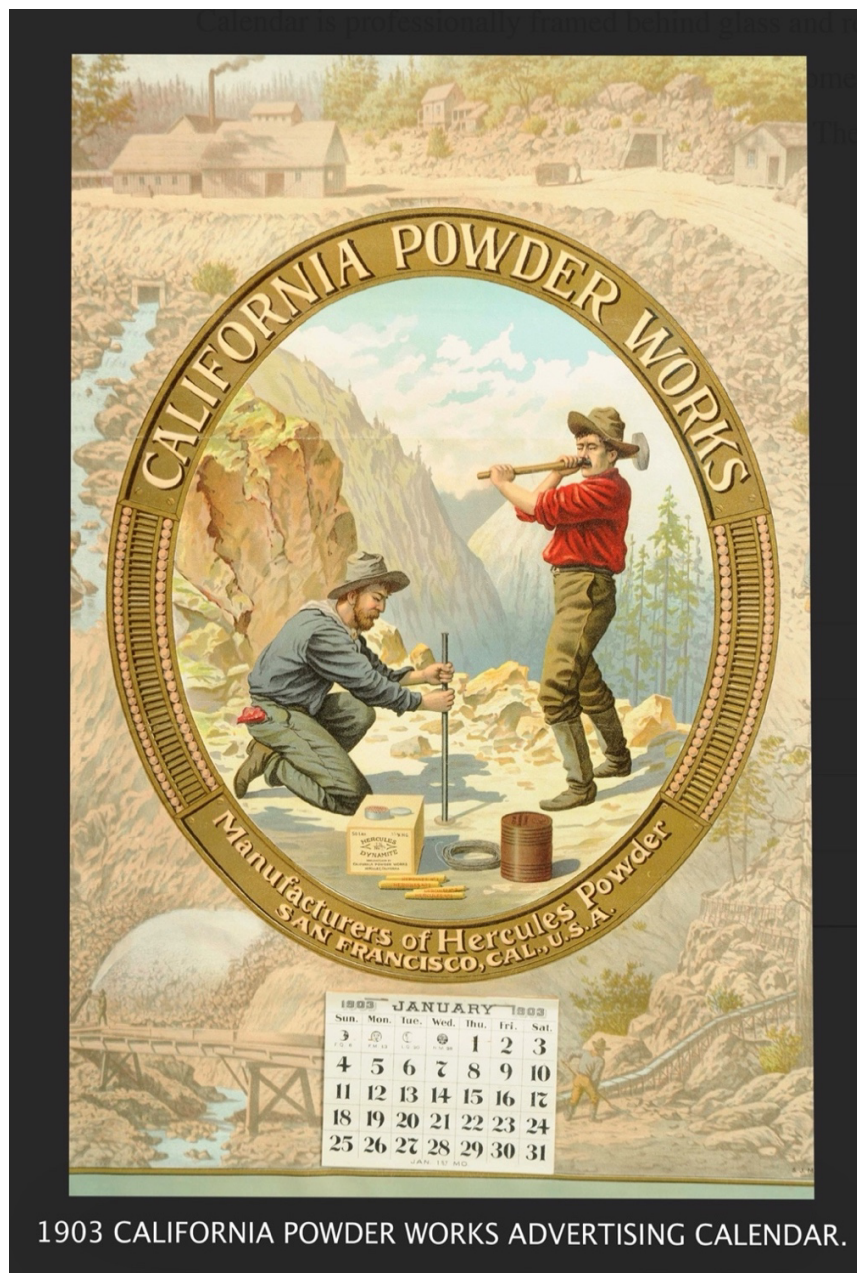


# *EUREKA!*

The Journal of Mining Collectibles

Issue 54 — September 2022



1903 CALIFORNIA POWDER WORKS ADVERTISING CALENDAR.

# Table of Contents:

German Miners' Beer Steins — Wendell Wilson — p 1-15

Theophilis Bowen's Safety Lamp — Wendell Wilson — p 16-19

Vibrogel Box — Doug Miller — p 20-24

Nobel No. 8 "Star" Blasting Cap Tin — Doug Miller — p 25-27

Miniature Mining Lamps — Doug Miller — p 28-30

W. H. Brown's Oil Wick Lamp — Dave Thorpe — p 31-34

California Powder Works — Doug Miller, Dustin Schillinger, Todd Mitchell — p 35-42

# German Miners' Beer Steins

Wendell Wilson

Over the centuries, the Germans have probably developed the most elaborate mining culture of any country. Almost every aspect of mining generated its own category of collectibles, especially in Saxony. In 2015 I published an article in the *Mineralogical Record* discussing just three of those categories: the Saxon miner's parade axes, the Saxon frog lamps, and the Freiburger Blenden lamps. Here I'd like to discuss the German miner's beer stein.



**Figure 1.** Miner's tankard from the Lower Harz region in gold and silver, dated 1732. Notice the gryphon on top with a rock hammer in his hand, and the pieces of ore (probably acanthite, silver sulfide) around him. The large engraved scene shows a mining area. Made by goldsmith H. A. Schumacher in Wolfenbüttel, for Vice- Berghauptmann Karl Albert Ludwig von Immenhoff.

In centuries past, as today, beer-drinking was an important social activity in Germany, especially among the various professions, and at all levels of society. Members of the royalty and aristocracy, proud of the mining history in their region and the wealth it generated, would sometimes commission their own special steins or metal tankards. These could be quite impressive.

And because Germans workers have always taken great pride in their trades and occupations, each profession had its own steins decorated appropriately. These are referred to today as “occupational steins,” and you can find them designed for a wide range of jobs including miner, carpenter, baker, brewer, farmer, coach-driver, electrician, barrel-maker, butcher, cheese dealer, night watchman, plasterer, rope-maker, tapestry weaver, landlord and many more. The first trade-related steins date back to the 1700s, but they were most common during the period from 1895 to the outbreak of World War I in 1914. (The German military community had their own equivalent in the “regimental steins.”)



**Figure 2. (left)** Beer stein from Freiberg showing the city emblem (center) surrounded by miners and crossed hammer symbols, dated 1720. The words on the banner, “Floreat Semper Freiberg,” are Latin for “Ever-blooming Freiberg.”

**Figure 3 (right).** Miner’s tankard from the Oberharz region, dated 1652. The miners on the lid are carrying ore baskets and pushing wheelbarrows full of ore.

Occupational steins vary in rarity and value, based in part on the population frequency of the occupation, with jobs like farmer, butcher, brewer and baker being the most common and least expensive. Mining steins are considerably rarer and more expensive. Also, the better-paid trades tended to yield more steins, but lesser-paid trades like miner and fisherman produced fewer. Value is also affected by the scenes depicted and whether they are individually hand-painted or applied by transfer techniques.

Occupational steins were often acquired during a person's school years while in training for a particular trade. A hundred years ago and more, the Freiberg Mining Academy in Saxony was such a highly respected institution that mining students from many other countries including the United States would not consider their education complete unless they spent at least a year studying in Freiberg. After classes they would join their fellow German students at the beer hall and have fun consuming enormous amounts of beer together. (Some American students wrote home that the toughest part of the curriculum was keeping up with the German students' unbridled consumption of beer and the resulting hangovers.) Each student had his own beer stein, many of them personalized with their name, and all generally equipped with a pewter or tin thumb-levered lid. The lid was important because it allowed you to swing your stein around boisterously while singing together without sloshing beer all over the guy next to you.

German mining-theme beer steins came in several categories, the most historically interesting being those personalized with the name of the owner, sometimes dated with a year, and occasionally with the name of a mining area. Steins from the Freiberg District often depict miners in the black mining uniforms typical of the area, and may show scenes typical of mining in the Erzgebirge region. Other steins, such as those produced by the Mettlach (Villeroy & Bach) company, represent more generic, decorative tributes to the mining profession and are not designed to be personalized. Even today, ceramics companies in Germany sometimes produce steins with a mining theme, just for the decorator and tourist market.

Following are some of the steins in my own collection. These are generally very rare, and do not show up in google searches, except perhaps for those shown in Figures 14 and 16.



**Figure 4.** This stein has the traditional miner's emblem of crossed hammers (*Schlegel und Eisen*) and below it a ribbon with the traditional miner's greeting "*Glück Auf*" (loosely translated as "Good luck coming up out of the mine"). German fliers used the equivalent greeting "*Glück ab*" (loosely translated as "Good luck coming back down" or "Happy landings"). There is room above and below the crossed hammers for the miner to personalize the stein with his name, but in this case the buyer chose not to.

On the left side is the image (applied by a transfer process, not hand-painted) of an old and distinguished Freiberg miner or mine captain, perhaps representing the father of the young Freiberg miner pictured on the opposite side. The writing around the top edge translates as “It would be better for the earth to perish than for a miner to die of thirst” (thirst for beer, that is!). The same expression can be found on occupational steins for other professions, substituting a different occupational name for “miner.”



**Figure 5.** This stein is personalized with the name “Simon Rauch, Fuhrmann, Peissenberg 1899.” A *Fuhrmann*, as the hand-painted illustration shows, was a mule driver, bring cars full of ore out of the mine to the surface—a very rare career as occupational steins go. Peißenberg is a municipality in the Weilheim-Schongau district, in Bavaria. It is situated 7 km southwest of Weilheim in Oberbayern.

The usual “Glück auf!” is written on the banner, and the expression written around the base translates as: “With good luck we climb to salute the sunlight every day, whereas he who gets to enjoy the sun all day takes its rays for granted.” This is a common sentiment among miners, in one form or another. As anyone knows who has spent a day working in the dark underground, coming back up to the surface into the bright sunlight once again brings a uniquely intense feeling of joy and relief. For at least a moment you no longer take daylight for granted.



