

THESIS

WEALTH OVER HEALTH: SUPERIOR, ARIZONA AND THE MAGMA MINE 1910-1982

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ABSTRACT

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The Magma mine in Superior, Arizona quickly became one of Arizona's most productive underground copper mines in the twentieth century. But the wealth of the company came at the cost of the lives of workers, not only through death but also illness, injury, and in its later years, unfair pay. This thesis traces the history of the Magma mine and its environmental history. As the mine rapidly expanded, it cost miners their livelihood. Chapter one looks at the growth of Superior alongside the Magma mine starting in the 1920s. Chapter two analyzes the events that led to the Magma mine's unionization in 1957 and the strikes that followed. Lastly, chapter three examines the events that led to the closure of the Magma mine in 1982.

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PROLOGUE - THANKSGIVING DAY FIRE

In the early morning of Thanksgiving Day 1927, seven men perished 2,500 feet below the surface in the Magma Copper Mine in Superior, Arizona. A fire started in shaft number two, causing smoke to bellow up into the tunnels above. The klaxon of alarm bells sounded throughout the mine. The shift boss raced to the cage that hoisted men into and out of the mine to find the cage tender, whose job was to hoist men in and out of the mine, delirious from inhaling toxic gas produced by the fire. Pushing the tender aside, he lowered a cage down to the 2,500 level with a single dead man in it who died from burns and suffocation. After the shift boss hoisted the dead man out of the mine, the hoisting cable burned off, preventing anyone else from attempting to escape via this route. The shift boss promptly carried the cage tender away from the blazing shaft and reported the fire, but death and destruction already raged below.¹

The underground mine was composed of shafts connected by tunnels, forming a mazelike work environment. This mazelike system likely saved the lives of the men working below the Thanksgiving Day fire. The men could escape by traveling from shaft number two, where the fire was, to shaft number three, where above-ground workers hoisted the underground workers to safety. Over forty men raced to escape the fire through shaft number three in an effort to make it home to their families for Thanksgiving dinner. Thankfully, the fire did not spread to shaft number three, providing these men with a safe path out of the mine and away from the blaze.² However, seven out of the forty-nine men underground lost their lives that morning in what was a preventable accident.

¹ US Mine Disasters, "Report of a Fire at Magma Mine, Magma Copper Co. Superior, Arizona, November 24, 1927-7 Killed," 1927, Accessed August 23, 2022.

² "Seven Dead as Flames Sweep Superior Mine," *Arizona Republic*, November 25, 1927, 1.

What was supposed to be a day of celebrating friends and family, quickly turned into mayhem as the air in Superior filled with smoke, replacing the smell of pumpkin pie and turkey. Because of the disaster, seven families now had an empty seat at their Thanksgiving dinner table. The fire left children without a father, mothers without a son, and wives without a husband. Miners and their families knew mining was dangerous, but this didn't ease the blow of losing a loved one. The Magma mine in Superior had more accidents resulting in death than most mines in Arizona.³ In part because as the mine rapidly expanded, safety standards stagnated.

In 1927, the Magma Copper Company's failure to fireproof shaft number two likely exacerbated the fire, which started when a spark ignited a puddle of oily waste. Probably for economic reasons, the company had not gunited this shaft from the 1,600 foot level to the bottom of the mine, leaving it timbered without fire protection. Guniting is a concrete blend of sand, cement, and water that is applied through a high-pressure hose to act as a fire retardant. Without guniting, timber can easily go up in flames. In the parts of shaft number two that the Magma mine gunited, the fire burned for days within the concrete shell. While in the un-gunited parts of the mine, the fire spread rapidly. Magma's failure to meet safety standards resulted in the death of seven men, making this incident the second deadliest mining accident in Arizona.⁴

The fire started at the dry and timbered 2,250-level hoisting station in shaft number two. The company built this hoisting station next to a car-repair station that was surrounded by oily waste. This dry timber, next to oily waste, only required a slight spark to ignite. An investigation done by the Bureau of Mines after the fire did not point to an exact cause but did list a handful of

³ "SANTA CRUS BLASTS HERSEY, UNSAFE MINING CONDITIONS," *Superior Sun*, September 29, 1966, Accessed August 21, 2022.

⁴ United States Department of the Interior Bureau of Mines, *Major Disasters at Metal and Nonmetal Mines and Quarries in the United States (Excluding Coal Mines)*, by John Hyvarinen, Leland H. Johnson, and D.O. Kennedy, I.C 7493 (April 1949), 19-20.

possibilities including, a carbide lamp, cigarette butt, transformer, motor-driven fan, or light and powering wiring.⁵ While it is not clear what started the fire, it is clear that proper safety regulations could have prevented this tragedy.

Miners Juan Branbila, Zeno Daily, Sam Haki, John McMahon, E. Olmas, A. Rintla, and R. Rodriguez lost their lives due to the unsafe working conditions at Magma mine.⁶ These seven men that never made it home to their families represented a mere fraction of the deaths that occurred at the Magma mine throughout the twentieth century. In the coming decades, tens of men would die in mining accidents. Some of the causes include cave-ins, falls, and loose rock. The Thanksgiving Day fire is the second deadliest mining accident in Arizona. The Magma mine also holds the title for the fourth deadliest mining accident in Arizona when four men were crushed to death by more than fifty tons of copper on August 10, 1993.⁷ Many more accidents occurred between 1927 and 1993, but the fact that the Magma mine had second and fourth deadliest accident in Arizona mining history represents the hazardous conditions of the mine, and the Magma Copper Company's continued failure to meet safety standards.

The Magma mine in Superior, Arizona quickly became one of Arizona's most productive underground copper mines in the twentieth century. But the wealth of the company came at the cost of the lives of workers, not only through death but also illness, injury, and in its later years, unfair pay. As Thomas Andrew argues in *Killing for the Coal*, the workscape of the mine helped create solidarity among miners and united them to fight the hazardous work environment of the mine. The term workscape refers to way laborers interact with their surrounding environment.⁸ In

⁵ US Mine Disasters, "Report of a Fire at Magma Mine, Magma Copper Co. Superior, Arizona, November 24, 1927-7 Killed," 1927, Accessed August 23, 2022.

⁶ "Another Body Taken from Magma Mine," *Arizona Republic*, November 27, 1927, 1.

⁷ Paul Davenport, "Blocked Ore Breaks Free and Kills 4," *The Times-Tribune*, August 12, 1993.

⁸ For more on worksapes, and the interplay between mining, labor and the environment see Thomas Andrews, *Killing for Coal: America's Deadliest Labor War*, (Cambridge, MA: Harvard University Press, 2010).

Superior, the workscape united workers to fight for a safer work environment through unionization. The Magma mine grew quickly in the twentieth century, providing management and its owners with wealth, but while the company grew wealthier, the company failed to maintain safety standards. The hazardous work environment at the Magma mine, resulted in individuals becoming wealthy at the cost of underground laborers, but as the work environment worsened and the company became richer, miners united to fight for a safer work environment through unionization and later through strikes.

The mine started operations in 1872 but did not grow into a bustling mine until the 1910s when William Boyce Thompson and George Gunn purchased the mine, and they added a smelter and railroad to company operations.⁹ The unfair treatment of miners came to a head in the 1950s, when workers successfully unionized to fight for a safer work environment, compensation, and better pay. However, the mine only stayed open for a quarter of a century after unionization. Ultimately, the company's inability to adapt to air pollution regulations and the copper crisis of the 1970s led to the mines' closure in 1982.

This thesis traces the history of the Magma mine and its environmental history. As the mine rapidly expanded, it cost miners their livelihood. Chapter one looks at the growth of Superior alongside the Magma mine starting in the 1920s. As the mine picked up production, families moved to the town. Superior's population grew more diverse as the century proceeded. The town's population grew to thousands of residents from around the world seeking opportunity. Within decades, shops, schools, and churches opened creating a strong community deeply tied to the mine. But the path of growth was bumpy.¹⁰ As the Magma Copper Company and Superior grew from the 1920s through the 1950s, miners and Superiorites experienced the

⁹ "Superior: Our Story," *Superior*, Accessed April 7, 2022.

¹⁰ U.S. Census Bureau, Population Density, 1930, Fifteenth Census of the US, Accessed March 11, 2023.

deadly consequences of the rapid expansion. The town suffered through the Great Depression of the 1930s, never completely closing but significantly decreasing production.¹¹ Then, the 1940s brought a new set of problems with the United States' entrance to World War II. As miners went to fight on the frontlines, the Magma mine dealt with labor shortages. Post-World War II, the town and mine started to stabilize, and miners now had the time and power to fight for a better work environment.

Chapter two analyzes the events that led to the Magma mine's unionization in 1957 and the strikes that followed. As the mine grew throughout the first half of the twentieth century, the company did not keep up with safety standards or compensation for illnesses and injuries endured on the job. This chapter argues that the unionization of the mine in 1957 pushed the Magma mine to create a safer work environment for its employees. By the 1950s, it became evident that underground mining could result in silicosis because of dust billowing throughout the mine. But the Magma Copper Company did not compensate workers and did not do much to prevent dusty conditions. Accidents, sicknesses, and unfair pay continued until miners participated in two strikes. Finally, work conditions at the mine started to improve as the miners bargained for a better work environment, and the company delivered on its promises. After five attempts, the Magma mine finally unionized in 1957, but change took time.¹² In the late 1960s through early 1970s, the miners suffered significantly fewer injuries, illnesses, and death, and their pay improved.

Lastly, chapter three examines the events that led to the closure of the Magma mine in 1982. This chapter argues that ultimately, the Magma Copper Company, who was in charge of

¹¹ "Vehicles, Planes, Factories Add to Smelter Pollution," *Arizona Republic*, January 20, 1970, 7.

¹² Al Skinner to International Officers and District 2 Locals, Report of Superior Election, October 31, 1957, box 65, folder Superior Campaign 1957, Western Federation of Miners/International Union of Mine, Mille & Smelter Workers Collection, University of Colorado Rare and Distinctive Collections, Boulder, CO.

operations at the Magma mine, failed to adapt to clean air regulations and the 1970s copper crisis, leading to the mine shutting down. The company closed the Superior smelter in 1970. They decided to ship their copper elsewhere to be smelted. It was the first smelter in Arizona to close because of the company's failure to update their smelter to meet clean air regulations established by the 1970 Clean Air Act amendments, instead they chose to close the smelter.¹³ The decision to ship the copper elsewhere to be smelted increased production costs. Then, in 1977 copper prices significantly dropped because of foreign competition, and the Magma mine was not able to recover from its losses, leading to its closure in 1982. Superior celebrated its centennial birthday the same year the mine closed, leaving the fate of the town's second centennial in question.

The history of the Magma mine in Superior, Arizona, is complex and shows the ups and downs of the copper mining industry in the twentieth century. The town saw growth, financial crisis, labor shortages, a hazardous work environment, unionization, environmental policies, and a copper crisis, but despite the rough times, the mine remained highly productive for over fifty years. However, the Magma Copper Company was slow to adapt to issues, which led to the demise of the Superior branch of the company in 1982. Understanding the history of the Magma mine and Superior shows how one company in Arizona inadequately adapted to common issues in the mining industry. The Magma Copper Company grew wealthy and did enact change quickly enough, harming the livelihood of underground miners. By expanding operations at the mine rapidly and increasing the profits for the company's management and owners, the Magma Copper Company failed to protect workers from the hazardous environment of the mine, leading the miners to unionize, but even unionization did not fully protect the miners.

¹³ "Magma Pollution Plan Unacceptable," *Arizona Republic*, December 2, 1970, 5.

CHAPTER 1 – GROWTH

In April 1923, the Magma Arizona railroad started operations as a standard gauge railroad.¹⁴ The train made round trips every other day to Superior and served as a baggage, mail, express, and passenger train, with a seating capacity of 22 people. As the mine expanded in the 1920s, the company saw the need to expand the railroad from a narrow gauge to a standard line. The expansion of the railroad allowed the Magma mine to haul eight times more freight than the narrow gauge had.¹⁵ The railroad connected Superior, Arizona twenty-three miles southwest to the Southern Pacific Railroad.¹⁶ The company expanded it to service the mine, but it also symbolized the growth of the town.

The same year the company finished the expansion of the railroad, the demand for housing in Superior increased as more people moved to the town for employment at the mine. Over two-hundred homes were built in Superior in 1923 alone, and still this number did not meet the demand.¹⁷ The landscape of Superior was shifting from a sparsely occupied landscape filled with cacti and few houses to a booming town. As the mine and Superior expanded, the families of Superior experienced the first true boom cycle of the Magma Copper Company, which would largely last until the 1970s. The 1920s through the 1940s brought increased wealth and people to the town of Superior, but the residents grappled with financial issues in the 1930s and labor shortages in the 1940s. As the town grew, the Magma Copper Company held a substantial amount of power and influence over the town, however, this came crashing down in the 1950s. The Magma Copper Company grew throughout the first half of the twentieth, contributing to the

¹⁴ “BHP Arizona Railroad Company MAA #453,” Union Pacific Railroad, Accessed April 3, 2023.

¹⁵ Joaquin Trujillo, *Living Superior, Arizona from 1930 to 1950* (Bucharest: Zeta Books, 2018), 32.

¹⁶ “Magma Arizona Railroad,” *Dave’s Rio Grande*, Accessed April 3, 2023.

¹⁷ “Superior,” *Arizona Republic*, May 3, 1923, 14.

expansion of Superior, but as the mine expanded the company, miners and Superior residents dealt with the consequences of the rapid expansion.

The Landscape and Growth of the Mine

In the late nineteenth century, Charles G. Mason, W. Tuttle, P. Swain, and four other miners made their way west in hopes of striking it rich. In 1875, they discovered silver veins near the area of present-day Superior. They quickly staked mining claims and established Arizona's richest silver mine. Just as the silver mine started to decline in the early twentieth century, they located copper veins.¹⁸ The discovery of the copper veins led to the growth of Superior and its long history as a copper town.

However, it took decades for Superior to grow into a flourishing town because the nearby copper was difficult to access. While prospectors staked the mining claim in Superior in the late nineteenth century, it was not until William Boyce Thompson and George Gunn purchased the mine in May 1910 that copper production increased. Thompson grew up in the copper mining town of Butte, Montana, where his father was the former mayor. Thompson went to school to study mining. He then used his education in mining to become a mine promoter and stockbroker. He was rather successful as a mine promoter and stockbroker, which made him wealthy. He then used this wealth to develop the Magma mine and town of Superior. Thompson created Newmont Mining Corporation, his own holding company for the Magma mine, and by the time of Thompson's death in 1930, Newmont was a major player in world copper production.¹⁹

Thompson's most valuable contribution to the Magma mine was the funds he provided to access

¹⁸ David F. Briggs, "History of the Magma Mine, Superior, Arizona," *Arizona Independent News Network*, July 19, 2015.

¹⁹ "Superior: Our Story," *Superior*, Accessed April 7, 2022.

the deep Magma copper veins, which helped spur the growth of Superior. As the mine expanded, more men and their families moved to the town for employment at the mine.

However, the copper near Superior was difficult to access. Arizona has one the largest copper deposits in the world but much of the copper is deep underground. About seventy million years ago, Arizona was a high mountain belt with peaks averaging 10,000 feet above sea level. Previously, magma rose into the upper five to six miles of the Earth's upper crust and cooled, forming these peaks. Millions of years later, erosion and faulting brought copper and other precious metals to the Earth's surface.²⁰ While some copper lay on the surface, many of the deposits, such as the one under Superior, lay deep under the Earth's crust. Before miners, Indigenous peoples utilized these copper deposits for thousands of years. They often used these mineral deposits to create tools. But they did not exploit the deposits, as mining corporations did in the most recent century. As Americans traveled west in the late nineteenth century, they began extracting large amounts of copper. And to support the expanding copper market, mining towns such as Superior, started to pop up throughout Arizona to house employees and their families.²¹ These deep copper veins are the ones that brought wealth to the town of Superior and the state of Arizona.

As the mine in Superior developed, immigrants from Mexico, Eastern Europe, and China came to the town seeking steady employment. The 1910 census counted one hundred eighty-four residents in Superior. Of this total, only twenty were female, and all were white.²² Twenty years later, in 1930, the census showed a drastically changed demographic. The census counted 4,285

²⁰ "Why is Arizona the Copper State?" Mark D. Barton, Professor of Geology & Geochemistry, Director, Center for Mineral Resources, Department of Geosciences, University of Arizona, Accessed March 11, 2023.

²¹ "King Copper: Copper Works for Arizona," University of Arizona Geological Survey, The University of Arizona, Accessed March 11, 2023.

²² U.S. Census Bureau, Population Density, 1910, Thirteenth Census of the US, Accessed March 11, 2023.

people, with an equal number of males and females. Additionally, the town was no longer all white people. The town now had 2,203 Mexicans, 2,020 Whites, twenty-five Indians, fifteen Chinese, fifteen “Negros,” and seven Spanish residents.²³ In the same census, Pinal County, where Superior is located, gained 2,487 people, and Superior saw more new residents than any other town in the county because of the Magma mines growth and ability to steadily employ men.²⁴ Most of the men in Superior found work at the Magma mine. With women and children now residents of the town schools, shops, bars, and churches also popped up throughout the town.

According to the Story of the Magma Mine, a report completed by the Arizona Department of Mineral Resources in July 1952, Superior was “almost entirely dependent upon the Magma mine for its economic existence. The taxes which the Company [paid, supported] an excellent school system. Labor relations [had] always been amicable.”²⁵ The report painted a rosy picture of the mine. It explained that the Magma Copper Company treated all employees well and directly influenced the growth of Superior. But in actuality, by 1952, the mine had become increasingly hazardous as the mine’s safety standards did not keep up with the growth the company.²⁶ Additionally as the mine brought in residents from around the globe, families started associating with others of the same race and socialization structures changed as the town grew.

Before 1910, the residents of Superior came to the town to work, make money, and then move onto the next job, often elsewhere. Once the Magma Copper Company acquired the Silver

²³ U.S. Census Bureau, Population Density, 1930, Fifteenth Census of the US, Accessed March 11, 2023.

²⁴ “Pinal County Shows Gain Of 2,487 For Census 1930 Superior Leads County, *Superior Sun*, July 30, 1930, 1.

²⁵ “Story of the Magma Mine,” Arizona Department of Mineral Resources, July 1952.

²⁶ For more issues of races within industries in Arizona see Andrew Needham, *Powerlines: Phoenix and the Making of the Modern Southwest* (Princeton: Princeton University Press, 2014).

Queen Mine, things began to change. Miners started bringing their families with them, and socialization structures changed. Before 1910, miners often socialized with workers who had similar jobs. They often did not bring their families with them, and second-generation Superiorites did not exist until closer to the 1920s.²⁷ For example, underground miners socialized with other underground miners. But as the town's population grew and women and children started occupying the town, people interacted with those of similar ethnicities instead of similar job titles. This change in socialization structures was a result of the development of the Magma mine.

As Superior grew throughout the 1910s and 1920s, the town developed economically and socially. The mine's early growth shaped the town's future. Superior grew into a close-knit community where mining united residents. To facilitate the mines growth, the Magma Copper Company added a railroad and smelter to its operations in the 1920s. But the mine did go through difficult periods. For example, employment numbers dropped when copper prices decreased during the Great Depression and because of a labor shortage during World War II. However, the mine remained open, and the town united through both these events. In the mine's first couple decades of operation, employment numbers rose and fell, but for the most part, the mine remained a steady source of employment as the town of Superior expanded.

