

The Odyssey and Timing of the Remarkable
Career in England and the United States of
Cornish Mining Engineer William W. WATTERS
(1825-1883)

By Norman E. Donoghue II

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Figure 1. William W. Watters, born Crowan, Cornwall, 1825, mining engineer, age 45, in Lancaster County, Pennsylvania, ca 1870, died 1883 in Reading, Berks County, Pennsylvania.

While we in the United States of America celebrate our “semi-quincentennial” or 250th anniversary (1776-2026) of independence from the former mother country in England, it is also a time for me personally to celebrate the *bicentennial* of the birth year of a Cornish miner in my own family tree who, happily for me, emigrated to the former colony in the United States . . . unfortunately for him, at the time of yet another rebellion, the American Civil War (1861-65).

I have only recently learned that half a million inhabitants of Cornwall in southwest England left their home soil in a Great Migration for economic opportunity in the mid-nineteenth century. I am told that the mine work at home slowed down and opportunities around the world beckoned. Many countries were eager to welcome mine bosses, captains of crews and engineers from Cornwall whose experience with powerful steam pumps and deep shaft, hard-rock mines was legendary. More than half of them came to the United States and powered a transformation of the way mining was accomplished in the burgeoning new capitalist democracy.

Late in his life, my paternal grandfather, William Edgar “Will” DONOGHUE (1874-1952), a hardware store owner, began to tell, or remind his son Norman E. “Norm” DONOGHUE (1894-1973), my father, of their ancestry. He wrote the following undated statement in ink with a firm hand:

Your grandfather was William Waters a Mining Engineer, one of 10 men sent from Wales to develop a mine in United States. He opened quite a few mines in Girard and Minersville, P[ennsylvania]. Near Gap, Pa. he opened the Nickel Mine at Nickel Mines. He was taken sick in New Mexico. Died in Reading, Pa. & was buried there. Your grandmother Caroline Plint also from Wales, England.

Weeks or months later, as he lay dying in the hospital in 1952, he took a pencil and sketched out in a faint hand, again a rare, few bits of family history repeating for his son Norm that Will’s grandfather “opened” Nickel Mines and “took sick” in New Mexico.

Will died in the hospital days later, on my 8th birthday December 21, 1952, though I was not made aware of it then. It was twenty years later, after the death of my aunt Grace E. DONOGHUE in 1969 and my father Norman in 1973, that I found a shoebox with memorabilia of their DONOGHUE ancestors. We had never talked about this. This was new material, and these were new relations I knew nothing about. Will was the only grandfather I got to enjoy, sit in his lap, and watch cowboy movies on TV. We called him “Poppy.”

My *maternal* grandfather Rev. Dr. Roy T. BRUMBAUGH (1890-1957) I only saw once when he baptized me at age 2-1/2. I never saw him again, he lived 3,000 miles away in Tacoma, Washington state, lived in another world entirely and died at 65, early in January 1957 when I was 13. Recently, I have written a long piece about Roy’s complicated and eventful life journey, currently under consideration for publication by an academic press.

So, Will or Poppy was “it” for me in the grandpop category. I enjoyed him, remember him fondly, and he left me \$500 in his will in 1952 to be used for “education” (which I used for a summer course in German at the University of Heidelberg, Germany, in 1963). Thank the Lord for Will and that shoebox of old photos! It has proved to be a treasure chest of family history.

Nobody said anything to me at the time about Wales or Cornwall-- where are they even? -- and *the subject of mining never came up in my family*. Those things I had to learn by research on Ancestry.com and traditional research after I retired in 2003 from thirty-four years of law practice at age fifty-eight. Then I spent five more years working for the Philadelphia Orchestra as a fundraiser. Now I'm 81 and want to complete the Watters research, part of the story of how I, Ned, came to be who I am.

It was only in Will's handwritten statements that the word "engineer" is introduced, but we can presume that he got it straight from the horse's mouth as Will was alive William's last eight years. Mining engineers were in charge of the layout of the geography of the interior mine and were in charge of hoisting people, water and product from the depths. They were also in charge of pumping machines, ventilation, steam-powered elevators, machinery of all kinds. Only in an 1880 census is William Watters described as other than "miner," in his case as "SUPT" or superintendent of a mine near the end of his career and in a separate census record as "Boss at Iron Mine." He was never described as a captain, but engineer suits and he rose to the top. He was never going to the bank with the difference between the monetary compensation of a miner and mining engineer, as the reader will see below. He was, however, going to encounter the threat of violence from labor unrest with a national tie to President Lincoln's cabinet, work for some deep-pocket capitalists, and get some experience up close and personal of the American Civil War in the vicinity of the momentous Battle of Gettysburg.

The job of mining itself was not just exhausting, it was dangerous. Miners dealt with cave-ins, gas explosions, flooding, and deadly coal dust that led to black lung disease. Safety rules? Nonexistent. If you got hurt or killed, your family was often left with nothing. The risks were great all around, but Cornish readers know that. For a mining engineer in the 1850s, "opening a mine" was a transition from speculative prospecting to systematic, industrial extraction, transforming a mineral outcrop into a productive enterprise through significant capital investment. It represented the application of engineering principles to nature, focusing on creating permanent infrastructure, managing water, and ensuring transportation, moving beyond the individual pan-and-shovel methods of earlier days to sinking shafts and timbering against the possibility of shifting of the ground.

William's History in Cornwall

My paternal great-great-grandfather, William W. WATTERS (1825-1883) emigrated from Cornwall (or Wales possibly) to the U.S. at some unknown time before 1860 where he worked in at least six, maybe seven, mines, possibly more, in a nomadic existence of itinerancy where he went from one country village to another in Pennsylvania and New Jersey. During one period he worked with a legendarily successful Cornwall mining "captain." They both worked together for one of the wealthiest and most successful mine owners of the second half of the nineteenth century. But if good timing is a key to a successful life, William's timing was just a little bit off.

William, as I will call him (William DONOGHUE I'll refer to as Will), was born December 29, 1825, to Henry (labeled a “miner” in his son’s 1849 marriage record; died 1842) and Hannah WATTERS (ca 1786-1828) in Crowan, Cornwall, England. Henry and Hannah are probably the Henry WATTERS and “Anna” WILLIAMS who married May 6, 1809, in Gwinear (adjacent to Crowan), Cornwall. William was baptized January 29, 1826, according to the later marriage register and was the sixth of six children born of the marriage. William had 4 sisters and 1 brother, five siblings as follows: Mary, born November 19, 1809; Hannah, baptized May 30, 1813; Elizabeth, baptized February 19, 1815; Eliza, born March 19, 1818; and John, baptized November 23, 1823. William may have been the 18-year-old male of that name in Cornwall who was tried in a criminal case March 22, 1843, and, fortunately, acquitted (according to the England and Wales Criminal Register on Ancestry.com). William became a “mining engineer,” (though my grandfather’s statement is the only record that gives him that title, presumably he learned it directly, as we say, “straight from the horse’s mouth”) beginning likely at the feet of his father Henry around the copper, tin and lead mines plentiful in his native Crowan area.

Crowan has been described in these lyrical terms as “situated in the Deanery and Hundred of Penwith. It is bounded on the North by Camborne, on the West by Wendron, on the South by Sithney and Breage and on the East by St. Erth and Gwinear. The main hamlets besides Churchtown, are Leedstown, Praze-an-Beeble, Nancegollan, Townsend, Cargenwen, Drym, Trethannas, Trevoole and Releath.” For an American ear, the poetry of Shakespeare lies in those special descriptions of place, especially when given the pictures of the place, they seem at the same time beautifully green yet frightfully bleak.

William’s Marriage, Wife & Family

On February 22, 1849, William married (see the accompanying colorful, manuscript, family Bible record, while the official marriage registry notes the date “April 22, 1849”) Caroline John PLINT (1830-1878), daughter of Thomas PLINT (labeled a “husbandman,” in the marriage register, one who raised livestock and cared for a small farm) and Jane PLINT in the village of St. Newlyn East (near St. Columb-Major), Cornwall. William signed the marriage register by “signature,” she by “mark,” so she likely was illiterate. In 1851, William was listed on the English census as a “lead miner” in Newlyn, so this is evidence of occupation though we have no indication of which mine he worked for there.

It is also uncertain when exactly William emigrated to North America but likely in the late 1850s, shortly before the American Civil War began in 1861. When he did so, he had to leave behind his three sisters and one brother, never to see them again; and Caroline left her siblings and parents as well. Will DONOGHUE notes that William arrived “from Wales,” though he may be confusing Wales with Cornwall, neither of which was well-known in the U.S. The immigration records do not record his passage or do not allow us to differentiate one Watters from another sufficiently to be sure. It was more common for Cornish miners to migrate *to* the coalfields of Wales in this era than vice versa.

Caroline gave birth in Newlyn East to William's and her daughter Eliza Jane, March 27, 1850 (baptized June 2), and two sons: William, August 27, 1852 (baptized September 17) (the baptisms were in the Truro Wesleyan Methodist Circuit). Caroline gave birth to a second daughter, Mary Hannah, 1855, in North Carolina according to the 1870 federal census or in Pennsylvania according to the 1860 census. One other fact supports the judgment that it happened in Cornwall, that is the birth record of son Richard Henry WATTERS in 1857 in St. Austell, Cornwall, a port town on the south coast. The last child, Henry Waters was born November 25, 1863, in Pennsylvania.