**Figure 6.** A miner’s wedding was sometimes commemorated with a special beer stein like this rare and beautiful example, abundantly inscribed with good wishes. The central hand-painted illustration shows the miner joining hands with his new wife in front of a bouquet of flowers, with a “Glück auf” over the crossed hammers and a miner’s safety lamp hanging from the crux. The text above the flowers translates as “Wake up happy every morning, drink from your stein without worries.”

Around the top rim it says: “Hops and malt, may God preserve us.” On the left side of the stein: “May you drink from this stein for many happy and bright years to come.” And on the right side is the presentation to the groom, Anton Mittelbach, “to commemorate this year of 1908 for [our] dear son-in-law and daughter, greetings from Westphalia.” The stein was therefore a wedding gift from the bride’s family in Westphalia.

The maker of the stein, not having a lid design related to mining, could have used a generic lid but chose instead to use a military design featuring a soldier raising his drink, and emblazoned with “Consecrated to those who have served faithfully in their time, be blessed.” Perhaps the groom had served his time in the military before becoming a miner.



**Figure 7.** The upper inscription on this hand-painted stein translates as: “For the Name Day 1906, of D. Joh[ann] Asshauer, [from his] beloved mother and sister.” In Catholic and Lutheran regions of Germany a person’s “name day” (*Namenstag*) was the feast day on the church calendar devoted to the saint after whom he was named, in this case St. John (December 27). Name days were often celebrated even more than birthdays, including with the giving of gifts such as this stein, presented by the mother and sister of the recipient, who was clearly a miner by profession.

The front illustration shows two elegant, mustached miners in traditional black uniforms, crossed hammers, “Glück auf,” and the German words for “God be with us,” and “Long live the miner.” On the left side is a scene in front of a church, depicting the miner and his wife, with the words for “Thus is life most beautiful” (presumably meaning the churchgoing life). And on the right is a domestic scene with the miner and his wife seated at a table while she pours him a drink.





**Figure 8.** This stein has a classic occupational design applied by a transfer technique (i.e. not hand-painted). It is personalized for someone named Georg Peter. The central scene depicts a Saxon miner in full uniform, wearing his *Schachthut* (“shaft hat”) with the words “Glück auf” around it, and a background depicting mining facilities including a smelter stack. On the left side is an underground scene with a miner working by the light of a frog lamp.

The wording on the banner translates as: “Happiness on you, lovely sunshine; I greet you every day [coming out of the mine].” On the right side is another miner tramming an ore car by the light of a frog lamp. The banner continues the poetic sentiment, translating as: “[but] he who gets to enjoy your rays all day takes you for granted.” (It rhymes in German.)

I have another stein with exactly this same transfer design but with a different lid and without a personalized name. Instead, around the top are words translating as: “It would be better for the earth to perish than for a miner to die of thirst” (thirst for beer).



**Figure 9 (left).** This stein, personalized with the name of Heinrich Bachtod, carries an inscription around the top which translates as “While the silver is fresh, and the ore grows, God grant us all a happy heart.” Clearly he was a silver miner. The hand-painted front image shows two miners in full, black uniforms shaking hands under “Glück auf!,” a royal crown, crossed hammers, a ladder (very unusual) and an oil lantern. Below their hands is a second crossed hammers and what appears to be a burner. The vignette on the left side shows a miner underground wielding a pick, and on the right side another miner trampling ore out from the mine.

**Figure 10 (right).** A very tall stein personalized with the name of Hans Müller, above which are the crossed hammers and “Glück auf!” The scene above (applied by transfer) shows two hunters displaying to the womenfolk a fox they have just killed. There are no side scenes. The expression around the top reads *Frohe Zecher Roßlach* (“The *Roßlach* happy revelers”). *Roßlach* is a part of the municipality of Wilhelmsthal in the Upper Franconian district of Kronach in Bavaria.



**Figure 11.** This occupational stein is clearly mining-related because of the crossed hammers emblem and the words “Glück auf!” on the banner beneath. Above the crest is a metal wheel symbolizing the smelting or foundry arts and the words *Zum Andenken* (“In remembrance of”). Below the crest it is personalized with the name of “Wilhelm Weis” and the words for “Unity is strength.”

Around the top is the saying about how it would be better for the whole world to perish than for this guy to die of thirst for beer, but instead of “miner” the profession given is “Former.” A “Former” was a foundry molds mechanic or engineer in the smelter associated with a mine. In the vignette on the left side, the fellow is saying goodbye to his weeping girlfriend, offering words of slim consolation that translate loosely as “Oh girl, it doesn’t matter; Formers are as common as grains of sand on the beach.” (Sounds like he’s dumping her, the scoundrel; but why would he have such a scene hand-painted on his personalized stein?)

On the other side the man is having a beer with his friend, and the poem beneath translates as: “As long as the iron continues to flow, long live the lifeblood of the Former.” (It rhymes in German.) This reference to “flowing” iron (either iron ore “flowing” out of the mine, or molten, smelted iron flowing into a mold) is consistent with Wilhelm Weis being a smelter molds engineer at an iron mine, apparently a managerial-level job considering how well he is dressed.



*Figure 12.* This beautiful example, probably dating to 1900-1915, represents a different category of mining-related steins: those made purely as decorative items rather than as personal expressions of pride in being a member of the mining profession. The front vignette (there are no side scenes) shows a happy Kobold, one of the mythical German mining gnomes, holding his frog lamp and miner's pick. He is backed by a large "Glück auf!" banner and is kneeling on a crossed hammers shield.



**Figure 13.** This is another attractive and very detailed decorative mining stein, depicting (in the front vignette) two miners working underground by the light of frog lamps. On the right side are two more miners, one pushing an ore car and the other apparently supervising. On the left side is a single miner in full dress uniform with a high-ranking feather in his hat, a brass-tipped walking stick (*Berghäckel*), and a brass belt buckle with crossed hammers. Of course there is the obligatory “Glück auf!” at the top and a two-part poem which translates as “Happiness to you, lovely sunshine, be heartily greeted. He takes your rays for granted, who can enjoy you all day.”

Interestingly, the vignettes (applied by transfer) are decorated with pink flower blossoms of unknown significance, or perhaps just for beauty, and are highlighted by brush.

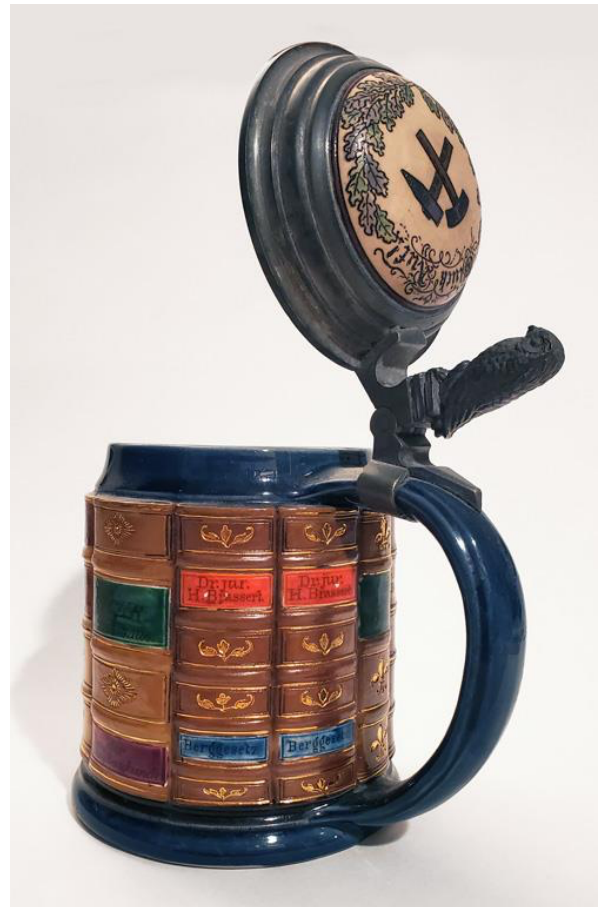
The uniforms of the miners are all gray instead of the typical Erzgebirge black that was common in Saxony for underground miners. This is merely a bit of artistic license on the part of the stein painter. Up until 1668, in the Erzgebirge (“Ore Mountains”), miners and smeltersmen all wore the same black uniform. After that date, differences were gradually introduced. Between 1719 and 1913, the black uniform was still standard only for silver miners throughout Saxony. For parade dress, white trousers were required for almost everyone. The black jacket was worn by miners whereas the gray jacket was worn by smeltersmen and foundry workers (a white jacket was worn by other kinds of workers). After 1842, all mining officials wore black jackets, and only the elders of the smelter's union continued to wear gray.



**Figure 14.** Among the better known commercial makers of beer steins and other ceramics was the Mettlach factory, a subsidiary of Villeroy & Boch. Their "golden age" of stein production was between 1885 and 1910. Situated on the Saar River in western Germany, the Mettlach factory was built in 1809, on the grounds of a former Benedictine Abbey dating to the 10th century. Founded by Johann Franz Boch-Buschmann, it became the company of Villeroy & Boch following a merger with Nicolas Villeroy in 1836.

The above example is design no. 980, made in 1909. On the front is a miner working underground, beneath a "Glück auf!" and crossed hammers on the overhead beam. On the left side is the King of the legendary Kobolds, Saxon miner gnomes, and on the right side are a couple of more gnomes looking out of a hole and listening to the hammering sounds of the miner.

The expression written on the banner above translates as "Proclaim it with a loud banging, good luck to all miners."



**Figure 15 (left).** We would call this a mug instead of a stein, but in Germany it's all the same: *Bierkrug*. I love this one because of the elegant crest with bands of mirror-bright gold, black, and mirror-bright silver representing the gold, coal and silver sought by the miners.

