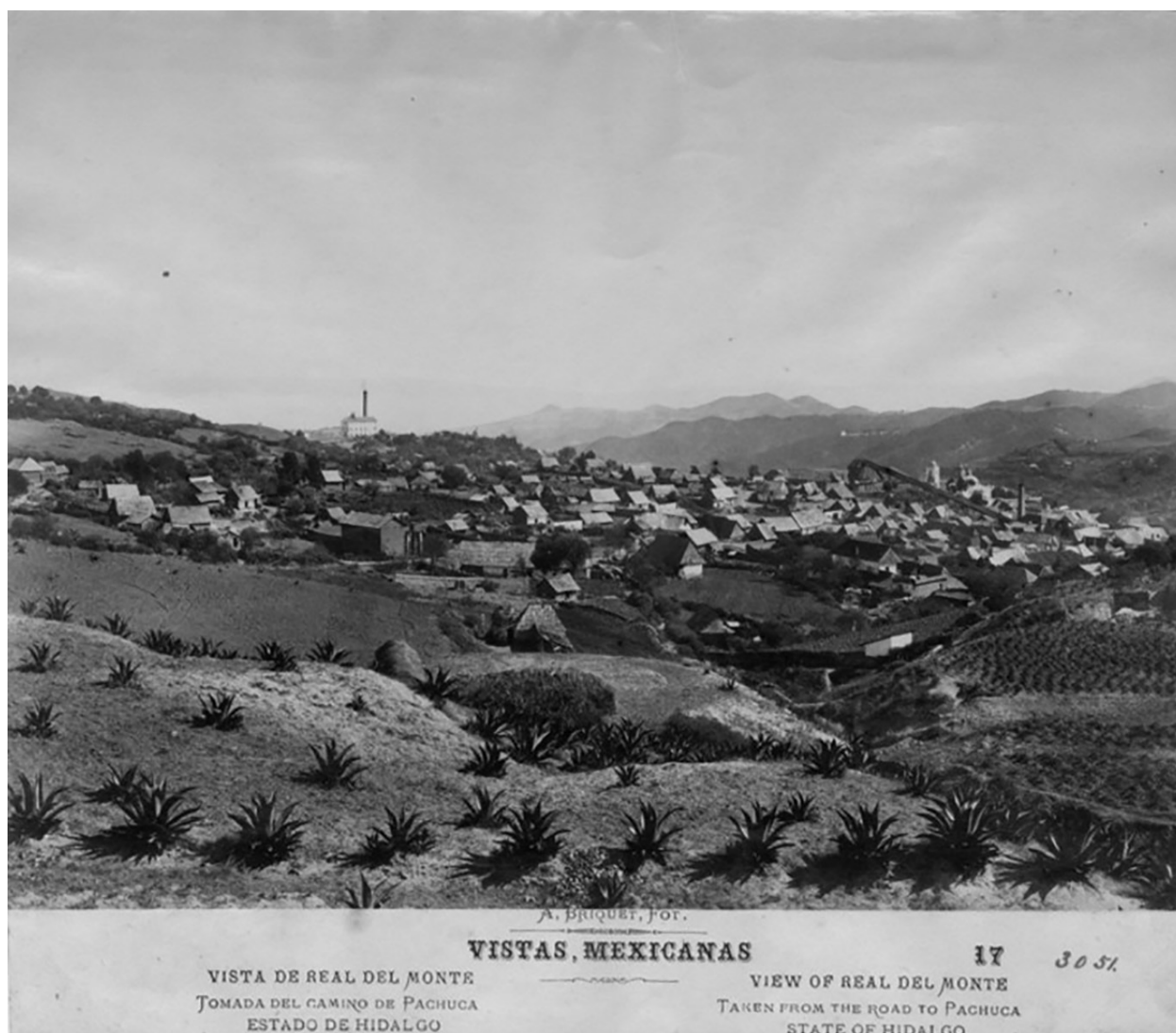
In 1824, when the Mexican government allowed for foreign investment, the British Real del Monte Company, based out of London, purchased the Romero de Terreros' mines and claims and established the *Compañía de Aventureros de las Minas de Pachuca y Real del Monte* in Mexico. British investors, engineers, administrators, and miners, most hailing from Cornwall, sought to apply cutting-edge steam-powered mining technology to exploit Real's mines. From 1824 to 1849, the British invested 16 million dollars to produce 11 million dollars of market-value ore. Arguably, the venture failed because of a strained relationship with the Federal government, six crippling labor strikes, expensive equipment, e.g., Cornish pumps “worth their weight in silver,” costly infrastructure improvements including supply and distribution roads, rail lines, and lower than expected yields (West 1907, 14). A year after the Mexican-American War (1846-1848), the British company sold their interests to a Mexican venture, the *Sociedad Aviadora de Minas de Real del Monte y Pachuca* (CRMYP's precursor) and abandoned the country (Randall 1985, 629).

Despite the British corporation's withdrawal, H.E. West in 1907, noted in *The Mexican Mining Journal* that the British had introduced the region to “modern times” (West 1907, 14). The British had, in fact, deeply influenced local society and its culture: families like the Rule, Straffon, and Ludlow, stayed and integrated themselves into local politics, industry, and commerce; British workers introduced Cornish pasties (meat pies), known in Mexico as *pastes*, to local cuisine; soccer began as a local pastime, but eventually became the national sport; and Protestantism, the prevalent faith among the Cornish, gained a toehold in a predominantly Roman Catholic country. Much of Real's urban physiognomy changed because Cornish builders introduced double-pitched cottages roofed with red-painted corrugated iron metal sheets (Figures 2 & 3). Today, because of the architectural influence of Cornish vernacular architecture, Real has been dubbed “little Cornwall” (Cooper-Richet 2017).

#### 2.4. Confluence of Local, Regional and Global Forces

The Miner Hospital represents the culmination of globalized sociopolitical and economic forces. After Mexican independence was finally consolidated in 1821, unceasing political instability led to internal insurrections, coups de etas, and frequent civil wars that continuously undermined the nascent state. A politically weak Mexico was constantly engaged in civil conflict, and an easy target for foreign interventionism, expansionism and coerced territorial secession. e.g., Texas Revolutionary War (1835-36) and the Mexican-American War (1846-48). Significantly, conflicts drained the Mexican treasury, reduced natural resources, and further frustrated Mexico's political development. With each devastating setback, the divide widened between those seeking a modernized state and those seeking to conserve the status quo.