In the family Bible record, they spelled Watters with two "ts" for the first four of their children born in Cornwall and for the children they had in America, Henry (Pennsylvania), November 25, 1863, Edward (Morris County, New Jersey), October 22, 1865, and Francis (Pennsylvania), May 21, 1868, with one "t."

American Civil War (1861-1865)

In June 1863, a bit of bad luck came. William WATTERS was employed in 1863 at Colebrookdale Furnace (named after the furnace of that name in England) in Colebrookdale Township near the town of Boyertown, Berks County, Pennsylvania. Founded there in 1720, it became the first blast furnace of many to be erected in Pennsylvania. By the 1860s, it was no longer in operation, but the site still considered the "industrial anchor" of a mining district consisting of four iron mines in the Boyertown, Berks County area. Unfortunately, William's timing was such that he was listed in June 1863 as "subject to military draft," despite being married and the father of five young children. This was an emergency of an existential nature, and the governor of Pennsylvania wanted all eligible men listed so they could be called up quickly. As timing would have it, days later, the Confederate Army led by General Robert E. Lee crossed over the nearby Mason-Dixon Line from Maryland into Pennsylvania and arrived soon after at Gettysburg, Pennsylvania, for the major battle of the war against Union troops under General George Gordon MEAD, July 1-3, 1863, not more than 115 miles from WATTERS's new home.

Andrew G. CURTIN, the Governor of Pennsylvania, in anticipation of the imminent attack, called up all eligible men June 26 for six months "or during the existing emergency, as they should themselves elect." Although no record confirms his service, William would have served in the 55th Infantry Regiment (Pennsylvania) for 61 days until he would have been mustered out on August 26.

William WATTERS and Charles Kneebone DOBLE (1826 –1897) at Gap Nickel Mines

William worked for some period nearby the little village of Gap in farm-rich Lancaster County where mines were not that common. His grandson William E. "Will" DONOGHUE (1874-1952) noted above that his grandfather William "opened the nickel mines" in Gap, Pennsylvania. This is the only evidence that we have of William's work there, but Will lived

contemporaneously within five miles of the mines for his first eight years and William's last eight years, so the evidence amounts to primary evidence; anyway, it is strong evidence because contemporary. It would be irresponsible to write about William's career stop there without taking a significant account of another Cornish mining personality who deserves more credit in the story of the Cornish miners' diaspora.

Unfortunately for William's potential for fame and fortune, a fellow Cornish emigrant and "common miner," Charles Kneebone DOBLE (1826-1897), from Truro in Cornwall, got there before him, in 1852. A Captain WILLIAMS had been in charge of the Gap Mining Company's copper mine there opened more than a century before. By 1855, one news report described the "superior Cornish pump on the newest plan" which removed water from the mine so it could be worked. DOBLE next performed an astounding feat of Cornish wizardry by turning a mostly failed copper mine into a world-class nickel mine. DOBLE identified as likely valuable what other people there called "mundic" (a Cornish term for iron pyrites) and *were discarding* as "worthless." He was not sure what it was but had the confidence to send a sample to three experts. Even once the first two did not positively identify the ore, he sent another sample to a third expert. DOBLE's hunch was confirmed by noted metallurgist Dr. Frederick Augustus GENTH (1820-1893) at the University of Pennsylvania in 1854 in an academic report when he wrote back that the ore was millerite or nickel ore, much more valuable than copper. DOBLE's discovery of nickel ore on the North American continent was reported in the newspaper as early as 1854 in an obscure way but went unheralded for nearly a decade.

In time, that legerdemain made the mines's owner a millionaire many times over. The mines were acquired by Joseph WHARTON (1826-1909) in late 1862 and "opened" for him by his mining staff in 1863. It was not until 1869 that DOBLE became the mine boss and "agent," the "superintendent" of the mines and the "manager" of the nearby Smelting Works for WHARTON until 1893 when it closed. The archives reveal that at the end of the decade WHARTON addressed his employees commanding them to refer to DOBLE as "Captain Doble" and notified vendors in the newspaper that a former employee had resigned and DOBLE was the only man to represent the owner on all transactions.

Joseph WHARTON and Cornish Miners

That mine located in Bart Township, Lancaster County, and the village that grew up around it was later renamed simply "Nickel Mines." Since the eighteenth century, the mine had failed as a copper mine, but once DOBLE acted on his belief and had the ore assayed, it quickly became the leading nickel mine in the world, producing by the 1870s one-sixth of *all nickel mined in the world* then. Joseph WHARTON made his first modest fortune in metallic zinc at a mine called Friendensville, Lehigh County, Pennsylvania, between 1853 and 1863. A major industrialist and prominent Quaker in Philadelphia, WHARTON owned the mine and recruited leading scientific mining strategists from Belgium and Cornish engineer Richard W. PASCOE from Cornwall, England, to exploit it. WHARTON soon became "a pivotal figure in the

employment of Cornish miners in Pennsylvania” who were highly sought after for their experience in deep shaft, hard-rock mining and steam pump technology. The Nickel Mines operated shafts 60-260 feet deep, requiring the exact expertise in deep-vein extraction for which Cornish miners were justly famous.

After WHARTON took over at Gap, he and DOBLE ran the mines at full capacity, extracting 4.5 million pounds of nickel in all, it ceased operations in 1893. WHARTON, who also became the controlling shareholder of Bethlehem Steel Corporation nearby, made millions of dollars from this mine after he convinced the federal government to mint and issue 5-cent coins (\$0.05) made of nickel *supplied by him* beginning in 1866. In 1881, WHARTON made a large gift to the University of Pennsylvania in Philadelphia which named its business school the WHARTON School of Finance and Economy, now known world-wide as the famed WHARTON School of Business.

We have the pay scale for miners at WHARTON’s Nickel Mines for 1864:

First Class Miners	\$ 1.60 per day
Miners Helpers	1.25 per day
Laborers	1.05 per day
Boys (washing and picking)	0.45 -.70 per day
Engineers and Mechanics	1.50 -1.80 per day

No miner working for an owner was ever going to get rich. They were looking to pursue a dangerous occupation they had been trained to do, and which would support their families. At Nickel Mines, they used 30 horses and mules in the mine operation, employed 93 miners, and at one point had a smelting operation nearby with another 20 or more workers employed there. This description reviews the mine itself:

In 1875 the mine had six shafts varying from 100 to 235 feet deep plus a few other shallow shafts 60 to 80 feet deep. When the mines were shut down in 1893 . . . there were twelve shafts. All shafts were vertical. The shafts were spaced along the vein for a distance of 2,000 feet.

In 1893, DOBLE’s fame was such that he was trotted out as the official representative for the State of Pennsylvania at the 1893 World's Columbian Exposition in Chicago, where he curated exhibits of nickel ore and “nickel matte.” DOBLE thus became the living exemplar, the poster child, so to speak, for the value-added proposition of employing Cornish miners abroad!

Photos of the Nickel Mines and smelting operation from circa 1860s-90s are shown accompanying this article, one indicating which of the twenty-some smelting site workers was Captain DOBLE. News stories (August 1867) reported that the mines had a “Cornish engine of great power . . . itself an object sufficiently curious to merit a visit. (Primary source for this subsection: John D. Long, “The Nickel Mines of Lancaster County,” *Journal of Lancaster County History*, 1962 and Ellis and Evans, *History of Lancaster County, Pennsylvania* 1883).

Schuylkill County Mines

As mentioned above, grandfather Will DONOGHUE had written about 1950 that his own father our William “opened quite a few mines in Girard and Minersville, P[ennsylvania]. Near Gap, Pa.” Balancing this contemporaneous life knowledge of Will’s, a very specific mention, a primary source that deserves much weight, and which he likely learned straight from the horse’s mouth, against the fact that no other documentation has arisen for a mine worker named William Watters in the 1860s or 1870s in those named places, and the remote likelihood that such a record would be found at this time, I hope the reader will pardon me for falling on the side of believing Will that his father worked in these two interesting mining locations. So, what were those places like?

Eighty-five miles north of Gap in Lancaster County, 100 miles from Philadelphia sits the little village of Girard, in Schuylkill County, Pennsylvania, now called Girardville. Girardville is located in the heart of Pennsylvania coal mining, remote from both the state’s major cities of Pittsburgh and Philadelphia. Only with the initial waves of Welsh and Cornish migrants, and later German and Slavic miners, did population of the town ever exceed 5,000 in the past 150 years. In 1832, it was named after French-born Stephen Girard (1750-1831), a banker and philanthropist. He was so wealthy that Girard's personal bank was the principal source of U.S. government credit during the War of 1812. At his death, he was *the country’s richest man*. He had bought vast lands in and around Schuylkill County. Those lands included deposits of much anthracite coal, distinguished by its high carbon content and few impurities. That coal played a crucial role in fueling the industrial revolution shaping development of the eastern U.S. It was difficult, however, in the early stages to transport the coal until the railroad service from there to major cities was improved in 1860. Thereafter, coal could be moved at a significant profit and experienced English and Cornish mine workers flocked to the town.

A little about Mr. Girard: after his death, his will required the establishment of a boarding school in Philadelphia for “poor, male, white orphans,” primarily those who were the children of coal miners. The school opened as Girard College in 1848. (In the 20th century, the U.S. Supreme Court required the school to take as students people of color as well as females, and today it continues to do so endowed by its founder’s fortune). Mining anywhere requires capital and it is men such as Stephen Girard and Joseph Wharton that make a mine happen.

