

# EXPLOSIVES IN THE TIBURON PENINSULA

By Susan Cluff

Early California needed gunpowder for mining, for railroads and ammunition. But after a series of fatal explosions in San Francisco's south City and Sunset districts, local powder companies moved out to less populated areas around the Bay including the remote east side of the Tiburon Peninsula.

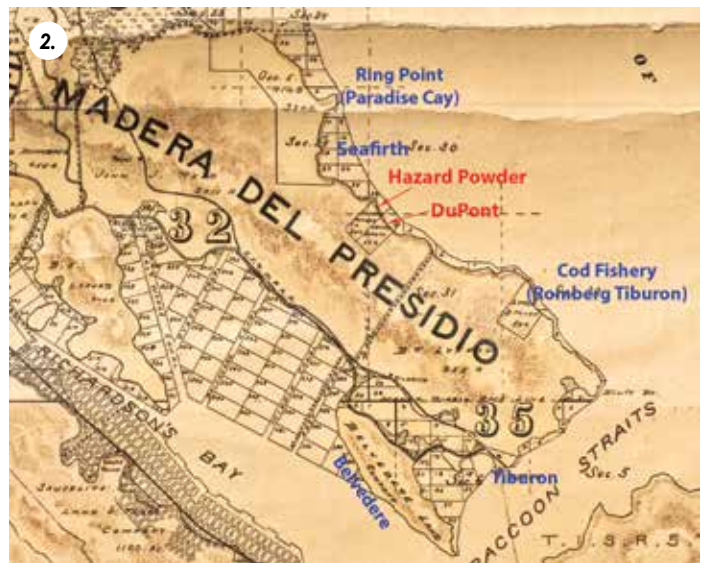
In 1869, the California Vigoret Powder Works located a plant near present day Seafirth, supplying Peter Donahue's railway with the materials to blast three tunnels along the seven mile route from San Rafael to Tiburon in 1883-84 and then level the bluff at point Tiburon. Vigoret also supplied North Pacific Coast Railroad, the San Francisco seawall, and mines in California, Nevada, and Mexico. The Hazard Powder Company of Connecticut purchased acreage near Paradise Cove in 1877 and built two large brick powder magazines, a new pier and a home for the magazine keeper. Barges would tie up at the pier to deliver raw materials and other supplies and take away the finished gunpowder.

Gunpowder was made from 75 parts of saltpeter (imported from India), 12.5 parts of sulfur (from Mexico or Sicily) and 12.5 parts of charcoal made from local willow or alder. Saltpeter was refined by dissolving in water, then strained and concentrated by evaporation and crystallization; sulfur by fusing the rolls, skimming off impurities and washing off the sulphuric acid; the charcoal charred at a high temperature of 500 degrees. The ingredients were then mixed in closed cylinders and placed under large iron wheels in a giant tub, turned for several hours and sprinkled with water to prevent explosions, becoming a large brittle cake.

Gunpowder cakes were then taken to a drying house, spread on trays, heated and sorted through sieves into various grades and sizes. The last operation was glazing, putting the powder in big wooden cylinders and revolving them to change the color from dull brown to glossy black. The gunpowder was then packed in packages from half-pound canisters to 100-pound kegs.

For safety, each operation was housed in a separate building or split into multiple buildings with thick stonewalls separating them so that an explosion in one would not destroy another. Iron and steel tools were not allowed, as sparks could occur if they banged together. The men who kept the powder wet while it was ground sat on one-legged stools so that they would fall over and wake up if they dozed off. Employees were forbidden to bring pipes or matches to work. But despite these safety precautions and others, explosions still occurred regularly.

In the late 1893, the Vigoret plant was moved to Point Isabel in the East Bay and merged with DuPont, closing in 1906. Industrialist Henry DuPont also bought control of California Hazard Powder Company, controlling the industry with quotas and price fixing. In 1890, President Harrison signed the anti-monopoly Sherman Act, but it was some years before it had any impact. In 1912, Hazard Powder Company became part of Hercules Powder Company and moved its plants to Pinole.



1. Hazard Powder Company in Tiburon, circa 1910.

2. 1892 map showing the location of the powder companies along Tiburon's east shore.

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