In 1857, a liberal constitution was adopted that enabled social reforms and overhauled the country's legal framework, which included ceding mining regulations to states to provide the legal certainty needed to attract foreign investment (Herrera and Parra 2018, para. 26). Then, in 1858 Benito Juárez, a liberal, was elected president. He pledged to enact significant legislation furthering political reforms codified by the Constitution of 1857, which sparked yet another civil war, the 1858-61 *Guerra de Reforma* (Reform War). Exploiting Mexico's weakened state, France successfully invaded Mexico in 1861 and imposed an Austro-Hungarian Habsburg, Maximilian I, as its Second Emperor of Mexico (1864-67). Eventually, President Benito Juárez led a loyal liberal army and expelled the Europeans. During the relatively brief French occupation contemporary European philosophies and technology deeply influenced leading Mexican intellectual, military, political, and industrialist



**Figure 3.** *Vista de Real del Monte*, c. 1880 by Alfred Briquet, courtesy of Instituto Nacional de Antrpología e Historia (INAH).

figures, which became convinced that only transforming Mexico into a strong, sovereign, and modern nation, could prevent future calamities.

### 2.5. Modernism and The Porfiriato

It is perhaps a historical irony that Porfirio Diaz, a former general who helped expel the French in 1867, turned to Europe, especially France, to model his government's approach to Mexico's modernization. While Modernism includes a multitude of overlapping paradigms, Mexico's political, economic, and cultural development during Diaz's administration were primarily influenced by two central ideas of European philosophical Modernism: August Comte's positivism and John Stuart Mill's utilitarian philosophy.

Comte's positivism held at its central promise "the formation of the new social system" (Comte 1998, 52). Positivism's promise, it seemed, was reciprocated by market-driven innovation as entrepreneurs, scholars, and government officials, began to benefit from the Scientific Revolution's ongoing contributions: technological advances spurred on innovation across industry, producing immense wealth among the growing European bourgeoisie classes. Economically liberalized states and their capitalist classes, enamored with positivism and Mill's utilitarianist free-market approach, extracted wealth from labor and invested heavily in technologically driven market advantages. Eventually, after the initial industrialization boom, for many European countries economic growth would not be found in internal markets, but in financially favorable globalized resource extraction and trade. Inspired by

France and its globalized influence, by the nineteenth century's last third Diaz's government deployed positivism and utilitarianism to administer the country systematically.

By the early 1890s, a group of positivist scientists, doctors, scholars, and bureaucrats, collectively known as the "*Científicos*" (Scientists), formed the core of Diaz's politico-administrative State apparatus (María y Campos 1991, 125). By 1900, the government adopted the positivist motto "Order and Progress" (Comte 2020, 55). Diaz's administration, initially 1877-80, and continuously from 1884 to 1911, utilized legal reforms enabled by the 1857 Constitution that "crystallized the laissez-faire trends begun by Benito Juárez" (Alvarez 1987, 29). During his administration

the government encouraged foreign investment as its principal development policy. In addition to the problem of capital, Mexico also lacked the technical knowledge to promote the development and production of her economy. Díaz, who favored the development of the nation by the economically powerful, encouraged foreign investment through legal statutes that leaned heavily in favor of foreigners. (Alvarez 1987, 29)

As a result, at first Diaz's government successfully stabilized the country politically while achieving economic growth across all economic sectors—though not among all socioeconomic groups. However, no industry was more heavily favored than mining. Early in 1884, Diaz successfully promoted new legislation that brought much-needed legal and investment certainty to the mining industry, generating a flood of foreign investment into the sector (Kuntz Ficker 2010, 166). Soon, other industries were reformed prompting additional foreign capital across all economic sectors. Mexico's growing industrialist and middle class experienced impressive economic benefits. John Coatsworth remarks that

Between 1877 and 1910 national income per capita grew at an annual average rate of 2.3 percent, extremely rapid growth by world standards, so fast indeed that per capita income more than doubled in thirty-three years. (1978, 81)

Steven Bunker further notes that Mexico's emergent middle and upper classes' "participation in this market exchange signified being part of Mexico's modernization efforts" (1997, 228).

The *Porfiriato*, as the Diaz era is dubbed, forever changed the country's architectural, urban, sociopolitical, and

economic landscape (Herrera and Parra 2018, para. 37). Burgeoning globalized demand for goods and services prompted more foreign investment in Mexico, which produced Modernist built environments, e.g., the hospital, to systematically meet new market demands. Economic success, however, came at a high social cost. In Germany, for example, social problems generated by industrialization and uneven wealth distribution were severe enough that, at the insistence of Chancellor Otto von Bismarck, it "became the first nation in the world to adopt an old-age social insurance program in 1889" (SSA, n.d.). More broadly, while Europe's nineteenth century industrial and scientific development led to impressive economic growth, it also generated socioeconomic problems leading to social unrest, revolutions, and continental war, e.g., 1848 and 1870-71.

Similarly, Mexico's economic success belied significant growing social and political problems as newly produced wealth became concentrated among foreign enterprises, national companies, relatively few families, and investment syndicates; equally contradictory, the modernization process produced mass rural migration to cities, where the impoverished urban population experienced deplorable living and working conditions. Moreover, far from producing a long-term stable and politically democratic state, the Porfiriato often undergirded its interests by frequently using violent force to support foreign investors, national political bosses, and business cronies—all ostensibly justified by advances in telecommunications, rail, port infrastructure, manufacturing, and a globally integrated banking system. Like Europe, Mexico's successful industrialization and global market integration, generated latent aporias which became evident with the Miner Hospital.

Growing sociopolitical and economic discontent, already evident in the early 1890s, came to a head in the Mexican Revolution (c.1910-20) when peasants, farmers, and the working classes grew despondent as living conditions deteriorated (Tutino 2018, 174). Despite brutally suppressed labor strikes, especially in mining, the Revolution, political instability, and industrialized profits made Mexico an attractive mining region throughout the first half of the twentieth century.

### 3. CONFLUENCE OF MODERNISM'S FORCES

#### 3.1. Conception

With Mexico fully vested in attracting foreign investment, the United States Smelting Refining and Mining Company (USSRMC) incorporated in January 1906 "to acquire other mining interests in Mexico and Nevada" (Strack, n.d., under "Overview") Five days after the acquisition, the *Mexican Herald* (published in English) reported on February 17 that "[USSRMC]

intend putting into the company several million dollars into opening the mines, building mills, and in new equipment” (*Mexican Herald* 1906a, 7). Shortly after the purchase, the USSRMC executed its ambitious business plan. Confidently applying innovative electric technology, throughout 1906, the company rapidly replaced outdated British mining machines to ramp up yields at Real’s mines.

