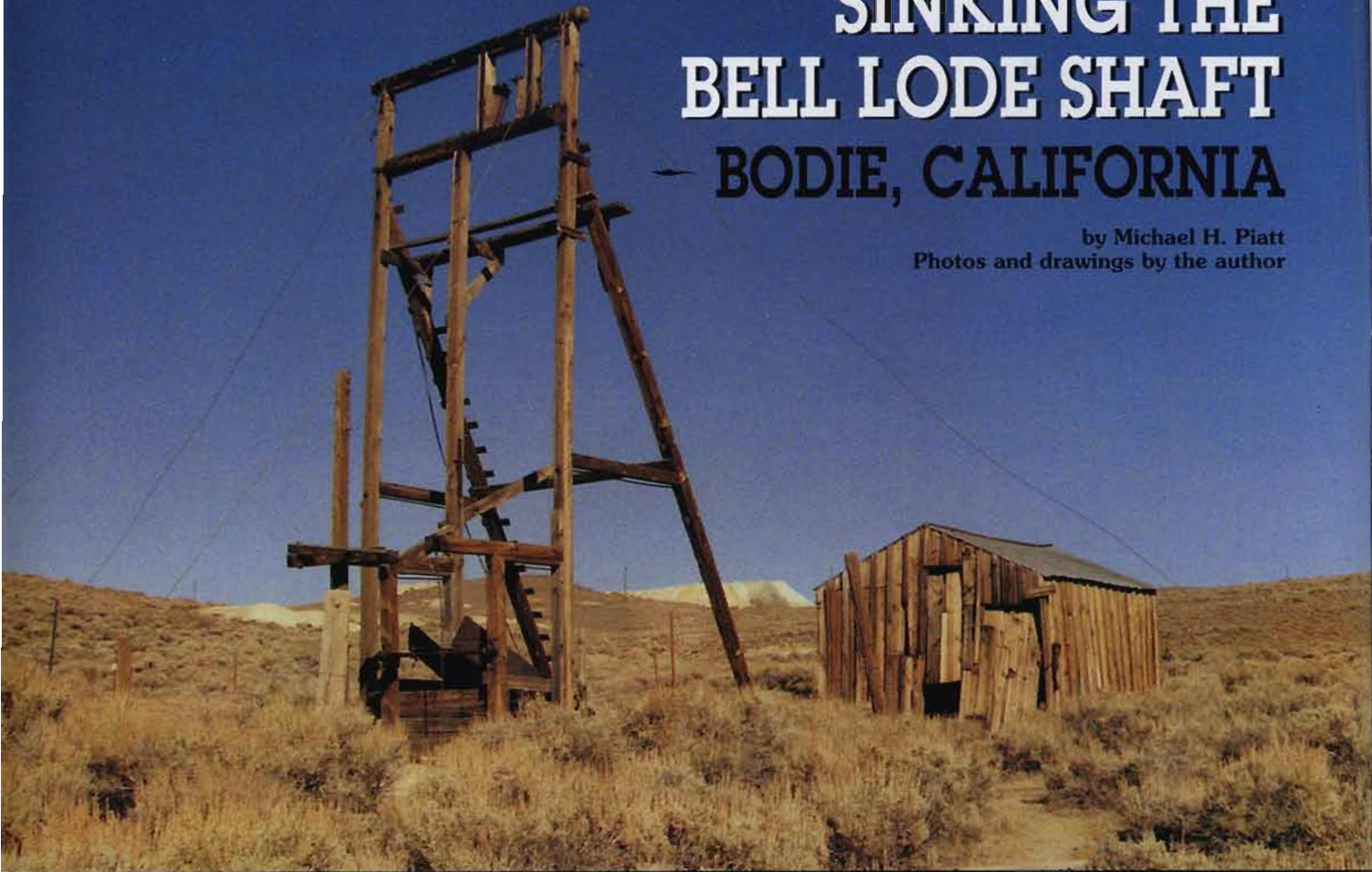


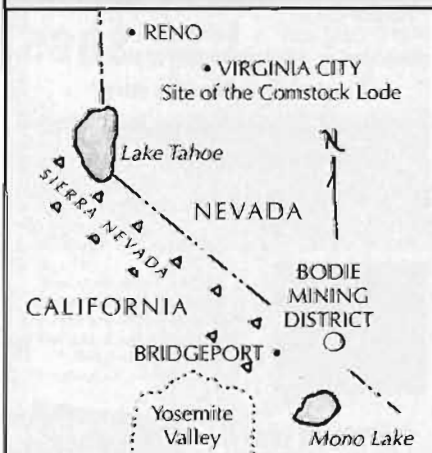
# SINKING THE BELL LODE SHAFT — BODIE, CALIFORNIA

by Michael H. Piatt  
Photos and drawings by the author



***"For you will believe. Ay! you will believe it is true; you will believe that there is a marvel of gold there for the lucky one who is to find it."***

**Idah Meacham Strobridge\***



\*Idah Meacham Strobridge wrote the lead quotation. It appears on page 25 in Part I of "In Miners' Mirage-Land." Sagebrush Trilogy. 1904 University of Nevada Press, Reno, Nevada.

Bodie was a gold mining town, a "wild west" boomtown of enterprise and excitement where glamorous mining companies hoisted millions in gold and silver out of holes in the ground. That was a long time ago, during the 1870s and 1880s. Today the mining district is quiet and little remains of the industry that once made Bodie famous. The town and its surroundings have become a California State Park, where just south of town, one small abandoned mine defies the encroaching sagebrush. In March of 1955, this mine was located by two prospectors, Bob (Robert T.) Bell and his partner Ed Wiley. The Bell Lode Mine survives today as one of Bodie's few remaining monuments to its century-long quest for riches.

Bob Bell was born in Bodie in 1914, the year after the last of Bodie's great gold mining companies ceased operations there. Individuals then worked the mines under lease agreements. Lessees (more commonly known as "leasers") were allowed to take ore from the old workings by agreeing to pay a specified percentage of their yield to the mine owner. During the late 1920s and early 1930s, Bob and his father leased ground in several famous old mines - including