**Figure 16 (right).** Here is another unique, decorative beer stein from a Mettlach occupational series depicting a shelf of books pertinent to each profession. This one is for the mining profession, made in 1891. The crossed hammers and “Glück auf!” appear on a ceramic insert in the lid. Each book spine is carefully lettered with the title of a book that could be in a mine manager’s library. The books depicted are: *Berggesetz* (“Mining Law”) by Dr. Jur H. Brassert (2 volumes); *Katechismus der Bergbaukunde* (“Mining Arts Catechism”) by Stöhr; *Bergpostille oder Sarepta* (“Mountain Prayers or Sarepta”) by M. J. Mathesius dated 1578; *Der Bergmanns freund* (“The Miner’s Friend”); *Zeitschrift für das Berg* (“The Mountain Journal”) by Hütten und Salinenwesen; *Archiv für Bergbau* (“Archive for Mining”) by Karsten, dated 1818; *Bergreihenbuch* (“Mountain Range Book”) by C. Ch. W. Kolbe, dated 1802; *Die Nutzbaren Mineralien im deutschen Reiche* (“The Useful Minerals in the Kingdom of Germany”) by Dr. H. v. Dechen; *Bergbaukunde* (“Mining Arts”) by Köhler; and *Bergbaukunde* (“Mining Arts”) by Lottnerserlo.



**Figure 17.** Most miners' beer steins, at least from the 1895-1914 period, were made of porcelain, but some interesting decorative steins were also made in stoneware in later years. This one is unique in showing depictions of vertical sections through a mine, with miners working on various levels tramming ore, shoveling ore or chopping out ore. Two cars of ore are being raised in the shaft elevator.

The inscriptions on the left and right side translates as “Long live the honorable profession of miner.” Around the bottom the inscription translates as “Work is the citizen’s beer; blessings are the payment of effort.”

So where is the obligatory “Glück auf!”? At the top of the central scene is a mine building, with “Glück auf” in the tiniest letters across the top.

**Figure 18.** This stoneware stein, surely dating to much more recently than the 1920s, is actually a copy of the earlier porcelain occupational stein shown in Figure 5, right down to the inscriptions.





## MODERN STEINS

A fair number of decorative mining-themed steins have been produced during the 20<sup>th</sup> century. Some reproduce images of miners taken from early publication; others feature artwork by modern artists. They are generally quite inexpensive, and can occasionally be found for sale on websites like Etsy. For those who want to learn more about beer stein collecting in general there are, as you might expect, a range of books, magazines, auction houses, and national collector organizations that can be of help. A collection of beer steins looks great on a shelf, and the variety available seems almost endless, with collectors specializing in a wide range of sub-categories. But if you have the “collector gene” beware. You may find yourself spending money in a whole new field of collecting!

## SOURCES

KIRSNER, G. (1987) *The Mettlach Book*. Glentiques Ltd., Coral Springs, FL.  
MASENHEIMER, P. (undated) A brief description of occupational steins. MERK, G. (1995) Occupational steins. *The Beer Stein Journal*. WINKELMANN, H. (1971) *Der Bergbau in der Kunst*. Verlag Glückauf, Essen.

# Theophilus Bowen's Davy Lamp

Wendell Wilson

The Davy lamp—an oil lamp with the flame enclosed by a tall iron screen or “gauze”—was an early “safety lamp” design invented by Humphry Davy in 1816 as a light source (albeit a rather dim one) for use in methane-plagued coal mines where gas explosions were a constant danger. The design was particularly useful because the flame would become higher and brighter in the presence of methane (“firedamp” or “minedamp”), providing a warning, but would not ignite the atmosphere. It would also extinguish in the presence of low oxygen levels or dangerous levels of carbon dioxide (“black damp” or “chokedamp”). Consequently, the Davy lamp was used for over a century in British and American coal mines. In many cases a brass or copper reflector was wrapped around the lower part of the screen, making the flame project its light forward. Because they were so widely used for so long, Davy lamps are not particularly rare or expensive on the collector market, but their elegant shape and brass construction make them attractive additions to any collection of mining artifacts. (Amazingly, Davy lamps are still being made by several companies.)

One of the most prolific manufacturers of the Davy lamp (and the Clanny lamp, featuring a glass cylinder providing more light) was the Hughes Brothers company in Scranton, Pennsylvania, suppliers of mining equipment to the Pennsylvania coal mines. Their Davy lamps were typically 8.5 to 11.5 inches tall, plus a vest pocket edition measuring 4.75 inches, with a graceful concave cylinder base (oil chamber) and three bars (“standards”) connecting the cap assembly to the base. Stamped on the cap or around the top rim of the base was the maker’s name, “HUGHES BROS. SCRANTON, PA. U.S.A.”)

William S. Hughes, a skilled maker of safety lamps in South Wales, immigrated to the U.S. in 1882 and settled in Scranton. He had three sons, William H. (born in 1871), Ralph W. (born in 1875) and Sidney R. (born in 1877). The father was listed as working as a metal engraver after moving to Scranton until 1893 when he listed his occupation as a safety lamp maker at a new business located at 420 N. Main Ave. In 1898 the brothers William and Ralph formed the Hughes Bros. company at their father’s shop. Sidney joined the company as a partner in 1914. Hughes Bros. also introduced three new “Pathfinder” brand carbide mine lamps in the early 1910s. In 1918 the business moved to 410-412 North Ninth Avenue. After the end World War I, the demand for coal declined and along with it the demand for safety lamps. By 1929, William and Ralph Hughes had left the company, leaving Sidney in charge of the renamed Hughes Brass Works. The family business finally closed in 1937. (See Dave Thorpe’s, *Beneath the Surface – Inventors and Marketeers of the Miners’ Carbide Light*, pp 143-153.)

What makes any miner’s lamp more historically interesting, of course, is if it is marked with the name of the miner who owned it. In rare cases, Davy lamps have been known to carry the owner’s name engraved around the base or on the reflector. The example shown here is stamped “HUGHES BROS. SCRANTON, PA, USA.” around the rim. The most distinctive feature, however, is the oddly spelled name of “Theophelos Bowen” fancily engraved on the back face of the reflector.



**THEOPHILUS BOWEN**

Hughes Bros. Davy lamp signed "HUGHES BROS. SCRANTON, PA, USA." around the rim, and "Theophelos Bowen" (see below) fancily engraved on the back face of the reflector.



# HUGHES BROTHERS

Manufacturers of all Types of

## Miners' Safety Lamps

420 North Main Avenue

SCRANTON, PA.

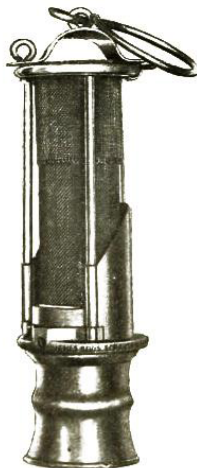
**PRODUCTS**

Miners' Safety Lamps and Supplies of all kinds.

**GENERAL.**

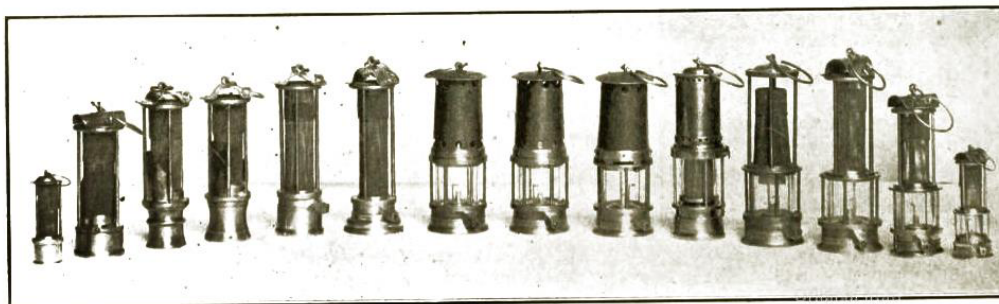
Safety first. You have every assurance that safety is first when using these lamps which have stood the test of Quality, Strength and Durability for over fifty years.

For complete line of lamps send for catalogue.



Pathfinder Acetylene Lamps.

The Lamp shown is our Cap or Head Lamp. It is constructed from extra heavy sheet brass, drawn into solid shells. There are no seams or joints on the outside to cause leaks. The valve seat is also a drawn shell, and the needle valve is made from a solid piece of rod, in such a way, that it conducts the water to bottom of carbide chamber, without any possibility of choking off the water supply. Our claims for these lamps are that they are the strongest upon the market, and will burn more steadily. One extra chamber furnished with each lamp.



MINERS' SAFETY LAMPS

UNIVERSITY OF ILLINOIS AT

Just for the record: **Theophilus Bowen** was a resident of Scranton, Pennsylvania, and served as a fireboss and section foreman for the Glen Alden coal mine. He was born in Aberdare, Glamorgan, Wales on January 13, 1869, the son of Sally Mellen and Benjamin Bowen, a coal miner at the Aberdare colliery. He appears on the Aberdare census for 1881 (already, at the age

of 13, with only an elementary school education, working in a coal mine) and immigrated to the U.S. in 1884, settling in Scranton and becoming a naturalized citizen.

Bowen lived in the Hyde Park neighborhood from 1894 until his death. He married Mary H. Evans in 1894 and together they had two daughters, Anna and Sarah. He was a member of the First Welsh Congregational Church, served as secretary of the Druid Glee Society in 1894 and received his Foreman's Certificate in 1898. In 1901 he was appointed Fireboss at the Hampton mine, where he had worked for several years. Very active in fraternal societies, he was a member of the Knights of Pythias (Deputy Grand Chancellor in 1911) and the Independent Order of Odd Fellows, serving as secretary in 1905. Also the Union Lodge No. 291, the Free and Accepted Masons, and the Keystone Consistory. In addition, he served as the Scranton correspondent for *The Druid*, the newspaper for Welsh people. He loved to sing on special occasions, and was known to give interesting coal-mining-related lectures. Example:

At the meeting of the Hyde Park Lodge, No. 306, Knights of Pythias, held in Masonic Hall last evening, Theophilus Bowen read a paper on "Chemistry and Coal Mining," which was enjoyed by all present. He described the various gases met with in coal mining and gave some very interesting information on the subject." (*The Scranton Truth*, May 8, 1909)

Theophilus Bowen died of heart failure in Scranton, Pennsylvania on August 31, 1945, at the age of 76, following a protracted illness.