In April, USSRMC purchased 4000 hp from the Canadian-owned Mexican Light and Power Company (*Mexican Herald* 1906d, 1) and proceeded to build over 8000 km of infrastructure tunnels to bring electricity to Real, and the entire region, to provide enough power for the mining equipment (Mota 2018). Through the end of 1909, the company had installed nine electric winches, ranging between 110 and 250 hp, and compressors in each of its Real mines (Oviedo Gámez and Hernandez Badillo 2005, 10). The combination of electric machinery and the newly perfected silver cyanidation process in 1907, resulted in tremendous success: while in 1906 USSRMC achieved just over 3.5 million dollars in net earnings, by 1910 it reported 3.74 million dollars in net earnings; its 7 percent preferred stock and 4 percent common stock yields easily surpassing expectations (Stevens 1911, 1737-38).

Despite *The Mexican Mining Journal’s* assurance that “the successful operation of this big company on modern lines will prove undoubtedly of such benefit to the camp that those who have criticized will shortly be praising [emphasis added]” (Historic and Famous 1907, 17): similar to the Porfiriato’s internalized sociopolitical contradictions, USSRMC’s mining success would reduce employment opportunities, and ultimately lead to a deadly toll on miners. The initial suspension of most mining activity, combined with workers replaced by “the latest and best machinery available” (*Mexican Herald* 1906c, 11), led the USSRMC to lay off hundreds of miners; over 400 left the region to find work elsewhere causing generalized “misery” (*El Pais* 1906, 3; *Mexican Herald* 1906b, 11). As Alan Derickson observes

More than any other factor, the hazards of the job drove hardrock miners to create and maintain health and welfare programs. Accidents crippled and killed countless workers. Debilitating industrial diseases took a heavy toll. Industrialization exacerbated old risks and generated new ones. In particular, silicosis became rampant in the wake of the technological revolution of the late nineteenth century. (1988, 30)

To be sure, new technology reduced certain mining risks but generated others, often with more severe adverse outcomes. For example, “[t]he introduction of

electric locomotives [...] meant that workers traded the risk of being kicked by mules for the increased risk of being squashed against mine walls by large engines” (Derickson 1988, 32).

Then, a significant mining event over 2,000 km away shook the North American mining industry. On June 1, 1906, Mexican workers at the Cananea copper mine in Sonora, Mexico, went on strike demanding the Mexico-based US-owned Cananea Consolidated Copper Company end deteriorating labor conditions that had significantly increased casualties and establish wage parity. The company’s owner, William Cornell Greene, and Mexican government officials were unmoved by the miners’ demands. Mexican federal and local police, soldiers, company staff, and Arizona Rangers crossed the international border with the permission of Sonora’s Governor Rafael Izábal, and proceeded to brutally suppress the strike, injuring hundreds, and killing thirty miners (Cárdenas García 1998, 144). Though the strike ended four days later, the strike’s aftereffects, factored into the 1907 U.S. financial crisis and fueled grievances that culminated in the Mexican Revolution. Other mining operations, like USSRMC at Real, took notice of the catastrophic results.

Aware of increasing numbers and severity of mining injuries, USSRMC elected a different path: rather than risk a generalized, highly disruptive labor strike and violence that could endanger future production, the company negotiated with mining leaders. In September 1906, USSRMC’s upper management, namely its Mexican operations manager Morrill Spaulding and chief medical officer A.J. Hoskins, met with Real’s Mayor, Agustín Straffon, and mining leaders to propose the construction of a new hospital. The hospital was to be a cutting-edge medical facility, with medical staff, from doctors to nurses, focused on the miners’ specific needs.

There were precedents for a company-operated mining hospital. In the United States, the Miner’s Hospital in Hazleton, Pennsylvania, opened in 1889; and the Ereğli Company hospital at Zonguldak in the Ottoman Empire opened in May 1897 (Quataert 2006, 192). In Mexico, however, this would be the first hospital of its kind. Arguably, building and operating a mining hospital was a win-win scenario for the company: on the one hand, by providing miners and their families with healthcare, they could demonstrate genuine concern for worker welfare; on the other hand, building the hospital would not only quell any discontent regarding a lack of medical attention but also facilitate faster recovery of a labor force that represented a vital company investment in training and experience. At the meeting, the parties agreed to jointly develop the hospital immediately so miners would receive the best care possible for mining-related injuries and, when possible, facilitate

and supervise rehabilitation programs for the injured (AHCRdMyP, n.d., 1).

To finance the hospital's construction, equipment, and operation, the agreement called for the miners to contribute, and the company to match, a one-time fee of five Mexican cents and an ongoing fee of between 2 percent and 4 percent of miners' wages during construction (Oviedo Gámez and Hernandez Badillo 2005, 12). Hospital construction began in late 1906 on a 3,926 m<sup>2</sup> parcel that was eventually ceded in September of 1908 by the workers in exchange for the company's continued maintenance of facilities and staff salaries (Hemerobiblioteca, n.d.). Belem Oviedo, head of the museum's supervisory and administrative trust, notes that when the hospital was finished, it was "one of the most beautiful, modern, and functional hospital buildings of its era" (Oviedo Gámez and Hernandez Badillo 2005, 12). Once in operation, the hospital was initially staffed by Hoskins, two assistant physicians (one Dr. Nájera, a Mexican national), a Matron (chief nurse), five assistant nurses, and a pharmacist. The first Matron, Nelly Zurhaar, arrived in 1907 from the Netherlands and would head the staff until her death in 1959.



**Figure 4.** Banco de Hidalgo, c. 1910, by Ernesto Fuchs. Author unknown, courtesy of the Nettie Lee Benson Latin American Collection, University of Texas, Austin.

## 4. DESIGN STRATEGIES OF HOSPITAL MINERO

### 4.1. Architectural Zeitgeist

Little is known about the hospital's designers, as the construction drawings were prepared by USSRMC engineers and signed by an "E. Islas."<sup>2</sup> However, it is possible to gain some insight into the region's design zeitgeist from contemporary newspapers. A German engineer, Ernesto Fuchs, who had emigrated to Guadalajara, Mexico, in the 1870s, had designed and was supervising to great acclaim the construction of the Bank of Hidalgo in Pachuca, the state's capital (Figure 4). While the bank's façade was an eclectic mix of European Neoclassical motifs and styles, Fuchs channeled the era's emphasis on modernity, stating that the building "is entirely of steel and stone construction" and the "interior finishing of the building is in accordance with the most *modern* ideas [emphasis added]" (Hemerobiblioteca, n.d.).