The story of Minersville, also a small town in Schuylkill County, similarly followed the path of Girardville’s development. Mining engineers such as William found jobs pumping the water out of the mines so the miners could work, or as hoisting engineers, enabling the disgorgement from the lower reaches of the mine of the ore harvested. In the Spring of 1863, *The New York Times* despatched its reporter to the area to find out about the labor unrest in nearby Heckscherville. He reported that the miners, who at that time *occupied and had full possession of the mines*, had called for a “strike” for “the right of miners to choose their own ‘bosses,’ the men who superintend the operations of the different collieries and make returns of the amount of labor done.” The article was written in such a way that it disclosed a bias in favor of the New York businessmen who included owners of the mines.

The mine owners called on Governor Andrew Curtin of Pennsylvania who sent the militia to protect the property of the mine owners. When the militia showed up, they instead

compromised with the miners in such a way as to be criticized for not forcefully, with their billy-clubs and rifles, breaking the strike. The article maintained that the mines of nearby Heckscherville were occupied almost exclusively by Irishmen and they, who call themselves “Molly Maguires,” are “a lawless, whiskey-drinking set of outlaws, whom even the priest has lost all control over.” U.S. congressman from the Pennsylvania Alexander K. McClure stated that in early 1861, “the hesitating, doubting sentiment relating to the war was not the most to be feared. In several of the mining districts there were positive indications of revolutionary disloyalty, and it was especially manifested in Schuylkill, where the Molly Maguires were then in the zenith of their power. The center of their power was in Cass Township thirteen murders had been committed within two or three years, and not a single murderer brought to punishment.”

In the mines other than those in Heckscherville, the owners had made it a point “to employ men of different nationalities, which prevents clannishness and conduces to order, but for two or three years past the Welsh, English, German, Scotch, etc. have gradually abandoned the Hecksherville mines, and left the mercurial Irishmen master of the field.”

In 1862, the Irish miners even impeded the military draft at this early point in the Civil War. When local agricultural conscripts showed up in order to board the train for military duty, “the Molly Maguire conscripts, with a number of their friends, appeared also, and not only refused to respond to the call of the State by going to [the capital city], but riotously excluded the willing conscripts from the car.” The Molly Maguires were a secret and terrorist organization born out of imbalance in the miner-mine owner equation. This anti-conscription violence in the Pennsylvania mining communities had become a national problem for President Abraham Lincoln’s cabinet. The politicians involved took pains to find a way to make it seem as if they had executed the law to fill the quotas for military conscripts with admittedly fake “affidavits of volunteers” filling the full quota in order to avoid the greater crisis that might be caused by provoking a public skirmish between the federal troops or militia and the dreaded Molly Maguires of Schuylkill County. These were dangerous times in and around the mines of this particular county.

William may have also worked for WHARTON at his mine property in Mine Hill Township, Morris County, New Jersey, where William was listed as a “miner” and the father of his son Edward who was born to Caroline there on October 22, 1865. This area was a regional center for iron mining. The couple’s last son Francis was born May 21, 1868, in Pennsylvania. A “William Waters” formerly of England, then of Bart Township, was naturalized December 8, 1870.

The Roles of the Watters Women

In the 1860 federal census, Caroline WATTERS was listed as a resident of the Spruce Ward of the interior city of Reading (population 24,000 in 1860), Berks County, Pennsylvania, as of July 9, with Eliza Jane, 9, William, 7, and Hannah, 5. Surprisingly, husband William is not listed. The Nickel Mines operation was 54 miles from Reading and the Colebrookdale furnace 27 miles distant, both places he worked, so it is likely William was at one or the other, living in a miner’s shoddily built housing at the mine site. Time spent without her husband at her side might have been long and trying. Reading city records in 1860 designate her as a “teacher.”

Caroline was listed in the 1875-76 city directory of Lancaster city in Lancaster County near Gap and Nickel Mines, as “Waters, Carrie, dressmaker,” working out of her home. This gave her a commercial outlet which added to the family’s financial security. She was also acknowledged as installed as “W.N.” (a women’s officer of some kind) of the “Boyertown Home Communion” as noted in the *Reading Times* (Reading, Pennsylvania) of January 19, 1876 (p. 4), likely a civic and quasi-religious activity. She attended in the 1870s Central Methodist Church in Reading. Daughter Eliza Jane, 12, was acknowledged in the newspaper and church records in 1862-63 as attending the same church, so Caroline looked after the religious life of the family. Methodism was her religious affiliation in Cornwall and in the U.S., it was the fastest growing Protestant church in the latter half of the nineteenth century.

Caroline as one of the so-called Cornish “Cousin Jennies” abroad with Cornish “Captain or Cousin Jack” miners, also passed her fashion skill on to her younger daughter, Mary Hannah, to whom in the 1880 federal census is ascribed the same dressmaker occupation. And Eliza Jane in 1870 is listed in the census as in the “millinery” business with another Jane (LOUGHEAD) in Christiana, about 7 miles from the Gap Nickel Mines, so fashion ideas were expressed by these women as well. They found personal agency in making their own way, often suffering long periods without husbands who were away at the mines.

William was, according to his grandson William E. DONOGHUE, “taken sick in New Mexico, died in Reading,” Pennsylvania. His death in Reading is implied from his burial there, although no further data has surfaced regarding his locale or the mine or how he “took sick” in New Mexico. Census records report that William could both read and write, though that is not at all surprising.

The Family Tintype Photographs

In 1870, we find William, at age 55, looking incredibly handsome proudly posing for a studio photo with his elder daughter Eliza Jane or “Jennie” the year she married George Washington DONOGHUE in Christiana, Lancaster County, Pennsylvania. Christiana was a village not five miles from Gap Nickel Mines. She and a companion also named Jane (LOUGHEAD) operated a millinery business out of their residence in that town. In two other studio photos, she stands posing for the camera circa 1870 next to her new husband George and again with him in circa 1875 in a more prosperous looking dress. She married September 1, 1870, George Washington DONOGHUE (1847-1923), a second-generation tinsmith of the same town. (The first generation had been Dennis DONOGHUE (1820-1889), of Irish parentage, who emigrated from his place of birth in Barnsley, Yorkshire, England, in 1834 with his mother Ellen DONOGHUE (died 1857) to Philadelphia where they settled in the Northern Liberties section where textile factories populated that part of the city. He was apprenticed to a tinsmith and opened his own shop by 1843. His mother was described as a “gentw” (gentlewoman) in the city directory, attended and was buried in St. Michael’s Roman Catholic Church Cemetery, next to the church which had been rebuilt after the prior church was burned to the ground in Nativist,

anti-Catholic riots which the family witnessed in 1844. Dennis married in 1841, Jane SERGESON (1823-1913), daughter of Robert and Elizabeth Roberts SERGESON, an Irish girl from County Down, and a Methodist).

Jennie Watters DONOGHUE, born in Cornwall, gave birth in Christiana, Lancaster County, to three children-- Robert Aspril (named after George's elder brother Robert who died by drowning at age 11 in Philadelphia; "Aspril" for the Methodist minister who had married them), born Nov. 25, 1871; William (his maternal grandfather's name) Edgar, Sept. 21, 1874; and Caroline (her grandmother's name) Edna or "Carrie," born Feb. 19, 1877. Jennie died of cancer of the pancreas (death certificate) within a month after the third birth. Widower George W. DONOGHUE was left with three children under the age of seven, and he got help from his mother Jane DONOGHUE and sister Ella Donoghue (Mrs. Albert) MOWRER (1843-1917) in Christiana (The town became known as a beacon of freedom after 1852 when the local residents *resisted with force* a southern slaveholder in a notorious incident of the worst effects of the institution of slavery, the 1851 federal Fugitive Slave Act enabling slaveowners to cross state lines to recapture a runaway).

George W. DONOGHUE opened a dozen years later his sumptuous Christiana tinsmith's shop (pictured in the attached, professionally produced photo) circa 1889 with Will, 15, to the left of George, young Carrie, 12, to the right. George's son Will became the third-generation tinsmith of the DONOGHUE family who eventually opened his own East End Hardware store (pictured also, in 1927) and his sister Carrie married Harry DISSTON (1866-1916), a salesman for and member of the DISSTON family that owned Disston Saw Company in Philadelphia, the largest saw manufacturer in the world at that time.

Turning from the human legacy of the Watters family back to final stages of the career of William: in the 1880 federal census William WATTERS is listed in Boyertown, Berks County, Pennsylvania, as "Boss at Iron Mine." The lofty title represented a career first and a peaking of this miner's forty-year career. There were four such mines in the Boyertown borough at the time. According to one mining authority, "during the second half of the nineteenth century, the magnetite deposits at Boyertown were among the principal producers of iron ore in Pennsylvania."