the Bulwer, Noonday, and Standard - names that 50 years earlier had created sensations on stock exchanges from San Francisco to New York City. The big companies had already removed the large ore bodies, but leasers found enough value in narrow "stringers" and disregarded ledges to provide meager livings for themselves and their families. In July 1931, Ed Wiley's father, Jim, was

*Title photo:* The Bell Lode Mine in 1994. The hoist house and gallows frame (headframe) were purloined from an abandoned mine nearby. The mine is just south of the ghost town of Bodie, California.

working a lease in the Lower Hobart tunnel when the mine "caved" and crushed him. Miners from the nearby Red Cloud helped free him, but the rescue took 19 hours, and Jim died shortly thereafter.

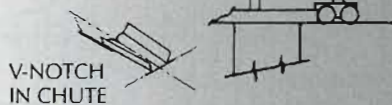
When the Standard Consolidated Mining Company suspended operations in 1913, the new owner used the 20-stamp Standard Mill to crush ore for the few leasers still living in town. By the late 1920s, the mill was being run by Bob Bell and his father. Where once a steady stream of mine cars and mules brought ore to the mill, now leasers used their trucks to haul ore in small batches at irregular intervals. The milling machinery crushed the rock, extracted the gold and silver, and turned the metals into bars of bullion. If the leaser's ore was poor - which was most of the time - there wasn't much profit after the cost of milling was subtracted. Even the glitter of gold couldn't overcome the grubby difficulty of making a living by working "tired" old mines. Bob ran the mill for the last time in 1935. (Built in 1899, the Standard mill still survives as a prominent feature of Bodie State Historic Park.)