### 4.2. The Hospital

The hospital embodied multiple ideas associated with nineteenth century Modernism; its existence evidenced Mexico's globally driven industrialization and was conceived as part of an overall strategy to increase labor productivity. Positivism and utilitarianism had prompted typological evolution in response to empirical observations, a parti that prioritized functional processes over all other considerations, integration of the latest technology, and the use of globally fashionable or recently adopted pragmatic aesthetic vocabularies, e.g., red corrugated iron roofs, interpreted with local materials, to express a modern identity.

Though there is evidence that hospitals have existed as a spatial typology since Mesopotamia or Dynastic Egypt, it would be in the nineteenth century that significant innovations transformed hospitals "from traditional charitable institutions [...] to modern medical institutions" (Kisacky 2019, 288). Many of these innovations were proposed by an English nurse, Florence Nightingale, "the Angel of the Crimea." After heavy losses by the British during the Crimean War (1856-58), Nightingale was dispatched to the Bosphorus (Turkey) to improve conditions for wounded soldiers. Despite initial opposition from British doctors, Nightingale successfully reorganized the medical facilities and vastly reduced the mortality rate among the wounded.<sup>3</sup> She, and her team of nurses, were able to do so by introducing several key modifications to traditional hospital design and patient care that would later be evident in the design of Real's mining hospital. In the spirit of positivism, Nightingale

<sup>2</sup> Courtesy of the AHMMAC Archive, Pachuca Hidalgo.

<sup>3</sup> At the time, reduction in the rate of mortality was consciously misrepresented by British authorities to increase moral among troops, however, actual mortality rate decreases were still an extraordinary achievement.



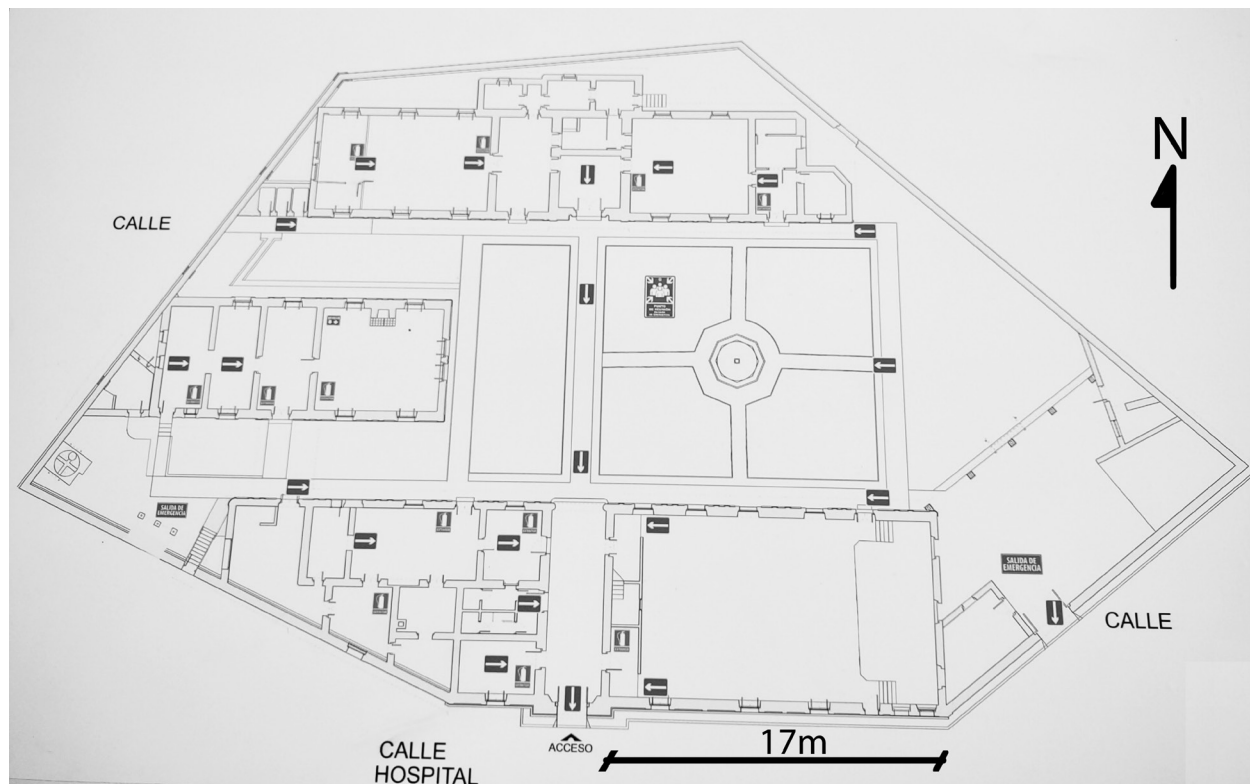


Figure 5. Hospital Master Plan, Courtesy of the Museo de Medicina Laboral.

codified her design ideas in *“Notes on Hospitals”*, which became the international bible of late nineteenth-century hospital design, correlated hospital mortality rates to hospital layouts as a means of assessing the healthiness of hospital building design” (Kisacky 2017, 23).

Real’s mining hospital displayed various avant-garde design strategies associated with Modernist architecture. The first of these characteristics was its siting: not only was the hospital conveniently located atop one of the highest of Real’s urbanized hills and roughly equidistant to three major mine heads, but following Florence Nightingale’s guidelines, it was located outside of the town’s denser urban fabric, where patients could enjoy a quiet environment along with a continuous supply of fresh air to prevent airborne contagion (Kisacky 2017, 25). Moreover, its location followed the pattern where “smaller rural hospitals served a specific community in facilities that typically included only necessary medical spaces and technologies but provided more personalized care” (Kisacky 2019, 290). The hospital’s master plan (Figure 5), unchanged to this day, is composed of a courtyard surrounded by three individualized single-storied masses running east to west. In keeping with “the hospital designs of late eighteenth-century Europe,” the campus’ plan “maximized air flow and quality by structuring the

hospital as a collection of small buildings, each filled with a narrow, linear room, disconnected from other spaces and surrounded by open air” (Kisacky 2017, 15)

The longest volume, nearly 60 m long, runs parallel to the aptly named Hospital Street on the campus’ –south side and is the hospital’s main public façade. Unlike the Bank, the use of *Cantera* (ash stone) was limited to an approximately 1.5 m tall base course (Figure 6).