# “Vibrogel” Box

Doug Miller

In July 2021, I wrote about my friend’s grandfather who worked for Hercules Powder Company at its plant in Carthage, Missouri, from 1936 until he retired in 1973.<sup>1</sup> Among other things, the article describes the process for manufacturing dynamite and the various “houses” where the work of making nitroglycerine and turning it into sticks of dynamite occurred. It also describes a catastrophic explosion that occurred at the plant in 1966 associated with the production of “Vibrogel,” a proprietary explosive, consisting of a stable combination of nitrocellulose and nitroglycerine that was used by the petroleum industry in exploring for oil. Shells of Vibrogel were dropped into bore holes, and when set off, the resulting vibrations from the explosions were measured with seismographs. My friend’s grandfather was away from the plant on the day the explosion occurred, arriving home, which was not far away from the plant, just in time to hear the explosion as he opened his front door.

Over his career, John McCann, my friend’s grandfather, held a series of positions of increasing responsibility at the plant. At one point early in his career, he worked in the Box Factory, where boxes were made for storing and shipping finished product. Recently, my friend, Tom McCann, sent me a text message telling me that had something for me and asked whether he could stop by to drop it off. Tom and I worked together for years in the Legal Department of the Central Arizona Project. Both of us are retired now. When Tom arrived, I discovered that he had brought two wonderful things for me, a wooden box for Vibrogel explosive and a company hat for the Hercules plant at Carthage. Both are like new.



The box measures 16 inches long, 12 ¾ inches wide, and ten inches high. The box ends are ½ inch thick. The sides and bottom are ¼ inch thick. The box looks like it’s made of rough-cut pine. The sides, ends, and bottom are made of tongue-in-groove panels, stapled at the joints. The sides and bottom are neatly secured to the box ends with nails.

<sup>1</sup> <https://www.eurekamagazine.net/MillerHercules.pdf>, accessed June 26, 2022.

The Hercules hat that Tom and his father gave me is typical of other company hats most of us have seen. It has an adjustable hat band at the back. It is dark blue, nicely made of a durable fabric, and has the later Hercules logo and the name of the Carthage, Missouri, plant on the patch in the front.



Tom told me that his father, Wayne McCann, a chemist by training, who was the most important source of information for my article about the Hercules Plant at Carthage, was cleaning out some things and he and Tom wanted me to have the box and the hat.

Collectors of dynamite boxes will note some differences between the boxes in their collections and the box pictured above. Perhaps most important is the lack of box joints found on many factory-made dynamite boxes. My box has butt joints and is nailed at the seams. It also has handle recesses that are nicely milled into the ends. I believe these are original to the box ends. I have found other examples on the internet. When I asked Tom whether the box came from his grandfather (I wasn't sure at the time), Tom asked his father, Wayne, who told him the full story of the box.

“My grandfather was foreman of the box factory there in Carthage at one point. He made that box himself out of scraps that he brought home. My dad was just a kid then, so probably late 1930s. They had some venison or other meat that relatives had given them but no place for it in their ice box. John made that box to fit in the window of their pantry (it was winter evidently) to keep the meat cold. The box stuck outside [the window] and he made some pieces to fit around it to cover the rest of the window opening. My grandmother rigged a piece of cloth to hang over the open side that faced indoors. It was like a supplemental fridge box.

“It was a small rental house they lived in and my dad says he slept in the pantry, so he slept under that window box. So it's not an official Hercules box, but is made from actual components. That also explains the nail construction. (I think the regular boxes may have been dovetail.)”

To me, this story makes the box all the more valuable. It's the story of a young couple of modest means making do with what they had while the husband worked full time in an essential and dangerous industry, manufacturing products of great value to the rest of the country. While the nails may not be typical of many factory-made dynamite boxes, they look like they might be factory original. Again, I have found other examples on the internet.

Vibrogel was and is an important commercial explosive used widely in oil exploration. It is still made by Dyno-Nobel, a successor to Hercules, and "has been in use in the geophysical industry for more than 80 years," according to this Dyno-Nobel technical data sheet.<sup>2</sup>

## VIBROGEL®

### Seismic Extra Gelatin Nitroglycerin Dynamite



#### Product Description

VIBROGEL is a high density, high velocity, high energy gelatin dynamite available in either a plastic or paper tube shell that has been in use in the geophysical industry for more than 80 years. VIBROGEL produces a sharp pulse of seismic energy and detonates completely at high velocity.

#### USE CAUTION WHEN SLEEP TIME IS ANTICIPATED

A loaded hole that is not shot immediately after the detonator tests positive with a ShotPoint Tracker™ or other testing device could fail for reasons beyond the control of the drill crew and product manufacturer. Reasons for failure could include but are not limited to geologic shifting, lightning, vandalism, farmer or animal interference.

#### Application Recommendations

- **NEVER** use Dyno Nobel seismic explosive products and/or components with explosive products and/or components made by other manufacturers.
- **ALWAYS** use the Dyno Nobel high strength seismic detonator for optimum results.
- Recommended temperature range is -40°C to 65°C (-40°F to 150°F). VIBROGEL is unaffected by extremely low temperatures but detonators produce less energy below -40°C (-40°F).
- VIBROGEL is not recommended for extended wet hole use / sleep time. Please contact your Dyno Nobel Representative for additional details.

### Technical Information



#### Properties

SDS #1019

Energy <sup>a</sup> (cal/g)	1,250
Gas Volume <sup>e</sup> (moles/kg)	26
Velocity <sup>b</sup> (m/sec)	6,100
(ft/sec)	20,000
Detonation Pressure <sup>b</sup> (Kbars)	133
Density (g/cc)	1.43
Water Resistance	Limited

<sup>a</sup>All Dyno Nobel Inc. energy and gas volume values are calculated using PRODET™, the computer code developed by Dyno Nobel Inc. for its exclusive use. Other computer codes may give different values.

<sup>b</sup>Unconfined 57 mm diameter x 2 kg charge.

#### IMPORTANT!

Ignoring these warnings may result in injury or death!

- **ALWAYS** exercise extreme caution when approaching a shothole that has not vented. Venting gases after detonation are common. BLOWOUTS CAN INJURE OR KILL.
- **NEVER** attempt to alter the product by cutting, sawing or disassembly of the package.
- **NEVER** drop load explosive into a borehole.
- **NEVER** attempt to dislodge explosives by pushing with a drill stem.
- **ALWAYS** shunt electric detonators and/or the blast circuit after testing and keep shunted until connected to blasting machine.
- **NEVER** unshunt electric detonators prior to use except to test with blasting galvanometer.
- **ALWAYS** ask if you don't know before proceeding.

#### Hazardous Shipping Description

Explosive, Blasting, Type A 1.1D UN 0081 II



S-02-08-18-15

See Product Disclaimer on page 2

**DYNO**  
Dyno Nobel

Groundbreaking Performance™

In 1975, the Picatinny Arsenal, in its multi-volume publication, *Encyclopedia of Explosives and Related Materials*, wrote:

The practice of seismic exploration required explosives with reliable performance after exposure to high water pressures for long periods of time, and so the *Vibrogel* seismic gelatins were developed. . . . In the late 30's and early 40's blasting caps for seismic use were developed which enabled the user to determine to within a few tenths of milliseconds the instant of detonation by monitoring the cap circuit. These caps were named *Vibrocaps*. Dynamite packaging improvements also followed. Long lengths of thick paper cartridges were developed to enable them to be threaded or screwed together to improve loading into the borehole. This was Hercules patented *Spiralok*.<sup>3</sup>


<sup>2</sup><https://www.dynonobel.com/~media/Files/Dyno/ResourceHub/Technical%20Information/North%20America/Seismic/Vibrogel.pdf>, accessed 6/27/22.



Gelatin explosives created by combining nitroglycerine and nitrocellulose are soluble in organic solvents, like acetone, but insoluble in water. This 1945 advertisement extolled the virtues of Vibrogel and its related blasting components, Vibrocaps and Spiralok, for use in seismic exploration.<sup>4</sup> Note that individual cartridges could be connected to one another with the Spiralok design.

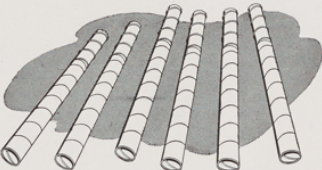
# ALL THREE DEVELOPED

## SPECIALLY FOR SEISMIC EXPLORATION . . .



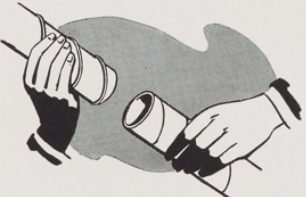
Scores of geophysical crews have improved the accuracy of their records, and saved time, too, by using this superior combination of Hercules blasting aids specially designed for geophysical prospecting.

**SPIRALOK** — the time-saving cartridge assembly  
Hercules Vibrogel explosives are furnished in the patented Spiralok cartridges — the spirally threaded containers that permit quick, easy assembly of a rigid, continuous column of explosives. The Spiralok assembly is strong, easy to handle, goes together with a few twists of the wrist, and gives double-walled protection useful under severe conditions.

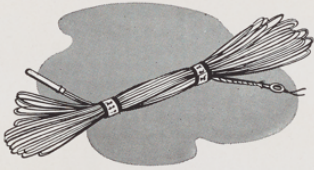


**VIBROCAP** — the no-lag electric blasting cap  
Time-break errors are completely eliminated with Hercules Vibrocaps. In no case does the bridge wire fuse before the cap detonates. Tests show that throughout the range of practical firing currents, there is no induction lag, not even one-hundred-thousandth of a second. We shall gladly furnish you with further details or price information.