Technological Expansion

To facilitate the growth of the town the Magma mine constructed a railroad in Superior. The company completed the Magma Arizona Railroad in 1915. The railroad was built to “improve transportation of ore and concentrates out of Superior.”²⁸ In the mine's early days of expansion from 1910 to 1914, they hauled the copper ore by mule-drawn wagons thirty miles to

²⁷ Joaquin Trujillo, *Living Superior, Arizona from 1930 to 1950* (Bucharest: Zeta Books, 2018), 55.

²⁸ Trujillo, *Living Superior*, 31.

a train station in Florence. Then, the copper went fifty more miles to a smelter in Hayden. The company first built a narrow-gauge railroad, which opened in 1914 and hauled copper nearly forty miles to Florence. In 1921, the company decided to expand it to a standard gauge track, which increased the amount of ore the trains could carry and eliminated tight curves. At the same time, the Magma Copper Company decided to build a smelter, making copper production even more efficient. The company predicted that the construction of the smelter and the widening of the railroad would reduce the cost of copper production by two cents per pound.²⁹ Additionally, the smelter would require the employment of more men, again increasing the population of the town. As more men came to Superior for employment, hundreds of new homes popped up throughout the town. The railroad would connect the mine, mill, and smelter, and the company no longer had to ship their copper thirty miles away to Hayden for smelting.³⁰ The railroad, and later the construction of the smelter, facilitated the growth of the Magma mine and Superior and contributed to the stability of employment of miners.³¹

In addition to the railroad, the Magma Copper Company's construction of a smelter helped the town expand. The Magma Copper Company began construction of the smelter in 1922, and it opened in late March 1924. The general manager of the mine estimated the smelter would increase employment by seven hundred men and double Superior's population from 2,000 people to 4,000 people.³² The smelter allowed the mine to smelt up to four million pounds of copper monthly. Additionally, the company built it to smelt the entire output of copper from the smaller mines in the district. This operation increased revenue for the Magma Copper Company

²⁹ "Remembering the Smelter: The Magma Copper Company Smelter at Superior, Arizona," WestLand Resources, October 2, 2019.

³⁰ Trujillo, *Living Superior*, 31-32.

³¹ For more on the Magma Arizona Railroad see Gordon Chappell, *Rails to Carry Copper* (Boulder: Pruett Publishing Company, 1973).

³² Trujillo, *Living Superior*, 32.

and successfully employed the additional seven hundred men the company had estimated. The increased revenue from the smelter allowed the company to develop more ore projects because of the availability to smelt ore on-site, which again increased the population of Superior.³³ And just five months after the opening of the smelter, the Magma mine began extracting copper, silver, and gold from a new, rich vein.³⁴ The construction of the smelter made Superior one of the few Arizona mining towns with a mine, a mill, a smelter, and a railroad, which added to their growth and establishment as one of Arizona's most productive copper mines in the twentieth century.

The Magma Copper Company built the smelter over eighteen months. The construction required the company to undertake other massive construction projects. For example, they built a dam for water storage for the smelter, which provided 1,250,000 gallons of water. The company also rebuilt and expanded the mill to allow the increased copper output to run smoothly. The company constructed the smelter to operate twenty-four hours a day, seven days a week. Operating the smelter around the clock meant the mine needed more employees. In addition to mine construction, new job opportunities led to additional housing construction as more people moved to the town. In 1923 alone, two hundred homes were built in Superior. The total construction cost of the Magma mine smelter, mill, and railroad totaled four million dollars (equivalent to nearly seventy million in 2023).³⁵ While the construction was costly, the Magma Copper Company believed it would bring them significantly more revenue. And they were correct.

³³ "Magma Starts Operation of New Smelter At Superior: Capacity 3,000,000 Pounds," *Arizona Republic*, March 23, 1924, 1.

³⁴ "Magma Mine Enters Rich Copper Vein," *Arizona Republic*, August 22, 1924, 5.

³⁵ Trujillo, *Living Superior*, 34.

To celebrate the opening of the smelter the Magma mine invited residents from Arizona to visit the new plant. Nearly fifteen hundred Arizonans visited the smelter to see the new technology that the company promised would bring increased revenue to their state. Shortly after it opened, the smelter ramped up production. Less than a month after opening the smelter operated at nearly seventy-five percent capacity. And according to a state newspaper, the *Arizona Republic*, “The officials of the Magma Copper Company, they stated, are highly pleased with the new smelter and the success with which its operation has met to date.”³⁶ The smelter in Superior signified increased profits for the company, the continuation of steady employment for the miners, and the growth of the town.

With the opening of the smelter, the company controlled four out of the five steps involved in processing the copper. The path of the copper ore started in the underground mine where miners unearthed it. It was then placed on conveyor belts and sent to the mill. At the mill, mechanized and human labor further processed the mineral. Then, the miners sent the copper to the smelter. At the smelter employees poured, cooled, and loaded the copper onto railroad cars. Last, the miners loaded the smelted copper onto railroad cars and prepared it for shipment to a refinery in El Paso, Texas.³⁷ The production of copper was essentially a five-step process and with four of the tasks occurring on-site, the Magma mine significantly reduced their overhead costs and employed more Superiorites in the mining operations.

With increased revenue from the smelter also came increased pollution. However, miners and their families welcomed the smelter and did their best to ignore the pollution because the smelter signified success at the mine. There was a pond near the smelter where children played.

³⁶ “Prospects For Good Crop in Gila River Valley Found by Tax Commission Members,” *Arizona Republic*, April 12, 1924, 14.

³⁷ “Remembering the Smelter: The Magma Copper Company Smelter at Superior, Arizona,” WestLand Resources, October 2, 2019.

But the runoff from the smelter ended up in this pond. In an oral history from *Living Superior*, a man claimed, “the water would knock the hell out of the kids. They always came out of the pond full of sores and scratching themselves.”³⁸ The smelter also polluted the air. Another interviewee claimed,

“The smelter stack was always smoking. The pollution it spewed was terrible and especially bad during summers. When the weather was hot, the smoke would sit over the town, and you could hardly breathe... It was acrid, and the ash that blew out of the stack would eat away at the tops of the cars. Sometimes it felt like it would burn your lungs, and many residents had to leave town because they just couldn’t take it.”³⁹

However, accounts of smelter pollution rarely show up in the local or state newspaper until after 1950, and these are the only two mentions of pollution in *Living Superior*.⁴⁰ Likely, residents dealt with the pollution because their economic livelihood depended on the growth and success of the mine, and they likely did not have the power to reduce pollution caused by the company.

The Great Depression Years

Despite the increased pollution, life for Superior residents was going relatively well. When the Great Depression started in 1929, the Magma Copper Company worked to continue operations. And while the Great Depression was a time of turmoil for nearly all Americans, Superior continued producing copper throughout the 1930s. At one point in the 1930s, the smelter in Superior was the only one in the state that remained open.⁴¹ This is not to say that the mine and town’s residents did not suffer. In 1930 the mine only operated for 303.5 days, and on average the company reduced employee shifts by thirty percent.⁴² In April 1929, markets valued copper at twenty-four cents per pound, and by May 1930, the price dropped to nearly half of that,

³⁸ Trujillo, *Living Superior*, 225.

³⁹ Trujillo, *Living Superior*, 103.

⁴⁰ For more on interviews from *Living Superior* see: Joaquin Trujillo, *Living Superior Arizona from 1930 to 1950: A Narrative History*, Bucharest: Zeta Books, 2018.

⁴¹ “Vehicles, Planes, Factories Add to Smelter Pollution,” *Arizona Republic*, January 20, 1970, 7.

⁴² Trujillo, *Living Superior*, 37.

to twelve and a half cents.⁴³ Excessive stockpiles of copper resulted from fewer companies purchasing finished copper and contributed to market issues for the copper mining industry. Throughout the 1930s the Magma mine grappled with financial issues that stemmed from the Great Depression, but they managed to avoid a major shutdown.

In addition to the Great Depression, the passing of the Hawley-Smoot Tariff Act caused uproar throughout copper mines in Arizona, including the Magma mine. In 1930, President Herbert Hoover signed the act, which increased tariffs on imports to the US by nearly 20 percent but did nothing to protect domestic copper producers. Hoover and Congress passed the act primarily to help agricultural industries.⁴⁴ Copper producers saw the short-term benefits that agricultural industries received. Miners claimed that without similar protection through a tariff, companies in the US would purchase foreign copper because of the lower labor costs to produce copper abroad, which would lower purchasing costs.

In October of 1930, the *Arizona Republic*, claimed,

“The Republican party in the passage of the Hawley-Smoot tariff bill ignored absolutely the great mass of labor employed in the production of copper in the United States. Copper mining in Arizona... is in direct competition with copper produced in Africa and South America, by the cheapest labor under conditions such as no Arizona workingman could or would tolerate.”

The author went on to ask congress to protect copper miners in Arizona through a tariff against the copper produced in South America and Africa.⁴⁵ A month later, tensions increased as Hoval A. Smith, an associate of some Arizona mining ventures and a student of mining conditions, told the *Arizona Republic* that “the copper miner is being hopelessly slaughtered on the free market.” He continued that the only way federal legislators could protect miners was through tariffs.⁴⁶ Clearly, Arizona copper mines saw an import tariff as necessary to protect their industry. Likely,

⁴³ “Descent into the Depths (1930): The Collapse of Agriculture,” *Futurecasts* 3, no 4, April 2010.

⁴⁴ David Lloyd George, “Imposts Perturb Europe,” *Arizona Republic*, July 30, 1930, 5.

⁴⁵ “Republican Platform Text,” *Arizona Republic*, October 2, 1930, 6.

⁴⁶ “Copper Tariff is Sought,” *Arizona Republic*, November 27, 1930, 9.

miners at Superior's Magma mine felt the same way, as they feared foreign copper could halt the growth the town.

However, by late 1931, Congress had not passed a copper tariff. And it was becoming increasingly clear that the Hoot-Smalley Tariff would not solve farmers' problems and a tariff likely would not solve miners' problems. A rift occurred between those who supported a copper tariff and those who did not. Another Arizona newspaper, the *Arizona Daily Star*, claimed in 1931 that, "a tariff on copper will help the copper industry no more than a tariff on wheat has helped the farmer."⁴⁷ In the early 1930s, Arizona copper mines sold much of their surplus copper to Europe. Some Arizonan's started to believe that the copper market would not improve until all the surplus was sold.⁴⁸ A copper tariff never passed through Congress, and mines such as Magma continued struggling throughout the 1930s.

To cope with the struggling copper market, the underground mining operations at the Magma mine ceased for six weeks, from mid-July to October 1, 1931. By May 1931, the price of copper was only eight cents, the lowest in forty years.⁴⁹ The General Manager of the mine, William Koerner, told the local newspaper, the *Superior Sun*,

"Magma Copper company has ceased production for the annual vacation. Having in view the low price of copper and the large accumulation of stocks, it has been decided by the management not to resume production until October 1. This decision to extend the inoperative period is based solely on the management's belief that radical action must be taken to regain prosperity and represents Magma's contribution to this end."⁵⁰

However, the company decided to resume operations early, and on September 10, six hundred men returned to work at the Magma mine.⁵¹ And while the owners of the mine intended to completely close the mine, production did not completely cease. Some employees worked on a

⁴⁷ "A Copper Tariff and Politics," *Arizona Daily Star*, November 28, 1931, 10.

⁴⁸ "The Copper Tariff Illusion," *Arizona Daily Star*, April 14, 1932, 18.

⁴⁹ Douglas E. Kupel. "Copper Chronicle: Magma Mine, Superior Arizona," *Mining History Journal*, 1999, 117.

⁵⁰ "Copper Production Starts October 1, Announced Gen. MGR. Koerner," *Superior Sun*, July 10, 1931, 1.

⁵¹ "600 Men to Resume Duties at Magma Copper September 10," *Superior Sun*, August 28, 1931, 1.

half-time basis during the period of non-production. These workers performed waste work, such as perfecting ventilation. Upon returning to complete production in early October 1931, the mine decided not to cut wages.⁵² Men went back to full-time employment, the mine paid them the same wages as before the shutdown, and the residents of Superior breathed a sigh of relief as the lifeblood of their town reopened and money circulated throughout the town as families had more money to spend.

From 1932 to 1936, the Magma mine continued shutting down in the summer, but by 1936 the company reduced the shutdown to just a month. It wasn't until 1937 that the mine began to recover from the Great Depression. Copper prices reached thirteen cents in 1937, and the Magma mine began extracting copper from two new shafts on the west side of the ore body.⁵³ They also installed the first air conditioning system in an underground mine to combat the excruciatingly hot work environment. Temperatures at the lowest level of the mine reached up to one hundred- and forty degrees Fahrenheit.⁵⁴ The installation of the air conditioner provided miners with a slightly more comfortable work environment and allowed them to stay underground for longer periods. In 1938, the *Arizona Republic*, claimed "there is an air of prosperity about this thriving little city [of Superior]."⁵⁵ The Magma mine managed to survive through the years of depression, and by the time the United States entered World War II in late 1941, the town was rather prosperous.

World War II

The Magma mine managed to stay open through the financial difficulties of the 1930s, but the 1940s would bring a new set of problems. The onset of World War II led to labor

⁵² "600 Men to Resume Duties at Magma Copper September 10, *Superior Sun*, August 28, 1931, 1.

⁵³ Douglas E. Kupel. "Copper Chronicle: Magma Mine, Superior Arizona," *Mining History Journal*, 1999, 117.

⁵⁴ "Magma Mine to Have First Air Conditioning," *Arizona Daily Star*, February 27, 1937, 6.

⁵⁵ "Magma Mine and Arboretum Make Superior Distinctive," *Arizona Republic*, November 19, 1938, 96.

shortages in the 1940s. But mine managed to remain productive and kept its workers happy, despite the harsh work environment. The Magma Copper Company was the first Arizona mining company to give its employees paid vacations and free life insurance, and medical care and hospitalization benefits for workers and their families.⁵⁶ Additionally, the Magma Copper Company paid higher wages than most Arizona mining companies. In part, management paid high wages because they believed this would prevent unionization. And they were right. The mine in Superior did not unionize until 1957, far later than most other underground mines.⁵⁷ These benefits helped keep workers and their families happy throughout the 1940s. Additionally, in the 1940s, the need for copper increased with the onset of World War II. The increased need for copper led to more profits for the company and the stabilization of the town's population but the war also caused labor shortages as miners went to the frontlines of the war.

Like the rest of America, December 7, 1941, changed life in Superior for miners, their families, and the company. Japan declared war on the US by bombing the Pearl Harbor naval base in Honolulu. While the US started the draft over a year earlier, in September 1940, the bombing of Pearl Harbor accelerated the draft by requiring all able-bodied men ages eighteen to sixty-four to register. Previously, the Selective Training and Service Act, signed in 1940, only required men between the ages of twenty to forty-five to register for the draft. However, in practice, only men ages eighteen to forty-five were drafted.⁵⁸ The bombing of Pearl Harbor marked a change in Superior's labor supply as men volunteered for service, and the US-drafted more men to join the front lines. Most of the Superior men who the government drafted worked

⁵⁶ "Deal the Cards for Another 100," *Superior Sun*, October 13, 1982, 1.

⁵⁷ "Caution Prevails in Superior: Copper Prices, New Unionization Makes Miners, Merchants Wary of Future," *Arizona Republic*, December 1, 1957, 13.

⁵⁸ David Vergun, "First Peacetime Draft Enacted Just Before World War II," U.S. Department of Defense, April 7, 2020.

at the mine. Workers left the mines to go to war, but at the same time, the US tasked the Magma Copper Company, and other copper mines, to ramp up copper production to support military efforts. So, the company started recruiting older men from across the country.⁵⁹

Magma also started to offer miners deferments from the draft to ensure they had enough labor to maintain around-the-clock production. However, the military forced the mine to quit giving deferments in late 1943, just before the invasion of Europe.⁶⁰ With war raging in the Pacific and European theaters, the US knew they would need a steady supply of men to fight. Many of these men came from towns such as Superior. While men went to the frontlines of the war, the mine and smelter continued operating twenty-four hours a day seven days a week, even staying open on holidays. But the production cost of copper increased. The war escalated the cost of labor, supplies, and materials for copper production because the US needed more, but less was available. This led to a premium price for labor, supplies, and materials. To make up for this extra cost and to encourage increased copper production, the War Productions Board set a premium price on copper to last through 1945.⁶¹ This allowed mines such as the Magma mine to increase production, pay employees well, and increase their profits.

In addition, to maintain a steady employment base of miners and other workers, Congress passed the Stabilization Act of 1942. This act allowed the president to freeze wages and salaries for all the nation's workers. However, the "Summary of Recent War Time Activities Report" claimed that this did not solve the labor problem for copper mines in Arizona. It only prevented miners from leaving their jobs for other industries. The Arizona Department of Mineral

⁵⁹ Trujillo, *Living Superior*, 274.

⁶⁰ "Selective Service Orders: Text of New Transfer Plan," *Arizona Republic*, August 15, 1943, 12.

⁶¹ A Summary of Recent War Time Activities of the Department of Mineral Resources, by J.S. Coupal, Director of Arizona Department of Mineral Resources, January 25, 1943, Phoenix Arizona, box 025 folder Gov. Jones 1939-1940, Governor's Office, Arizona Historical Society, Phoenix, Arizona.

Resources proposed a comprehensive plan to import Mexican labor through the US Employment Service to supply Arizona mines with labor. This plan was similar to the Bracero Program, which allowed Mexican men to travel to the US for seasonal agricultural work.⁶² The difference was that instead of farming, these men would work in the mines. These factors, establishing a premium price for copper and importing labor, helped copper mines such as the Magma mine increase the amount of copper they produced and ensured Superior continued growing.

However, the US still needed more copper even after increasing copper prices and solving the issue of labor shortages. In 1943, the Department of Mineral Resources released its report, "Summary of Recent War Time Activities of the Department of Mineral Resources." In December 1941, the War Production Board requested a survey to increase the production of copper from mines in Arizona, and there was a drive to increase the flow of scrap metal into the wartime industry. Seven months after the US established a plan for collecting scrap metal, Arizona exceeded the quota set by Washington DC, five months ahead of schedule.⁶³ Clearly, Arizona mines, such as the Magma mine in Superior, were vital to the US's efforts in World War II.

But the war also impacted Superior residents who witnessed the impact of the draft. The military did not give deferments to high school students, so once a boy turned eighteen, he was forced to sign up for the draft. And sometimes, boys would get drafted before graduating high school. Superior High School decided to hold makeshift graduations for many of these boys.

According to an interview from *Living Superior*:

When a student received his draft notice, Mrs. Craig, [a teacher], would assemble the high school in the auditorium and present him with his diploma. It was sad. It didn't matter where in town the

⁶² For more on the Bracero Program see Kelly Lytle Hernandez, *Migra! A History of the US Border Patrol* (Berkeley: University of California Press, 2010).