Above that, its upper molding band persists throughout the courtyard elevations but not the *Cantera* plaques. Above this base is a series of alternating orange brick and locally collected cobblestone bands, ending with concrete quoins that mark folding planes. These Romanesque-like striations, however, do not repeat in other façades. Instead, all other exterior facades are composed of vast cobblestone planes, interrupted by windows framed by dematerializing orange brick surrounds. The use of stone in this fashion was consistent with traditions brought by the Cornish. As Gerda Peterich notes, this type of cobblestone masonry originates

in traditions of rubble wall techniques imported from Europe, particularly from England, where it served the demands of the pioneer farmers especially well, as the gathering of stones cleared

their fields, and the building material could be accumulated at convenient times [...] (1956, 12)

The willful adoption of the foreign Byzantine-like façade striation, executed with local materials, suggests a global architectural outlook: the use of readily available cobblestone to build English-type walls, combined with the Cornish-type red corrugated iron roofs, points to a local re-interpretation of imported building traditions.

The street-facing massing has two entrances: the easternmost, a porte-cochere gate, is bounded to the north by a colonnade separating a roofed but horizontally open area from the courtyard beyond; to the west is the main or civic entrance, recognizable from the street by its large, horizontally protruding volume. From this civic entrance starts the campus' main north-south organizational axis. Once past the main entrance doors, you arrive at an entrance hall. To the left of this hall were the kitchen, staff dining hall, pantry, storeroom, service quarters, and a pharmacy. To the right were consultation offices, a second pharmacy, three bedrooms with bathrooms, laundry facilities, and a boiler room. Past the entry hall, visitors are confronted with a proto-modernist spatial expression: exiting northward, visitors step down onto a ceramic-paved path bounded by rainwater runners that asymmetrically bifurcate a garden courtyard (Figure 7).

The courtyard seems to deploy incipient Modernist ideas on healing spaces proposed by the late eighteenth-century German landscape scholar Christian Cay Lorenz:

The garden should be directly connected to the hospital [...] A view from the window into blooming and happy scenes will invigorate the patient [...] [and] encourages patients to take a walk [...] The plantings should wind along dry paths, which offer benches [...] The spaces between could have beautiful lawns and colorful flower beds [...] A hospital garden should have everything to enjoy nature and to promote a healthy life. (quoted in Marcus and Sachs 2014, 7)

Lorenz's texts, widely translated across Europe by the end of the eighteenth century, were especially influential in England and France (Parshall 1993, 125). Following Nightingale's suggestion, the hospital's internal courtyard was relatively open to the east, bound only by a low-height property wall that ensured fresh air first circulated through the campus' courtyard and then through the buildings' windows and into the wards. The low wall height enabled morning sunshine to bathe the south-facing windows of the main patient wards. To the courtyard's west, possibly placed to block the setting sun, was the Matron's residence. Its bedroom, living room, kitchen, and dining room arranged in a



Figure 6. The Main Facade, facing south along Hospital Street, photograph by Author.



**Figure 7.** Hospital's garden courtyard, photograph by author.

“shotgun” architectural typology. Here, visitors glimpse a more modern aesthetic: Originally, the residence’s east façade was an evenly plastered wall, interrupted by two darkly framed windows and framed by two white pilasters with simplified bases and Doric-like capitals painted to contrast starkly (Figure 8). Now operating as a museum, the Matron’s residence’s east windows have been protected from the sun with an awning, while the façade exhibits cobblestones. Directly to the east, an octagonal fountain aligns axially with the residence’s east windows. At the eastern end of the courtyard was an area reserved for keeping live animals used to feed patients, the cook’s apartment, and storage facilities.

Finally, the hospital’s main wing, located at the north end of the north-south axis, housed the operative medical facilities and the patient wards. The hospital wards exemplified a

standardized design popularized worldwide by Florence Nightingale—which promised to make hospital buildings into places of cure rather than incubators of disease. Pavilion-ward hospital

buildings included hygienic materials and details, large open wards, support spaces, and little else. (Kisacky 2019, 289)



**Figure 8.** The Matron’s Residence, c. 1909. Author unknown, from *Informes y Memorias del Instituto Mexicano de Minas y Metalurgia* (1909, 38-42).



**Figure 9.** The Main Wing of the Hospital, c. 1909. Author unknown, from *Informes y Memorias del Instituto Mexicano de Minas y Metalurgia* (1909, 38-42).

Like the Matron's residence, the courtyard-facing elevation has been transformed. Though today the façade is dominated by cobblestone, as Figure 9 shows, this façade initially matched the Matron's residence vocabulary: its evenly plastered walls, darkly painted window frames, bright white pilasters, punctuated by darkly painted capitals and bases that sit on the base trim, produced a striking contrast with the administrative wing's cobblestone and brick façade. Entry to the principal branch is vertically highlighted by a protruding double-story volume with a two-pitched roof.

The entry, formed by an archway surrounding a recessed neo-classical frieze and columns, houses a vestibule that doubled as a chapel (see Figure 7). Behind the chapel was the on-duty nurses' station, another of Nightingale's contributions to hospital design. As part of the lessons learned in the Crimean War, she had outlined the need for a centralized nursing station, from where nurses could supervise the wards and rush to assist a patient when necessary. Behind the entry vestibule and at the center of the main wing were bathing facilities, the assistant nurses' bedrooms, laundry, and pressing facilities. Real's hospital layout was more the result of empirical observation and the consideration of processes than strict precedent. As Anmarie Adams observes, architects after 1900

bolstered their architectural authority not through their experience building related institutions, but rather through their direct observation of medical practice. [...] It was their special knowledge of the routines, needs, and procedures of specific departments that enabled them to master the complex programmatic requirements of the modern hospital. (2008, 108)