**HERCULES POWDER COMPANY**  
INCORPORATED  
935 King Street, Wilmington 99, Delaware



**VIBROGELS** — for uniform, accurate results  
From the Vibrogels you may choose the right type of explosive for the various conditions encountered in seismic exploration.



HERCULES

}

**VIBROGELS\***  
—special explosives for seismic work

**SPIRALOK\***  
—the superior cartridge for seismic work

**VIBROCAPS\***  
—the no-lag seismic primer

\*Reg. U.S. Pat. Off. by Hercules Powder Company XO-53

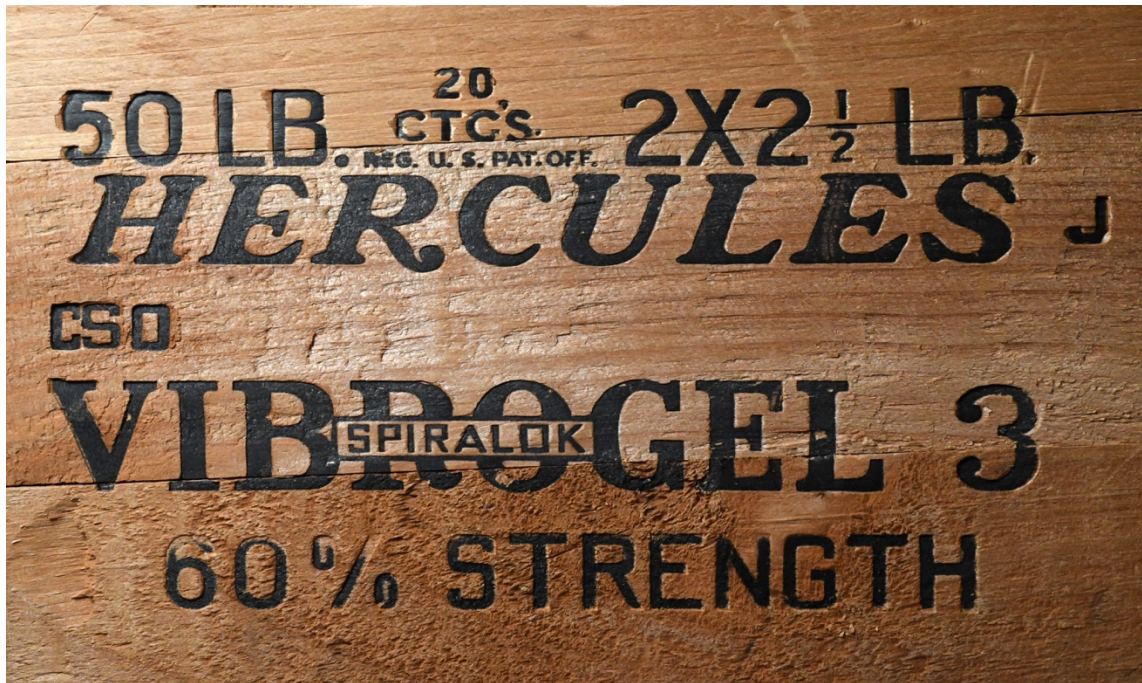
This advertisement appears in the July 2, 1945, issue of OIL WEEKLY; August, 1945, issue of A. A. P. G. BULLETIN; the October, 1945, issue of GEOPHYSICS; and the Nov.-Dec., 1945, issue of THE EXPLOSIVES ENGINEER.

PRINTED IN U. S. A.

<sup>4</sup> Basil T. Federoff & Oliver E. Sheffield, "Hercules Incorporated," in *Encyclopedia of Explosives and Related Items* (Picatinny Arsenal, Dover, New Jersey, 1975) H66.

<sup>4</sup> Hercules Incorporated. "All Three Developed Specially for Seismic Exploration..." 1945 Hercules Advertisements, 1945. Records of Hercules Incorporated, Volume 1945. Science History Institute. Philadelphia. <https://digital.sciencehistory.org/works/707958363>.

Cartridges of Vibrogel came in several different sizes. These were described on the box that contained them. This is the box-end of my box.



This box held 20 Vibrogel cartridges, each of which weighed 2 ½ pounds and was 2 inches in diameter. Described as “Vibrogel 3,” the strength of each cartridge was equivalent to straight dynamite containing 60% nitroglycerine.

Thanks again to my friend, Tom McCann, his father, Wayne McCann, and his grandfather, John McCann, for these wonderful artifacts from the explosives industry.

# Nobel No. 8 “Star” Blasting Cap Tin

Doug Miller



I first posted about this tin on the Blasting Cap Tin Collectors Face Book page on April 23, 2022, after I purchased it on eBay using the “Buy It Now” option. With a black top, an unmarked red bottom, and a paper label, the tin looks like a mismatch. In fact, when I bought my example, Steve Rush of Montrose, Colorado, had an identical tin for sale, and he noted in his listing that the “red painted bottom [is] likely not the actual tin’s bottom, [although] it matches the lid diameter well.” To his credit, Steve was being honest with his buyers about his doubts about the tin. After having found an identical tin listed by an Israeli seller, however, I became convinced that the tin was the real deal, doubly so when I found another example listed on WorthPoint.<sup>1</sup>

After I posted about this tin on the Blasting Cap Tin Collectors FB page, John Kynor, Sr., invited me to call him about the tin and I did so. John confirmed what I suspected about this tin, of which several examples are known. According to Jerusalem bomb squad experts that John knows, the tin is probably from the era when Palestine was a British protectorate (prior to 1948), although they had never seen one before John Kynor made them aware of it. They tracked down and investigated the owner of these tins and determined that he was simply a collector and was not in possession of any of the blasting caps that came with them. The seller of my tin, who is from Haifa, Israel, told me that he had acquired the tin from an old collector. He also told me that

he was sending me the one pictured in his eBay listing, suggesting that he has others. I wish this tin could tell its own story.

The Star on the tin, which is similar to the Israeli “Star of David,” is indicative of a stronger cap, and is not indigenous to Israel. The cap and tin were made in Great Britain and sold by Nobel of Glasgow, Scotland. These caps were probably sold throughout Great Britain and its colonies and protectorates.

I love the design of the tin. It is unique in its color and configuration. For me, its association with Israel and Palestine, makes it even more desirable. The tin was made for a No. 8 blasting cap. The tin is 3 inches long, 2 1/2 inches in width, and 2 inches tall. It has plain, red sides, and a paper label that wrapped around the tin from front to back. A remnant of the label suggests that the name **NOBEL** was printed in large, block type on at least one side of the paper label. Underneath the paper label, the top is a dark, gun-metal grey. Here are some detailed photos of the tin.





End Notes:

“RARE VINTAGE NOBEL GLASGOW 8 DETONATORS THISTLE BRAND TIN GREEN LABEL DAVID STAR,” <https://www.worthpoint.com/worthopedia/vintage-nobel-glasgow-detonators-1929946736>, accessed April 24, 2022.

# Miniature Mining Lamps

Doug Miller

Awhile back, my friend, Reg Pattee, gave me a set of miniature mining lamps. I submitted a photograph of the lamps to several mining artifact groups, asking whether anyone knew where they came from and who made them. Sadly, no one knew the answers to these questions; however, I think I've learned a bit more about them.



The lamps appear to be handmade. They are beautifully made of brass. The tallest lamp is 2 ½ inches in height. The two lamps at the ends have moveable handles with large hooks attached in the center of each. Tiny copper rivets secure the handles to the bodies of the lamps. The lamp on the left is missing its reflector, but I think that is intended since these lamps are most often found without reflectors.

In poking around on the internet, I've concluded that the two lamps on either end are replicas of Wolf hand lamps and the lamp in the middle looks much like a Friemann and Wolf safety lamp. On a Pinterest webpage, I found a photograph of a pair of Wolf lamps that are identical to the miniature hand lamps shown above. On their Pinterest webpage, "Mining Lights from Bisbee," authors Douglas and Richard Graeme identify these as:

"Two Wolf style carbide lamps. One still retains its original reflector. The reflectors were of a poor design and almost all were lost or destroyed. In old mining photographs the reflector is normally missing." <sup>1</sup>



On WorthPoint, I found this illustration of a Friemann and Wolf Safety Lamp that bears a strong resemblance to the miniature safety lamp given to me by Reg.



The WorthPoint listing describes the lamp as an “[a]ntique miner’s lamp . . . made by Friemann and Wolf of Sheffield, England.”<sup>2</sup>

When I asked Reg whether he recalled how and where he acquired the miniatures, he told me that he thought he picked them up at one of the Tucson mining artifact shows from a dealer from Germany. After getting some help from Dave Thorpe, I contacted Siegbert Zecha (“Siggy”) and his wife, Karin Sielbach. They told me that they don’t know who made these miniatures or where they were made, but that they did have miniatures like these that they may have sold at the Tucson show many years ago.

I found one set of miniatures similar to those Reg gave me listed on WorthPoint.



WorthPoint describes these as a set of three miniature carbide lamps from an Arizona collection of mining artifacts. They are described as having been handmade of machined brass. The tallest of the three lamps is 3 1/2 inches in height, and the smallest lamp is 2 inches in height. This set of three lamps sold on November 18, 2020, for \$110 on eBay.<sup>3</sup>

I suspect that the lamps Reg gave me are of German origin and represent European style mining lamps, particularly the Wolf canister and safety lamps. Miniatures of Davy style safety lamps are plentiful on eBay, especially in the United Kingdom, but miniature lamps like the ones Reg gave me are unique, scarce, and of very high quality.

#### End Notes

1. Pinterest, Douglas and Richard Graeme, "Mining Lights from Bisbee Arizona," <https://www.pinterest.com/pin/136304326193210133/>, accessed September 1, 2022.
2. WorthPoint, <https://www.worthpoint.com/worthopedia/friemann-wolf-vintage-miners-lamp-499141913>, accessed September 1, 2022.
3. WorthPoint, <https://www.worthpoint.com/worthopedia/antique-miniature-carbide-lamps-3763118283>, accessed September 1, 2022.