⁶³ A Summary of Recent War Time Activities of the Department of Mineral Resources, by J.S. Coupal, Director of Arizona Department of Mineral Resources, January 25, 1943, Phoenix Arizona, box 025 folder Gov. Jones 1939-1940, Governor's Office, Arizona Historical Society, Phoenix, Arizona.

boy lived, what elementary school he had attended, when he was allowed to go to the swimming pool, when he was supposed to go to the movies, or when his parents were allowed to go to dances. None of that mattered. We knew he was going to war and there was a chance he wouldn't return. Everybody in town had family members in the service and worried they wouldn't return. We were very pessimistic. Maybe it was because we had lived such a sheltered life in that small, isolated town. Or maybe it was because we were closer to one another than we realized and when someone left it felt like part of us left too.⁶⁴

The town understood the importance of young men serving in the war, but they also acknowledged the idea that the men may not return home alive. In Superior, the draft and World War II brought the town close together as they united in efforts to end World War II.

By the time the war ended in 1945, over 1,6000 Arizonans died in combat. One hundred fifteen of those deaths were from Pinal County.⁶⁵ Statistically speaking, many of the deaths were likely Superior men. In 1940 the census documented 28,841 people living in Pinal County, and fifteen percent of the county's residents lived in Superior.⁶⁶ The number of residents in a town does not perfectly correlate with the number of men a town lost, but it can provide an estimate. With one hundred and fifteen men lost from Pinal County and fifteen percent of residents living in Superior, the town likely lost around fifteen men. This does not count the number of men who were injured in war or suffered debilitating flashbacks afterward. World War II altered the lives of the men who worked in the mine and changed the social landscape of the town. Superior's workforce changed, but the town grew closer through the loss of young lives and the growth of the copper mining industry to support war efforts.

Post-World War II

After World War II ended in 1945, the town returned to normal almost immediately. The premium price of copper ended on December 31, 1945, and most of the Superior men who

⁶⁴ Trujillo, *Living Superior*, 285-286.

⁶⁵ "WWII Army Casualties: Arizona," National Archives: Military Records, Accessed March 11, 2023.

⁶⁶ U.S. Census Bureau, Population Density, 1940, Sixteenth Census of the US, Accessed March 11, 2023.

fought in the war returned to their families in Superior and jobs as miners. The mine's profits continued to grow through the late 1940s. An interviewee from *Living Superior* claimed,

“We were safe and happy. We had no reason to be unhappy. The men felt good to be back and there was just a good feeling around them being home with their families. We had everything we needed, and the mine gave children a secure feeling. Fathers were working and didn't worry about their next paycheck. We were free of financial worries.”⁶⁷

After the struggling years of the 1930s and worries of the early 1940s, life in Superior stabilized as profits increased, and so did the demand for labor at the mine creating a stable life for Superior residents.

Despite joy over the end of the war, Arizonans feared the US's need for copper would decrease. They worried this would lead to job and profit loss. In a report titled “A Governor's Point of View” Arizona Governor, Sidney Preston Osborn, claimed,

“the mining industry went all out and did an amazing job in supplying the nation with metals for winning the war. The sudden termination of the war causes the industry to be threatened by a back surge of what it has supplied. A proper stockpiling arrangement seems to be the sensible answer.”⁶⁸

In 1933, Congress passed the Stockpile Act of 1933, which created a stockpile of metals, such as copper. This act also required that materials come from domestic sources. Then in 1939, Congress passed the Strategic and Critical Materials Stockpiling Act, which established metal supply reserves for the US's common defense, industrial demands, and military commitments. In 1946, Congress and President Harry S. Truman sought to increase the stockpile of metals to reserve them for possible future emergencies. America was divided between two bills: one that supported the purchase of only domestic metals, known as the Buy American bill, and one that

⁶⁷ Trujillo, *Living Superior*, 291.

⁶⁸ A Governor's Point of View, undated, box 033 folder Mineral Resources Board 1945-1946, Governor's Office, Arizona Historical Society, Phoenix, Arizona.

allowed for a combination of domestic and foreign metal purchases for the stockpile.⁶⁹ Most miners and their families supported the Buy American bill.

Miners believed the Buy American bill would protect their jobs. If stockpile purchases were domestic, then US copper mines would have to produce enough copper to meet the US's needs, which would increase domestic copper production and contribute to job stability.

Governor Osborn also argued for the Buy American bill claiming,

“When we open the door too wide to the purchase of foreign metals, we lend the necessary incentive to those nations to exploit their own mining industry at the expense of our own. American-educated and trained technicians emigrate to these countries and show them how to do things. Their industry becomes ever stronger as ours becomes weaker. The result is that if and when another national emergency occurs, we find ourselves dependent on alien sources for strategic metal supplies.”⁷⁰

Essentially, both miners and the governor argued that a stockpile consisting of domestic metals would strengthen US industries, and the purchase of foreign metals would strengthen other nations while weakening the US.

In 1946, Congress amended the Strategic and Critical Stockpiling Act with the Buy American stipulation. This act allowed the Department of Treasury to purchase necessary metals, such as copper, from domestic sources at the direction of the Secretaries of War and Navy. President Truman and the military believed that the Buy American Act bypassed the purpose of establishing a National Stockpile. They thought that the purpose of the stockpile was to acquire metals that couldn't be accessed domestically in case of a national emergency. They did, however, believe that there should be a domestic stockpile reserve outside of the stockpile program. In a statement by President Truman on signing the act he claimed that

“The Buy American provisions will not only materially increase the cost of the proposed stockpiles but will tend to defeat the conservation and strategic objectives of the bill by further

⁶⁹ Clifton G. Chappell, Roderick Gainer, and Kristin Guss, *Defense National Stockpile Center: America's Stockpile: An Organization History or An Organizational History of the Defense National Stockpile Center: America's National Stockpile*, 28.

⁷⁰ A Governor's Point of View, undated, box 033 folder Mineral Resources Board 1945-1946, Governor's Office, Arizona Historical Society, Phoenix, Arizona.

depleting our already inadequate underground reserves of strategic materials. Furthermore, there can be a serious conflict between those provisions and the foreign economic policy which this Government is actively pursuing. It also seems to me that the application of the Buy American Act may frequently hamper the effective achievement of the essential purpose of the legislation which is to enlarge the stock of vital raw materials available within our borders in time of possible emergency...this Act should not be used as a device to give domestic interests an advantage over foreign producers of strategic materials greater than that provided by the tariff laws.”⁷¹

While President Truman and mining interests did not agree on where metals, such as copper, should come from, both agreed that a stockpile was vital to America’s security. Despite disagreement over the act, the Magma Copper Company, miners, and the town of Superior benefitted from the Buy American stipulation and the expansion of the stockpile. The US needed more copper and sought to supply its stockpile using domestic metals.

However, mines around the country faced a labor shortage after the war. During the war, the Magma mine reached 1,175 men, but after V-J Day, the number of employees dropped to six hundred. Over the next year, employment slowly rose as the mine reached eight hundred employees in 1946, but the mine required 1,050 men for the best efficiency.⁷² The Magma mine sought to employ veterans over war plant workers. The assistant general manager, Darrell Gardener claimed that wartime workers “had been trained to do no work.” He went on to say that he would “rather have one veteran than 50 war-plant workers.”⁷³ After the war, some men had trouble adapting to their old lives. Many of these men grew up during the war, and the town of Superior no longer held the same meaning to them. Upon returning home, many World War II veterans moved into cities to restart their lives, but this created another labor shortage in towns such as Superior.

⁷¹ Harry S. Truman, “Statement by the President Upon Signing the Strategic and Critical Materials Stockpiling Act,” The American Presidency Project, July 23, 1946, Accessed March 11, 2023.

⁷² Bernice Cosulich, “Veterans Preferred to War Plan Workers by One Mine,” *Arizona Daily State*, July 4, 1946, 2.

⁷³ Bernice Cosulich, “Veterans Preferred to War Plant Workers by One Mine,” *Arizona Daily Star*, July 4, 1946, 2.

Additionally, many miners around Arizona went on strike in 1946 to fight for pay increases and to improve their work environment. But the Magma mine did not have a union and therefore did not strike. The company worked to keep employees happy by providing increased wages in the hope of avoiding unionization. In 1946, the Magma mine raised the hourly wage by 18.5 cents, worked to improve the working conditions for underground miners, and expanded the mine. In 1946, the company constructed a new crushing plant and mill, which increased the amount of copper the mine could process in a day.⁷⁴ The new wage for workers averaged anywhere from \$7.40 a day (equal to \$107.39 in 2023) for common labor to \$9.80 (equal to \$150 in 2023) a day for a timberman.³⁵ The company also spent \$1,000,000 in 1948 on construction for additional ventilation and air conditioning in the mine.⁷⁵ In 1948 underground temperatures were recorded at one hundred- and fifty-eight degrees Fahrenheit, so adequate cooling systems were vital to operations. As the mine drove deeper underground, temperatures rose. To improve working conditions the Magma Copper Company had to install cooling systems to allow miners to work in the extremely hot environment.⁷⁶ The Magma mine worked to increase employment and prevent unionization by making operations more efficient, raising wages, and improving working conditions.⁷⁷ However, the mine largely negated safety hazardous in the mine, which ultimately led to its unionization in 1957. The improvements of the 1940s did keep workers happy throughout the remainder of the decade, however, as the 1950s began, workers increasingly sought unionization to combat the hazardous work environment.

⁷⁴ David F. Briggs, "History of the Magma Mine, Superior, Arizona," *Arizona Independent News Network*, July 19, 2015.

⁷⁵ Bernice Cosulich, "Veterans Preferred to War Plant Workers by One Mine," *Arizona Daily Star*, July 4, 1946, 2.

⁷⁶ Jack Karie, "Magma Copper Company Builds Huge Air-Conditioning Plant," *Arizona Republic*, April 25, 1948, 1.

⁷⁷ Bernice Cosulich, "Veterans Preferred to War Plant Workers by One Mine," *Arizona Daily Star*, July 4, 1946, 2.

Conclusion

From the 1920s through the 1940s, the Magma mine grew into a profitable business and Superior into a flourishing town. This period witnessed technological enhancements such as the construction of the railroad and smelter, the expansion of the mill and mine, and the improvement of underground conditions by adding an air conditioner. While Superior's population swelled, and the town added schools, shops, and churches. Superior shifted from a mining town for men to a mining town for families. However, as the mine expanded, the company lacked proper safety measures, and miners did not have the power to instigate change until the 1950s. The Magma Copper Company remained un-unionized until 1957 because it provided reasonable wages, and they made some improvements to make the harsh work environment more tolerable for miners. However, as the 1950s approached, tensions at the mine increased because more accidents occurred at the mine and the company did not compensate miners for chronic illnesses caused by mining such as silicosis. As the hazardous work environment increasingly sickened, injured and killed workers, miners sought unionization in an effort to protect their livelihood.

From the late 1940s through 1957, the International Union of Mine, Mill, and Smelter Workers held five unionization efforts in Superior. As the work environment at the mine grew more hazardous, more miners sought unionization. Mine accidents increased. And these accidents upset miners because increased safety measures could have prevented them. Additionally, silicosis cases increased, but the company did not offer fair compensation for the disease. Miners and their families feared for their health, and many believed unionization offered the best chance of protecting miners while on the job. The 1950s through 1960s brought many changes to the mine, but most notable is its unionization in 1957 and the strikes that followed.

CHAPTER 2 – UNIONIZATION

Jeff D. Dickey worked for the Magma Copper Company in Superior, Arizona from February 1945 until August 1948, spending most of this time underground. In 1948 his lung tissue became so scarred that doctors determined he could no longer work in this environment. Altering his career path, the Magma Copper Company employed him in above-ground operations, but by 1950 Dickey's breathing became so labored he could not work, jeopardizing his livelihood. Before working at the Magma mine, Dickey labored in several smaller underground mines around Arizona. For nearly his whole life, mining provided him financial stability, but now it was causing his demise. Dickey filed an application with the Arizona Industrial Commission for compensation under the Arizona Occupational Disease Disability Law to supplement his income. He claimed complete disability due to silicosis; however, the judge denied his claim, deciding he was not fully disabled. And Arizona did not offer partial compensation, leaving Dickey with no reparations. Without compensation, Dickey continued working above ground at the Magma mine.

In part, because Magma mine was not unionized, Dickey did not receive any support for this lawsuit and fought for compensation himself. He continued working for Magma above ground, on and off, until 1956, despite his declining health.⁷⁸ Dickey likely struggled through work, hacking, and huffing, trying to suck air into his scarred airways underneath the dust trapped in his lungs. To receive compensation Dickey needed to become completely disabled or die within two years. If Dickey had been in a union, he could have sought its help in his fight for

⁷⁸ Dickey v. Industrial Commission of Arizona, 320 P. 2d 470, 6489 (Supreme Court of Arizona. 1958).

compensation. Unions helped miners by proposing safety regulations and supporting them when they were sick or injured, but without a union, the Magma miners lacked this extra safety net.

The Magma Copper Mine was one of Arizona's largest underground copper mines.⁷⁹ Despite the hazardous working conditions at the mine, the company was one of the last non-ferrous mines to unionize west of the Mississippi River. In addition to deadly dust, miners fought fire, rock fall, collapsing shafts, and suffocating heat but decent pay and generational employment created a stable relationship between the workers, managers, and owners of the company for nearly five decades. After five unionization efforts, the International Union of Mine, Mill, and Smelter Workers (Mine Mill) won over most Magma miners in 1957. Mine Mill, then, pushed the Magma mine to create a safer work environment for its employee. An increasingly harsh work environment, a rise in silicosis cases, and Magma Copper Company's refusal to compensate sick or injured workers, despite the firm's soaring profits, led the miners to unionize.

The Dusty Maze

Copper takes significant labor to remove from the earth. Copper extraction is done one of two ways. If copper is near the surface, companies use open-pit mining, and miners slowly dig holes, forming an open pit, to remove the mineral. While open-pit mining is slightly safer for miners, underground mining usually results in less environmental damage. Underground mining removes less waste material, helping keep the soil, water, and air more stable than open-pit mining. Located far too deep for open pit mining, the copper in Superior required the more dangerous method of underground mining. This method required miners to dig deep shafts to access the copper veins. Then, miners traveled through these tunnels, deep under the surface, to

⁷⁹ "Magma Vote Approved for Oct. 30," *Arizona Republic*, September 28, 1957, 38.

extract the copper.⁸⁰ Underground mining is more dangerous because miners are trapped in a confined area while they work.⁸¹

Large copper deposits, such as the one underneath Superior, Arizona, required multiple shafts to reach the copper, forming a maze-like tunnel system for miners to navigate. Miners dig shafts vertically and horizontally to remove the earth's crust and create a path to access the mineral.⁸² As miners descended the shafts, compacted dirt surrounded them, and the only light produced was by artificial sources. As mining proceeded, the dirt shifted, and in the best-case scenario, created a dusty work environment as the surface loosened. In the worst case, the walls could completely cave in. Additionally, temperatures within the Magma mine reached up to one hundred fifty-eight degrees Fahrenheit, making it one of the hottest mines in North America. The high temperatures and unground, maze-like tunnel system created a work environment of suffocating heat. Magma workers experienced an abnormally harsh work environment, even by mining standards.

As miners chiseled away at the walls of the Magma mine to extract copper ore, they shook dust loose. It billowed throughout the mine and into workers' lungs. The miners who labored underground had no choice but to inhale this dust. As dust dislodged from the walls of the mine, it blew through the maze until it found a damp resting place that stopped its movement by weighing it down, usually a human lung. Dust came to rest in human lungs because the particles were dry, and human lungs provided a wet resting place to trap the particles and prevent them from blowing around. With no way to completely filter the air, miners, such as Jeff Dickey, inhaled dust the entire time they worked underground. In later years, Magma Copper Company

⁸⁰ "2. Mining Methods," *Copper Production*, Accessed April 21, 2022.

⁸¹ For more on the environment of undergrounds mines, please see Eric C. Nystrom, *Seeing Underground: Maps, Models, and Mining Engineering in America*, (Reno: University of Nevada Press, 2014)

⁸² "Underground Mining," *Mineral Resources Education Program of BC*, Accessed April 21, 2022.

made efforts to dampen the walls to prevent dust from ejecting, and miners could wear respirators to help filter out some particles. Oftentimes, this was not enough. As miners inhaled the particles, they became permanently lodged in their lungs. The dust contained large amounts of silica, a highly toxic mineral, causing the dust to wreak havoc on lung tissue, and leading to life-long health issues as the particles built up day after day.

The deadly silica is one of the most prevalent minerals in the earth's crust. This mineral made up the walls of the Magma mine. When miners manipulated the earth's crust by cutting, sawing, drilling, or crushing, silica particles became small enough for humans to inhale. As miners broke up silica, they sent the mineral flying through the mine. When the silica particles became embedded in human lungs, they scared lung tissues, reducing the organs' ability to take in oxygen. Inhaling excessive amounts of silica can result in chronic silicosis. Symptoms of chronic silicosis include fatigue, shortness of breath, and chest pain. There is still no cure for chronic silicosis, and the disease increases the risk of tuberculosis, lung cancer, and kidney disease.⁸³ On average, it takes ten years for this illness to develop. But in high silica environments, such as the Magma mine, chronic silicosis often progresses more quickly.

Dickey, and many other Magma miners, fought for silicosis compensation under the Arizona Occupational Disease Disability Law. But Arizona's law made compensation for chronic silicosis nearly impossible for miners. Enacted in 1912, the Arizona Occupational Disease Disability Law required employers to provide compensation for injuries and death occurring at work or throughout employment. The law established six requirements for an employee to meet to receive compensation from their employer for sickness stemming from work. Among these requirements, the employee had to trace employment as the proximate cause of the disease and

⁸³ "Crystalline Silica," Center for Disease Control and Prevention, The National Institute for Occupational Health, Accessed April 1, 2022.

provide a causal connection between the work conditions and the occupational disease.⁸⁴ The company was not required to assist workers in providing this evidence, so employees were left to demonstrate that mining fully disabled themselves. Ostensibly this law protected miners, but in actuality, it made silicosis challenging to connect directly to copper mining.

To meet silicosis compensation requirements, courts required miners, themselves, to prove the silicon content of the dust in the mines they labored in. Miners had to verify via laboratory analysis that the dust they inhaled had harmful quantities of silicon.⁸⁵ The laboratory analyses were expensive and difficult to access on a miner's salary. As David Rosner and Gerald Markowitz identified in *Deadly Dust: Silicosis and the On-Going Struggle to Protect Workers' Health*, the medical community viewed chronic diseases, such as silicosis, as less important because they did not result in immediate death.⁸⁶ As with Dickey, miners sick with silicosis saw a decline in their quality of life, but the mining companies were generally left unresponsive. As processes such as wet drilling reduced the dust in the air, silicosis onset occurred later. This made the connection more difficult to prove; however, silicosis rates in metal mining remained high. As silicosis rates increased and the Magma mine remained un-unionized, mineworkers struggled to secure compensation.

Unionization

From 1947 to 1957, Mine Mill attempted to unionize the Superior branch of the Magma mine five times before succeeding. They unionized the other branch of the Magma Mine, San Manuel, in 1956, only a year before the Superior branch unionized.⁸⁷ The success of unionizing

⁸⁴ "Arizona Revised Statutes Title 23- Labor 23-901.01 Occupational Disease; Proximate Causation; Definitions," *Justia US Law*, Accessed April 21, 2022.

⁸⁵ "4 Bills Regulating Health Tossed Into House Hopper," *Arizona Republic*, January 17, 1957, 8.