Within a decade after the mill closed, the mining district had grown quiet, and Bodie became a ghost town. Yet, Bob and a few other stalwart individuals hung on. Even though residing elsewhere, they returned from time to time to the hills around Bodie to prospect and stake claims. Bob stayed in his family's old house - it survived the fire that swept the town in 1932. Ed Wiley, whose former residence was destroyed by the fire, set up housekeeping in a deserted rooming house. I was fortunate to be able to interview Bob Bell both on the telephone and in person. On August 30, 1995, at age

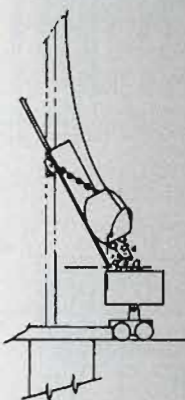
Fig. 1. The gallows frame (headframe) and hoist house are shown in the plan on pages 38 and 39. These diagrams show how the bucket-dumping device worked.

NOT TO SCALE

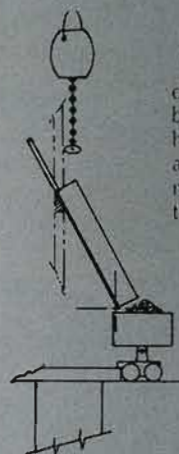
b. When the loaded bucket emerges from the shaft, the hoist man stops it at a point noted by paint marks on the hoisting cable. He releases the rope and the chute falls into the dumping position. A V-notch in the chute catches a large washer at the end of the bucket's tail chain.



V-NOTCH IN CHUTE

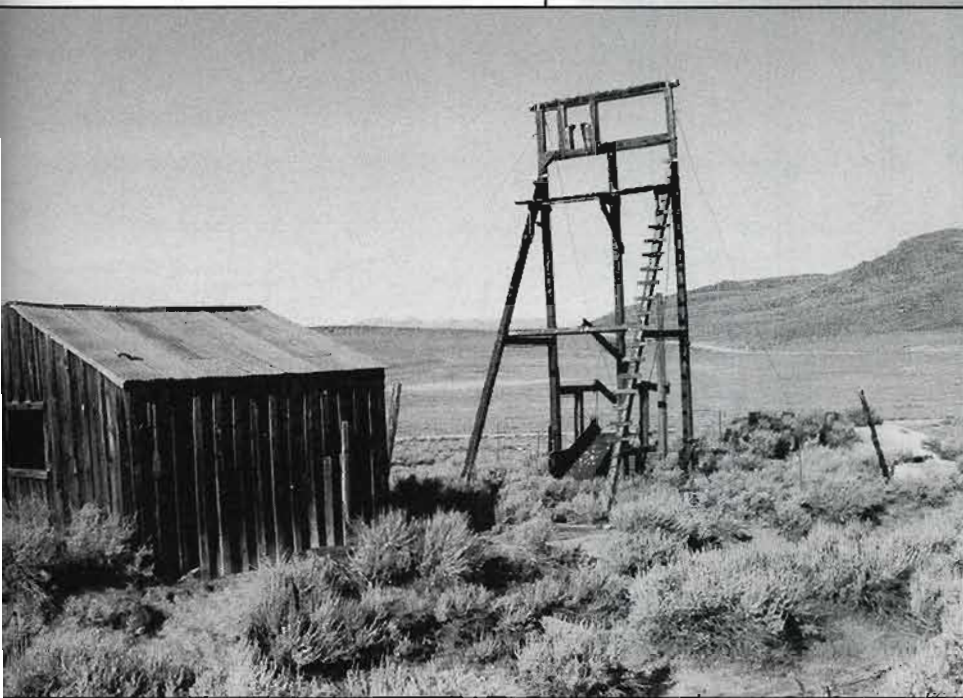
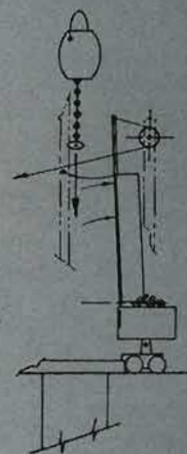


c. The hoisting engine is reversed, lowering the bucket so it overturns in the chute, dumping its contents into the mine car. If any muck should hang up in the bucket, a pull on the rope attached to the top of the chute would stand it and the bucket on end.



d. The empty bucket is hoisted up, and the V-notch releases the tail chain.

e. The hoist man pulls the rope that raises the chute into the vertical position so the bucket can pass. The bucket is then returned to the bottom of the shaft. While it is being loaded below, the hoist man pushes the mine car on tracks and dumps it.