William was counted *twice* in the 1880 census as he is also found in Cumru (a word for Wales in the Welsh language spoken by some early settlers) Township next to Reading, Berks County, Pennsylvania, where he is described as "Supt ALUM MINE" (alum shale or ore is a type of black shale rich in iron sulfide (pyrite), organic carbon, and aluminum silicate used for industrial purposes). In that township lay Fritz Island Mine. William's son Henry was listed at residing at 623 Canal Street, as a "engineer" next to his father and daughter Mary Hannah a "dressmaker" and son William (call him "William Jr.") a "miner" who lived in Wilmington House, likely a neighboring boarding house. At that time, William's wife Caroline was residing in Boyertown with him and Mary Hannah, 24, (Richard Henry not listed), Henry, 16, Edward,

14, and Francis, 11, along with granddaughter, Caroline E. Donoghue, 3 (named for her grandmother whose daughter Jennie Watters DONOGHUE had died in 1877). The Fritz Island Mine is described in the *Second Geological Survey of Pennsylvania* (1872) to which Captain Charles DOBLE had been a major contributor.

It is unlikely that William would have been designated as “boss” or “superintendent” of a mine if he had not first demonstrated at least the equivalent capacity of a mining engineer.

Eliza Jane had already died at age 26 in 1877. Caroline Waters died July 27, 1882, of *phthisis pulmonalis* or pulmonary insufficiency caused by tuberculosis, commonly then called consumption or miner’s disease, Black Lung. William W. Waters died May 20, 1883, of the same disease. Both were attended by the same doctor, Samuel L. Kurtz. Both were buried from their residence at 626 Pine Street, Ward 2, by the same funeral director, C. Henniger & Sons, into graves at Charles Evans cemetery, the cemetery in Reading, Pennsylvania, for those who could not afford a private cemetery. William had avoided traumatic death from explosions, from falling down a shaft, from getting caught in the heavy machinery, from a collapsing tunnel ceiling, from cables breaking, from being hit by underground coal carts. His death was little by little every day inhaling fine particles of coal dust into his lungs where it destroyed tissue. His son Francis also died soon thereafter, in 1886, and is buried in the same cemetery.

Summarizing his mining career, we can positively state that William worked in at least one site in Cornwall when he learned the trade at his father’s knee, then in the 1851 English census which listed him as a “lead miner” in Newlyn East, Cornwall (without knowing which mine it was), probably a third in St. Austell, Cornwall, and seven mine sites while abroad in the U.S.: Girard Mines in Girardville; mines in or near Minersville, Schuylkill County, Pennsylvania; Nickel Mines in Gap, Lancaster County, Pennsylvania; a mine in Morris County, New Jersey, at the site of his son Edward’s birth; Colebrookdale in Berks County; as a “superintendent,” a highly sought after title, of a mine, likely Fritz Island Mine, Cumru Township, Berks County; and as “Boss of iron mine” in Boyertown at the time of the 1880 census. It seems possible, maybe probable, that William was a consultant or troubleshooter employed by various mines in the area rather than always only working in one mine. Ten different mine sites all together. The Pennsylvania sites are circled on the map of Pennsylvania among the photographs.

There are other possibilities of mines William might have worked at but have not positively been identified. In the 1851 English census, William could have been working at East Wheal Rose Mine or several others near Newlyn East where he and Caroline started their married life. If his daughter Mary Hannah was possibly born in 1855 in North Carolina (as the 1860 federal census notes, though the 1880 census says she was born in Pennsylvania), at least two mining possibilities come to mind: Gold Hill in Rowan County and the whole mining district of Mecklenberg County to both of which areas Cornish miners were drawn in the 1850s time-

frame. Perhaps more research might identify more positively these other mines where William could have worked.

We will always wonder about Will's statement that William "was taken sick in New Mexico." Why did he travel so far to this remote (2500 miles away) territory (not yet a state) in the wild West and who might have sent him there and to what mine? In 1880, New Mexico was experiencing a major mining boom, characterized by rapid development in silver, gold, and copper, particularly in the Sierra and Grant County regions.

William W. Watters's Legacy in Perspective as a Miner & Ancestor of Many

William W. Watters' legacy is also found in the fact that he formed part of a proud, world-wide "Captain Jack" or "Cousin Jack" expert miners' network, enabling brethren in the mid-19th century Cornish miner diaspora to cobble together enough mining jobs to make for a full career and support in an adequate manner their families who often, especially in William's case, accompanied them for better or for worse, through thick and thin. In his case, William lived mostly at the mine sites while he supported Caroline to live in the interior towns of Lancaster city in Lancaster County and Reading in Berks County. She was able for the most part to have the advantages of urban life in which to support their five children and be close to a thriving center of Methodism in which she engaged religiously nearby. William also had the satisfaction of introducing his sons William and Henry to mining in his later years in Boyertown and Cumru, while his son Francis served as a "printing apprentice" and his daughter Mary Hannah took on her mother's skill as a dressmaker. William's religious affiliation has so far produced no facts to support a conclusion except for the record of a man of his name (a common one) at a confirmation of his faith at St. John's Episcopal Church in Elizabeth, Union County, New Jersey, February 24, 1861.

William's life story is similar in many ways to that of Richard W. PASCOE (1818-1897), another Cornish miner born near Cambone in 1818, who also lived for a time in Crowan. He learned his mining skills as a youth working in the copper mines of Cornwall, where he became an acknowledged mine captain at an early age. Like so many of his "Cousin Jack" brethren in the mid-1800s, he immigrated to the United States with a wife and children in search of new opportunities. He worked in anthracite coal, copper, zinc, lead, and iron mining in numerous places including northern Michigan. PASCOE's semi-nomadic career also involved Joseph WHARTON as a mega-employer with whom he kept in touch (a letter from him to WHARTON is reproduced in a journal article). PASCOE's story is more fully developed and described by a true mining historian in L. Michael Kaas, "Richard W. Pasco, Mine Superintendent," *Mining History Journal*, 2014, pp 30-45. <https://www.mininghistoryassociation.org/Journal/MHJ-v21-2014-Kaas.pdf>.

Besides that comparative touch, William's human legacy is found for me primarily in his daughter Eliza Jane or "Jennie," once an attractive, small-town milliner whose sister Mary Hannah also enjoyed a similar turn of fashion as a small-town dressmaker, a skill inherited from

their mother, Caroline, a “Cousin Jennie” who served as William’s wife and life partner through his peregrinations in search of continuing employment in the mining industry.

Jennie Watters Lived a Lot in Her 26 Years

In Eliza Jane or Jennie Watters’s brief, twenty-six years, she traveled across the Atlantic with her family, began a business catering to hat-obsessed women and men, stood for studio photographs with the men in her life, married an enterprising tinsmith, and bore three children who lived useful and fulfilling lives and left more prosperous descendants. Those children were: Robert A. (1872-1960), who became a “iron moulder” in northern New Jersey and fathered a long-lived daughter Florence Vanderbilt DONOGHUE (1900-1990) who served as an insurance office worker; daughter Carrie Edna (1877-1953) went on to marry first Harry DISSTON (1866-1916) a salesman and member of the founding family of the world’s largest saw manufacturing company, and second James F. DONNELLY, MD (1874 -1951), a professor of surgery at the University of Pennsylvania; and William Edgar DONOGHUE (1874-1952) who became a third-generation tinsmith and eventually proprietor of East End Hardware (1927-1947), “the friendly store” as he called it. He married in 1894 Mary Theresa “Polly” STERN (1870-1950). Their son Norman (1894-1973) went on to work for eighteen years in the Accounting Department at Lukens Steel Company in Coatesville, Pennsylvania. During that time, he attended at night for the year 1915-16 the school founded and endowed by the philanthropic owner of Nickel Mines, the WHARTON School of Accounts and Finance at the University of Pennsylvania (Philadelphia, Pennsylvania). This investment education served Norman’s business career well for the next five decades. Later, after being laid off by the steel company during the Great Depression of the 1930s, he became a fourth-generation DONOGHUE tinsmith-cum-hardware store co-owner (in partnership with his father Will), as well as a housing contractor who built over 105 houses for veterans returning to Coatesville from World War II. Those houses were reported as “relieving the housing crisis.” He often had to lend purchasers the first downpayment on those \$5,000 “starter” houses, so he did well by doing good.

Norman and his wife Margaret Elizabeth “Betty” Brumbaugh DONOGHUE (1912-1992) went on to parent two boys, my elder brother, William Elliott DONOGHUE (1941-2017), an accountant, investment guru, best-selling author, and father of two, and his younger brother, me, Norman E. II (born 1944), private client attorney, international charity fundraiser, and independent scholar/historian, author of a nonfiction book on the American Revolution, husband of a loving wife Margaret M. “Peggy” O’DONNELL, and father of two: step-daughter Maya Pir O’DONNELL-SHAH (born 1984) and Margaret Anne Valentine O’Donnell DONOGHUE (born 1992). Proud descendants of a Cornish mining engineer and his teacher/dressmaker wife and milliner daughter!

William W. Watters Timeline

1825 Dec. 29, born to Henry “miner” and Hannah Watters in Crowan, Cornwall

Nearby mines included Binner Downs, Crenver, West Treasury, Wheal Abraham, Wheal Strawberry and Wheal Treasury.