⁸⁶ David Rosner and Gerald Markowitz, *Deadly Dust: Silicosis and the On-Going Struggle to Protect Workers' Health*. 2nd ed. (Ann Arbor, University of Michigan Press, 2006), 180-181.

⁸⁷ "Mine-Mill Wins at San Manuel," *Tucson Citizen*, October 19, 1956, 1.

San Manuel gave some Superior mineworkers and Mine Mill hope that Superior would vote yes to unionization in 1957. However, the idea of unionizing the Magma mine pitted Superior residents, mine workers, and Magma officials against each other. Superior citizens concerned with the health impacts of the mine and most Magma workers sided with the union, Mine Mill. Magma mine officials, Superior residents, and Magma workers fearful of the financial impacts of unionizing formed the Superior Citizens Committee and the Committee of Magma Miners, opposing unionization. The two sides went to the local newspaper, the *Superior Sun*, and posted flyers around town to voice their opposing concerns.⁸⁸ During the 1957 union election, the work environment and safety concerns were at the center of both campaigns.

As the Magma mine's dusty environment continued to produce silicosis cases without compensation, many mineworkers and their families fought for union protection. They joined the effort to certify Mine Mill to represent the Magma mine. In its campaign, Mine Mill promoted safer working conditions, silicosis compensation, and improved pay. Opposingly, the Committee of Magma Miners and the Superior Citizens Committee argued to keep the Magma mine un-unionized. The anti-union groups believed the mine should not unionize because the company already operated sufficiently. They believed that with unionization, a strike would closely follow, and in its forty years of operation, the Magma mine had never suffered a strike.⁸⁹ The two sides did not see their goals as simultaneously attainable.

Central to Mine Mill's campaign was preventing occupational diseases and workplace injuries, and if these problems did occur, providing workers with adequate compensation. In a

⁸⁸ "International Union of Mine, Mill, and Smelter Workers ad," *Superior Sun*, October 18, 1957, 4. and "Citizens of Superior ad," *Superior Sun*, October 23, 1957, 1.

⁸⁹ Committee of Magma Miners to Fellow Workers, January 23, 1956, box 276, folder 24, Western Federation of Miners/International Union of Mine, Mille & Smelter Workers Collection, University of Colorado Rare and Distinctive Collections, Boulder, CO.

flyer, Mine Mill told the story of Miguel L. Silva, a Magma miner who fell ill with silicosis after years of working underground. The union used Silva as an emotional advertisement to pull at the heartstrings of Magma workers and people who knew underground miners. The posters featured Silva's tragic story and an image of him appearing ill. Silva worked at Magma mine from 1913 until his retirement in 1957, spending just under a thousand hours underground. The flyer claimed Silva developed silicosis because of his tenure working underground at the Magma mine, and despite the Magma mine causing the disease, the company only gave him a retirement pension of \$17.75 per month (equivalent to \$179.26 in 2022). This pension did not even cover his silicosis medicine. As with Dickey, the State of Arizona determined Silva was not fully disabled due to silicosis, and he was not able to receive compensation because of the disease. Silicosis claimed the livelihood of yet another miner.

Posters such as that depicting Silva showed the rarely talked about consequence of working in an underground mine. Mine Mill wrote Mr. Silva "your friend, your neighbor," and claimed that if Silva had been in a union, he would have received a much higher pension, a silicosis compensation grant, and legal and medical assistance from the union.⁹⁰ Mine Mill understood silicosis was harming the community and played upon the fact that without a union, workers often failed to receive fair compensation. By telling the story of Silva, Mine Mill fought anti-union propaganda attempting to influence workers against unionization. Silicosis led to chronic health issues and economic turmoil for miners and their families when they could no longer work, and so Mine Mill claimed the only way to protect workers sick with silicosis was through unionization.

⁹⁰ Don't Let It Happen To You! box 65, folder Superior, Local #938, Western Federation of Miners/International Union of Mine, Mille & Smelter Workers Collection, University of Colorado Rare and Distinctive Collections, Boulder, CO.

Anti-union groups did not specifically defend silicosis compensation. Instead, they highlighted the benefits Magma already offered, including health insurance, hospitalization, and retirement plans. A newspaper ad paid for by the Citizens of Superior claimed, “Magma Copper Company is now and has been for years providing its employees with a long list of benefits.” The same ad claimed that to receive more benefits, the workers would have to exchange some of their pay.⁹¹ The Magma Copper Company avoided unionization for so long because they did offer fair pay. The Citizens of Superior aimed to focus employees’ attention on pay, instead of health. But by not targeting work conditions or occupational disease compensation directly, the anti-union groups failed to directly address the concerns of the pro-union employees. Workers wanted a safe work environment and compensation when necessary. The failure to address these concerns contributed to unionization.⁹²

Silicosis prevention and compensation were not the only issues at hand. Both sides also used family welfare to get workers on their side. Mine Mill issued an open letter to the wives and families of Magma copper workers claiming:

Don’t you think that the people living here in Superior should have a modern ambulance? Don’t you think a swimming pool and park is needed for the children in Superior? Our Union will gladly help in such community improvements if the people of Superior want these changes done. This is quite a different picture of how our Union operates than the one we get from the Company letters and propaganda, isn’t it!⁹³

The poster explained that, if elected, the union would improve medical and hospital benefits.

And in the local newspaper, they titled their ad, “UNION AT MAGMA WILL BE GOOD FOR SUPERIOR!... ENTIRE TOWN WILL BENEFIT.”⁹⁴ The ad highlighted the prosperity and

⁹¹ “Decide for Yourself,” *Superior Sun*, October 23, 1957, 4-5.

⁹² For more on industrial unionization efforts driven by occupational disease please see Eric Loomis, *Empire of Timber: Labor Unions and the Pacific Northwest Forests* (Cambridge: Cambridge University Press, 2016).

⁹³ Mine Mill Letter to Wives and Families, January 1956, box 276, folder Superior Campaign 1956, Western Federation of Miners/International Union of Mine, Mille & Smelter Workers Collection, University of Colorado Rare and Distinctive Collections, Boulder, CO.

⁹⁴ “UNION AT MAGMA WILL BE GOOD FOR SUPERIOR!... ENTIRE TOWN WILL BENEFIT,” *Superior Sun*, October 23, 1957, 6.

dignity unionization brought to other mining towns. In a close-knit town, such as Superior, Mine Mill needed to receive support from residents, not just the miners.

The anti-union groups used the same tactic. The Committee of Magma Miners claimed that unionization would lead to a strike, and a strike would hurt miners' families because their household income would drastically decrease. In response to the letter from Mine Mill, the Committee of Magma Miners issued a message stating:

THIS IS THE RECORD OF THE PAST 45 YEARS
45 YEARS WITHOUT A SHUTDOWN
45 YEARS WITHOUT A STRIKE
45 YEARS OF STEADY EMPLOYMENT
45 YEARS OF THE HIGHEST WAGES IN THE MINING INDUSTRY IN ARIZONA
45 YEARS WITHOUT A UNION
ASK YOURSELF- ASK YOUR WIFE- ASK YOUR CHILDREN- IF YOU AND THEY WANT
TO TRADE THIS JOB AND PAY SECURITY FOR THE GLITTERING PROMISES MADE BY
THE UNION ORGANIZERS IN THE FACE OF THE ABOVE RECORD. VOTE NO
FEBRUARY 2, 1956.⁹⁵

The Committee of Magma Miners promoted the idea that Magma should stay the way it had for the last forty-five years. They idealized Magma Copper Company and claimed life in Superior had been fruitful without a union. In a newspaper ad the Citizens of Superior claimed, “Mine-Mill talks a lot about security. But who can feel more secure than the Magma employee, who has had security for so long that he never thinks of any other way of life.⁹⁶” The anti-union groups painted the Magma Mine and Superior as stable and safe, and pro-union groups told the story of a hazardous and exploited town. Both unionization campaigns used the quality-of-life miner’s families could attain as a central tactic.

In 1956, the Magma Copper Company had its most productive year yet, producing more than forty-eight million pounds of copper. But while profits increased, working conditions

⁹⁵ Committee of Magma Miners to Fellow Workers, Facts, Figures and History, January 23, 1956, box 276, folder Superior Campaign 1956, Western Federation of Miners/International Union of Mine, Mille & Smelter Workers Collection, University of Colorado Rare and Distinctive Collections, Boulder, CO.

⁹⁶ “UNION AT MAGMA WILL BE GOOD FOR SUPERIOR!... ENTIRE TOWN WILL BENEFIT,” *Superior Sun*, October 23, 1957, 6.

worsened, and wages stagnated.⁹⁷ Throughout the American West, after World War II, industrial production and silicosis rates simultaneously increased, but companies continued to deny compensation for sick workers. In *Gambling with Lives: A History of Occupational Health in Greater Las Vegas*, Michelle Follette Turk argues there was no compensation for dust inhalation unless you died.⁹⁸ Superior miners suffered the same problem. Miners, increasingly frustrated with their hazardous working conditions and static wages, sought change through unionization.

In February 1957, six Magma mine employees wrote to Mine Mill seeking unionization for the fifth time. They acknowledged a successful election would be a difficult job but claimed they wanted Mine Mill over any of the craft unions. Mine Mill, an industrial union, would allow all Magma workers to organize into the same union, while a craft union would only organize workers of certain trades. In short, an industrial union, such as Mine Mill, would allow all Magma's workers to join one union, instead of each department fighting for unionization separately. Industrial unions also had larger memberships, often making political action easier.

The employees claimed Magma workers 'really' wanted a union, but to be successful the campaign had to avoid "sympathetic propaganda." They explained Mine Mill was unsuccessful in previous elections because the Magma Copper Company held a lot of influence over the community. The company offered fair wages and generational employment, providing a son with a job if his father did sufficient work. Magma workers noted that fair pay was declining, and the workers suffered from an unbearable working environment, overbearing foreman, and a handful

⁹⁷ "Magma Copper Company Year Productive," *Superior Sun*, January 11, 1957, 1.

⁹⁸ Michelle Follette Turk, *Gambling with Lives: A History of Occupational Health in Greater Las Vegas* (Las Vegas, University of Nevada Press, 2020), 151.

of resentments and grievances.⁹⁹ By 1957, Mine Mill was ready to participate in one more election to attempt to unionize the Superior branch of the Magma mine.

Finally, in October 1957, after five elections, Mine Mill was victorious in unionizing the Superior branch of the Magma mine. Mine Mill beat all the craft unions by a significant margin and tallied 460 Yes votes compared to 311 No votes.¹⁰⁰ By 1957, Superior residents were familiar with Mine Mill, and miners were ready for change. Mine Mill improved the lives of workers at other mines, and now it was Magma mine's turn. In this round of elections, Mine Mill again emphasized improved silicosis compensation following unionization. More importantly, Mine Mill campaigned for improved mine safety and working conditions to prevent sickness, injury, or death in the first place.¹⁰¹ Magma employees chose Mine Mill because of this promise and their desire to improve the community of Superior for the families of miners.¹⁰² However, unionization was only the start of solving the issues that plagued the Magma mine.

Smokeless Sky

In 1958, conditions at the Magma mine slowly started to change. Some changes the company made were beneficial to miners, but, at the same time, accidents continued to hamper the mine. Workers continued receiving diagnoses of silicosis, and three workers died in separate accidents. The causes ranged from falling into a shaft, being thrown while riding an underground motor, and an underground explosion. The investigations determined all three incidents were

⁹⁹ Al Skinner to Mine Mill, Organization of Magma Copper, February 11, 1957, box 65, folder Superior Campaign 1957, Western Federation of Miners/International Union of Mine, Mille & Smelter Workers Collection, University of Colorado Rare and Distinctive Collections, Boulder, CO.

¹⁰⁰ Al Skinner to International Officers and District 2 Locals, Report of Superior Election, October 31, 1957, box 65, folder Superior Campaign 1957, Western Federation of Miners/International Union of Mine, Mille & Smelter Workers Collection, University of Colorado Rare and Distinctive Collections, Boulder, CO.

¹⁰¹ Old Timer Has Security Only Under Union Contract, October 21, 1957, box 65, folder Superior Campaign 1957, Western Federation of Miners/International Union of Mine, Mille & Smelter Workers Collection, University of Colorado Rare and Distinctive Collections, Boulder, CO.

¹⁰² Samuel P. Hayes, *Beauty, Health, and Permanence: Environmental Politics in the United States, 1955-1985* (Cambridge: Cambridge University Press, 1987).

accidents and did not hold Magma accountable.¹⁰³ While the environment of the mine continued to be hazardous, the workers signed their first union contract in June 1958, giving them a grievance procedure and allowing them to use health and welfare benefits anywhere in the United States.¹⁰⁴ Previously, Magma employees could only use their benefits at the Magma hospital, so this change provided them with new outlets to receive treatment for workplace injuries and sicknesses. However, substantial change did not occur until after Magma's first strike ended in 1960.

By mid-1959, tensions between mineworkers and the Magma Copper Company exploded. Workers actively fought for improved working conditions, silicosis compensation, and increased wages as the profits of Magma swelled in the first quarter of 1959. Union talks started in the spring and continued throughout the summer. Workplace deaths also continued. A cave-in killed Magma veteran Carlos Mora, who worked at the mine for twelve years. Mine Mill and Magma discussed improving disability benefits and retirement pensions, but the two sides could not come to a consensus. On August 11, roughly eight hundred workers from the Superior branch of Magma mine joined the Mine Mill copper strike, spanning four western states and involving about ten thousand copper workers.¹⁰⁵ This was the first strike at Magma since the mine opened forty-seven years earlier. The local newspaper pictured the Magma smelter and captioned the photo, "The Magma Copper Co. Smelters stands empty and smokeless."¹⁰⁶ The sign of a smokeless sky heralded disruption to the life of Superiorites.

Not even a month into the strike, Magma Copper Company attempted to end it with empty promises. In early September 1959, the mine sent out letters to all the employees asking

¹⁰³ "Mine Deaths Ruled Accidents," *Superior Sun*, May 6, 1958, 4.

¹⁰⁴ "Magma Copper Signs First Union Contract," *Superior Sun*, June 27, 1958, 1.

¹⁰⁵ "No Report Issued on Mine Talk," *Arizona Daily Star*, October 13, 1959, 1.

¹⁰⁶ "STRIKE SHUTS DOWN MAGMA," *Superior Sun*, August 13, 1959, 1.

for contract negotiations to end the strike; however, they wrongly claimed the strike stemmed from Mine Mill's unfairness in the negotiation process.¹⁰⁷ Magma Copper Company refused to take responsibility for its actions, angering the strikers. Mine Mill responded by sending a letter to Darrell Gardner, the General Manager of the Superior branch of Magma mine. They pleaded with Gardner to listen to their issues and invited the company's managers to a meeting on September 15, to learn why the employees of Superior were unhappy and how they could end the strike.¹⁰⁸ It is unlikely that the managers of Magma showed up to the meeting, or if they did, that any progress toward an agreement was made because the strike continued for the rest of the year.

With the miners striking, the skies of Superior remained clear throughout the fall. Because of the economic impacts of the strike, citizens of Superior pushed Mine Mill to end the strike and workers to de-unionize. In November, the Back to Work Committee posted a full-page ad in the *Superior Sun* asking the company and union to agree because the strike was causing, "the good people of Superior to suffer from the lack of money to buy the necessities of life."¹⁰⁹ And two weeks later, a concerned citizen, Dale Webb, paid for another full-page ad pleading with Mine Mill to end the strike. But citizens did not only want the strike to end, they also wanted Magma employees to decertify Mine Mill. Webb pointed out that the entire town suffered during the strike, not just mine workers.¹¹⁰ If the mine remained unionized, citizens believed another strike was imminent. Unionization and the strike that followed impacted the town of Superior almost as much as it affected the mine workers.

¹⁰⁷ Darrell Gardner to Magma Workers, 1959, box 297, folder 10 Correspondence: To and From International Union, 1960-1961, MSS-346, AFL-CIO. Arizona. Arizona State University, Tempe, AZ.

¹⁰⁸ Jack C. Marcotti to Darrell Gardner, September 15, 1959, box 297, folder 9, Western Federation of Miners/International Union of Mine, Mille & Smelter Workers Collection, University of Colorado Rare and Distinctive Collections, Boulder, CO.

¹⁰⁹ "Important Message to the People of Superior," *Superior Sun*, November 12, 1959, 3.

¹¹⁰ Dale Webb "An Open Letter to Mine Mill Local to Keep the Records Straight," *Superior Sun*, November 29, 1959, 4.

The unsteadiness of 1959 continued into December. Workers held a decertification vote for Mine Mill, partly in response to the strike. While the decertification vote did not pass, it did slow down bargaining and lengthened the strike. Ironically, most people who opposed Mine Mill did not even work for Magma. These people were further removed from the unsafe work environment and only worried about the economic repercussions of the strike. Once Mine Mill won the election, Superior exploded into celebration. The miners and their wives paraded down Main Street to the union hall, celebrating the continued representation by Mine Mill, proving that most workers and their families supported the strike efforts.¹¹¹

Finally, in January 1960, the smelters churned, and smoke filled the skies of Superior again. The first strike of Superior was over after five months. Mine Mill and Magma Copper Company reached a two-year contract for workers to receive a pay increase of twenty-five cents an hour over two years. Full-scale production resumed later that month. Workers did not receive improved safety conditions in the mine, but they did get increased company contributions for hospital benefits.¹¹² Again, the company improved benefits for workers already sick or injured workers, but the miner's wanted sickness and injury prevention. Since the strike failed to improve working conditions, the miners had to wait. With the strike over, the community had more time and money to shift their attention to the safety of the mines, requesting Mine Mill and lawmakers to pass legislation to improve the health and safety conditions in the mines.

Shortly after the strike, safety became a central concern at the local, state, and federal levels. At the local level, Magma amended the Safety Program, creating a Safety Department Head. The Safety Department Head held monthly meetings to discuss safety hazards and prevention. Then, each department held monthly safety meetings. The safety meetings helped

¹¹¹ Gladys Walker, "Attempt at Ouster Defeated," *Arizona Republic*, December 17, 1959, 1.

¹¹² Gladys Walker, "Magma Strike Settled: Two Year Agreement Reached," *Arizona Republic*, January 18, 1960, 6.

educate workers on safety procedures and allowed Magma to hear about health and safety concerns from the workers. For example, in April 1962, workers complained about the extremely dusty conditions at quitting time as men rush out at the end of their shifts. Safety Committeeman, Jesus Almanza, recommended that men be hoisted out of the mine top to bottom to reduce the dusty conditions, and Magma made this change with no hesitation.¹¹³ Magma also began keeping up to date with posting Safety Rules to help ensure workers knew how to create a safe work environment. Slowly, these minor, local changes started to improve the work environment of the Magma mine.