This photo of the Bell Lode, taken in 1995, shows the hoist house that once contained a gasoline-powered hoist.

81, Bob Bell told me how the two men sunk the Bell Lode shaft over forty years ago:

We just picked a spot where there were some ledges. We did some panning and got some colors. Thought we'd go down and see what was there . . .

Using a homemade core drill (now displayed at Bodie State Historic Park), and the help of a friend, Bob drilled some test holes in the south end of the mining district at the foot of Silver Hill. On August 18, 1995, he described the process:

An old guy named Cline helped me drill the test holes. He used to come up to Bodie to give me a hand with my prospects. We drilled about half a dozen test holes around there. We built our drilling rig from an old Buick rear end and different parts from other cars. . . . It would advance the drill about 10 feet per hour. [Today this homemade drilling rig can be seen near the ice house in Bodie.] We brought water [from town] in barrels with our old truck. You needed about 4 or 5 gallons per minute to keep the cuttings washed away and the hole clean. We'd catch the water and run it back through. You can't let the cuttings build up in the diamond drill. About every hour or so we would pan the cuttings flushed out of the hole.

At the end of each day the men removed rock samples, known as "cores," from the hollow drill and examined them for traces of gold. Any cores showing promise were shipped to Denver, Colorado, for assaying. When one assay reported ore worth 300 dollars per ton, Bob and his partner, Ed Wiley, decided to file a claim.

Blasting their way into the earth, the men began sinking a shaft. They removed waste rock from the hole in an ore bucket raised to the surface with a hand crank windlass. Bob tells about using the windlass:

With a windlass, a man can hoist a hundred pound bucket about 30 feet. It is too tiring beyond that. Once the bucket is at the top of the shaft, it is tricky to get it over to the floor. You have to hang onto the handle with one hand and swing the bucket with the other. Then you have to drop it onto the floor at just the right moment. It is easy to dump the whole thing back down the hole on your partner. Then the spinning handle usually hits you in the face. The full bucket has to be light enough for one man to handle alone.

When the shaft reached a depth of about 20 feet, the windlass was replaced with a gasoline-powered hoist: "We ran the hoist with an old Model 'A' Ford engine." Bob recalled. Hoisting a bucketful of rocks high enough in the air to clear the shaft required a large "gallows (pronounced gal-lus) frame" (headframe), that holds a "sheave." The sheave is a large pulley-like

