

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.¹ 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.”²



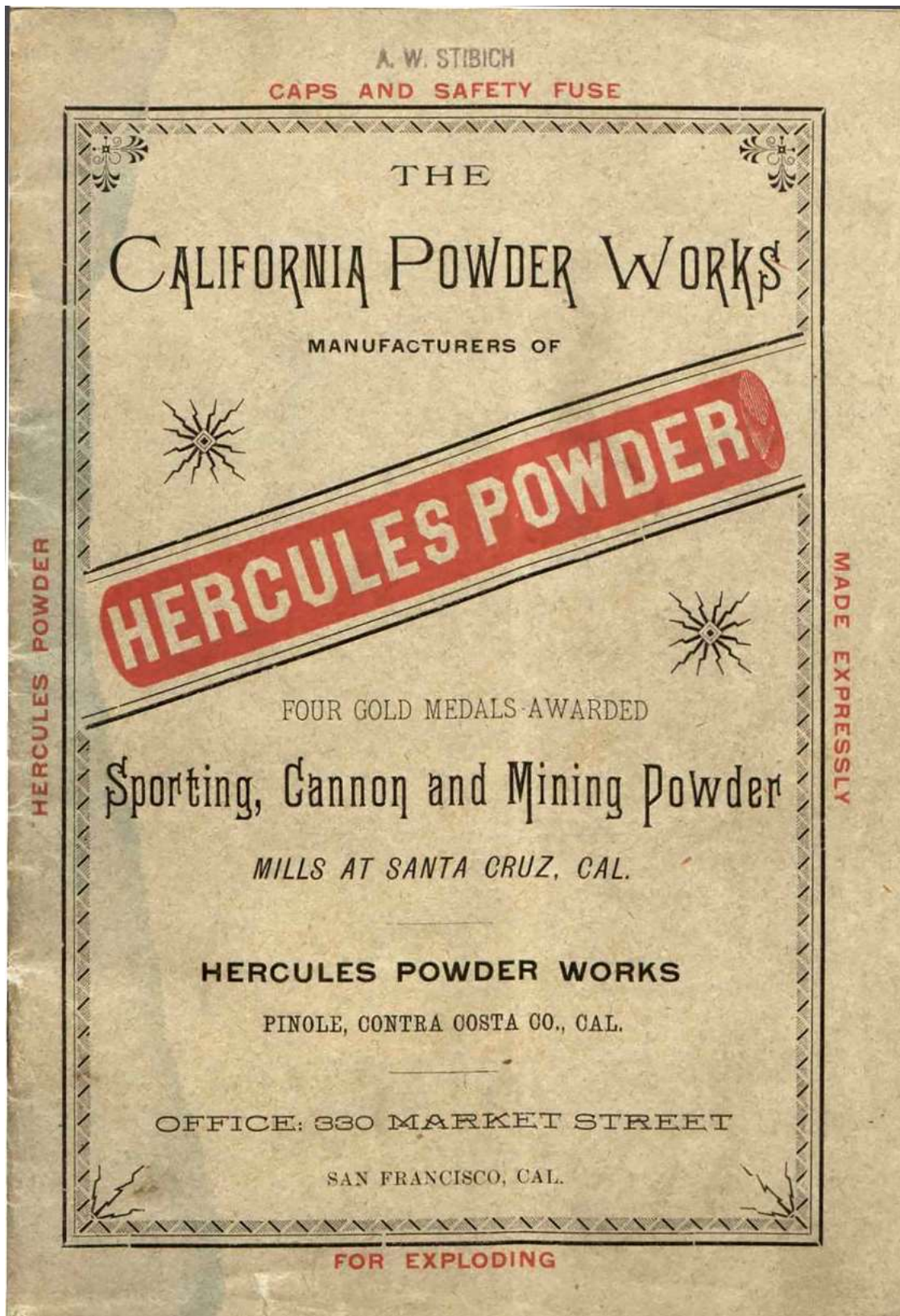
CALIFORNIA POWDER WORKS, SANTA CRUZ COUNTY, CALIFORNIA
1875

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.³

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.⁴

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.”⁵ Dynamite production increased rapidly at Hercules, and by 1898 had reached about 15,000,000 pounds annually.⁶ 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.⁷



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 1897.⁸ 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.”⁹