According to Dr. Hoskins, two large wards, one to each side of the entry vestibule, housed twelve beds each (six to a long side) but could, if needed, be fitted with double that amount for a total of forty-eight beds (Figure 10) (Hoskins 1909, 38-42). It is possible that the two wards were spread out symmetrically from the vestibule and nurses' area to avoid "the corridor system, with double wards on each side, and so no cross ventilation," a spatial practice bemoaned by Nightingale (McDonald 2020, 31). Then, following the latest design thinking, users walked through the wards through a central corridor informally bounded by the patients' beds. Kisacky suggests this was because later hospital designs considered "the theory of transmission by direct contact could have provided the basis for an alternate architectural model of hospital design, one that focused on controlling the movement and condition of persons and objects" (2017, 107). The inward direction beds faced was an expression of maximized administrative control and maintenance:

The narrow width and long walls full of windows maximized natural architectural ventilation and left no dark corners where patients could hide illicit behaviors. Having the patients face into the ward put the patient's head adjacent to the supply of fresh air but also facilitated nurse supervision, allowed direct physical access to the patient on both sides for examination or treatment, and prevented the patient's exhalations and excretions from coating the adjacent walls. (Kisacky 2017, 65)

The floors were made of light-colored cedar or maple wood, which would permit the detection of filth and reflect light from the windows and when in use, electrical light fixtures. Past the east patient ward was an x-ray room equipped with state-of-the-art



**Figure 10.** One of the two patient wards. Photograph by author.



**Figure 11.** X-ray room, with equipment from the early 1920s. Photograph by author.

instruments (Figure 11) and the pharmacists' lab (Figure 12). The available x-ray equipment when the hospital opened in 1907 presents one of the clearest examples of Modernism's contradictions (Gómez and Rodríguez-Paz 2018). Throughout late nineteenth century Modernism, social reformers pushed for social engineering to prevent crime associated with impoverished workers had prioritized medical innovation: science and technology had made x-rays a valuable tool in healthcare. Yet, Real's x-ray equipment was one of only a handful of machines found in all of Mexico at that time. In an era where so many governments boasted about social reform, the equipment had been purchased by the private mining company, for a specialized industry hospital, on the outskirts of a town with 12,251 total inhabitants in 1900 (Secretaría 1902, table I). What mattered then was the capacity to continue to mine and produce ore; in that context, an x-ray machine was a wise investment.

To the west of the entrance vestibule, users entered a ward commonly used for rehabilitation. Past this ward, at the end of the wing, was the surgery suite and sterilization room equipped with the latest medical technology and tools. Finally, the hospital's interiors were also the epitome of modern: 'all the buildings are heated and lighted by electricity and provided with all modern improvements' (Gonzalez, Grothe, and Salazar 1911, 42), while the non-residential interior room walls, floors, and other surfaces were plastered and



**Figure 12.** The Principal wing's pharmacy. Photograph courtesy of AHMMAC.

coated with white enamel paint, designed to minimize maintenance requirements and costs. All these hospital features were, as foreseen by the USSMRC, needed as mining-related casualties, including deaths, increased dramatically: in July of 1912 alone, staff at the hospital tended to “764 sick, 112 injured, 1089 medical consults and 142 home visits” (Oviedo Gámez and Hernandez Badillo 2005, 13). For those fortunate to survive but unable to return to work, the USSMRC provided limited-time financial aid to the family (Gonzalez, Grothe, and Salazar 1911, 111, 113).

## 5. FROM HOSPITAL TO MUSEUM

### 5.1. Abandonment of the Hospital

Just as the hospital’s initial conceptualization, construction, and operation concentrated site-specific conditions, industrialization and the globalized economy, its transformation into a museum embodies the various changes in Mexican sociopolitical and economic conditions. Though mining was a profitable venture from 1906 until the end of World War II, changes to global market conditions in 1947 prompted the USSMRC to sell its Real operations to the CRMyP. A year later, the company became state-owned (Tellez Ramirez and Azamar Alonso 2021, table I). The parastatal company would continue to operate Real’s hospital until 1982 when miners were finally incorporated into Mexico’s umbrella Institute of Social Security (IMSS) healthcare system. With most mining operations closed or closing in the region, the hospital complex was abandoned and fell into disrepair.

Then in 1990, following market reforms enacted during President Carlos Salinas de Gortari’s government (1988-94), CMRyP was privatized as part of an overall strategy to reduce government spending and stabilize the country. Two years later, as President Diaz had done over 100 years before, Salinas de Gortari pushed through major legislative initiatives to stimulate foreign and domestic investment in mining. To return to profitability, the CMRyP laid off over 2,500 employees, closed revenue-negative mines, began aggressively exploiting new mining claims, and offloaded non-productive assets (Tellez Ramirez and Azamar Alonso 2021, 41-42). In 1996, after nearly 500 years of operation, CRMyP closed the silver mine of La Purísima in Real del Monte. That same year, CMRyP donated the hospital, which had remained abandoned since 1982, its furnishings, and what remained of its medical equipment to the Historic Archive and Mining Museum Civil Association (AHMMAC in Spanish).

AHMMAC was well-qualified to accept the building complex donation. To address the dual responsibility of curating an expanding archival document collection and administering the Mining of Museum, AHMMAC

was officially established in 1995 (Oviedo Gámez 2005, 140-142). As early as 1981 and 1987, predecessor organizations, like the Centro Histórico Minero (Center for Mining History), had begun to organize historical archival documents donated by CMRyP. While CMRyP donated AHMMAC’s largest archive, it also curates vast collections from other sources, including documents produced in the Viceregal period from Pedro de Romero and Terreros and the British Real del Monte Company. In 1993, with growing interest in preserving and exhibiting Mexico’s mining tangible and intangible heritage and financial support from CMRyP, ongoing preservation efforts resulted in the opening of the Museum de Minería (Museum of Mining) in Pachuca, Hidalgo. Despite the intensifying interest in preserving the region’s mining heritage, the hospital complex would remain in disrepair due to lack of funding.

### 5.2. The Transformation

For the next six years, AHMMAC staff would solicit support from various sources to achieve the necessary funds to transform the hospital into a major component of the region’s tangible heritage. Once funding was obtained from the J.P. Morgan Foundation, Mexico’s National Fund for Culture and the Arts (FONCA), and dozens of private donors, renovation began in 2002 under the supervision of AHMMAC and its Director Belem Oviedo. With funding secured, AHMMAC hired an expert on historic preservation, Javier Villalobos, then president of the International Council on Monuments and Sites (ICOMOS) Mexico.