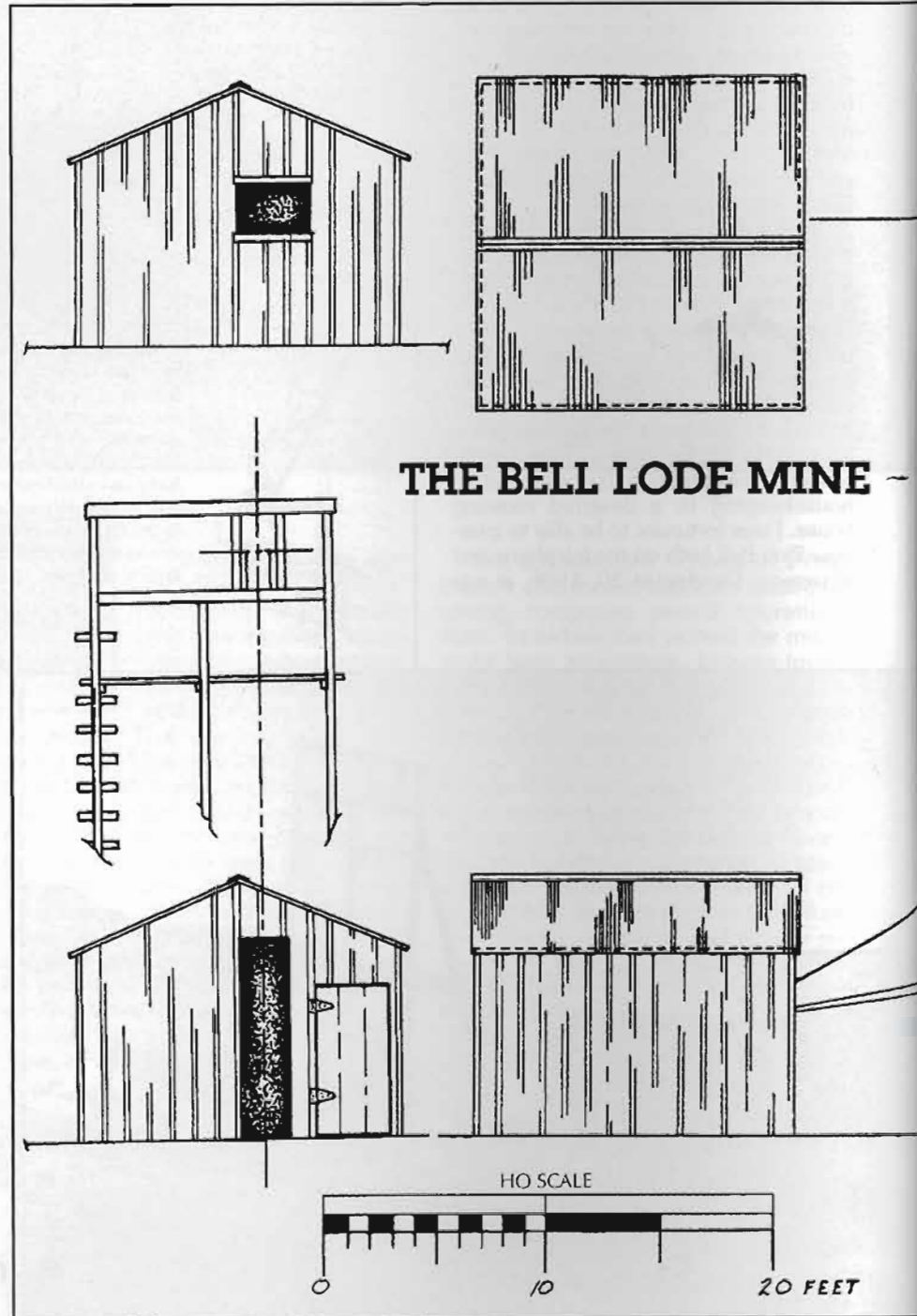
wheel, positioned directly over the shaft, that supports the hoisting cable from which the ore bucket is suspended. Bob tells about setting up the hoisting equipment at the mine:

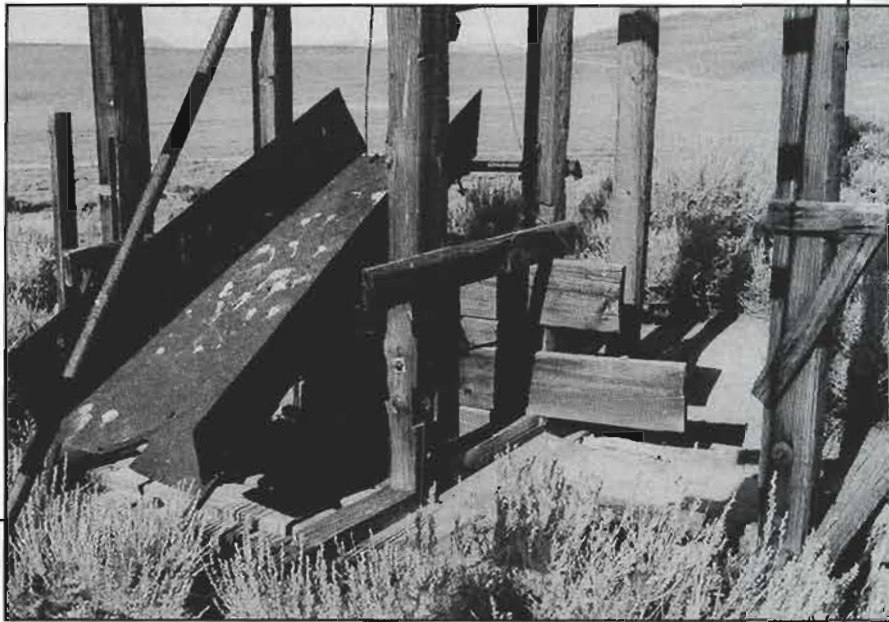
We got the gallows frame from the Goodshaw Mine, took it apart and re-assembled it at the Bell Lode, then added the mechanism for automatically dumping an ore bucket. It [the gallows frame] was originally built to handle a cage in the two-compartment shaft at the Goodshaw. One compartment had the cage and the other was for the pump and ladderway...