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.¹⁰

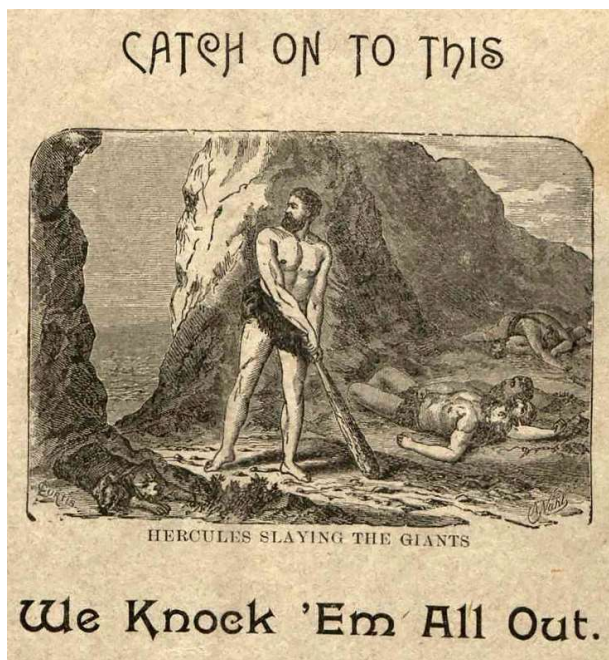
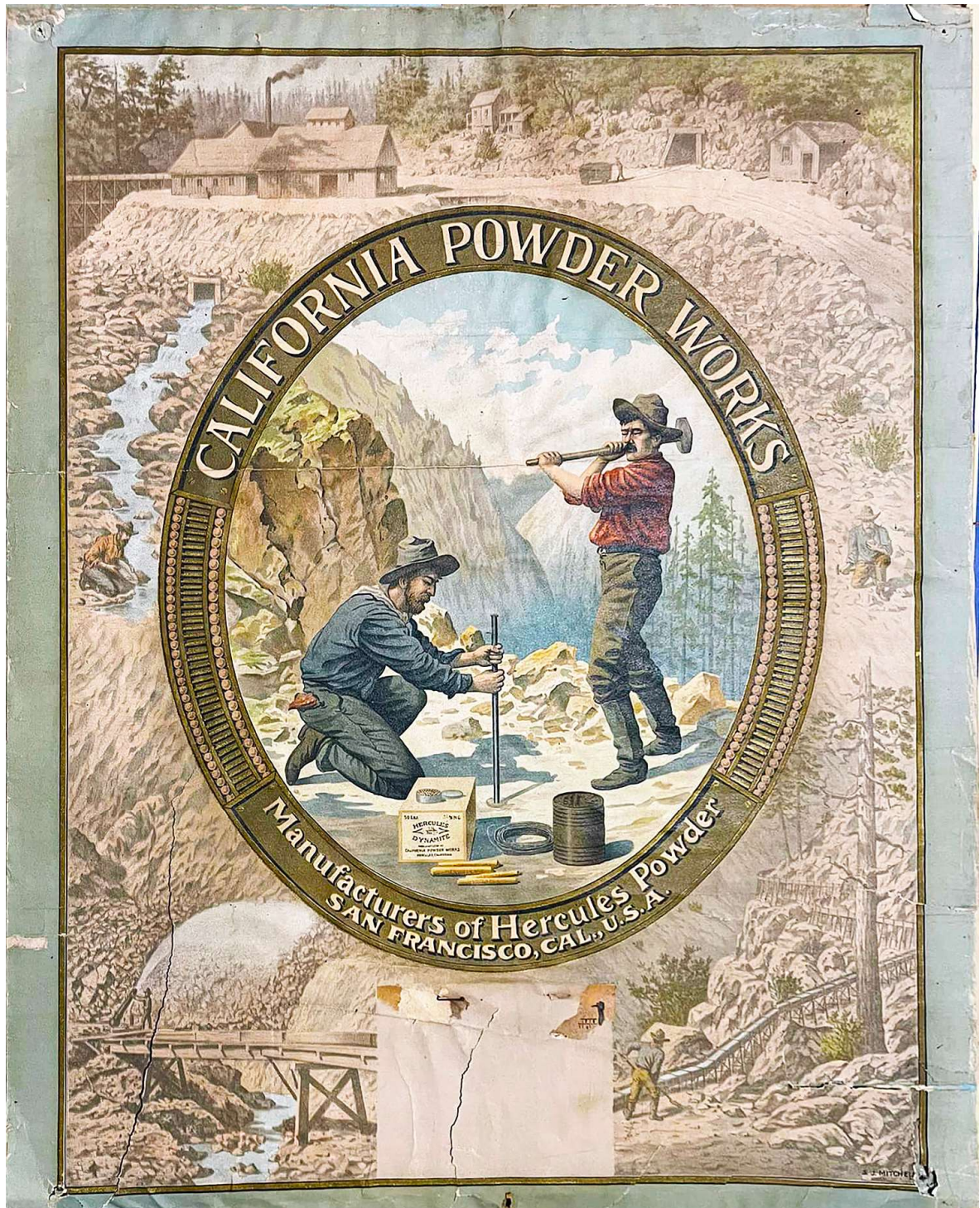