# W. H. Brown's Oil Wick Lamp

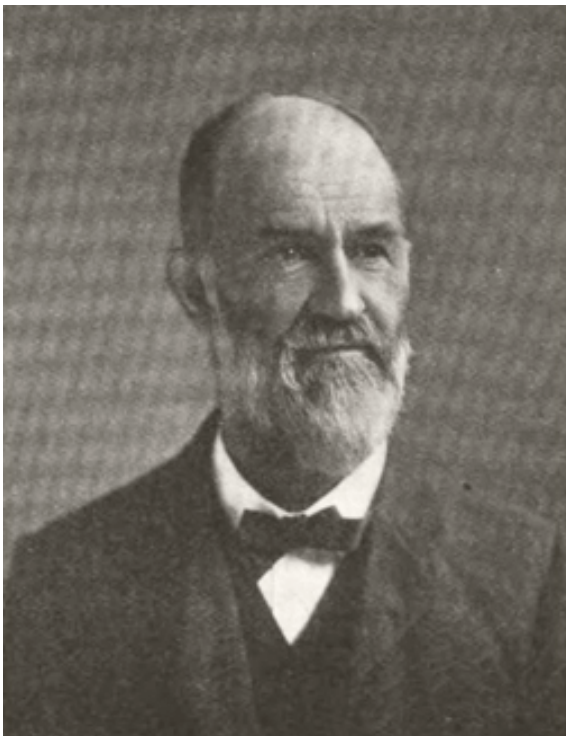
Dave Thorpe

A small oil wick cap lamp was sold at auction in Pennsylvania. Clearly stamped on the font is:

W. H. BROWN

CIVIL ENGR.

William H. Brown (1836-1910) was one of Pennsylvania's most famous civil engineers. He became Chief Engineer of the Pennsylvania Railroad and his specialty was the design of stone railway bridges, from which he acquired the nickname 'Stone Man.' Could this coal miner's style oil wick lamp have possibly belonged to the railroad engineer?



*Left: William H. Brown, Right: Miner's oil wick lamp stamped W. H. BROWN, CIVIL ENGR*

The seller of the lamp stated that: "My mother bought this lamp years ago from the daughter of Baird Halberstadt. Baird was from Pottsville, PA and was a noted mining engineer and geologist, well known and prominent in the U.S., Great Britain, Scotland, and mining societies. He passed on around the 1930s. [His daughter] Ann passed away several years ago at the age around 100. Baird founded, and was the head of the Historical Society of Schuylkill County for many years."

## PROMINENT GEOLOGIST DIES AT POTTSVILLE

**Baird Halberstadt Served Many  
Government Agencies.**

Baird Halberstadt, 74, internationally known geologist, discoverer of the Pottsville conglomerate, and one of Pennsylvania's most brilliant engineers, died yesterday at St. Agnes Hospital, Philadelphia, where he underwent a serious operation last week.

He was graduated from the University of Pennsylvania and the International Institute, Paris, France. From 1881 to 1886 he aided in a geological survey of Pennsylvania. In 1887 he became an engineer and was made superintendent for the Tazewell Coal and Iron Company. Two years later he became assistant to Dr. Charles A. Ashburner, nationally known coal expert, and until 1891 was a special agent and expert for the eleventh United States census. He was a special technician and correspondent for a group of mining journals.

Mr. Halberstadt was an expert witness in many court trials involving valuable coal tracts and was consulting geologist for the state board of agriculture from 1909 to 1919. For a number of years he was attached to various branches of the Pennsylvania National Guard.

From 1917 to 1919, Mr. Halberstadt was federal fuel administrator in Schuylkill County, and was chairman of the material and membership committee of the Public Safety of Pennsylvania. He was a life long Republican and for several years served as alderman of the Seventh Ward, Pottsville. He was a son of the late Dr. Andrew Howell Halberstadt and Mrs. Augusta Baird Halberstadt.

Surviving is his widow, the former Miss Ida Ray Smith, Pottsville, and two children.

Halberstadt's obituary confirms this. Given that he was a generation younger than W. H. Brown and was passionate about local history, Halberstadt was at least aware of Brown, if not personally acquainted with him. In any event, it appears that he owned and preserved Brown's lamp until his own death in 1934.



An outstanding biography of Brown's professional life was written in 2014 by Michael Frolio, and to my knowledge exists only in electronic form on-line. It is titled *William H. Brown: The Tale of Two bridges*. Brown is said to have begun with the railroad in 1850 at only fourteen years of age, working as a rod man on a survey crew. Thirty one years later, in 1881, he was promoted to Chief Engineer of the Pennsylvania Railroad. He was most famous for designing Roman style stone truss bridges in a time when steel span bridges were the popular structure. He argued that the stone needed for construction could always be obtained near the rivers. An obituary in the *New York Times* notes that he built 163 stone bridges including the world's largest: the Rockville bridge. All but one are still in use today.



*Conestoga River bridge built by William H. Brown. Photograph by William H. Rae, from the collection American Premier Underwriters, Inc.*

Brown retired in 1906. His renown and success in bridge and tunnel building apparently brought him great reward, for his home in Philadelphia was practically a mansion.



*Left: Brown's home, 3510 Baring Street, Philadelphia, PA from the 1889 Directory.*

Brown died in 1910 while visiting northern Ireland. He is buried in Laurel Hill West Cemetery outside of Philadelphia. Frederic E. Baldwin, inventor and pioneer of the miner's acetylene lamp is buried just across the Schuylkill River in Laurel Hill Cemetery.

The seller of the Brown oil wick lamp stated that his mother bought the lamp from engineer Baird Halberstadt's daughter Ann[e]. A review of US Census reports show that Halberstadt remained single until his 50s. The 1930 census does indeed show the 70 year old

living with nine year old daughter Anne. She was also active in the Schuylkill County Historical Society, which her father founded, and at some time prior to her death in 2012, she sold Brown's oil wick lamp to the mother of the person who sold it at auction. I am happy to keep the W. H. Brown lamp alive.

# California Powder Works

Doug Miller, Dustin Schillinger, and Todd Mitchell

Up until the Civil War, all black powder used on the West Coast had to be imported from the East or from Europe. Californians desperately needed a West Coast manufacturer of blasting powder to supply the mines and for construction of the western end of the proposed transcontinental railroad. A group of four entrepreneurs organized California Powder Works for this purpose. The company was incorporated on December 28, 1861, and it constructed its first black powder plant about four miles from the town of Santa Cruz, California.<sup>1</sup> According to records of the Hagley Museum and Library in Wilmington, Delaware, “[w]hen it began manufacturing gunpowder in 1864, the California Powder Works became the first explosive powder manufacturing company west of the Rocky Mountains.”<sup>2</sup>



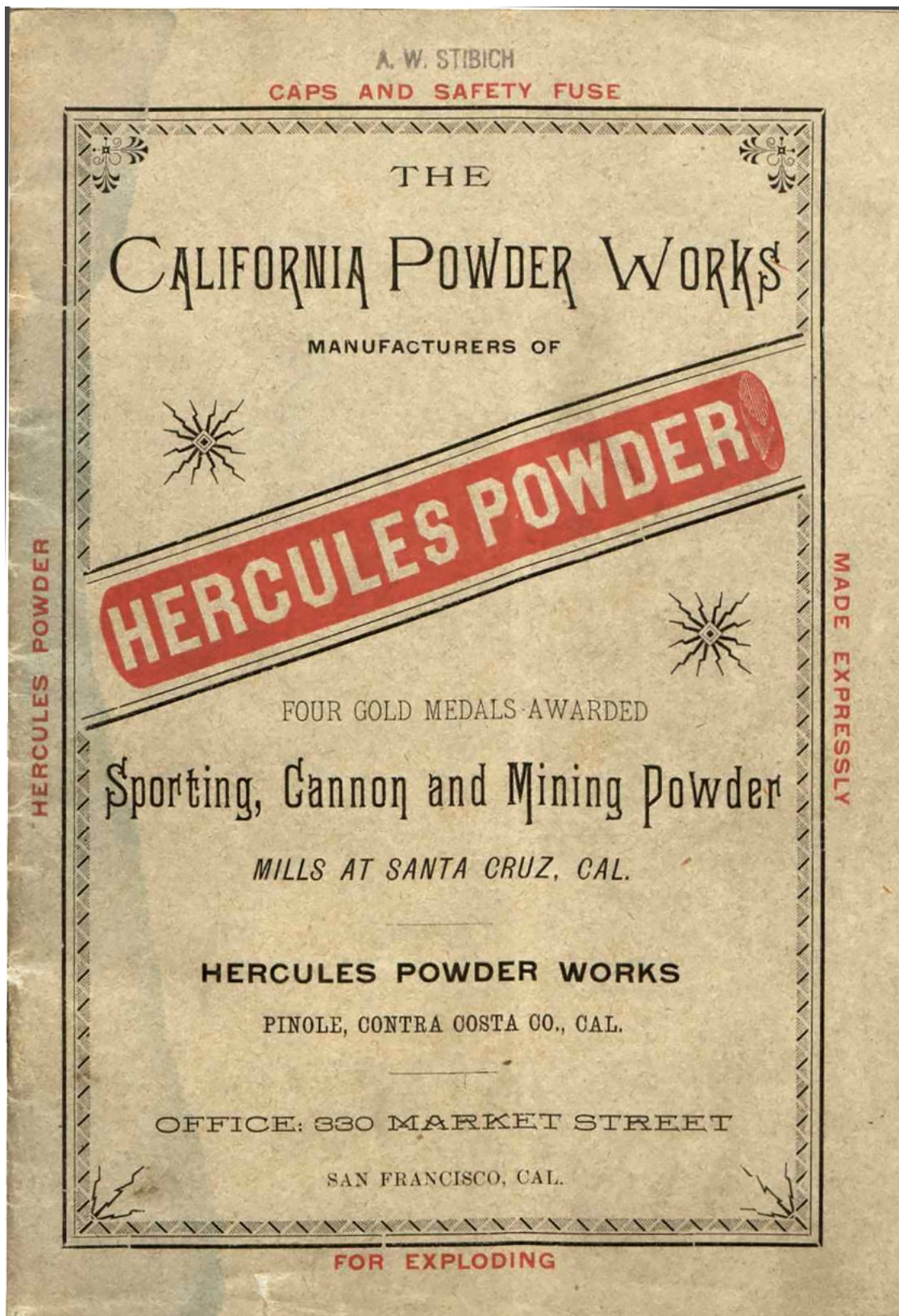
CALIFORNIA POWDER WORKS, SANTA CRUZ COUNTY, CALIFORNIA  
1875

It wasn't long, however, before dynamite began displacing black powder as the explosive of choice for fracturing the hard California rock. Alfred Nobel had invented dynamite, a mixture of nitroglycerine and an absorbent, and obtained a British patent for his invention in May of 1867.