Our hoist house was an outbuilding from the Goodshaw. The gallows frame and this building had been left behind by leasers. We moved the building in one piece. The

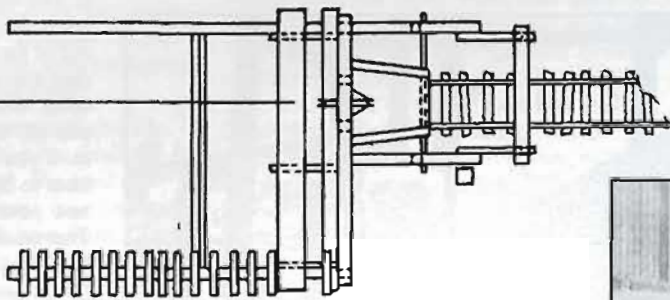
rest of the equipment we took from junk piles around Bodie. There was plenty of junk laying around town.

The mine whose equipment they were purloining, was where Bodie's first gold-bearing quartz vein had been discovered, back in 1859. For a short time, during the boom years, the Goodshaw was one of the principal mines in the district - a distinction earned mostly from its central location rather than from any ore it produced. Like many of Bodie's principal mines, the Goodshaw consumed plenty of money, but never returned any dividends. Four miners suffocated to death on the 600-foot-level when the hoisting works caught fire and burned in 1880. The mine ceased operations in 1884, and was sold





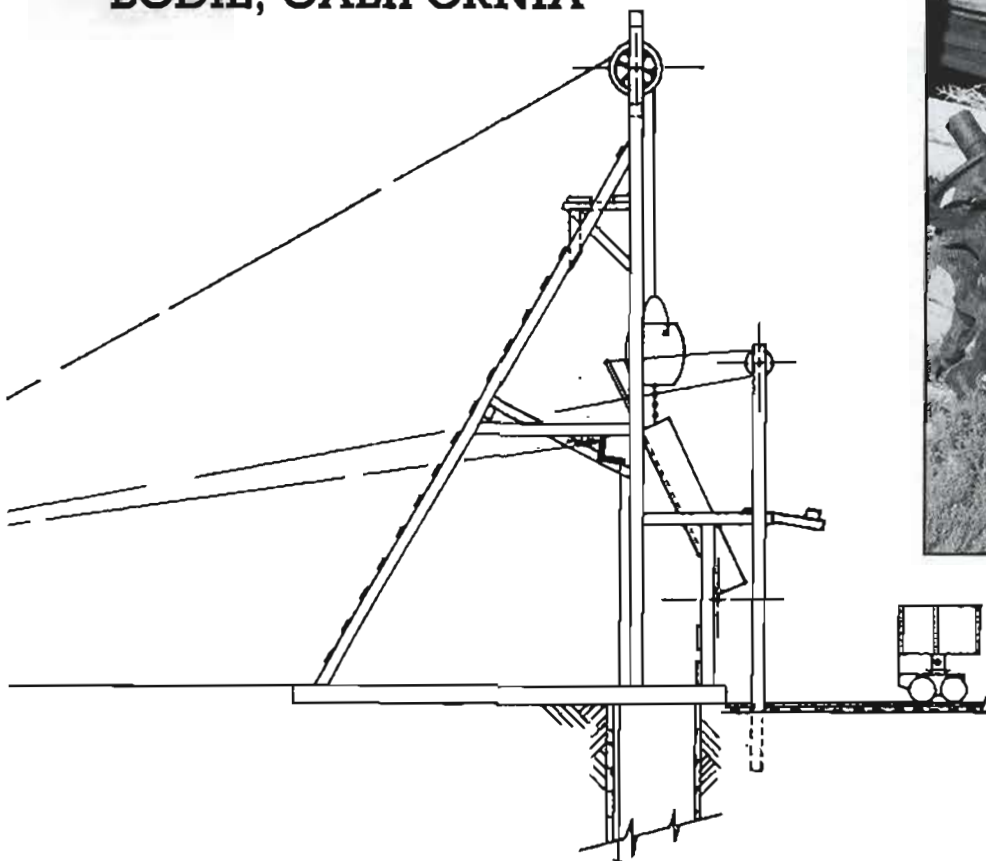
In 1995, the chute at the Bell Lode had fallen from its dumping position. Note the V-notch that once held the ore bucket in position while it was being dumped. (See Fig. 1 for details.) This chute, with its V-notch, was an integral part of the system in which the ore bucket was emptied into a mine car. Using this system, one man on the surface could hoist, dump, and return the bucket to the bottom of the shaft without leaving his station. Boards between the shaft, and the car prevented rocks from spilling onto the man working below. Here, the flooded, two-compartment shaft has been planked over.