Mining safety also changed at the state and federal levels. At the state level, policy change helped prevent workplace sickness and provided compensation. Mine Mill fought for two Arizona House Bills: H.B. 87, which strengthened the Occupational Diseases and Disability Act, and H.B. 123, which improved dust and gas conditions in mines.¹¹⁴ At the federal level, President John F. Kennedy signed House Bill 87-300, the Metallic and Non-Metallic Mines Study Act, authorizing the Secretary of the Interior to study health and safety conditions relating to occupational diseases, such as silicosis and workplace accidents. Magma worked closely with the Bureau of Mines to complete this study. The study only looked at employed miners, not those already unemployed because of silicosis, skewing the research. The Department of the Interior completed the study in 1963 and released its report, “Summary of Findings in the Re-evaluation of Silicosis in the Metal Mining Industry- A Joint Study by the Division of Occupational Health, Public Health Service, and the U.S. Bureau of Mines.” To the dismay of Mine Mill and Magma

¹¹³ Jesus Almanza to Bruce Short, Safety Recommendations from Central Division Underground Mine, 1962, Box 301 Folder 4 Safety Committee, 1960, MSS-346, AFL-CIO. Arizona. Arizona State University, Tempe, AZ.

¹¹⁴ Bureau of Mines to Marling J. Ankeny, 1961, box 290, folder 22 Correspondence: To and From International Union, 1960-1961, MSS-346, AFL-CIO. Arizona. Arizona State University, Tempe, AZ.

workers, the study was ultimately inconclusive.¹¹⁵ Still, conditions at the mine started to improve slightly, but more needed to be done to create substantial change.

Magma's Longest Strike

The unsafe environment of the mine continued to threaten the livelihood of workers through the early 1960s. On December 2, 1961, an underground fire idled the mine, putting eight hundred men out of work for months. The fire started in unused support timbers, but it remains unclear exactly how the fire started. By mid-December, the smelter, the last operating branch of the mine, halted production. The company turned its sole focus to stopping the fire. Workers from Superior, the San Manuel branch of the Magma mine, and the nearby Inspiration Copper Mine worked to contain the fire. Sealing the fire was tediously slow work because the men had to carry oxygen to ensure they did not suffocate. Traveling in groups of two to four, the men used sand, rock, and cement to seal off the fire area. Putting out the fire was even more dangerous than their usual mining duties. The hazardous job site continued to threaten the lives of workers.

Finally, on February 1, 1962, they fully extinguished the fire, but it wasn't until the end of the month that Magma operated at full capacity again. Miraculously, no men died in the incident, but five were injured.¹¹⁶ And despite the closure in December, Magma had its most profitable year in history in 1961.¹¹⁷ With the smelter belching smoke again, and workers extracting copper from the mine, the town was happy to have a fully operating mine. While the impact of this event did not immediately lead to change, it highlighted the continued unstable and hazardous work environment at the mine.

¹¹⁵ Cong. Rec., 88th Cong., 1st sess., 1963, vol. 109, pt. 2:2321-2324.

¹¹⁶ "Fire's Out! Let's Go Back to Work," *Superior Sun*, February 1, 1962, 1.

¹¹⁷ "Magma 1961 Best Year in History," *Superior Sun*, March 29, 1962, 1.

The year 1966 ushered in a new round of accidental deaths at the mine. In May, an explosion killed three mineworkers, and in August, a pump man bled to death in the mines.¹¹⁸ Magma had more deaths and injuries than any other mine in Arizona. The Superior mine accounted for nearly a third of all underground mine injuries, with 55 workers injured while working and four of the nine total mining deaths in the state. Rock fall was the most common cause of injury.¹¹⁹ Condemning Magma's high injury rate, Roy Santa Cruz, a former Magma miner and state representative for Mine Mill, said, "I say that conditions could be improved 200%. For eight years we have been working for better and stronger safety codes and have made little headway." He went on to explain that the safety rules are only for show and claimed the State Mine Inspector, Roy Hersey, was corrupt.¹²⁰ Throughout Superior, residents worried about the safety of the mines. If the mine did not take action to make the mines safer, mineworkers in Superior threatened a walkout.

The first tragedy of 1966 killed three veteran miners. The three men died in a working shaft because the dynamite went off before they were clear from the area. Roy Santa Cruz suspected the explosion resulted from a faulty fuse on a stick of dynamite, but the jury failed to establish an official cause for the blast.¹²¹ Since the three men were veteran miners, more than likely, proper safety regulations could have prevented this incident.

The August 1966 accident killed another Magma veteran worker, Arthur D. Lawson, in a series of tragic events. Lawson was a pump man for Magma for thirty-five years and, at the time of the accident, was waiting for a cage to take him up. Another mineworker dumped ore from a

¹¹⁸ Pinal County Bureau, "Jury Fails to Establish Cause of Mine Explosion," *Arizona Republic*, June 16, 1966, 12.

¹¹⁹ Annual Report of the State Mine Inspector State of Arizona, *Fifty-Fifth Annual Report of the State Mine Inspector*, by Roy V. Hersey, (Phoenix, 1966), 16-22.

¹²⁰ "SANTA CRUS BLASTS HERSEY, UNSAFE MINING CONDITIONS," *Superior Sun*, September 29, 1966, 1.

¹²¹ "Blast Kills 3 Miners in Superior," *Arizona Daily Star*, May 29, 1966, 1.

car about 1,000 feet above Lawson, sending ore pummeling towards him and ending with a collision, shattering both his legs, his shoulder, and severing arteries. Lawson died in the mine, making him the fourth workplace death at Magma in 1966.¹²² Fed up with the unsafe working conditions, Magma workers demanded change to keep them on the job.¹²³

Mines across the country experienced similar safety tragedies in the 1960s. Finally, in September, Congress and the president took federal action to improve mine safety. President Johnson signed Public Law 89-577– The Federal Metal and Nonmetallic Mine Safety Act, the first federal law regulating non-coal mines. The law expanded safety and health by requiring an annual federal inspection of underground mines and increased training and education programs.¹²⁴ The president of Mine Mill, Al Skinner, hailed the act and credited its passage to the labor movement.¹²⁵ Now the task of ensuring mine safety resided with the federal government instead of state governments. The act restored hope for increased mine safety, but change takes time, and implementing this act was no different.

Slowly working conditions in the Magma mine improved. No miners died on the job in 1967, but fifty-one men were injured working, which was once again, more injuries than any other Arizona mine. Miners also worried about the dust conditions underground. In spring, twenty-one employees filed a complaint arising from smoke and dust conditions on the 3600 level of the mine. Winston B. Elkins, a Deputy State Mine Inspector, recommended installing fog sprays, setting a blasting schedule, increasing ventilation, and providing crews with

¹²² “Hoisting Accident Brings Death to Magma Miner “Arky” Lawson,” *Superior Sun*, August 25, 1966,1.

¹²³ For more on the hazards of industrial jobs, please see Michelle Follette Turk, *Gambling with Lives: A History of Occupational Health in Greater Las Vegas*. (Reno: University of Nevada Press, 2020)

¹²⁴ United States Department of Labor, Mine Safety and Health Administration, 1966- Federal Metal and Nonmetallic Mine Safety Act Passed, accessed March 2, 2022.

¹²⁵ “Skinner Alarmed At Many Mine Injuries,” *Superior Sun*, August 25, 1966, 1.

respirators.¹²⁶ These recommendations likely helped mitigate some of the problems. However, it wasn't long until the harsh conditions in the mine contributed to the beginning of the longest strike in Magma's history.

Change continued throughout the year. By mid-1967, Superior was preparing for a nationwide copper mineworker strike. The United Steelworkers of America and International Union (United Steelworker) and Mine Mill, two of the largest mining unions, merged in 1967, ending the decades-old division. Taking the name of United Steelworkers, the number of union members rose. This merger strengthened the union. Mining companies could no longer pit these unions against each, and union members now had a common goal. Among their concerns, the union wanted better pay, an option for disability retirement, safer working conditions, and improved health and welfare.¹²⁷

Superior's longest strike shortly followed the union merger. On July 14, 1967, over one thousand workers at the Magma mine in Superior joined a nationwide copper strike called by the United Steelworkers and two dozen copper craft unions. Nationwide, strikers advocated for a substantial wage and benefit increase through the powerful technique of coalition bargaining.¹²⁸ Coalition bargaining is where more than one employer negotiates with the union. The strike started slow, and after six months, in January 1968, Magma still had not had any talks about ending the strike.

Newspapers kept Superior residents up to date with strike information. Nearly every week in the fall of 1967, the *Superior Sun* featured an article outlining the status of the strike.

¹²⁶ Winston B. Elkins to Myron Breland, 1967, box 301, folder 8 Safety Committee: Underground, 1969, MSS-346, AFL-CIO. Arizona. Arizona State University, Tempe, AZ.

¹²⁷ "1967 Nonferrous Bargaining Demands Itemized, Discussed," *Superior Sun*, August 10, 1967, 1.

¹²⁸ Brief Union Summary of the 1967 Copper Strike, box 309, folder 9 Payroll Tax Forms, Dues Payment Records, and Receipts, 1979-1980, MSS-346, AFL-CIO. Arizona. Arizona State University, Tempe, AZ.

The newspaper did not condemn the strike but offered the community facts about the state of Magma. It explained the union provided workers support through unemployment payments and food allowances. State newspapers also concerned themselves with the circumstances in Superior. In November, the *Arizona Republic* ran an article specifically about Superior. It read, “Most people aren’t starving. But they’re miserable. And they’re grimly tight-lipped with visitors who want to know how bad their situation is.”¹²⁹ But Superior residents painted a different picture of the strike. In a *Superior Sun* article, four days later, Pascual Herrera, the president of the Superior branch of the United Steelworkers union, claimed this opinion was erroneous and harsh. Instead, Herrera said perseverance and tenacity defined the overall community reaction to the strike, not misery and defeatism.¹³⁰ Herrera was correct, Superior residents were not ready to quit, and they continued fighting throughout the holiday season.

In early February 1968, Magma and the United Steelworkers broke their silence as talks resumed. By February, the entire community felt the impacts of the strike. Men had left their families to find work elsewhere, wives picked up jobs, and local shopkeepers received substantially less business.¹³¹ Financially, in one-month, Superior employees lost nearly \$500,000 in wages, and in the first three weeks of the strike, they recorded that 50 to 75% of residents disconnected utilities.¹³² But still, miners felt justified in striking. According to the *Superior Sun*, Superiorites remained pleasant and optimistic. After talks resumed, it still took over a month for the ratification vote for the agreement to pass.

¹²⁹ Mary Dumond, “‘When Will it End?’ Superior’s Strike-Bound Families Wonder,” *Arizona Republic*, November 26, 1967, 39.

¹³⁰ Carlotta Martin, “Rebuttal: Union Official Refutes ‘Big City’ Story,” *Superior Sun*, November 30, 1967, 12.

¹³¹ “Mining Town Merchants Hurt by Copper Strike,” *Superior Sun*, February 1, 1968, 8.

¹³² Eastern Arizona Bureau, “Belts Cinched Tighter Here by Copper Strike,” *Arizona Republic*, August 13, 1967, 35.

President Johnson became the lynchpin to end the strike. On March 1, 1968, he sent a telegram requesting the parties in the copper strike to negotiate at the White House because of the strike's significant impact on the economy and the US defense efforts.¹³³ Finally, on March 13, 1968, after 243 days, thirteen unions ratified new three-year contracts to raise wages over the next thirty-nine months. After eight months, Magma workers returned to the job site. On March 21, 1968, the *Superior Sun* shared a photo of Magma's smelter producing smoke and captioned the photo "the familiar sight of smoke pouring from the Magma Copper Co. smelter in Superior was a welcome sight."¹³⁴ Symbolized by the smoke blowing through the town, Superior started to regain its strength. As part of the three-year deal, Magma and the Magma Unity Council, the representatives from Superior and San Manuel who negotiated with Magma, agreed to an improved health and welfare plan, pension plan, disability plan, death plan, grievance procedure, allowing up to 360 days for disability leave, and new provisions relating to safety and safety rules to last through July 1, 1971.¹³⁵ Superior started to regain its strength as miners went back to work at a safer job site. The three-year deal resulted in a relatively stable period for the remainder of the decade.

Conclusion

The 1950s and 1960s brought much-needed change to Magma. Superior was home to the most dangerous mines in Arizona, and to create a safer job site the mine required unionization. And it worked, at least partially. Magma did become safer for a short time, and after the 1968 strike, the town stayed quiet through the end of the decade. Working conditions improved, the company began offering disability compensation, and injury and death rates drastically

¹³³ Lyndon B. Johnson, "Telegram Requesting the Parties in the Copper Strike to Resume Negotiations at the White House," Online by Gerhard Peters and John T. Wooley, The American Presidency Project.

¹³⁴ "Miners Return to Work," *Superior Sun*, March 21, 1968, 1.

¹³⁵ "Magma-Unity Council Agreement is Reprinted," *Superior Sun*, March 21, 1968, 8.

decreased. In 1968, only thirty-seven workers sustained serious injuries while working, and no one died.¹³⁶ The following year, forty-two workers suffered serious workplace injuries, and again, no one died.¹³⁷ But as the 1970s approached, accidents again increased. In 1970, the injury rate soared to eighty-eight workers.¹³⁸ And in 1971, sixty-eight injuries occurred, and the first death in three years.¹³⁹ A large part of the improvement was due to contract negotiations resulting from the eight-month strike, and as the contract expired, so did worker safety.

Magma never saw another eight-month strike. Even as the contract expired, the national labor movement facilitated federal policy change to improve workplace safety, which helped prevent another strike. In 1970, the Occupational Safety and Health Act (OSHA) passed, and tasked workplaces, such as Magma Copper Company, to create a safer working environment.¹⁴⁰ But not all federal policy changes helped the mining industry. The 1970s posed a new set of challenges to the company.

In the 1960s and 1970s, the environmental movement gained traction across the country. The movement started pushing for federal change to provide cleaner air for Americans. The movement condemned smoky, smelter air, pointing out the health disaster industrialization created for humans and the planet. Smelters grew to symbolize disease and destruction instead of prosperity and growth as they did earlier in the century. While federal policy adapted to the environmental movement, most Magma miners financially suffered at the hands of change.

¹³⁶ Annual Report of the State Mine Inspector State of Arizona, *Fifty-Seventh Annual Report of the State Mine Inspector*, by Verne C. McCutchan, (Phoenix, 1968), 28-34.

¹³⁷ Annual Report of the State Mine Inspector State of Arizona, *Fifty-Eighth Annual Report of the State Mine Inspector*, by Verne C. McCutchan, (Phoenix, 1969), 33-41.

¹³⁸ Annual Report of the State Mine Inspector State of Arizona, *Fifty-Ninth Annual Report of the State Mine Inspector*, by Verne C. McCutchan, (Phoenix, 1970), 31-43.

¹³⁹ Annual Report of the State Mine Inspector State of Arizona, *Sixtieth Annual Report of the State Mine Inspector*, by Verne C. McCutchan, (Phoenix, 1971), 31-42.

¹⁴⁰ OSHA Act of 1970, Public Law 91-596, 91st Congress, 2nd Sess., *Congressional Record* 163 no. 50 (December 29, 1970): S.2193.

Federal-level environmental policy altered the fate of the Magma mine and would ultimately contribute to its demise.

As the 1970s progressed, the environmental movement and labor movement grew divided, pitting the two against each. Environmentalists wanted a cleaner planet, even if it cost workers their jobs and livelihood. Laborers often did love the planet, but they had a different relationship with the earth than environmentalists. They did not want to see environmental destruction and believed industry and environmentalism could go hand in hand. That is until the environmental movement radicalized to the point that the two did seem simultaneously attainable. With the environmental movement growing, the mining industry struggled to adapt to the new regular.

CHAPTER 3 – CLOSURE

On October 27, 1948, deadly yellow smog suffocated the town of Donora, Pennsylvania. Residents became trapped in the town because the air was so thick smog that residents were unable to drive out of the town due to poor visibility. A substantial amount of fluoride gas filled the air in Donora, which zinc smelting processing plants in the town emitted. A temperature inversion trapped the fluoride filled air over the town for days.¹⁴¹ Twenty-four hours after the smog settled over Donora, police and hospitals saw an alarming number of calls about residents having trouble breathing, and then residents started dying. Donora is surrounded cliffs on the west side of the Monongahela River, which served to trap the deadly smog for five days until a rainstorm on Halloween finally ended the town's misery. However, this air quality disaster still took the lives of twenty people, and nearly 7,000 residents were hospitalized.¹⁴²

Donora is on the opposite side of the country as Superior, Arizona but shared similar air quality issues. Superior never saw an incident as severe as Donora's. Rather, Superior's smelters sickened its residents slowly. Like Superior, Donora was home to mineral mills, the American Steel & Wire Co., and Donora Zinc Works. And similarly, to the Magma mine in Superior, Arizona, these mill operations provided the livelihood for most of the town. The mills represented progress and prosperity, but they were also a huge cause of illness in the community. Once the smog settled over Donora in October of 1948, the city council and those who ran the steel mills refused to shut down the mills, claiming that they were not the cause of the smog. However, the federal government quickly ordered a shutdown of both steel mills in an attempt to

¹⁴¹ J. Ivel, "Donora, Pennsylvania Smog Event of 1948," *University of Guelph*, Accessed April 15, 2023.

¹⁴² Lorraine Boissoneault, "The Deadly Donora Smog of 1948 Spurred Environmental Protection- But Have We Forgotten the Lesson?," *Smithsonian Magazine*, October 26, 2018, Accessed December 31, 2022.

alleviate the poor air quality.¹⁴³ The temporary closure of the steel mills, coupled with the Halloween rainstorm, ultimately ended the United States deadliest air pollution disaster.

The disaster in Donora gave birth to the national fight for clean air and led to the first large-scale epidemiological investigation of an environmental health disaster in the United States. The United States Public Health Service identified the mills as major polluters, emitting high quantities of sulfur compounds, heavy metals within fine particulate matter, and nitrogen dioxide. All of which caused negative health effects on humans. In 1948, the United States did not have air quality protections, which contributed to the tragedy in Donora. This event led the nation to take its first steps in reducing air pollution. However, the federal government did not pass clean air legislation until the Clean Air Act of 1963.¹⁴⁴ Shortly after, in 1967, both steel mills in Donora closed because of worker strikes and the 1967 Air Quality Act.¹⁴⁵

In Arizona, the state legislature failed to pass clean air legislation prior to federal intervention. The United States Congress passed a handful of clean air acts in the 1960s to study air pollution and prevention. But mines did not have to comply with clean air regulations until President Richard Nixon signed the Clean Air Act amendments of 1970. In 1970, the Superior branch of the Magma mine failed to update their smelter to meet the new air quality standards and the smelter in Superior was the first one to close in Arizona because of the new regulations. The Magma mine decided to close the Superior smelter, but this decision severely impacted the town financially. Much of this chapter will focus on the health impacts of operating the smelter and the economics problems that followed the closure of the smelter in Superior. The situation

¹⁴³ Elizabeth T. Jacobs, Jefferey L. Burgess, and Mark B. Abbott, “The Donora Smog Revisited: 70 Years After the Event that Inspired the Clean Air Act,” *Am J Public Health* 108, no 2 (April 2018): 85-88.

¹⁴⁴ For more on the passage of the Clean Air Act see Charles Halvorson, *Valuing Clean Air: The EPA and the Economics of Environmental Protection*, New York: Oxford University Press, 2021.

¹⁴⁵ Erin Peterman, “A Cloud with a Silver Lining: The Killer Smog in Donora, 1948,” *Pennsylvania Center for the Book*, Spring 2019, Accessed December 31, 2022.

worsened as the price of domestic copper dropped in the mid to late 1970s. Then, in the late 1970s, the Magma mine again saw an increase in workplace deaths. By 1982, the Magma mine's failure to adapt to clean air regulations and the decision to close its smelter, the copper crisis, and the again, hazardous work environment led to the closure of the mine. The Magma Copper Company's inability to adapt ultimately led to the mine's closure in Superior.