This new explosive had the explosive power of liquid nitroglycerine but was much safer to use. In 1868, Nobel sold the first North American license for the manufacture and sale of dynamite to Giant Powder Company of San Francisco, a company Nobel had urged its investors to create. Giant became the sole licensee of the new explosive. Giant built its first commercial dynamite manufacturing facility in what is now Glen Park, San Francisco. After that facility was destroyed by explosion in 1869, Giant began operations at a new site in the sand dunes of what is now Golden Gate Park.<sup>3</sup>

The men of California Powder Works saw the potential of dynamite and attempted to imitate it, enlisting the help of James Howden who had operated a nitroglycerine factory for the Central Pacific Railroad. In 1871, Howden developed an explosive consisting of black powder coated with nitroglycerine, which was marketed by California Powder Works under the name "Black Hercules." However, Black Hercules did not perform as well in hard rock as Giant dynamite. Eventually, Howden developed a nitroglycerine dynamite with an active base, an absorbent that participates in the explosion. California Powder Works began marketing this product in 1874 under the name "White Hercules." The product was successful and put California Powder Works in direct competition with Giant. The choice of the brand name "Hercules" for its dynamite was a deliberate jab by California Powder Works at Giant because it was Hercules who had slain the giants of Roman mythology.<sup>4</sup>

California Powder Works had also built a dynamite manufacturing facility in the sand dunes west of San Francisco. In 1877, that plant exploded. Both California Powder Works and Giant Powder Company came under pressure from the City of San Francisco to move their manufacturing facilities farther away from the growing city. The site chosen by California Powder Works for a new dynamite manufacturing facility was a 3,000-acre tract across the bay from San Francisco at Point Pinole. By 1881, boxes of dynamite began rolling out of the company's new plant. In that same year, California Powder Works changed the formula for its dynamite, substituting inactive magnesium sulfate for a more active compound in its absorbent. It gave its new dynamite the brand name "Hercules Powder." By the 1890s, the town that grew up around the plant was officially incorporated as "Hercules, California."<sup>5</sup> Dynamite production increased rapidly at Hercules, and by 1898 had reached about 15,000,000 pounds annually.<sup>6</sup> In 1903, significant changes were in the offing for California Powder Works. DuPont had acquired a significant stake in the company in 1896, and in 1903 bought the rest of the shares of the company. In 1906, DuPont dissolved California Powder Works as a corporation and absorbed its assets. In 1911, the United States Supreme Court ordered the breakup of DuPont for violation of the Sherman Antitrust Act. In 1912, the Hercules plant at Pinole became part of a newly formed Hercules Powder Company. Hercules Powder Company operated the plant successfully into the 1970s.<sup>7</sup>



Hagley Museum and Library has early catalogues from California Powder Works, one of which is entitled "The California Powder Works, Manufacturers of Hercules Powder." It is dated 1897.<sup>8</sup> On its cover, the place of manufacture of Hercules Powder is identified as "Pinole, Contra Costa Co., Cal." The company's business address was 330 Market Street, San Francisco.

The 1897 catalogue describes the Hercules Powder made by California Powder Works as “a mixture of nitroglycerine with the Hercules formula in different proportions to form the different grades.” According to the catalogue, the explosive was “a plastic but crumbly white paste.”<sup>9</sup>

The dynamite made by California Powder Works at the Hercules plant was made in seven grades:

Number	Percent Nitroglycerine
1	70%
1*	60%
1**	50%
2	40%
2*	35%
2**	30%
3	20%

The higher percentage of nitroglycerine produced more explosive force when it was detonated, but it was more expensive for the miner. The catalogue says that No. 1 strength was suitable for the hardest rock, while No. 2 “has wide application, being the most economical for average blasting.” Their dynamite was put up in cartridges eight inches long but of different diameters for use in a variety of bore holes. Their cartridges were packed in crates of ten, 25, and 50 pounds to the case. California Powder Works recommended the use of either conventional or electric blasting caps to detonate their dynamite. The catalogue says that “the regular caps made for Hercules Powder are the best and most reliable; they are strongly charged with fulminate. Packed in tin boxes, 100 caps each.” These blasting caps were undoubtedly made by California Cap Company, and were supplied in XXX, XXXX, and XXXXX strengths. The catalogue recommended XXXX caps for ordinary use.<sup>10</sup>

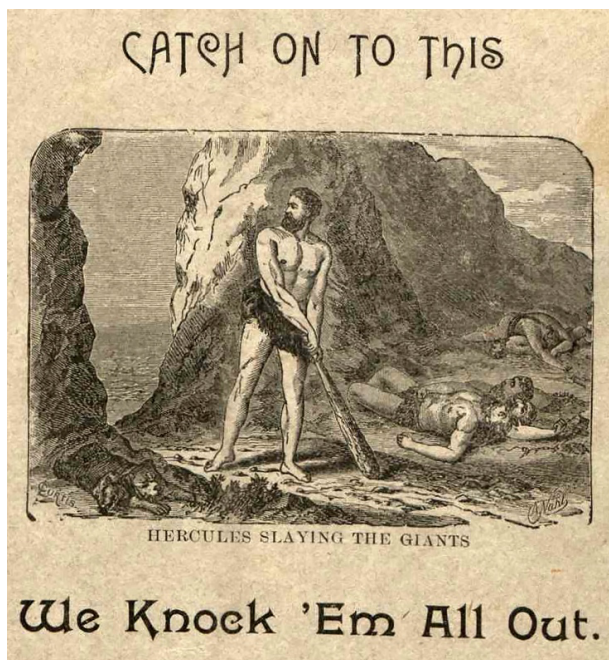
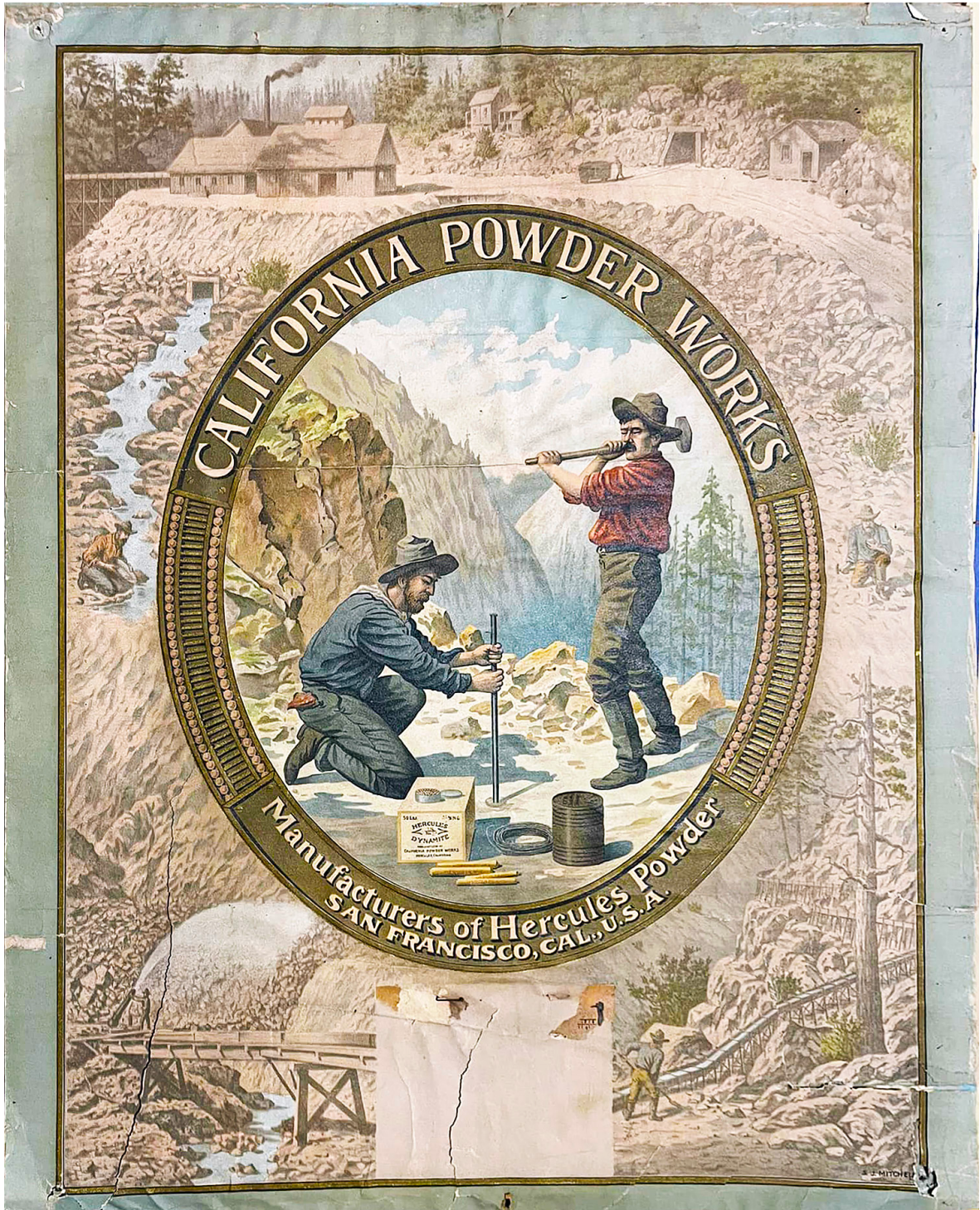


Illustration from Back Cover of the 1897 Catalogue of California Powder Works for Hercules Powder. Given its competition with Giant Powder Company, the reference to the slaying of Giants was undoubtedly intentional.