Illustration from Back Cover of the 1897 Catalogue of California Powder Works for Hercules Powder. Given its competition with Giant Powder Company, the reference to the slaying of Giants was undoubtedly intentional.

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.

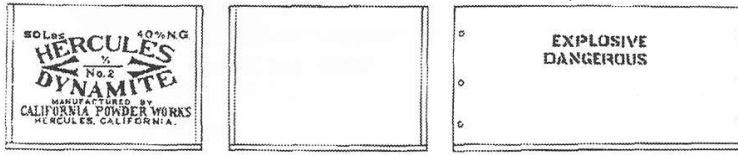
Todd Mitchell posted several photographs of dynamite boxes in his collection, including this one.



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.



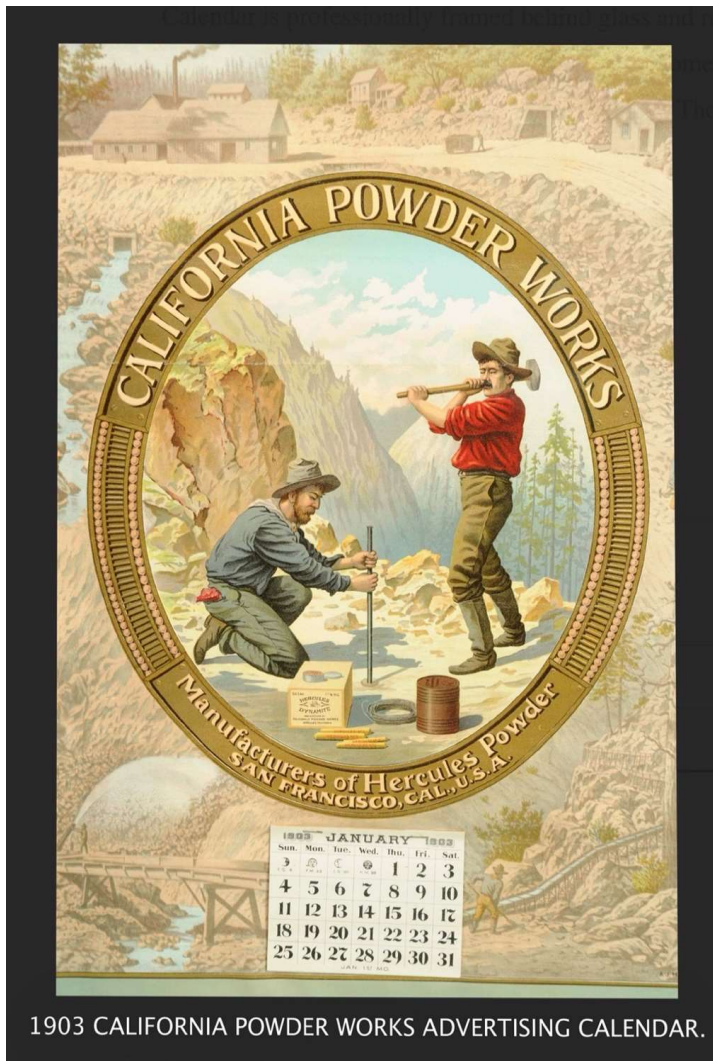
10. Mid 1890's; construction continues to consist of the sides nailed with wire nails to the end panels. Note that the product reference is "Hercules Dynamite", no longer "Hercules Powder".

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, 2017.¹¹ 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						

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, Lamnot 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, 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, 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. Lamnot du Pont, Sr., papers (Accession 0384), Manuscripts and Archives Department, Hagley Museum and Library, Wilmington, DE 19807.