The 1970s Clean Air Act Amendments

Throughout the Magma mine's tenure, Superior residents had mixed feelings about their smelter. When the company shut down the smelter for over two months, from December 1961 to January 1962, due to a fire halting production, Superior residents enjoyed the smoke-free environment. However, they also rejoiced when the smelter started up again. When the smelter started operating Superior's local newspaper, the *Superior Sun*, claimed,

“Local residents will tell you that the smoke is damaging to plants, human, and animal lungs, and causes many allergies... Paradoxically, when those local citizens who have always complained the loudest about the “smelter smoke” are now remarking in hopeful tones, “It’s sure going to be a fine day when the smoke starts coming out of the smelter stack.”¹⁴⁶

The residents of Superior saw the smelter stack as a sign of comfort, security, and steady employment for men. However, less than a decade after the 1962 fire, the Magma mine permanently closed its smelter in Superior. Without a smelter, the company threw Superior's future into question because it employed hundreds of miners. In the late 1960s, the environmental movement spurred the federal government to pass the 1970 Clean Air Act amendments, leaving the Magma Copper Company with the decision to modify its smelter, or shut it down.

The Magma mine did not study the impacts of breathing smelter smoke in Superior in the late nineteenth century, as other mines did. The Cochise Smelter Study Group completed an

¹⁴⁶ “Operations Resume at Magma Smelter,” *Superior Sun*, 1.

analysis of another Arizona mine's smelter, the Phelps Dodge Mine's Douglas smelter. Both mines mainly smelted copper and were two of the most productive smelters in Arizona, so the smoke emitted from the Douglas smelter likely had a similar composition to the smoke released from Superior's smelter. This study indicated that Superior residents were correct that the Superior air was probably toxic. The Cochise Smelter Study Group, a research committee in Bisbee, Arizona created a pamphlet, *What's in the Smoke? A Breathers' Guide to Douglas Smelter Pollution*. The Huachuca Audubon Society, Sierra Club, and Greenpeace, San Francisco helped fund this study. This group set out to compile data to show residents in mining towns the harms of smelter smoke, using the Douglas smelter as a case study. They found the most common pollutant emitted from copper smelters was various forms of sulfur, and the most potent was sulfur dioxide. Breathing in sulfur dioxide caused shortness of breath, wheezing, and chest tightness and continued exposure reduced the lung's ability to function, increased the risk of hospital admissions, especially for those with asthma, and could lead to death. Additionally, smelter smoke regularly contained carcinogens such as cadmium, beryllium, and uranium. Inhaling these substances could cause lung disease, blood disorders, immune-system disruption, and genetic damage.¹⁴⁷

These compounds had also made up of the deadly smog in Donora, PA. Clearly, smelter smoke was harmful. Residents of Superior witnessed these side effects when the smelter was in operation and saw them alleviated when the smelter stopped churning. But when the smelter was not operating, the town suffered severe economic problems due to layoffs, leading to different,

¹⁴⁷ The Cochise Smelter Study Group, "What's in the Smoke?: A Breathers' Guide to Douglas Smelter Pollution," Bisbee Arizona, February 1982, box 224, folder 16, Personal and Political Papers of Senator Barry M. Goldwater 1880s-2008, FM MMS 1, Arizona State University, Tempe, AZ.

more evident issues. Without an operating smelter, many men were out of work, which meant less money to bring home to support their families. It was the devil's bargain.

The problems with smelter smoke did not stop there. Residents also worried about a bewildering mixture of nongaseous substances. Smelters omitted electromagnetically charged particles, 70% of which were smaller than a microgram. The particles included heavy metals, such as copper and arsenic. The metals created a radiological mixture. The human body can naturally stop large particles, but fine particles can easily pass human defense systems through inhalation. These particles accumulate over time, leading to chronic illnesses such as nerve damage, heart disease, liver and kidney dysfunction, genetic damage, and eye and skin diseases. The Cochise Smelter Study Group found that the hair of children aged one to five living within 1.8 miles of the smelter contained an average of 4.6 times more arsenic than the national average.¹⁴⁸ Nearly every compound in smelter smoke harmed the human body, and the side effects were endless. As scientists studied the harmful effects of smelter smoke in Arizona and the United States, Americans started pushing for strict regulations on smelters.¹⁴⁹

Throughout the 1960s, air pollution caused by copper smelters became increasingly apparent in Arizona. In 1965, one Arizona newspaper, the *Arizona Republic*, claimed, "It is a river of air pollution flowing in from mining operations in Hayden, Superior, Miami, Globe, and San Manuel."¹⁵⁰ Not only was the Magma mine polluting Superior, but the toxic air was settling over Phoenix in the Salt River Valley. Phoenix is surrounded by mountains on either side of the

¹⁴⁸ The Cochise Smelter Study Group, "What's in the Smoke?: A Breathers' Guide to Douglas Smelter Pollution," Bisbee Arizona, February 1982, box 224, folder 16, Personal and Political Papers of Senator Barry M. Goldwater 1880s-2008, FM MMS 1, Arizona State University, Tempe, AZ.

¹⁴⁹ For more on the toxicity of pollution produced by smelters see, John D. Wirth, *Smelter Smoke in North America: The Politics of Transborder Pollution*, Lawrence: University of Kansas Press, 2000. and Elaine Hampton and Cynthia C. Ontiveros, *Copper Stain: ASARCO's Legacy in El Paso*, Norman: University of Oklahoma Press, 2019.

¹⁵⁰ Sterling Ridge, "River of Pollution: Winds Carry Fumes From Smelters to Phoenix," *Arizona Republic*, February 26, 1965, 16.

valley, trapping toxic air over Arizona's most populous city. Phoenix detected sulfur dioxide present only with their east winds, which means this pollutant was more than likely coming from copper smelters, such as the one in Superior. This problem became evident in the 1960s because copper companies such as the Magma mine raised the height of their smokestacks, causing pollution to travel farther. Recovery and control processes to mitigate pollution had had existed since 1907 but cost millions. By the mid 1950s, other states began requiring this technology, but Arizona did not.¹⁵¹ Without a law requiring smelter renovations mining companies chose to spend their money elsewhere.

In the same issue of the *Arizona Republic*, copper officials denied that smog caused pollution. Garvin Augustadt, the general manager of the Magma mine pointed out, "Phoenix's atmosphere looked much the same when the smelter shut down from August 11, 1959, to January 19, 1960, the period of the strike. The haze was still there."¹⁵² Augustadt attempted to shift the blame away from copper smelters, and instead, condemned the increase in population in Phoenix and other valley towns for the pollution. Once again, officials at the Magma mine denied the claims of nearby residents.

Scientific studies opposed the viewpoint of the Magma mine officials. In the 1960s, copper smelters, such as the one in Superior, accounted for about 90% of all sulfate emissions in Arizona. When the copper smelters shut down, most residents agreed that air pollution noticeably decreased. During the July 1967 to April 1968 copper miner strike, that Magma miners participated in, Arizona saw a 60% reduction in sulfate emissions. A 2007 study found the strike-related shutdown of the copper smelter decreased mortality by 2.5%. This study concluded that a reduction in fine particulate pollution occurred over much of the southwest during the strike. The

¹⁵¹ Ridge, "River of Pollution," *Arizona Republic*, February 26, 9.

¹⁵² "Copper Officials Deny Smog Cause," *Arizona Republic*, February 26, 1965, 16.

sulfate particulates penetrated indoors, and the shutdown of the smelters resulted in a reduction in personal exposure.¹⁵³ Even something as small as eight months with decreased air pollution drastically improved the air quality and living conditions in Superior and the greater southwest region. However, the problem of air pollution plagued more than Superior and Phoenix.

In the 1960s, America witnessed a drastic increase in lung cancer resulting from air pollution, and Americans increasingly started to care about the quality of the air they breathed. In 1962, chemist Dr. Eugene J. Houdry claimed air pollutants, such as those from copper smelters, were responsible for what he called, “the 20th-century epidemic increase in lung cancer.” Houdry won the Society of Chemical Industry’s prestigious Perkin Medal award in 1959, and he spent his life working to understand the health risks related to automobile and industrial air pollution. To help curb the issue he invented the catalytic converter, which reduces carbon monoxide and unburned hydrocarbons from automobile exhausts. He patented the catalytic converter in 1956.¹⁵⁴ He continued, “During 1961, Americans developed a lively interest in the air we breathe. The purity of our air was taken for granted until the possibility of radioactive fallout focused attention on the peril to life.”¹⁵⁵ Houdry argued that American's fear of the Cold War and nuclear bombs drove their desire to push for cleaner air. A year later, a U.S. Public Health official noted there was a growing body of evidence that air pollution was a factor in causing various diseases.¹⁵⁶ And in 1963, at the state level, the Arizona Health Commissioner, Dr. Lloyd Farner focused the Arizona State Board’s attention on air pollution and cancer.¹⁵⁷ But productive political action was still years in the making.

¹⁵³ C Arden Pope III, Douglas L. Rodermund, and Matthew M. Gee, “Mortality Effects of a Copper Smelter Strike and Reduced Ambient Sulfate Particulate Matter Air Pollution,” *Environmental Health Perspectives* 115, no. 5 (May 1, 2007): 679-683.

¹⁵⁴ “Eugene Houdry,” *Science History Institute*, December 8, 2017.

¹⁵⁵ “Leading Chemist Proposes Anti-Air Pollution Institute,” *Tucson Daily Citizen*, March 27, 1962, 4.

¹⁵⁶ “Air Pollution Believed Factor in Disease,” *Tucson Citizen*, June 20, 1963, 34.

¹⁵⁷ “Health Chief Board Air Differences,” *Arizona Daily Star*, April 23, 1963, 15

The first act regarding air pollution was passed before the uproar over Arizona's air quality in the 1960s. In 1955, President Dwight D. Eisenhower signed the Air Pollution Control Act, which provided funds for federal research in air pollution. Then, in 1963, President John F. Kennedy proposed a "clean air act" in a message to Congress. This act was signed into law in December 1963 by President Lyndon B. Johnson and authorized up to \$95 million in federal funds to be used from 1964 to 1968 to research air pollution and help local and state agencies establish and operate smog control programs. Once again expanding federal research, Lyndon B. Johnson signed the Air Quality Act in 1967.¹⁵⁸ However, all three of these acts primarily provided funds for research to understand the toxicity of air pollution instead of putting regulations into place. While research was vital to understand the hazards of air pollution, these acts did not prevent further air pollution by imposing restrictions on what industries, such as copper mines, could release into the air.

Arizonians could not agree on the source of air pollution. In the fall of that year, the *Arizona Republic* featured two articles on different days with opposing messages. The first, written by journalist Bill Coffman, claimed that the smelter industry caused 85% of air pollution in Arizona, the second blamed automobiles for 85% of air pollution. Both articles claimed that legislatures had only solved 15% of the air pollution issue. The article that pointed out these opposing views blamed the Arizona legislature for the air pollution problem. Coffman demanded action from the Arizona legislature because they only solved 15% of the air pollution problem, and no matter the cause, legislatures needed to prevent the other 85% of air pollution in Arizona. This article called for Arizona voters to vote for candidates dedicated to advocating for clean air

¹⁵⁸ "Evolution of the Clean Air Act," *United States Environmental Protection Agency*, November 28, 2022, Accessed December 1, 2022.

in Arizona.¹⁵⁹ Evidently, the air quality in Arizona would not change without legislative action, and air quality became a central issue in upcoming elections.

In the spring of 1970, the *Arizona Republic* provided a public, ten-point questionnaire on air pollution to Arizona's ninety state-level congresspeople. The seventy congresspeople who answered the questionnaire agreed that Arizona faced a serious air pollution problem, but six claimed that legislation was not necessary to fix the problem. Even more alarming, twenty-eight congresspeople said that legislation should not "pre-empt the state for responsibility for enforcing controls on smelters," and only thirty-nine congresspeople said a temporary shutdown was a favorable action when polluters failed to comply with regulations. Although, forty-four agreed that fines would be a reasonable punishment. No one could agree on how to handle the air pollution problem, but all agreed that air pollution was an issue in Arizona. In 1970, Arizona lawmakers still did not want to give the State Health Department control over major polluters such as smelters. About half of Arizona's senators thought the state government needed to provide a solution, six claimed that air pollution was not serious problem, and four were willing to impose the toughest legislation possible to curb air pollution.¹⁶⁰ However, with a split state legislature, congressional representatives found it difficult to make progress and looked towards the federal government to enact change.

It took federal intervention to begin imposing air pollution regulations in Arizona. In December 1970, President Richard Nixon signed the National Environmental Policy Act (NEPA), which established the U.S. Environmental Protection Agency (EPA), and weeks later, he signed the 1970 Clean Air Act amendments. The Clean Air Act promised to "foster the growth of a strong American economy and industry while improving human health and the

¹⁵⁹ Bill Coffman, "Pollution of Air Said Controllable," *Arizona Republic*, October 17, 1969, 12.

¹⁶⁰ "Legislators Split on Pollution Controls," *Arizona Republic*, March 15, 1970, 51.

environment.”¹⁶¹ Arizona Republican Senator, Barry Goldwater cosponsored the Clean Air Act and supported the creation of the EPA because he remembered flying into Phoenix in 1969 and being shocked by the loss of visibility due to smog.¹⁶² The 1970 Clean Air Act amendments moved beyond research to regulations. The act authorized the development of federal and state regulations to limit emissions from industrial and automobile sources and expanded enforcement authority. The EPA implemented the Clean Air Act. However, federal regulations meant more disagreement between Arizonans and the end of Superior’s smelter.¹⁶³

Implementing the Clean Air Act in Superior

Superior’s smelter had operated for nearly fifty years, but the Magma mine decided they could not cost-effectively meet the new smelter regulations imposed by the 1970 Clean Air Act amendments. The smelter, which served as a beacon of hope for residents while also sickening them, was set for closure by the end of 1971. Superior’s smelter was the first Arizona smelter to close since the state legislature enacted Arizona’s clean air standards to meet the Clean Air Act regulations. The Magma mine decided to ship the copper concentrate via train sixty miles away to their other branch in San Manuel to be smelted.¹⁶⁴ This decision was the most cost-effective in the short term, but in the long term, it led to job loss and higher production costs for the copper mine in Superior.

The San Manuel smelter also required renovations to meet new air regulation standards. In March 1971, the Magma mine announced they would spend more than \$50 million over two years to clean up San Manuel’s smelter emissions. The Magma mine planned to install a flash

¹⁶¹ “40th Anniversary of the Clean Air Act,” United State Environmental Protection Agency, October 24, 2022, Accessed December 31, 2022.

¹⁶² Daniel Farber, “The Conservative as Environmentalist: From Goldwater and the Early Reagan to the 21st Century,” *Arizona Law Review* 59 (November 8, 2017): 1005-1060.

¹⁶³ For more on the Clean Air Act see Andrew C. Isenberg and James Morton Turner, *The Republican Reversal: Conservatives and the Environment from Nixon to Trump*, Cambridge: Harvard University Press, 2018, 98-144.

¹⁶⁴ “Magma Pollution Plan Unacceptable,” *Arizona Republic*, December 2, 1970, 5.

furnace at San Manuel and agreed, begrudgingly, to meet air quality standards. Curtis Sundeen, the division manager of the Superior branch of the Magma mine claimed, “the [closure of the] smelter and the shift to smelt at the San Manuel facility was almost 100 percent due to new Arizona air pollution regulations.”¹⁶⁵ And in a statement to the Arizona State Air Pollution Control Board, Howard Twitty, a Phoenix attorney acting on behalf of the Magma mine stated, “the company would move to comply with the regulations of the Arizona State Department of Health, but it was not in agreement with those regulations.”¹⁶⁶ The Magma mine knew closing the Superior smelter and renovating the San Manuel smelter would create higher production costs, but the mine risked closure if they did not cooperate. Clearly, Magma officials immediately saw the Clean Air Act as a threat to the mine's livelihood.

Despite their objections to the Clean Air Act, the Magma Copper Company joined seven other companies in establishing a research association, the Smelter Research Control Research Association, Inc. The Smelter Research Control Association was a non-profit group that intended to develop improved methods of removing sulfur dioxide and particulates from their smelter stacks. For example, in 1974, the group built over a pilot plant at the San Manuel branch of the Magma mine at a cost of more than \$1 million. They hoped to reduce sulfur dioxide emissions from the smelter using the process of ammonia double-alkali. This process was partially successful, and the research group filed a patent for it in 1978.¹⁶⁷ The Smelter Research Control Research Association continued researching ways to curb sulfur dioxide emissions, but they were never totally successful. While air quality did improve around Arizona, smelters continued to

¹⁶⁵ “Superior Smelter Set for Shutdown,” *Casa Grande Dispatch*, July 28, 1971, 12.

¹⁶⁶ “Magma Granted Permit by Air Pollution Control Board,” *Superior Sun*, March 18, 1971, 1.

¹⁶⁷ Ivor E. Campbell, James M. Henderson, Walter Johnson, and William H. Wetherill, 1978. Ammonia double-alkali process for removing sulfur oxides from stack gases, US Patent 4,231,955A, filed September 22, 1978, and issued November 4, 1980.

pollute the air. However, Superior had different problems. Without a smelter, their air was clearer, but their future was left in question.

To make financial matters worse, in mid-June 1971, union officials in Superior started a strike. Most Magma mine employees did not agree with the strike and claimed that it was unexpected and disappointing because the whole state would feel the impact. Before union workers called the strike, workers thought talks between the Magma Copper Company and union officials were going well. Since the eight-and-a-half-month strike that ended in 1968, Magma saw relative stability. Many miners and their families were still financially recovering from the earlier strike and feared the costs of another one. R.M. Blackford, a twenty-three-year employee. R.M. Blackford, a twenty-three-year employee of the Superior branch of the Magma mine claimed, “Nobody was really prepared. They didn’t expect this to happen. I think the company made a beautiful offer, but the union officials turned it down.”¹⁶⁸ Employees started to shift their loyalty away from the union and back towards the company.

As it turned out, the strike was short-lived. After just a month off the job, Magma miners returned to work on August 2. As seen with previous contracts, miners received economic and health benefits. The company agreed to a ninety-two-cent increase in hourly pay, a fifty percent increase in pension benefits, and an improved health and welfare plan.¹⁶⁹ For the most part, Magma miners sided with the company and not the union. The miners wanted to get back to work to support their families.

The summer of 1971 also brought three changes to Superior to make it a cleaner and healthier town. First, the closure of the smelter. Residents understood the economic impact but also looked forward to cleaner air. One schoolboy claimed, “That smoke makes me sick. I feel

¹⁶⁸ Vince Taylor, “Economic Impact of Copper Strike Begins to Bite,” *Arizona Republic*, July 16, 1971, 3.

¹⁶⁹ “Miners Go Back to Work Aug. 2,” *Superior Sun*, July 29, 1971, 1.

like going up there on [the] hill and telling someone to shut it off.”¹⁷⁰ Second, the Sanitary District Board created the Superior Improvement District. While not related to air quality, this board allowed the construction of a sewage treatment plant west of Superior to prevent health issues such as cholera and dysentery. Last, the Pinal County Air Pollution Control Hearing Board ordered the town’s two perlite plants to reduce their particulate emissions. The perlite plants were not as harmful as the copper smelter but did emit nitrogen oxide and harmful particulate matter. The town’s air quality was on the mend, but now the Magma mine needed to figure out how to financially adapt to the new environmental regulations.