After that, the hospital was transformed and opened to the public as the Museo de Medicina Laboral y Centro Cultural Nicolás Zavala. It is fitting that the hospital became a museum since these spatial typologies were products built for public consumption and the dissemination of all types of knowledge, i.e., artistic, scientific, or even the bizarre, an idea central to European Enlightenment as Modernism took root (Schillings and van Wickeren 2015, 205). The conversion of the hospital, a space that embodies Modernism’s confidence in scientific and industrial progress, into a museum, a spatial product that captures and codifies an era’s zeitgeist, transforms the built environment into a tangible heritage that reveals “[t]he significance of place, as reminders that rationality was situated and that science was always part of the larger culture of its time and place” (Forgan 2005, 573).

In this context, the hospital is the largest object of material culture in the museum’s exhibition collection: it is the embodied testament of a confluence of nineteenth-century and early twentieth-century industrialization and globalized economic forces undergirded by contemporary political and sociocultural

value systems. As discussed by Maoz Azaryahu and Kenneth Foote, the museum's effective didactic narrative is enabled by its faithfully preserved spatial sequencing, contextualized furniture and instruments, and explanatory signage (2008, 180). At a granular level, the museum's museography, initially designed by Marco Antonio Hernández Badillo, displays AHMMAC photographs, documents, and equipment, focusing on exposing visitors to the reality of the turn of the nineteenth-century mining industry: from the optimistic application of new technologies to the horrors of workplace accidents. Recalling Daniel Livingstone's observation that "[m]useums have [...] always been sites of interpretive practice (2003, 32), this curatorial decision is consistent with the building's embodied modernist identity, because, as Forgan notes, "[c]ollections enabled museums to be places where the most modern and up-to-date scientific knowledge was displayed and worked on" (2005, 573). The museum, officially opened November 2004, sought to "revive the memory of all those who knew it, worked in it, and were taken care of because of illness or accidents" (Gonzalez, Grothe, and Salazar 1911, 116).

Not coincidentally, the hospital's transformation into a museum manifested the effects of a changing global mining economy on the region's evolving reality. In the last 100 years, silver reached its highest cost in international markets at \$135.60/ounce in February of 1980. Yet, in August of 2001, silver sold at its lowest price, \$7.02/ounce, for the same timeframe.<sup>4</sup> By June 2004, with silver at \$9.06/ounce, and no signs of market price recovery, CMRyP opted to cease mining operations (MacroTrends, n.d., chart). In January 2005, CMRyP closed La Rica, Real's last productive mine, and laid off ninety employees (Camacho 2005, 7). The mines' closure ended nearly 700 years of mining activity in the region. When CMRyP publicly announced the mine closures, it added that the La Rica mine would be converted into a tourist attraction, where visitors could visit the mine and preliminary processing installations. The museum's opening and La Rica's new focus was more than fortuitous for Real del Monte's economy: it signified a dramatic shift from an industrial economy to one focused on tourism. As Elizabeth Lozada Amador and Francisco O. Lagarda García documented, Real has turned to commodified heritage across its post-industrialist landscape, as a strategy that is "seen as a form of sustainability, for its cultural contribution to citizenship," because "it increases people's awareness of their industrial heritage," and while "mitigating business crises, acquiring a role in the economic and social regeneration of areas in decline" (2021, 207). Where the hospital embodied globalized industrialization, now the museum embodies commodified heritage.

4 Prices are adjusted to a normalized CPI.

Because of the hospital's transformation into a museum, its financial operation changed completely. Besides a standard tax exemption as a not-for-profit philanthropic enterprise, the museum receives no financial support from any government entity or agency. The museum's operating budget is derived primarily from the sale of admission tickets, most recently costing thirty Mexican pesos.<sup>5</sup> In the years immediately before the COVID-19 pandemic, attendance had been steadily on the rise: whereas in 2016, paying visitors numbered 10,703, by 2019, the number had risen to 13,144. To help visualize the museum's importance as a tourist destination, the number of yearly visitors surpasses the town's total population of 11,150 residents. Other revenue sources include direct, AHMMAC-administered donations and the Cultural Center facilities' rent, including a 120-seat auditorium.

### 5.3. The Experience of the Museum

Today, the Museum of Labor Medicine and Cultural Center Nicolás Zavala is a major regional attraction, drawing tourists worldwide. Visitors experience the building's Modernist spatial identity as an expression of then Modernism's prevalent positivist and utilitarian zeitgeist. The museum presents the building complex itself and its collection, such as the original telephone switchboard, patients' beds, and medical equipment exhibited in glass cabinets, not as a collection of museography items but rather as if ready to be utilized on the next patient, thereby enabling visitors to empirically perceive the hospital as it was when it opened in 1907 (Toadvine 2019). Then, visitors are prompted through contemplation, didactic museography, and guided tours to derive meaning from their experiences as they confront the brutal effects of modernity on miners' limbs, lives, and families.

As suggested by Nightingale, the hospital was built on the outskirts of the town, on the side of a steep hill, necessitating travel through the town's windy, narrow, stone-clad built fabric, generating a sense of voyage guided by the large corrugated red iron roof acting as a beacon. Museum visitors enter from Hospital Street and into the main entrance. After walking less than 10 m inside, visitors arrive at what was once the switchboard area, next to the hospital's main kitchen, where admission tickets can be purchased. After that, patrons are free to roam the courtyard and buildings.

During renovation few changes were made to the original building complex: first, interior partitions in the administration street-facing east wing, just off the main entrance, were removed, generating the leasable, multi-use auditorium with 120 seats with a raised stage. If patrons proceed directly north, they walk through the

5 Using 2022 exchange rate, roughly \$1.50 USD.



**Figure 13.** Early twentieth century ‘security’ posters hang on the wall of the entry vestibule/chapel. Photograph by author.

well-maintained central garden courtyard. Visitors are immersed in a landscape perceived as a serene oasis that induces calm, away from the noise and smells of the town’s dense urban center. At the same time, sunlight bathes the main ward wing’s southern façade. Facing west, visitors can see a second modification to the original hospital. While the hospital’s interiors have been meticulously restored, the Matron’s residence and principal wing’s façades have been modified to match the southern administration wing.

Proceeding north, on the central north-south axis and across the courtyard, visitors reach the top wing and enter the main building, where a volunteer tour guide awaits visitors to gather in the vestibule before starting a formal tour. While visitors wait for their tour to start, they are confronted for the first time with large-scale early twentieth-century posters (Figure 13). In Mexican history, where many workers were illiterate, most posters were hand-drawn and watercolored security posters depicting mining accidents in written and

graphic detail. The signs, distributed throughout, reveal the museum’s curatorial “intention to educate workers so they would be increasingly vigilant during mining” (Gonzalez, Grothe, and Salazar 1911, 116).