1828 William’s mother Hannah (1786-1828) dies in Crowan, Cornwall

1830 Jan. 18, Caroline John Plint born Newlyn East to Jane Plint and Thomas Plint.

1838, Jan 2, a William Watters tried for criminal case, acquitted

1842 December, William's father Henry dies in Crowan, Cornwall.

1849 Feb. 22, Watters & Plint marriage in St. Newlyn East, Cornwall (family Bible record)

April 22, marriage recorded in Parish of Newlyn East (government registry)

1850 March 27, daughter Eliza Jane born in Newlyn East, Cornwall.

1851 William in Newlyn, Cornwall, census as a "lead miner." Local mines included East Wheal Rose Mine.

1852 Aug. 27, son William W., Jr. born in Crowan, Cornwall.

1855 Sep. 1, daughter Mary Hannah born in Crowan, Cornwall, or North Carolina (1880 federal census, but 1860 census says Pennsylvania). (If North Carolina was residence, mines at Gold Hill, Rowan County, and Mecklenberg County both attracted Cornish miners, but I think the census report was just flat out incorrect as no other fact supports it, and the next fact below militates against it).

1857 May 9, son Richard Henry born St. Austell, Cornwall.

1860 local census finds Caroline Watters as "teacher" in Reading, Pennsylvania, but without William, who might be at a mine somewhere. Also, it finds her in class No.9 (H.D. Love, leader) at Central Methodist Church and Eliza J. Waters, age 9, in class No. 4.

1861, Feb 24, confirmation of "William W. Waters" at St. John's Episcopal Church, Elizabeth, Union Co., New Jersey— no ID to our Watters and others of the name are in the records of NJ.

1863 June 27- William W. Watters, "38, born England," in Colebrookdale Twp., Berks Co, PA classified as a man subject to military call up; was called up by Governor for 90 days or end of emergency service in militia or end of emergency, then discharged per Consolidated List, Persons in Class II- Military Service, Civil War Draft Registration Records, served 55th Infantry Regiment.

https://www.ancestry.com/imageviewer/collections/1666/images/32178_520307095_0084-00198?pId=1398695 on ancestry.com.

July 1-3, Battle of Gettysburg (115 miles from Colebrookdale)

Aug. 26 – discharge of William from military

Nov. 25, son HENRY born in Pennsylvania

1865, Oct 22, son Edward born Randolph, Morris County, NJ, to Caroline & William W.

1870 daughter Eliza Jane a "milliner" in Christiana, Lancaster Co, Pennsylvania in federal census. A "William Waters" filed his petition for naturalization from Bart Township.

1870, Sept 1- Eliza Jane marries George Washington Donoghue in Christiana, Lancaster Co.

1870 Watters family in Rockaway, Morris County, New Jersey (near Randolph & Mine Hill Twp).

1873 May 25, Caroline Watters received by Boyertown Methodist Church

1874 Jun. 14, Wm. W. Watters received by Boyertown Methodist Church

1875 “Carrie Watters, dressmaker” found in Lancaster city directory. (Near Gap Nickel Mines).

1876- “Miss Caroline Watters” in Boyertown cited in “Installation of Officers,” *Reading Times*, Jan. 19, 1876, p. 4; newspaper story about “Boyertown Home Communion” officers.

1878, July - William’s brother William Henry dies in Penzance, Cornwall.

1880, June 1, - federal census in Boyertown, Berks Co, PA where WWW was “Boss at Iron Mine,” Caroline, 50, Mary H., “dress maker” 24, Harry (Henry), “laborer” 16, Edward “clerk in store” 14, Francis “printing apprentice” 11, Caroline E. Donoghue, 3 (dau of Eliza Jane and William).

July 9, federal census in Cumru Twp, Reading, Berks Co where William 54 was “miner” and Harry 14 also “miner,” both “boarder” at a mine site boarding home. The only mine in Cumru Twp is Fritz Island Mine in the middle of the Schuylkill River, 2 miles south of Reading. The mine appears in the Dr. F.A. Genthe, *Second Geological Survey of Pennsylvania* (1883) to which Capt. Coble had been a major contributor.

1881, March 27, Mary Hannah at Central Methodist Church in Reading.

1880-1882 Possibly William was “in New Mexico where he took sick” according to his grandson William E. Donoghue. In 1880, New Mexico was experiencing a major mining boom, characterized by rapid development in silver, gold, and copper, particularly in the Sierra and Grant County regions.

1882, July 27, William and Caroline both die according to City of Reading records, buried Evans Memorial Cemetery, Reading, Pa. (This means that Caroline dying March 8, 1878, is a misreading of the family Bible record where it is not clear to whom that date relates).

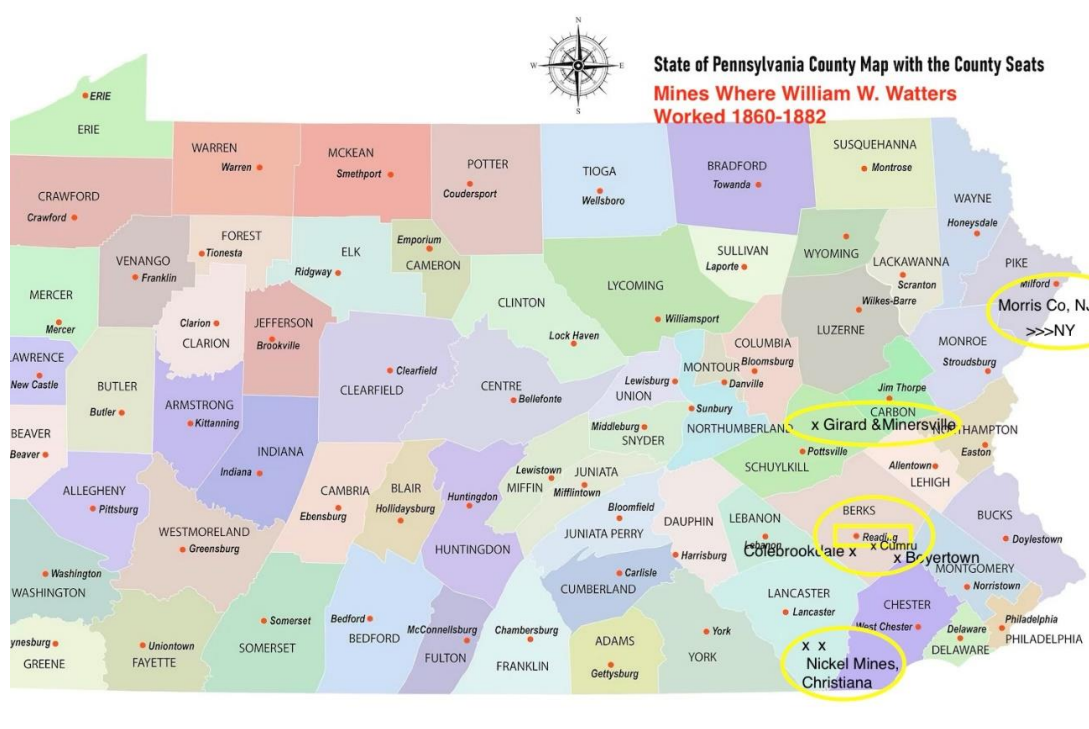
1883 Story by DOBLE of Nickel Mines told in Ellis and Evans, *History of Lancaster County*.

1886 son Francis dies, buried in Evans Cemetery in Reading, Pa.

List of Places William W. Watters Worked or likely Worked

1. Crowan, Cornwall, tin or copper mining.
2. 1851 Newlyn East, Cornwall, lead mining.
3. 1857 St. Austell, Cornwall, clay mining (?).

4. Gap Nickel Mines, Bart Township, Lancaster County, Pennsylvania, nickel mining.
5. 1863 in Colebrookdale, Berks County, Pennsylvania.
6. Girardville, Schuylkill County, Pennsylvania.
7. Minersville, Schuylkill County, Pennsylvania.
8. Randolph, Morris County, New Jersey, iron mining.
9. Fritz Island Mine, Cumru Township, Berks County, Pennsylvania, “Supt. Alum Mine.”
10. Boyertown, Berks County, Pennsylvania. “Boss at Iron Mine.”



THE AUTHOR gratefully acknowledges Cornwall Family Historical Society, particularly the encouragement of Dean Smith at CFHS to tell this story in the journal of the Society and the invaluable, expert assistance of Sandra M. Hewlett CG in the research. The suggestion to publish with CFHS merged neatly with my long-held desire to somehow “return my ancestors to places where they thrived while alive.” I received a B.A. (History) at William College, and a J.D. at Duke University School of Law. I served for 34 years as an private client attorney and partner in the Philadelphia office of DECHERT international law firm (now headquartered in New York City), and also had a parallel career as a charity fundraiser for The Philadelphia Orchestra and Princess Grace Foundation-USA (40-years’ service, currently emeritus trustee), and now as an independent scholar/historian, author of *Prisoners of Congress: Philadelphia’s Quakers in Exile*,

1777-1778 (The Pennsylvania State University Press, 2023), the untold story of the men who became among the nation's first political prisoners during the American Revolution (historical nonfiction). My book still rates 5 stars on Amazon.com. My latest journal article concerns my mother's German immigrant ancestor "Jacob Brumbaugh (1726-1799): Dunker Farmer, Pacifist Patriot, and the Alternative Service Required for Religious Pacifists by the Revolutionary Committee in Washington County, Maryland," for the special 250 Maryland issue of the *Maryland Historical Magazine*, a peer-reviewed journal of the Maryland Center for History and Culture, Baltimore, Maryland.