Then, in mid-1971, the Magma mine struck it rich. They discovered ten million tons of high-grade copper ore one and a half miles east of Superior atop Apache Leap. With 1971 copper prices, the new mine had a value of about \$400 million, and the company planned to extract the copper over the next decade. Magma officials estimated the new mine would cost fifty-five million to construct, which was just a fraction of the estimated profits. The plan included equipment and operations that were highly mechanized, so the company did not expect employment at the Magma mine to increase. For example, the company predicted a new raise boring machine would replace the job of six men.¹⁷¹ The Magma mine started construction in 1971, with plans to open the new mine in 1974. Things were looking up for the Magma mine.

Ahead of schedule but over cost, the new Magma mine shaft opened in August 1973. The construction of the new mine, known as shaft number nine, totaled seventy-five million dollars. Despite the extra costs, shaft number nine revived the Magma mine. In 1910, the Magma mine started mining one of the largest continuous veins of copper ore in the world, but by the late 1960s, it appeared to be running out of copper ore. Magma officials believed shaft number nine

¹⁷⁰ “Superior a Cleaner, Healthier Place,” *Superior Sun*, 1.

¹⁷¹ “Magma developing large ore deposit at Superior,” *Superior Sun*, 1.

would allow two more decades of copper mining in Superior.¹⁷² The year 1973 reflected a new era for Superior, or so they hoped.

The Copper Crisis

In the mid-1970s, the price of domestic copper drastically fell. The 1973 to 1975 economic recession and the end of the Vietnam War in 1975 caused manufacturers to purchase less copper as demand for automobiles, telephones, and military items decreased. In 1975, the Magma mine cut production at the Superior mine and San Manuel smelter, laying off one thousand out of six thousand total Magma workers. The demand for copper disappeared in early 1975 because the need for copper decreased at the automakers and electric and electronics-built manufactures. According to a spokesperson for a major New York copper firm, who refused to be named, “inventories at the manufacturer’s end were built up larger than people realized.”¹⁷³ In response, the Magma mine dropped its copper price from sixty-eight cents to sixty-three cents per pound.¹⁷⁴ Even so, at the end of the year, the Magma mine had millions of dollars of inventory it could not sell to manufacturers. The Superior branch of the Magma mine would never recover from the 1970s copper crisis.

Yet, compared to other Arizona copper mines, the Magma mine was doing well financially. The San Manuel branch of the Magma Copper Company became Arizona’s largest copper producer, but the Superior branch started to suffer. The discovery of the new copper body in Superior helped them stay afloat, but now the company prioritized the San Manuel for most of its profits came from. San Manuel was the world’s most productive underground lower-grade copper mine, but the mine did have trouble selling the smelted ore. Meanwhile, Superior was

¹⁷² Vince Taylor, “Magma’s New Mine Opens at Superior,” *Arizona Republic*, August 6, 1973, 10.

¹⁷³ Mike McCloy, “Copper No Worse Off Than Other Industries” *Arizona Daily Sun*, September 4, 1975, 11.

¹⁷⁴ Mike McCloy, “Copper No Worse Off Than Other Industries” *Arizona Daily Sun*, September 4, 1975, 11.

only producing relatively small amounts of high-grade copper ore.¹⁷⁵ By the mid-1970s, the entire Magma Mine Company was headed for trouble as the domestic copper market plummeted.

State representatives and residents reached out to federal legislatures for help to solve the copper crisis. In 1977, Arizona faced one of the largest economic crises since the 1930s because of the declining price of copper. Arizona state representative Hun Hartdegen sought federal intervention. He wrote to Senator Barry Goldwater asking him to relieve the problem with tariffs, embargoes, and to practice the theory of Protectionism. The theory of Protectionism is the policy of protecting domestic industries against foreign competition.¹⁷⁶ In response to concerns for Arizonans such as Hartdegen, Goldwater released a press statement in September 1977 calling for federal intervention.

Goldwater staunchly backed environmental regulation but also supported free enterprise. Summarizing his viewpoints, Goldwater said, “When pollution is found, it should be halted at the source, even if this requires stringent government action against important segments of our national economy.”¹⁷⁷ While he saw the free market system as a vital aspect of the American economy, in many instances, he believed it was more important to protect the environment than risk further environmental degradation or pollution.¹⁷⁸ But when the 1977 copper crisis arose, Goldwater's views flipped, and he sought to protect domestic copper companies in Arizona. Goldwater blamed foreign competition for copper’s downfall, gaining support from mining communities.

¹⁷⁵ “Arizona Copper Mining has its Roots on Ancient Cyprus,” *Arizona Daily Star*, November 30, 1976, 32.

¹⁷⁶ Hun Hartdgen to Barry Goldwater, September 11, 1977, box 404, folder 23, Personal and Political Papers of Barry M. Goldwater 1880s-2008, Arizona State University Library, Greater Arizona Collection, Tempe, Arizona.

¹⁷⁷ Daniel Farber, “The Conservative as Environmentalist: From Goldwater and the Early Reagan to the 21st Century,” *Arizona Law Review* 59 (November 8, 2017): 1005-1060.

¹⁷⁸ For more on conservative environmental thought see Brian Allen Drake, *Loving Nature, Fearing the State: Environmentalism and Antigovernment Politics before Reagan*, Seattle: University of Washington Press, 2015.

Fellow Arizona Congressman Morris Udall also sought environmental protection, but his stance on extractive industries was mixed. He sought to recraft the 1872 mining law that controlled the extraction of minerals from U.S. public lands. In 1977, Congressman Udall released a statement regarding the mining bill he proposed. The proposed bill would have forced individual miners and corporations to lease federal lands instead of gaining ownership by a claim and proving it was worth mining. He was serving as the Chairman of the Interior Committee, and one of his objectives was to modernize the 1872 law. Udall was fighting for stricter mining laws, which mining companies opposed. He recognized that he represented a 500,000-person district where copper mining was the leading employer. He noted that despite talking to mining leaders, there was no immediate or promising solution to end the copper crisis.¹⁷⁹ According to Udall, the future of mining looked bleak.

Udall did not believe his mining bill would harm the copper mining industry. Rather, he claimed the copper mining industry suffered from oversupply, soft markets, and falling prices. Udall supported a strong, healthy mining community, but also noted that mining companies needed to be open to new laws. He claimed the mining industry had hostile attitudes toward the government and himself because of what they believed was overregulation. However, after talking with miners and mining companies, Udall decided not to press forward with his proposed bill because of the instability of the copper market. Udall promised to eventually seek “some sensible environmental protection, protection for homeowners on lands where mineral interests have been reserved, and some kind of royalty payments where minerals are taken from public lands at profit.”¹⁸⁰ Udall, who supported stricter mining laws, was now placing those restrictions

¹⁷⁹ Statement of Morris K. Udall, August 30, 1977, Personal and Political Papers of Barry M. Goldwater 1880s-2008, Arizona State University Library, Greater Arizona Collection, Tempe, Arizona.

¹⁸⁰ Statement of Morris K. Udall, August 30, 1977, box 404, folder 23, Personal and Political Papers of Barry M. Goldwater 1880s-2008, Arizona State University Library, Greater Arizona Collection, Tempe, Arizona.

on the back burner, while legislatures worked to stabilize the copper market. Udall's shift underlined how dire the copper situation was in the United States, especially in Arizona.

Goldwater took a more direct series of actions to end the copper crisis. In the fall of 1977, he cosponsored a bill to replenish the government's strategic stockpile of copper in an amount equal to one year's imports and a bill to double the present duty on imported copper and to repeal the duty-free status currently given to developing country copper-producers. He also sent a personal letter to the Secretary of the Treasury, calling for an immediate investigation into whether foreign copper producers with nationalized industries were dumping copper in the United States below their production costs, and if so, Goldwater asked the Department of Treasury to take corrective action.¹⁸¹ Clearly, Goldwater primarily blamed foreign competition for the downfall of Arizona's copper industry.

He also blamed the federal government for not helping copper companies meet new environmental and safety regulations. In a letter to the Arizona newspaper, the *Arizona Daily Star*, Goldwater claimed,

“Our private copper industry is not facing traditional free enterprise competition. The major source of the problem is the foreign glut in the copper market... On top of foreign government competition, which is already distorting normal market conditions, our industry is saddled with the costs of compliance with environmental controls and employee safety regulations which do not exist abroad.”¹⁸²

Goldwater blamed foreign markets first and foremost, but also condemned new federal environmental regulations. He continued that existing environmental and safety rules were not all bad but that the federal government should assume part of the burden of the expenses to meet the new regulations.

¹⁸¹ Press Release from Barry M. Goldwater, September 22, 1977, box 404, folder 23, Personal and Political Papers of Barry N. Goldwater 1880s-2008, Arizona State University Library, Greater Arizona Collection, Tempe, Arizona.

¹⁸² “Fast Copper Remedies Studied,” *Arizona Daily Star*, 5.

Goldwater decided to write President Jimmy Carter asking the federal government to stop purchasing copper from foreign competition. He claimed, “Peru, Chile, Zambia, and Zaire nationalized their copper industries and are, consequently, unrestrained by the market confines of supply and demand.”¹⁸³ He went on to say that these countries maximized production and produced copper at record rates, which decreased world consumption. He directly blamed all four nations for the United States two-million-ton stockpile of copper. Goldwater wrote that mining companies laid off nine thousand Arizona's copper mine workers in 1977.¹⁸⁴ He believed the federal government needed to intervene to end the copper crisis.

While United States copper companies and manufacturers had large stockpiles of copper, the federal government had none. The federal government had no copper stockpile because of the Strategic Critical Materials Stock Piling Act of 1946. Designed to ensure that the nation would have raw materials available, when necessary, to provide support to the military and for basic civilian requirements during periods of war or other national emergencies, the act created a unique American copper market. The government added most of the minerals in the stockpile before 1959. In the same year, the government valued the stockpile at \$8.6 billion, but by 1977, the stockpile held no copper.¹⁸⁵ So, Arizona mining corporations asked the federal government to re-invest in copper for the national stockpile.

In 1962, the federal stockpile held 1,420,000 tons of copper, but in 1963 the Vietnam War reduced it to 420,000 tons. Then, in 1973, President Nixon reduced the copper objective to zero, and disposed of the remaining copper stockpile. Before President Ford left office, he again

¹⁸³ Press Release from Barry M. Goldwater, September 22, 1977, box 404, folder 23, Personal and Political Papers of Barry M. Goldwater 1880s-2008, Arizona State University Library, Greater Arizona Collection, Tempe, Arizona.

¹⁸⁴ Press Release from Barry Goldwater, September 22, 1978, box 65, folder 53, Personal and Political Papers of Barry M. Goldwater 1880s-2008, Arizona State University Library, Greater Arizona Collection, Tempe, Arizona.

¹⁸⁵ World Copper Inventories and Rebuilding the Strategic Stockpile, September 27, 1977, box 404, folder 23, Personal and Political Papers of Barry M. Goldwater 1880s-2008, Arizona State University Library, Greater Arizona Collection, Tempe, Arizona.

changed the stockpile policy. His administration proposed a copper stockpile goal of 1,299,000 tons, but in 1977, Congress was still reviewing this proposed policy guidance.¹⁸⁶ Copper companies wrote to the presidential administration asking them to mandate the proposed copper stockpile and claimed it would help solve the copper crisis if the federal government agreed to purchase only domestic copper. Mining companies, such as the Magma mine, believed this would allow them to re-employ the workers they laid off earlier in 1977.

The 1970s copper crisis significantly impacted the Magma mine's production. By 1977, the Magma mine only employed 4,600 people, and only 700 of them worked in Superior. This was just a fraction of the number of employees they had two years prior when they laid off one thousand employees. Then in September 1977, the Magma mine laid off fifty more Superior workers bringing the total workforce down to 650 men.¹⁸⁷ In this same month, leaders from the Arizona copper mining industry traveled to Washington to ask for assistance in ending the copper crisis. Among these leaders was Plato Malozemoff, the chairman of the Newmont Mining Corporation. In the 1960s, Magma mine became a subsidiary of the Newmont Mining Corporation. Finally, the copper leaders convinced the federal government to help them out.

In March 1978, Congressman Udall and Senator Denis DeConcini, also from Arizona, introduced another copper stockpile legislation bill to Congress. Their proposal was similar to the one Senator Goldwater made in 1977. A few days later, President Carter signed the bill and authorized the Administrator of the General Services to dispose of up to 45,000 tons of tin held in the national stockpile and use the proceeds to purchase up to 225,000 tons of copper.¹⁸⁸

¹⁸⁶ World Copper Inventories and Rebuilding the Strategic Stockpile, September 27, 1977, box 404, folder 23, Personal and Political Papers of Barry M. Goldwater 1880s-2008, Arizona State University Library, Greater Arizona Collection, Tempe, Arizona.

¹⁸⁷ "Magma lays off 50 at Superior division," *Arizona Daily Star*, September 16, 1977, 2.

¹⁸⁸ "Stockpiling of copper," *Arizona Republic*, March 10, 1978, 3.

Following the passage of the bill, Magma started hiring more miners, and copper prices started to rise. They expected the bill would save the operation, but the Superior branch of the Magma mine did not adapt quickly enough.

Deal the Cards for Another 100

From 1979 through 1980, the Magma Copper Company posted ads in state newspapers looking for underground hard rock miners. But familiar problems started to plague the mine again by the end of 1980. On December 18, the Superior mine closed because of an out-of-control underground fire. This fire started at 3,200 feet below ground in the mine and left miners without work for a week due to high carbon monoxide levels underground. While the fire did not injure anyone, employees and the company still suffered financially.¹⁸⁹ Over the next two years, the Magma mine would see an increase in mine deaths, as they had in the 1960s. Then again, the increasingly hazardous conditions of the mine, combined with the company's inability to adapt to the 1970s environmental regulations, and the 1970s copper crisis, led to the closure of the mine in 1982. The mine also led miners to believe the copper deposit was declining, but in the 1990s it was revealed that they had discovered one of the world's largest copper deposits just a mile south. Unlike previous years when conditions at the mine were hazardous, the company's wealth dwindled along causing many employees to lose faith in the company.

In 1981, an ore train ran over and killed Anthony L. Tellez, a worker for the Magma mine. Tellez was loading an ore car at the 3,400 level of the mine when he slipped and fell into the path of the train. Tellez's passing was the first death at the Superior branch of the Magma mine since 1977.¹⁹⁰ In 1981, the San Manuel branch of the Magma mine also saw three workplace deaths. The Magma mine's Vice President for Health and Safety claimed, "the deaths

¹⁸⁹ "Worker slips into train's path, dies in Magma Superior mine," *Arizona Daily Star*, July 22, 1981, 20.

¹⁹⁰ "Worker slips into train's path, dies in Magma Superior mine," *Arizona Daily Star*, July 22, 1981, 20.

are a cluster phenomenon” and maintained that the deaths were not indicative of any breakdown in safety at the mines.¹⁹¹ But workers believed differently.

Then, in May 1982, three men died in separate incidents at the Superior branch of the Magma mine. At the 3,400 feet below the surface in the mine, the roof partially caved in and trapped Joseph Granillo. Then, two miners, George Michael Martinez and Joe Cassaro attempted to save Granillo, but the rest of the roof collapsed on them. Granillo was the cousin of Tellez, who died at the mine the year prior. Granillo’s cousin waited at a bar near the mine to receive updates regarding the status of his nephew and claimed, “I worked one year in the mine, but I got scared and got the hell out.”¹⁹² According to a reporter from the state newspaper, the *Tucson Citizen*, when interviewed miners were afraid to give their names for fear they would be punished by the company. These same men claimed the foreman knew that the 3,400 level of the mine was bad terrain and that a non-lethal cave-in had occurred at that location two years prior.¹⁹³ The Magma mine knew the work environment was dangerous but continued work, putting profits above the lives of miners.

At the same time the Magma mine saw an increase in workplace deaths, the company started laying off employees. Similarly, to the 1977 copper crisis, copper prices again plummeted in late 1981. In January 1982, the Magma Copper Company reduced the hours for its three hundred San Manuel smelter employees from forty hours a week to thirty hours a week. The shorter work week was because both the Superior and San Manuel branch were producing less copper to smelt.¹⁹⁴ Then two months later, the company reduced the two hundred and thirty-one salaried employees to a thirty-six-hour work week. They noted that hours would not increase

¹⁹¹ “Battling the Rock and the fatal split second,” *Arizona Daily Star*, September 13, 1981, 13.

¹⁹² “Mining is what life’s all about for the people of Superior,” *Tucson Citizen*, May 12, 1982, 3.

¹⁹³ “Mining is what life’s all about for the people of Superior,” *Tucson Citizen*, May 12, 1982, 3.

¹⁹⁴ “Magma reduces smelter workweek,” *Superior Sun*, January 20, 1982, 1.

until the price of copper went back up.¹⁹⁵ From April 1981 to March 1982, the Magma mine lost 15.6 million dollars because of declining copper prices.¹⁹⁶ The declining copper prices caused the San Manuel mine to periodically shut down and layoff hundreds of employees throughout the Spring and Summer of 1982, but Superior's operations remained relatively normal.

Then, in June 1982 copper prices reached their lowest point since 1932, during the Great Depression.¹⁹⁷ With little warning, the Magma Copper Company announced on August 9, 1982, that the Superior division of the Magma mine would halt production indefinitely. In an article published by the *Superior Sun*, a miner claimed, "It was a shocker. We were under the impression that San Manuel would go down before we did. It just flipped around on us."¹⁹⁸ A week later, 90% of the Superior division's employees were without work, and within two months nearly all miners at the Superior mine would be without work. Miners, their families, and Superior residents were left to question the future of the town.

Cornelia Albert, a Magma miner's wife, published a poem to Magma in the *Superior Sun*:

Shine on Magma, shine on
So this is the end of the Old Magma Mine
Somehow I thought, like the hills and sky,
It would always be there just standing by
To sustain and support projects worthwhile.
But now it has come—the end of the line.
What will become our of newly incorporated city?
While we go down like former ghost towns?
Or will other industry replace the mine?
My husband worked there for thirty years
And often there were rumors and fears
Of ore running out, or of closures:
But wise ones said "There is much rich copper
Plus silver and gold"
That makes this mine a treasure
Whistle on Magma train, it's a welcome sound
As you rumble over the rocky ground.
Shine on bright lights, twinkle on through the night
Like the stars in the heaven you're a

¹⁹⁵ "Kennecott down, Magma cuts back hours Sunday," *Superior Sun*, March 17, 1982, 2.

¹⁹⁶ "Superior skirts shutdown again," *Superior Sun*, April 28, 1982, 1.

¹⁹⁷ "Depression here for copper towns," *Superior Sun*, August 4, 1982, 1.

¹⁹⁸ "Magma halts production here Sunday," *Superior Sun*, August 11, 1982, 1.

welcome sight.¹⁹⁹

No one was sure what to expect, but Albert's poem reflects what many residents felt. The mine had brought them their livelihood and the residents respected and thanked the Magma mine. Some residents such as Pearl Horn, believed new industries would come to Superior because of their "clean air, good living, location, a main highway, and a railroad."²⁰⁰ Superiorites did not know what their future would hold, but they remained hopeful.