The guides lead visitors through patient ward, past the x-ray room, and to the impeccably kept pharmacist laboratory with its mosaic-like composition of colored bottles. Thereafter, the tour doubles back, to the rehabilitation ward and onto the “prep” and surgery rooms, all staged with furniture and equipment nearly, or over, 100 years old. Throughout the walk, visitors walk over light color wood flooring planks, polished to a glossy finish, that reflect the streaming sunlight from the southern façade windows. At the center of the now quiet sunny prep room, is a table with leather planes that incline towards the center to form a slot. The slot, in turn, hovers directly over a floor drain (Figure 14). The combination of the guide’s description of how the drain functioned to capture copious amounts of blood emanating from a human casualty, combined



with the visual evidence of the medical equipment and illustrative posters, produces in most visitors an audible gasp signaling a confrontation with an imagined *gruesome scene*.

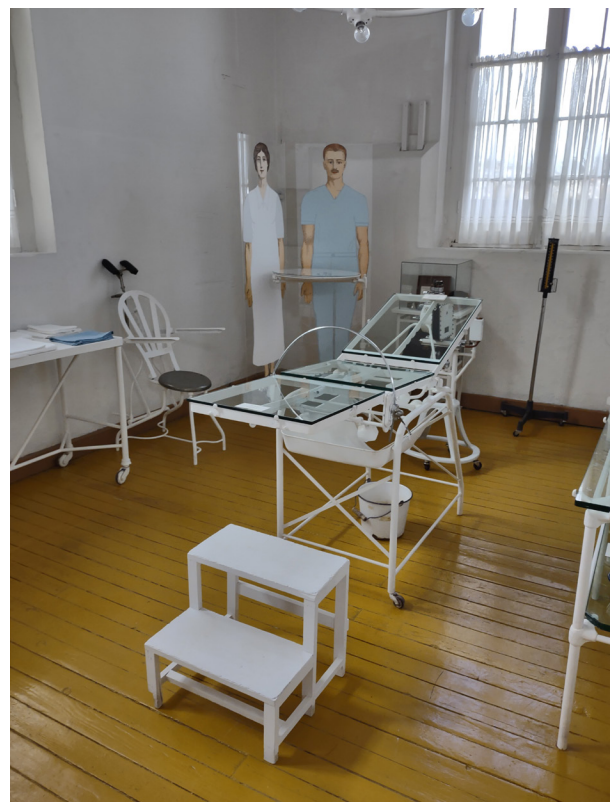
Just 10 m away, in the surgical suite, a then state-of-the-art “transparent” surgical table is surrounded by countless modern medical tools and bottled anesthetic solutions (Figure 15). In these rooms, under the colorfully illustrated (often testimonial) maiming and death security posters, the museum comes to life as visitors become aware of the horrific toll on miners and their families. Like the Industrial Revolution, Porfiriato, USSMRC, and Real itself, today’s museum’s picturesque state (Figure 16) obfuscates the hospital’s horrific narrative: the slotted table allowed gushing blood to flow away from a mutilated body; in the surgical suite, the surgeon, applying modern medical techniques, attempted to make whole what modern scientific technology had torn asunder. For those removed from current market-driven industrial and technological processes, this final spatial experience seems an invitation to contemplate what museums, or some other innovative spatial typology, will exhibit in the future about today’s embodied experiences, optimistic, horrific, or otherwise.



**Figure 14.** Specialized table in the “prep” room. Photograph by author.

## 6. CONCLUSION

Real del Monte no longer has active mines. Instead, the mines and all things related to the mining industry, including the former hospital, have been reconceptualized as frozen-in-time components of a larger narrative of a country coming of age in the modern era. Nearly twenty years after the museum’s inauguration, it has become a significant tourist draw for the region. Visitors can experience a continuous spatial history from Real’s Viceregal past to its post-industrial iteration. This built environment is then a microcosm of larger narratives: the hospital was a spatial product that embodied the zeitgeist of its time, i.e., from globalized forces that included the influence of a migrant population and their sociocultural and aesthetic value systems and scientific innovation to the site-specific realities of mineral-rich geographies, political instability, Mexicanized positivism and utilitarianism philosophy, and sustainable uneven economic development. Now, as a museum, it has been transformed into a material cultural object that enables a tourism-focused commodification of the region’s tangible heritage. The museum, therefore, is a spatial product responding to a changing economy, that utilizes the built environment as vehicle of the present to experience the past, thereby informing the experience of place and, perhaps after



**Figure 15.** Surgery table and equipment. Photograph by author.



**Figure 16.** Today, the “prep” room feels more like a picturesque postcard than the setting of horrific accidents. Photograph by Author.

contemplation, shaping the next transformation of the built environment.

Modernism, informed by positivism’s belief in science and utilitarianism’s market system, had delivered Modernist architecture powered by the Industrial Revolution innovations and at the service of mass production; it also generated brutal collateral damage through high-power mining technology and machinery. The introduction of electrified machines and their increased speed and power of production resulted in an increment in the total number of casualties, the severity of the lesions, and the speed at which they occurred. As feared, once electrically powered mining at Real became fully operational, the application of cutting-edge technology increased the severity of horrific mining injuries and killed miners. True to the spirit of Modernism and its prevalent positivist faith, the generated market-driven problem had a rational, scientifically-developed solution: the hospital was developed and operated following the then-latest scientific and medical processes, practices, materials, and equipment.

Throughout history, the mining industry has been considered one of the riskiest and most likely to generate

human illnesses: acute incidents like waterfloods, cave-ins, and rockslides have always plagued mining, while chronic diseases like silicosis, described as far back as the Greeks, and mercury poisoning due to the 350-year-old patio silver extraction process sickened and killed workers. Yet, the rarity of the former, and the slow development of the latter, made these conditions relatively tolerable. Where the hospital exemplified Modernist architecture as embodying scientific and industrial progress, it was also a testament of the brutal conditions produced by modernity. Today, through the museum’s embodied spatial identity, visitors can derive meaning from the immediacy of the past’s lived experiences -albeit without the explicit horror only personal tragedy and pain can provide. The Museo de Medicina Laboral stands today as an expression of each incarnation’s zeitgeist; forged at the confluence of curated modern identities and the post-industrial commodification of tangible heritage.

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