Photos to Accompany **DONOGHUE Article on William W. Watters**, his wife Caroline Plint, and his daughter Eliza Jane "Jennie" Watters, all Born in Cornwall, England

THE PEOPLE OF THE WATTERS DESCENDANCY – 13 photos

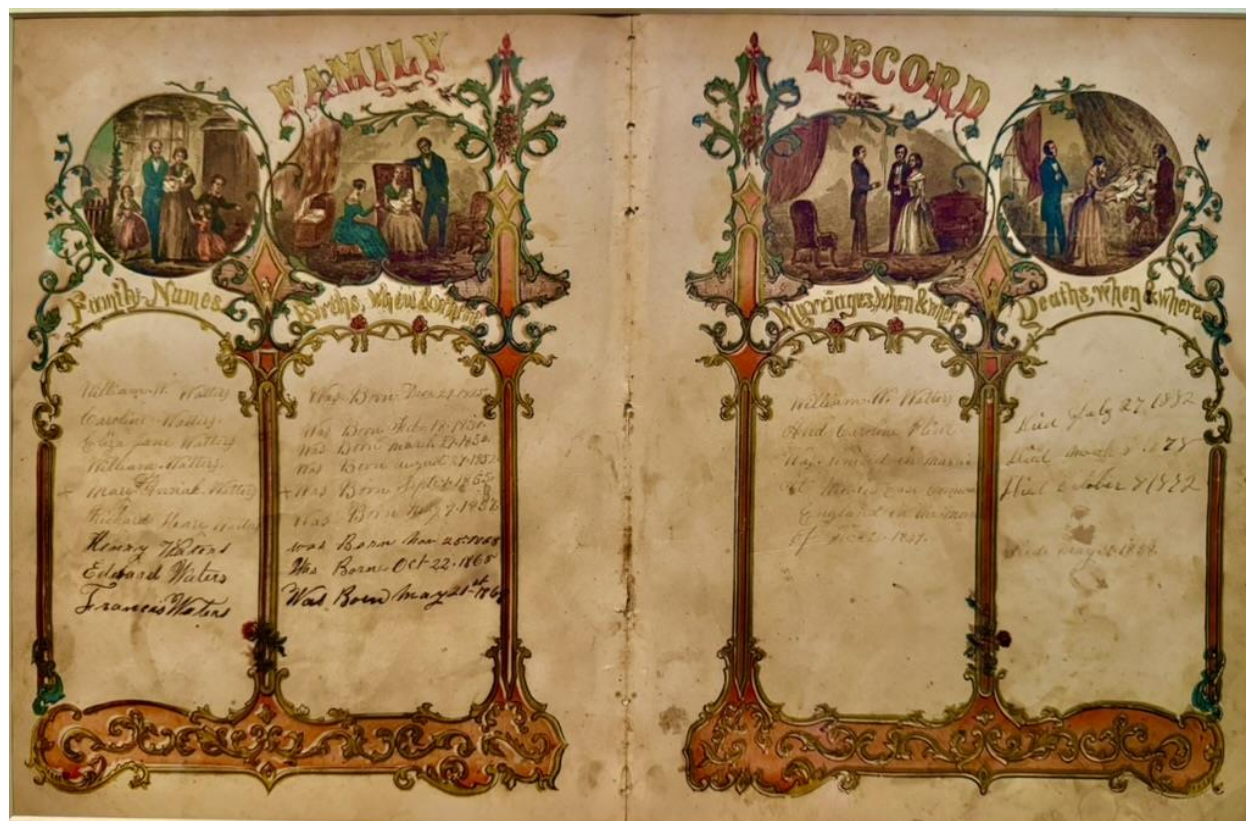


Figure 1. William W. Watters, Cornish mining engineer, age 45, ca 1870, in Lancaster County, Pennsylvania. Donoghue Archive.



Figure 2. William W. Watters, 45, and Caroline John Plint Watters, 20, ca 1870, the year of her wedding.

Unknown photographer.



**The William W. Watters & Caroline Plint Watters Family Bible Record
in Cornwall and in the USA, 1849-1883**

Figure 3. Watters family Bible records. On the L are the names and dates of birth of the seven children: William W. Watters, “Was born Dec. 29, 1825”; Caroline Plint Watters, Feb. 18, 1830; Eliza Jane Watters, March 27, 1850; William Waters, Aug. 27, 1852; Mary Hannah Watters, Sept. 1, 1855; Richard Henry Watters, May 7, 1857; Henry Waters, Nov 25, 1863; Edward Waters, Oct. 22, 1865; Francis Waters, May 21, 1868. On the R is written “William W. Watters and Caroline Plint was united in marriage at Newlin East, Cornwall, England, in the month of February 22, 1849.” Also on R is death date for Caroline “July 27, 1882.” It is unclear who died “March 8, 1878” (one year to the day after death of their 26-year-old daughter, Eliza Jane Watters Donoghue), but probably Richard WATTERS. Likely, it was Henry who died May 30, 1858. (Donoghue Archives).



Figure 4. Wedding photo of George Washington Donoghue and Eliza Jane “Jennie” Watters Donoghue, ca 1870. Photographer: “Groom's Second Above Spruce Street, Phila'd” Pennsylvania.



Figure 5, 6. Circa 1875 photo of George Washington Donoghue and Eliza Jane “Jennie” Watters reflecting good fortune five years after marriage. Left B&W, right colorized by author using Google Gemini.



Figure 7. George W. Donoghue showing off his new tinware shop in Christiana, Sadsbury Twp., Lancaster County, flanked on L by son "Will" Donoghue, 15, and on R by daughter "Carrie" E. Donoghue, 12, ca 1889. Unknown photographer.



Figure 8. George W. Donoghue showing off his new tinware shop in Christiana, Lancaster County, flanked on L by son “Will” Donoghue, 15, and on R by daughter “Carrie” E. Donoghue, 12, ca 1889. Unknown photographer. Donoghue Archive.

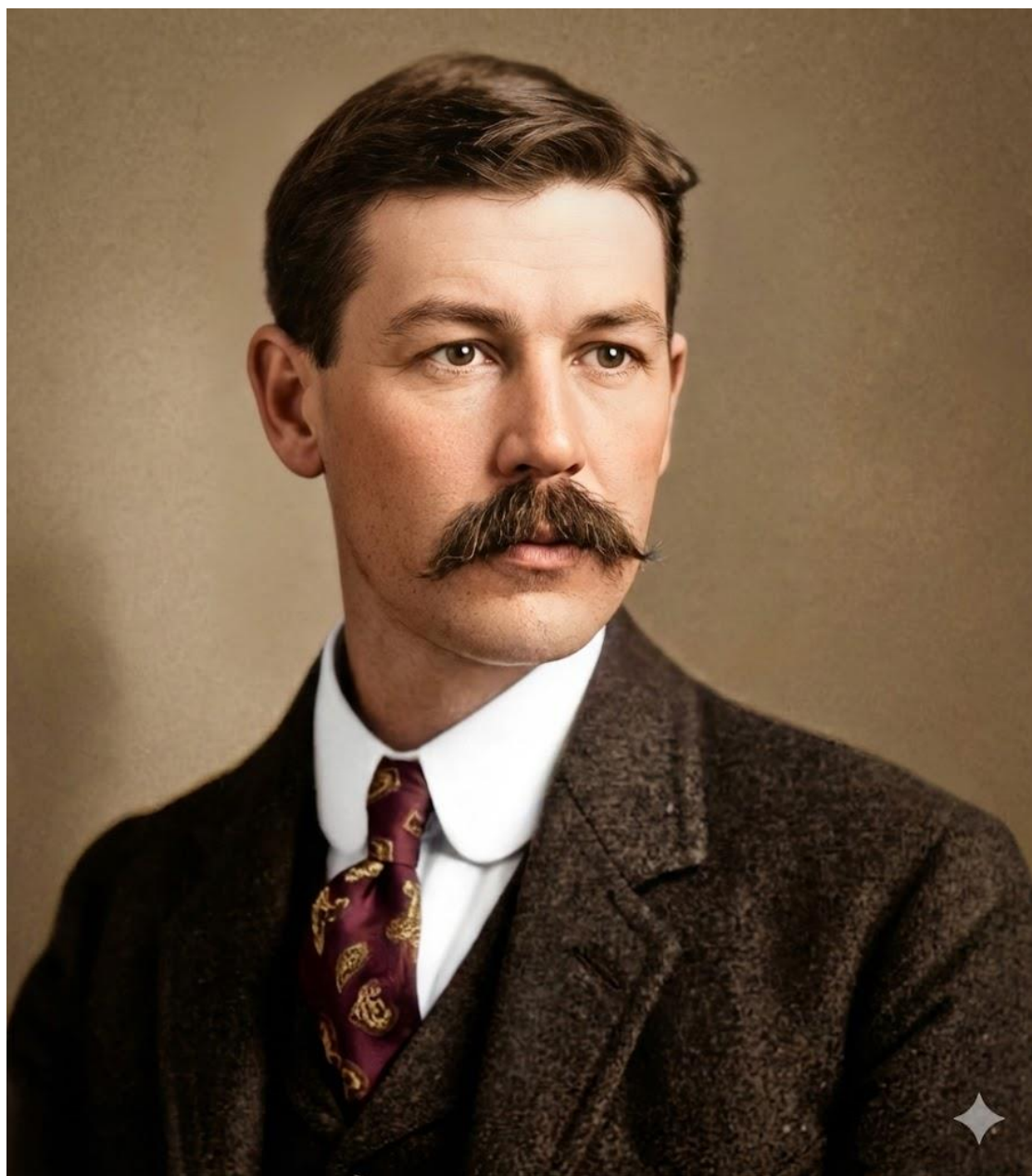


Figure 9. George's son William Edgar "Will" Donoghue (1874-1952), age 30, ca 1904, Lancaster Co, Pennsylvania.