Ultimately, the Magma Copper company's decision to prioritize wealth over the livelihood of workers led to the closure of the mine in 1982. First in 1970, the company chose not to update the smelter because of the financial costs, but in the end, it cost them more to ship the copper to San Manuel for smelting. Then, the 1977 Copper Crisis and the deaths in the late 1970s and early 1980s highlighted the dangerous work environment miners faced. Economics also played a role in the closure, as copper prices dropped causing stockpile issues. Last, the company failed to keep up with safety regulations because they worried more about increasing production than worker safety. The Magma Copper Company tried to increase the wealth of the company, but it cost the employees their health, livelihood, and put the fate of the town of Superior into question.

Two months after the Magma mine indefinitely closed in Superior, residents celebrated the town's centennial. The mayor of Superior was not giving up on the town and pledged to improve their school system and medical services, work to provide adequate housing for Superiorites, increase the number of restaurants and motels, and make land and water more accessible to residents and tourists. He hoped to attract new industries to the town. The town celebrated their centennial with a parade, a Las Vegas night themed party, and a barbeque. In

¹⁹⁹ Cornelia Albert, "Shine on Magma, shine on," *Superior Sun*, August 18, 1982, 2.

²⁰⁰ Pearl Horn, "Mine closure may have Silver Lining," *Superior Sun*, August 18, 1982, 2.

recalling the events, the *Superior Sun* claimed, “Deal the cards for another 100. But don’t expect to hit an instant jackpot.”²⁰¹ Superiorites were determined to avoid turning their beloved home into a ghost town.

Conclusion

The Magma mine stayed closed throughout the rest of the 1980s. And the town of Superior barely managed to survive. The town reached its peak population in 1970 with nearly five thousand residents. But by 1980, the town’s population dwindled to 4,600 residents. And in 1990, eight years after the mine's closure, the population dropped to 3,468 residents.²⁰²

Superiorites loved the community they built, and many chose to stick around, despite the closure of the mine. The town had a hundred years of history, and many miners and their families had made Superior their home over the past several decades. Some miners worked as care-and-maintenance staff for the mine, and others found work around town.

Without the mine, Superior tried to rebuild itself as a tourist destination. But they were only mildly successful. Nearby Superior is Oak Flat, a popular rock climbing, camping, and picnicking area. The town also sits at the southeast end of Tonto National Forest, acting as a gateway for visitors. The town used its natural setting in an attempt to lure tourists. They also had the Boyce Thompson Arboretum, which was the oldest botanical institution west of the Mississippi River. While Superior was in an idyllic landscape, the tourism industry never brought the same wealth to the town that mining had, but it did offer a healthier environment.²⁰³

The mine maintained its care and maintenance status for nearly four years. They operated on this basis from August 1982 until the Magma Copper Company decided to permanently close

²⁰¹ “Deal the cards for another 100,” *Superior Sun*, October 13, 1982, 1.

²⁰² “Population of Superior, AZ,” *Population.us*, 2016, accessed April 15, 2023.

²⁰³ For more on the implications of the transition of a mining town to a tourist town see Bonnie Christensen, *Red Lodge and the Mythic West: Coal Miners to Cowboys*, Lawrence: University of Kansas Press, 2002.

the mine in early 1986. This move effectively laid off all Magma mine employees in Superior.²⁰⁴ Without care and maintenance occurring at the mine, the shafts flooded and caused structural damage. This made it difficult and costly to imagine reopening the mine because the flooding caused so much structural damage.

The year 1982 appeared to be the end of the Magma mine's life, but the Magma Copper Company decided to resurrect the mine in the 1990s. Residents of Superior remained wary about the mine restoring their town and looked for ways to increase tourism. With the 1990 reopening, the mine would only employ three hundred workers. To make matters worse, the mine paid lower wages in 1990 than they had in 1982. On the other side, Newmont Mining spun off Magma as an independent company in 1987, and copper prices increased from sixty cents in 1985 to \$1.20 in 1989.²⁰⁵ The mine saw a short-lived success, but it quickly came crashing down.

In 1996, the Magma Copper Company again decided to permanently close the mine. This time because the mine ran out of copper ore. Copper mining produces boom and bust cycles, but the Magma mine struggled to find a balance between the two. At the end of its life, first in 1982 and later in 1996, the company struggled to adapt. The Magma mine failed to adapt to environmental regulations, then they struggled to adapt to the 1970s copper crisis, and they continually struggled to create a safe work environment for employees. The mine claimed to have run out of copper ore in Superior in 1996, but a year earlier, the company discovered one of the world's largest copper deposits just a mile from Superior.

²⁰⁴ "Magma Copper will close Superior mine operations," *Arizona Republic*, January 9, 1986, 16.

²⁰⁵ "Town remains Leery: 'They've been stung before,'" *Arizona Republic*, November 11, 1990, 76.

EPILOGUE- TOURIST TOWN OR MINING TOWN?

In 1972, geologists for the Magma Copper Company started exploring the area south of the mine for a deep copper deposit. Over twenty years later, in 1995, they discovered the Resolution copper deposit 1.2 miles south of the Magma mine and underneath the Indigenous sacred site of Chi'chil Biłdagoteel, known in English as Oak Flat. This deposit lays 5,000 to 7,000 feet below the surface.²⁰⁶ Because the deposit is so deep, extracting the mineral would require open pit mining, which would destroy Chi'chil Biłdagoteel. Yet the area was protected by Public Land Order 1229. Signed into law by President Eisenhower in 1955, the order placed Chi'chil Biłdagoteel off-limits for mining due to its cultural and natural value.²⁰⁷

Oak Flat is just south of Superior, Arizona, and is used by the San Carlos Apache, among other tribes, for religious ceremonies. It is also a popular spot for outdoor recreation and provides an escape from city life for Phoenicians. There are campsites near Oak Flat that allow easy access to climb up the rocky hill to Oak Flat's highest mesa. The area is home to the endangered Arizona hedgehog cacti, Emory oak trees fill the landscape, and water flows through the Ga'an Canyon in the region.²⁰⁸ Tribes, such as the San Carlos Apache, have used Oak Flat for religious and coming-of-age ceremonies for centuries.²⁰⁹ And from 1980 until 2003, it was home to the Phoenix Bouldering Contest, and many climbers believe it is some of the best bouldering in America.²¹⁰ Oak Flat holds importance for Indigenous tribes, outdoor recreationists, and many Arizona residents.

²⁰⁶ "Project Overview," *Resolution Copper*, Accessed April 7, 2023.

²⁰⁷ David F. Briggs, "Resolution Copper- Setting the Record Straight about Oak Flat," *Arizona Independent News Network*, June 9, 2015.

²⁰⁸ "Oak Flat," *Center for Biological Diversity*, Accessed April 7, 2023.

²⁰⁹ Anna V. Smith, "At Oak Flat, courts and politicians fail tribes," *High County News*, July 26, 2022.

²¹⁰ Len Necefer, "Oak Flat Is No Sacrifice Zone," *Patagonia*, Accessed April 7, 2023.

But in the 2010s, actions by Arizona Senators John McCain and Jeff Flake put the fate of Oak Flat into question. On December 19, 2014, Congress passed the National Defense Authorization Act, a military spending bill.²¹¹ Since 1961, the bill has passed through Congress annually to set guidelines for defense policy, U.S. military funding, and to make organizational changes to military agencies. While this act does not normally impact mining operations, legislators often tack on legislation that has little to do with defense.²¹² The night before the vote to pass the act, McCain and Flake added section 3003, the Southeast Arizona Land and Conservation Act. This addition swapped land privately owned by mining corporations Rio Tinto and BHP Mining for Oak Flat, opening the area up for mining pending an Environmental Impact Statement (EIS).²¹³

In early July 2015, Arizona Congressman Raul Grijalva proposed HR 2811, the Save Oak Flat from Foreign Mining Act. Grijalva introduced the bill in the hopes of repealing the Southeast Arizona Land and Conservation Act.²¹⁴ However, it took nearly a decade of work to gain enough support, to formerly introduce the Save Oak Flat Act. Grijalva formerly introduced the act in early March 2023.²¹⁵ In an effort to gain support for the act and to protect Oak Flat, the Apache Stronghold formed in 2015. The Apache Stronghold is a “nonprofit community organization of individuals who come together in unity to battle continued colonization, defend Holy sites and freedom of religion, and are dedicated to building a better community through

²¹¹ Asa Burroughs, “The Mine at Oak Flat: A Timeline of Government Bad Faith,” *Bill Moyers*, December 29, 2020.

²¹² Tom Barkley and Robert C. Kelly, “National Defense Authorization Act (NDAA),” *Investopedia*, November 29, 2022.

²¹³ Terry Rambler, “Congress can protect sacred Oak Flat in Arizona from mining project,” *The Hill*, April 12, 2021.

²¹⁴ Ranking Democrat Grijalva Introduces Save Oak Flat from Foreign Mining Act to Protect Sacred Site in Central Arizona,” *Congressman Grijalva AZ07*, March 6, 2023.

²¹⁵ “Ranking Democrat Grijalva Introduces Save Oak Flat from Foreign Mining Act to Protect Sacred Site in Central Arizona,” *Congressman Grijalva AZ07*, March 6, 2023.

neighborhood programs and civic engagement.”²¹⁶ Because the copper deposit lies so deep underground, the mining of it would result in the complete destruction of the sacred site, Chi’chil Bildagoteel.

Over the summer of 2015, the group journeyed from Arizona to Washington DC, to protest Resolution Copper. The event included many stops along the way to garner support. It started with a run from the sacred Mt. Graham in Arizona to Oak Flat. Then, the American Indian Movement (AIM) hosted them in Denver, Colorado, before they proceeded through Pineridge, South Dakota, Rosebud, South Dakota, Minneapolis, Minnesota, Chicago, Illinois, New York City, Carlisle, Pennsylvania, Philadelphia, Pennsylvania, and finally to the lawn of the Capitol in Washington DC. In DC, they gathered for two days, where they held a spiritual gathering on the lawn of the U.S. Capitol. They traveled over 2,000 miles to show support for the Save Oak Flat Act.²¹⁷ However, this journey only garnered limited support, with only thirty Senators backing the Save Oak Flat Act.²¹⁸ The group continued working to protect the sacred site of Oak Flat.

Unlikely allies, rock climbers and the Apache Stronghold joined forces to prevent the mining of the Resolution copper deposit. For decades, Indigenous tribes and climbers clashed over recreational uses of Oak Flat.²¹⁹ But with the possibility of the complete destruction of Oak Flat the two sides joined forces. Since the 1970s, many Indigenous peoples wanted to protect Oak Flat from the harm that climbing could cause to the area, but climbing does not threaten the existence of Oak Flat, whereas Resolution Copper does.

²¹⁶ “About US,” *Apache-Stronghold: Defending Holy Sites: Protect Chi’chil Bildagoteel (Oak Flat)*, Accessed April 7, 2023.

²¹⁷ “Journey to D.C.” *Apache-Stronghold: Defending Holy Sites: Protect Chi’chil Bildagoteel (Oak Flat)*, Accessed April 7, 2023.

²¹⁸ “Apaches unite to fight Oak Flat Land Exchange,” *Eastern Arizona Courier*, October 24, 2017.

²¹⁹ For more on effects of tourism on local communities see, Hal Rothman, *Devils Bargain: Tourism in the Twentieth-Century American West*, Lawrence: University of Kansas Press, 1998.

Oak Flat is filled with enormous rocks and jagged cliffs, which makes it a climber's paradise. Climbers first started visiting Oak Flat in the 1970s, and from the 1980s until the early 2000s the Phoenix Bouldering Championship, one of the world's largest outdoor rock-climbing competitions, was held at Oak Flat. Oak Flat boasts about five hundred sport climbing routes, more than 2,000 bouldering problems, and a slew of traditional routes. World class climbers, including Chris Sharma and Tommy Caldwell, have climbed at Oak Flat and are now calling for the site's protection.²²⁰ Because of the voices of climbers, Access Fund joined, the Inter-Tribal Association of Arizona, the Arizona Mining Reform Coalition, the Center for Biological Diversity, Earthworks, the Grand Canyon Chapter of the Sierra Club, and Apache Stronghold in the lawsuit against Resolution Copper.²²¹ Brady Robinson, the executive director of the Access Fund claimed, "If this mine goes through it would be the biggest loss of a rock climbing resource in U.S. history."²²² To protect access to rock climbing and religious rights, Indigenous peoples and climbers united in the fight to protect Oak Flat from complete destruction.

In January 2021, the Apache Stronghold filed a suit in federal court against the U.S. to prevent the mine. The suit claimed that the copper mine would destroy Chi'chil Bı̄dagoteel and violate their religious rights. Additionally, it argued that the Western Apache legally own the area under the 1852 Treaty of Santa Fe with the U.S. A three-judge panel of the Ninth Circuit Court of Appeals heard the arguments in October 2021.²²³ However, they ultimately ruled against the Apache Stronghold in October 2021. Then, in November 2022, the court announced they would

²²⁰ Matthew Renda, "Arizona Mine Poses Biggest Threat to Climbing Access in U.S. History," *Outside*, March 11, 2016.

²²¹ Access Fund, "Access Fund Sues After Trump Initiates Transfer of Oak Flat in Final Days," *Climbing*, January 26, 2021.

²²² Matthew Renda, "Arizona Mine Poses Biggest Threat to Climbing Access in U.S. History," *Outside*, March 11, 2016.

²²³ Emma Gibson, "Oak Flat appeal heard in U.S. Court of Appeals for the 9th Circuit," *Arizona Public Media*, October 22, 2021.

rehear the case “en banc” meaning by the court’s full panel of eleven judges.²²⁴ This gave Apache Stronghold another chance to save the sacred site.

At the en banc hearing in March 2023, Joan Pepin, an attorney for the Forest Service, predicted that the EIS would be ready this spring. Pepin continued that the Forest Service is not waiting for the court’s ruling to publish the new report and added, “that the agency does not believe an 1852 treaty between the U.S. government and Apache's gives Native Americans the right to the land containing the copper.”²²⁵ The 1852 treaty is vague considering property rights, but this is not necessarily a bad thing for tribes. According to Arizona State University Law Professor, Stacy Leeds,

“There are these pre-existing property rights that Apache's had at the time of the 1852 treaty and when they first made this agreement with the United States, they never intended to give over those property rights to the United States. The argument goes, “If the United States is now conveying away part of this property, they can't convey all of it away, because they don't have full ownership rights.”²²⁶

Whether or not this argument will pan out is not yet known.

To make matters more complex, the Trump administration rushed the first EIS through in his final days in office in early 2021. On January 15, 2021, the United States Forest Service released the Resolution Copper Project Final EIS and draft Record of Decision, approving the land exchange. But on March 1, 2021, the United States Department of Agriculture directed the Forest Service to rescind the Final EIS because they determined that the Forest Service rushed it. After resending the first EIS, the Forest Service sent letters to fifteen Arizona tribes, “requesting to re-initiate Tribal Consultation, focusing on water quality and mining techniques to consider

²²⁴ Debra Utacia Krol, “Resolution copper mine goes before appeals court in a major religious rights case,” *AZ Central*, March 21, 2023.

²²⁵ Ernest Scheyder, “U.S. Forest Service to approve land swap for Rio Tinto’s Arizona Mine,” *Reuters*, March 21, 2023.

²²⁶ Emma Gibson, “A Conversation with law expert about Oak and treaties,” *Arizona Public Media*, February 11, 2021.

further measures that may be discussed with Resolution Copper in subsequent Company Consultation.”²²⁷ In September 2021, the Forest Service restarted work on the second EIS for the land exchange.²²⁸

As of April 2023, the Forest Service had not yet finished the second EIS, but all signs point towards eventual approval of the land exchange. If approved, the Resolution Copper deposit under Oak Flat could become the largest copper mine in North America and produce up to one-fourth of the nation’s annual copper demand. Additionally, the mine is predicted to generate up to \$61 billion for the state’s economy and create 3,700 direct and indirect jobs. However, this project would also disturb wildlife, threaten the region’s water supply and harm the environment by dumping millions of tons of waste. Additionally, the company predicts that the mine will only last for forty years, which means in the 2060’s Superiorites would again have to rebuild their town.²²⁹ But with the loss of popular tourist attractions such as Oak Flat, reviving the town when the mine busts would be more difficult than it was in 1982.

The town of Superior dealt with the consequences of the bust of the Magma mine in 1982 and rebuilt it as a tourist town. However, the first one hundred years of the town revolved around mining, and many of the residents of Superior came to the town for mining. Understanding the growth of the mine and town, beginning in the 1920s, shows how they once benefited from each other. The town of Superior likely would not exist without its mining origins, but does that mean they should shift back to a mining town?

²²⁷ “Update: Resolution Copper Project and Land Exchange,” *USDA- Forest Service*, September 10, 2021.

²²⁸ “Resolution Copper Project and Land Exchange Environmental Impact Statement- Project Update,” *USDA- Tonto National Forest*, September 10, 2021.

²²⁹ Alexis Waiss, “Attorneys say Resolution Copper Mine would ‘destroy’ worship at Oak Flat,” *Cronkite News*, March 21, 2023.

The mine did bring Superior wealth, largely uninterrupted for fifty years. The town experienced growth alongside the mine in the 1920s through the 1950s. But as the 1950s approached, accidents at the mine increased, and the mine failed to compensate workers for illnesses such as silicosis that originated in the hazardous work environment. The miners came together and unionized to fight for protection and fair pay, which solved some of the issues at the mine after a handful of strikes in the 1950s and 1960s, and the work environment for miners improved. But just as conditions at the mine improved, the Magma Copper Company struggled to meet air pollution standards and suffered financially during the 1970s copper crisis. These events led to the eventual closure of the mine in 1982, the year Superior celebrated its centennial.

But Superior avoided the fate of many past mining towns and did not become a ghost town. They shifted toward tourist operations, using their idyllic setting as a draw for tourism. While the Magma mine operated on and off from 1982 until 1996, the town developed towards a new industry. But if Resolution Copper proceeds, many of the town's recreational and tourism opportunities will be lost. Because the Magma mine operated underground, there is not a large scar on the land. The land near the mine remains largely unharmed, but the process of open pit mining that Resolution Copper requires would destroy much of the area, leaving a large gaping hole in the earth, where Oak Flat currently sits.

From the 1920s through the 1980s, the town of Superior and miners suffered through the Magma Copper Company rapidly expanding the mine and growing its profits, but the miners did not see these benefits. The rapid growth produced a hazardous work environment because the company did not keep up with safety standards. The proposed Resolution copper mine would likely do the same. The plan is to extract billions of tons of copper in just forty years. If Resolution copper succeeds, Superiorites will likely face the same hazardous work environment

they did at the Magma mine. But this time the mine will also destroy the town's other assets, its recreational and religious importance.

Only time will tell if Superior will return to its mining history roots or if it will continue as a tourist destination. Understanding the history of the Magma Mine and the town of Superior from the 1920s through the 1980s shows how the residents and miners adapted to challenges, including the problems that came with growth, a hazardous work environment, financial crisis, and the closure of the primary economic force of the town, the mine. Superiorites overcame all these challenges, and while the future of the town is unknown, they will likely find a way to make it through the next one hundred years.

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