Recently, Dustin Schillinger posted a photo on the Eureka Facebook page of a beautiful calendar advertising the Hercules Powder sold by California Powder Works. The calendar measures 18 inches wide by 24 inches in length.





If you look closely, you can see 50-pound crate of Hercules Dynamite in the foreground. On the top of the crate is a tin of what are probably California Cap Company blasting caps. The calendar itself is missing from its colorful backing, which generated a good deal of discussion on the Eureka Facebook page about a possible date for the calendar. Efforts to suggest a date for the calendar centered on identifying the powder box in the foreground.

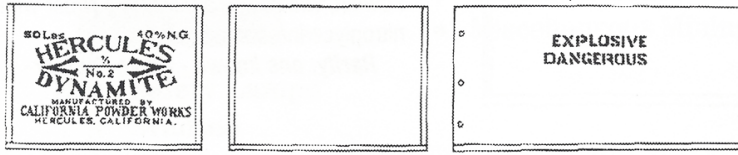
Todd Mitchell posted several photographs of dynamite boxes in his collection, including this one.



Todd identified this as a third generation stamping from the Hercules plant at Hercules, California, and estimated its age as between the mid-1890s to the early 1900s. Most agreed that the box pictured above most closely resembled the box pictured in the calendar.

Doug Miller thought the third-generation box appeared to match the one in the calendar but thought the calendar might date to 1896 or 1897. One thing Doug noticed was the apparent lack of box joints in the one pictured on the calendar. In doing further research, he had found an article written by Eric Twitty about California Powder Works, the article referred to in the above discussion concerning the history of the company. That article contains illustrations of the various boxes used by California Powder Works over the course of its operations.

Here are two of Twitty's illustrations from pages 35 and 36 of his article.



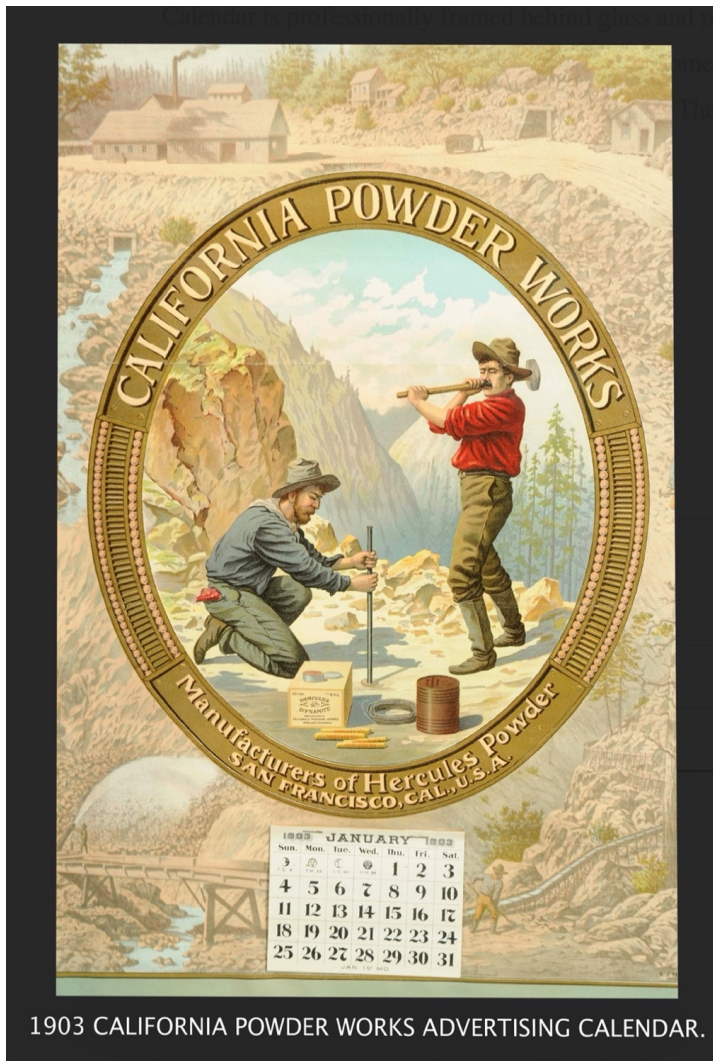
10. Mid 1890's; construction continues to consist of the sides nailed with wire nails to the end panels. Note that the product reference is "Hercules Dynamite", no longer "Hercules Powder".

*Rarity: several known - Author*



11. Mid 1890's-1906. In the mid 1890's CPW began manufacturing boxes with "lock corner" joints, instead of nailing on the side panels. Such joints allowed all box panels to be cut from uniform lumber, with nail-together boxes the end panels were thicker to accommodate the nails driven into them. Note that the lettering is slightly thinner than the previous box.

*Rarity: rare - Author*



1903 CALIFORNIA POWDER WORKS ADVERTISING CALENDAR.

To Doug, the calendar box more closely resembled the box without box joints, the one Twitty dates to the mid-1890s. As interesting and fun as this discussion was, Dustin Schillinger provided the correct answer. Dustin's father found a calendar identical to Dustin's dated 1903. It was listed in an on-line auction catalogue for an auction that ended on January 19, 2017.<sup>11</sup> The calendar sold for over \$11,000.

1903 JANUARY 1903						
Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
☾ F. Q. 6	☀ F. M. 13	☾ L. Q. 20	☀ N. M. 28	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
JAN. 1903 MO.						

Close up of 1903 Calendar

Many people on the Eureka Facebook page commented on the beauty of the calendar found by Dustin. None of those who commented had ever seen anything like it before. Its discovery is a great addition to the history and lore of the explosives manufacturing industries of the western United States.

## End Notes

1. Arthur Pine Van Gelder and Hugo Schlatter, *History of the Explosives Industry in America* (New York: Columbia University Press, 1927), 282-83.
2. Text and image: The California Powder Works, Santa Cruz County, California, 1875, Hagley ID 1971MSS384\_12.1, Lamont du Pont, Sr., papers (Accession 0384), Manuscripts and Archives Department, Hagley Museum and Library, Wilmington, DE 19807, [https://digital.hagley.org/1971MSS384\\_12.1?solr\\_nav%5Bid%5D=b09b45784816f7f4a69f&solr\\_nav%5Bpage%5D=0&solr\\_nav%5Boffset%5D=11](https://digital.hagley.org/1971MSS384_12.1?solr_nav%5Bid%5D=b09b45784816f7f4a69f&solr_nav%5Bpage%5D=0&solr_nav%5Boffset%5D=11), accessed September 15, 2022.
3. Jennifer Posedel and Stephen Lawton, *Hercules*, Images of America (Charleston, S.C: Arcadia Pub, 2011), xiii–xiv.
4. Eric Twitty, “California Powder Works,” *Collectors Mining Review*, September 1997, 29–30.
5. Eric Twitty, 31-32.
6. Arthur Pine Van Gelder and Hugo Schlatter, *History of the Explosives Industry in America*, 507–8.
7. Eric Twitty, “California Powder Works,” 33.
8. Text and image: California Powder Works, *Hercules Powder: Sporting, Cannon and Mining Powder*, 1897, Hagley ID I091111\_capow, Published Collections Department, Hagley Museum and Library, Wilmington, DE 19807, [https://digital.hagley.org/I091111\\_capow?solr\\_nav%5Bid%5D=181f93dcab079a37d832&solr\\_nav%5Bpage%5D=0&solr\\_nav%5Boffset%5D=4#page/1/mode/2up](https://digital.hagley.org/I091111_capow?solr_nav%5Bid%5D=181f93dcab079a37d832&solr_nav%5Bpage%5D=0&solr_nav%5Boffset%5D=4#page/1/mode/2up), accessed September 15, 2022.
9. *Hercules Powder: Sporting, Cannon and Mining Powder*, 1897, page 8.
10. California Powder Works, *Hercules Powder: Sporting, Cannon and Mining Powder*, 1897, pages 14, 18, 23.
11. Morphy Auctions, Lot # 352, 1903 California Powder Works Advertising Calendar, <https://auctions.morphyauctions.com/LotDetail.aspx?inventoryid=236916>, accessed September 15, 2022.

## References

Arthur Pine Van Gelder and Hugo Schlatter. *History of the Explosives Industry in America*. New York: Columbia University Press, 1927.

California Powder Works. *Hercules Powder: Sporting, Cannon and Mining Powder*, 1897. Hagley ID I091111\_capow. Published Collections Department, Hagley Museum and Library, Wilmington, DE 19807.

Eric Twitty. “California Powder Works.” *Collectors Mining Review*, September 1997.

Morphy Auctions, Lot # 352, 1903 California Powder Works Advertising Calendar, January 19, 2017.

Posedel, Jennifer, and Stephen Lawton. *Hercules*. Images of America. Charleston, S.C: Arcadia Pub, 2011.

The California Powder Works, Santa Cruz County, California, 1875. Hagley ID 1971MSS384\_12.1. Lamont du Pont, Sr., papers (Accession 0384), Manuscripts and Archives Department, Hagley Museum and Library, Wilmington, DE 19807.