Donoghue Archive.



Figure 10. Grandson of William W. Watters, William E. "Will" Donoghue, 53, standing L in his East End Hardware store in Coatesville, 531 East Lincoln Highway, Chester County, Pennsylvania, ca 1927. Unknown photographer. Donoghue Archive.



Figure 11. William Edgar Donoghue, "Poppy," the grandfather I knew, 77, 1951.

Photograph by my father, Norman E. Donoghue. Donoghue Archive.



Figure 12. "Uncle Working," photo of William W. Watters's granddaughter, Carrie Donoghue Disston, with her husband, Harry Disston, ca 1913, at "The Willows" Farm in Lansdale, Montgomery County, Pennsylvania. Photo by Norman E. Donoghue. (Donoghue Archive).



Figure 13. Great-grandson of William W. Watters, the author's father, Norman E. Donoghue in 1937.
(Donoghue Archive).

THE MINING PHOTOS – 14 photos



Figure 1. "Captain Doble is second from right in front," in this photo from the Internet which accompanied an article about the Gap Nickel Mines and the workers in the smelting operation nearby. Uncertain date between 1863-1893, unknown photographer. Public domain.



Figure 2. A photo of “Sam Armer” (standing upper left) and "Nickel Mine Workers" of uncertain date and photographer obtained on the Internet. Unknown photographer, unknown date between 1863 and 1893. It is likely that Doble is the figure in the foreground on R. Public domain.

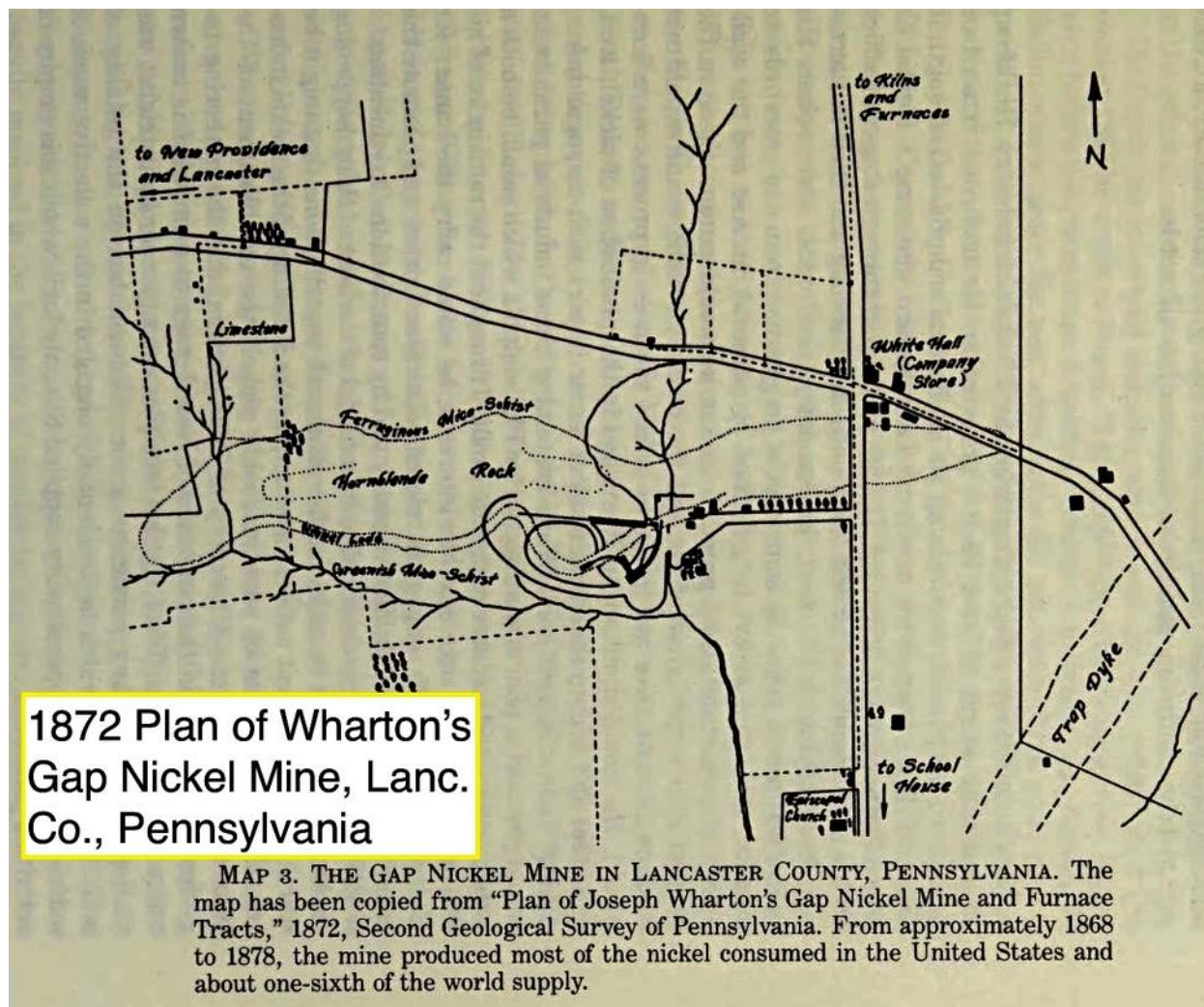


Figure 3. Plan of Wharton's Gap Nickel Mines, Lancaster Co., Pennsylvania, from the 1872 Second Geological Survey of Pennsylvania.



Figure 4. Signs appear to read “Nickel Mines Post Office”, “Doble & Snead, General Merchandise” in Nickel Mines, Pennsylvania. Seven men, two boys and one horse and cart stand in front of offices of Captain Charles Kneebone Doble, from Cornwall, England, superintendent of Nickel Mines, 1869-1893. Doble is regarded as the discoverer of nickel on the North American continent. Courtesy Walter Miller Collection at Moore Memorial Library, Christiana, PA. Public domain.



Figure 5. Twenty-six men, two boys and four horses at the Nickel Mines of Joseph Wharton in Nickle Mines, Lancaster County, Pennsylvania. No date, unknown photographer. Courtesy Walter Miller Collection, Moore Memorial Library, Christiana, PA. Public domain.

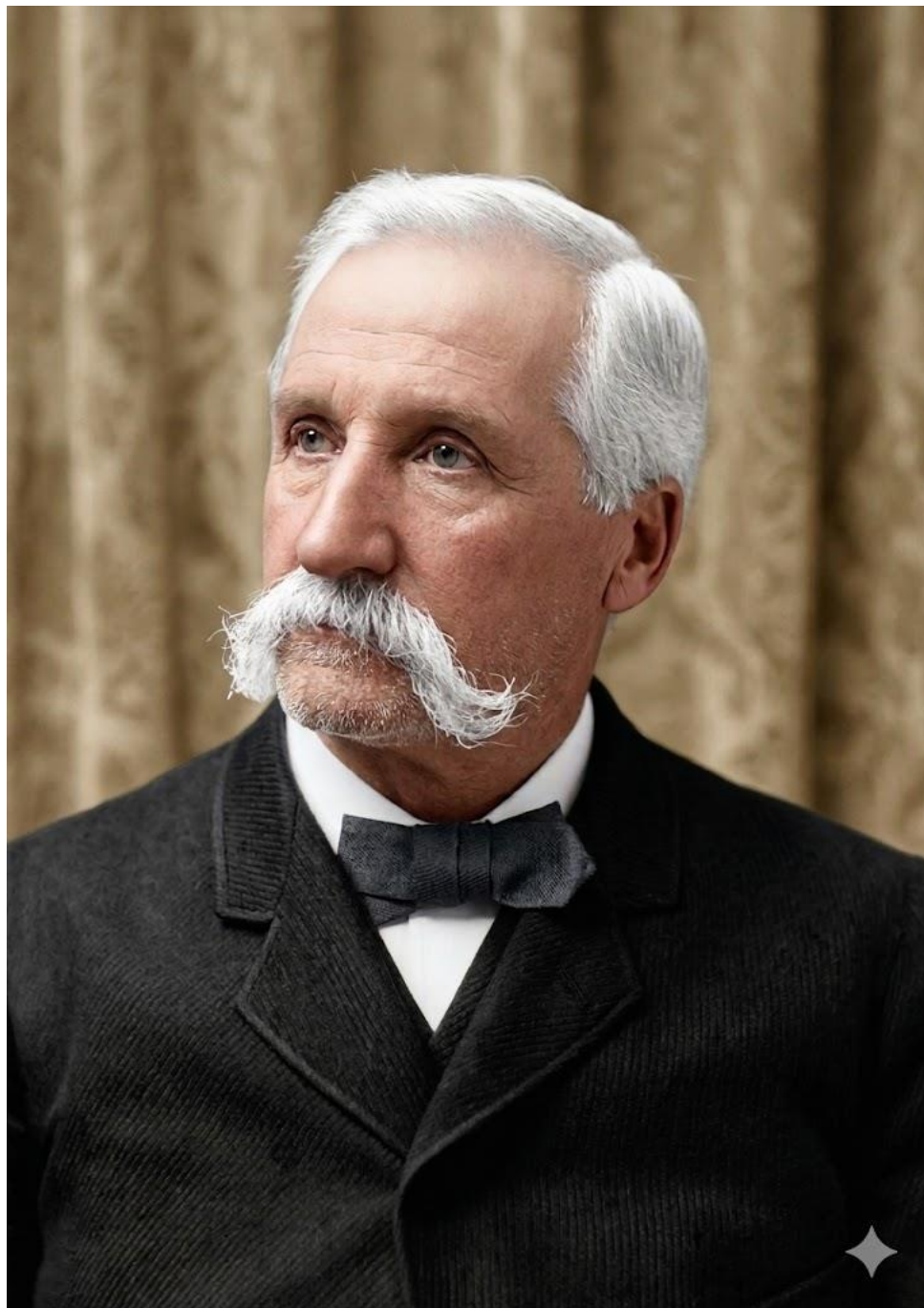


Figure 6. Charles Kneebone Doble (1826-1897), born in Truro, Cornwall, mine superintendent 1869-1897 at Gap Nickel Mines owned by Joseph Wharton. Public domain.



Figure 7. William W. Waters's boss, Cornish miner Capt. Charles Kneebone Doble's gravestone in cemetery of the Nickel Mines Mennonite Church at Nickel Mines, PA, in a recent photo. After Wharton promoted Doble to manager of the mines, in an address to company employees, Wharton decreed that Doble was to be known as "Captain Doble" just as his initial boss at Gap Mining Company had been Captain Williams. Courtesy Bill Simpson, *The Lancrastrian*, posted in 2017.

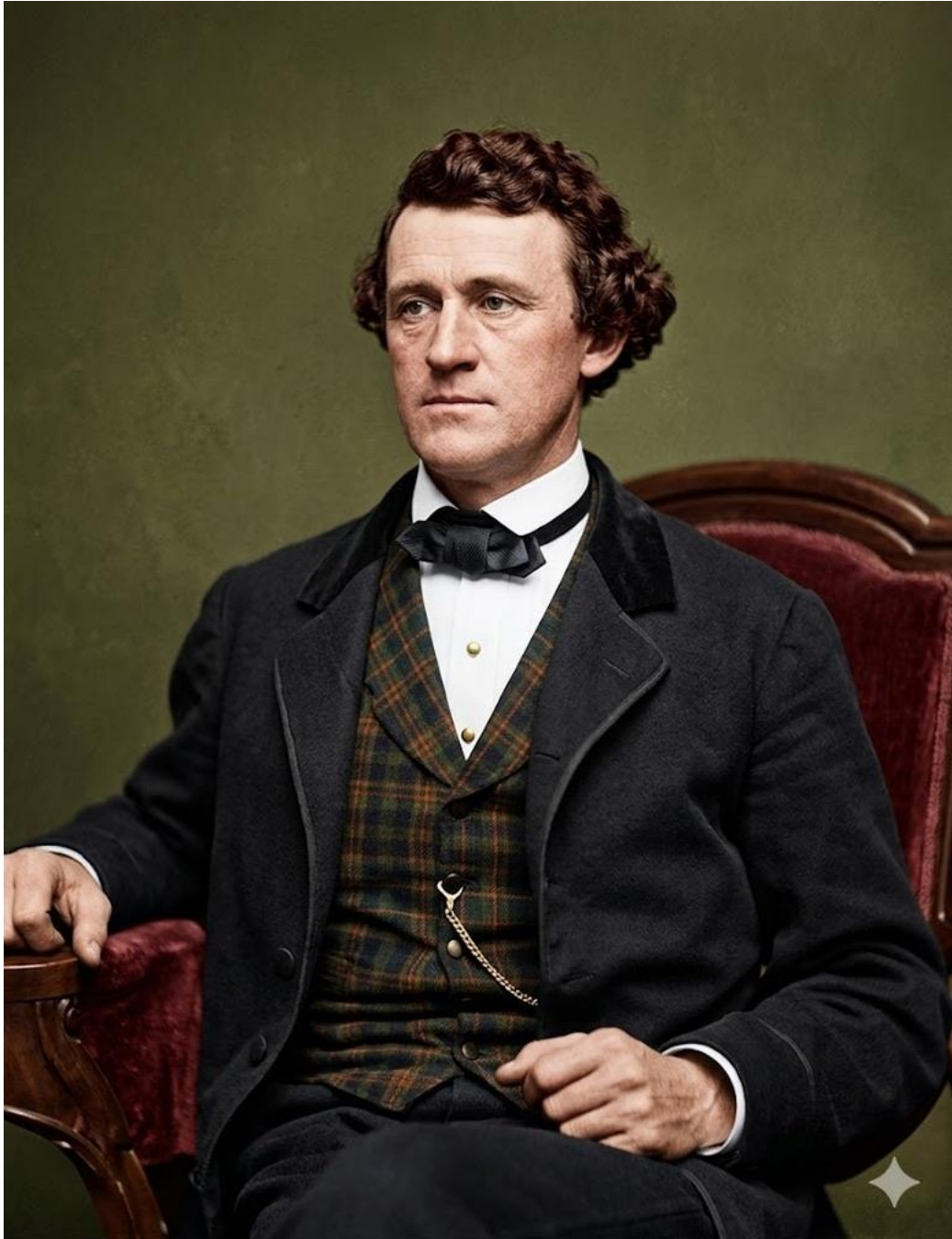


Figure 8. Joseph Wharton (1826-1909), circa 1850, Quaker mining industrialist, owner of Nickel Mines at Gap, Lancaster County, Pennsylvania, and controlling shareholder of Bethlehem Steel Corporation.

He was regarded as the leading metallurgist in the United States in the 19th century. Public domain.



Figure 9. Horse and carriage in Gap, Pennsylvania, during the 1860s. Going anywhere long distances in This mode of transport could be problematic. Unknown photographer and date. Courtesy of Salisbury Township Historical Society. Public domain.

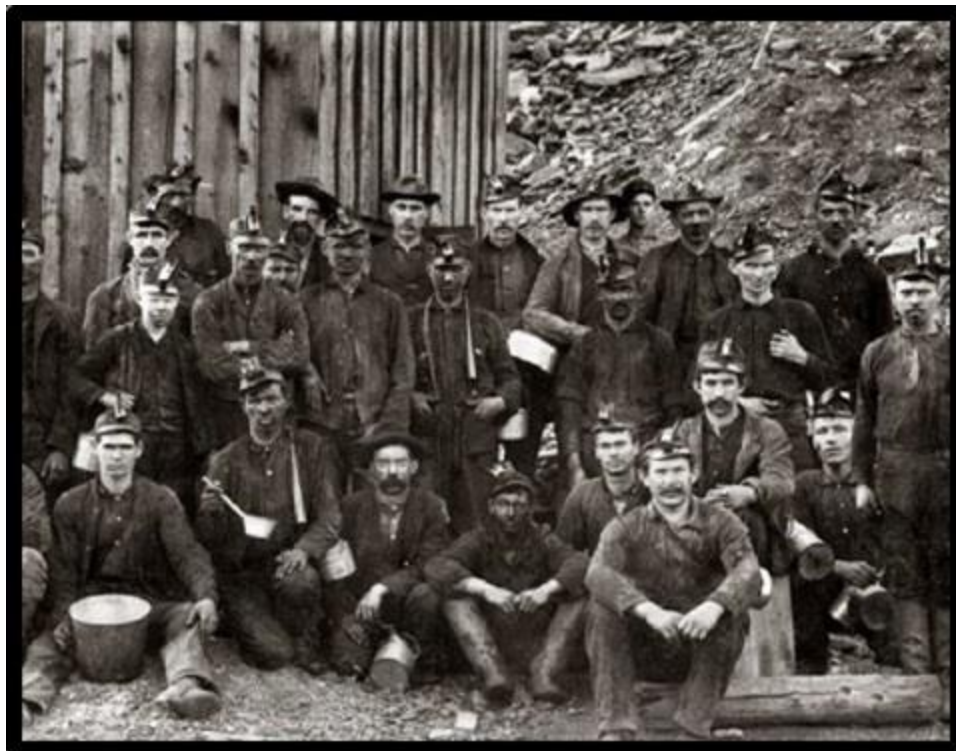


Figure 10. Miners in Schuylkill County, Pennsylvania, ca 1880. Unknown photographer. Public domain.



Figure 11. Crude miners' housing conditions in small town near Minersville in Schuylkill County, Pennsylvania. Note the communal outdoor oven. Courtesy Jake Wynn - Public Historian. Public domain.



Figure 12. Mine site in Mine Hill Township, Morris County, New Jersey. Courtesy Ferromonte Historical Society. (Ferro monte was Italian for iron mountain). Public domain.



Figure 13. Miners in Mine Hill Township, ca 1880s. Courtesy Ferromonte Historical Society, Morris County, New Jersey. Public domain.



Figure 14. Mining men in Boyertown magnetite mine, ca 1880s. Courtesy Boyertown Historical Society, Boyertown, Berks County, Pennsylvania. Public domain.

EDITORIAL NOTE: Photographs based on antique black and white photographs have been restored, sharpened for publication, and colorized to the period by the author using Google Gemini app, assisted by A I, in 2026 in order to bring out the many details and enable the reader to see the scene the photographer likely saw, rather than exactly what the early camera and film produced before color photography.