In 1995 the hoist that Bob Bell used at the Bell Lode Mine was in this collection of mining-related junk. Note the blacksmith's leg vise leaning against the hoist.



## - BODIE, CALIFORNIA



a decade later for nonpayment of taxes. The new owners opened it to leasers who worked the mine briefly in 1933.

The Bell Lode shaft was divided into two compartments. One was the hoisting compartment, reserved for the traveling ore bucket. The other compartment had a series of ladders and landings that served as a "manway." This side of the shaft also contained the vertical pipes needed to run machinery below. Bob explains:

We rented a Diesel-powered, 100 psi, air compressor. It was for running drills and an air [powered] Whirley pump that could pump 500 gallons per day.

Our air-powered pump sat right down in the water at the bottom of the shaft and it ran all the time. We had two pipelines running down the shaft, one for [compressed] air to power the drill and pump, and one for the pump's discharge. Hoses connected the drill and the pump to the pipes. Each time we blasted we had to shut everything down and hoist the drill, pump, and hoses out in the bucket. If you left them down there, you'd end up with pieces.

You could use the bucket for bailing. When we got to work in the morning, the shaft would have water in the bottom because we didn't run the compressor at night. We hoisted the extra water out until the pump could catch up.

This abundance of ground water had plagued Bodie during a good part of its productive years. During the nineteenth century, costly steam-powered pumps were employed to drain the lower levels. The boilers were fueled with cordwood, an expensive proposition considering Bodie's extreme isolation and barren landscape. At Bodie's deepest shaft (a vertical depth of 1,200 feet), the pumping engine consumed 23 cords of wood every 24 hours to remove 800,000 gallons of water per day. In 1881 the need for low cost fuel and mine timbers resulted in the Bodie & Benton - a narrow gauge railroad built to transport wood. Even so, pumping the lower levels was discontinued in 1890 because the poor quality of the ore did not justify the enormous cost. The railroad ceased operations in 1917, and was dismantled for scrap the following year to pay off its indebtedness. Deep level pumping was not attempted again until 1928, when a highly financed but short-lived effort successfully drained the south-end mines using electric power. I described these events in an article in the March/April 1996 **GAZETTE**.

Sinking a mine shaft through rock requires the following sequence: drilling a round of holes, loading the holes with explosives, blasting, removing the broken rock, trimming the shaft to form, installing

timber supports, then drilling the next round of holes. At the Bell Lode, holes were drilled with a jackhammer style rock drill run by the Diesel-powered air compressor sitting on the surface. Drill holes were directed and arranged in a specific pattern that most effectively fractured the rock. Here's how Bob Bell described it:

We would drill six or seven holes. One at each corner of the shaft, and two or three out in the center to break it up. If you want it broken up more, you've got to put more [holes] in the middle. Each hole was 3 or 4 feet deep. That means that the shaft advanced 3 or 4 feet with each round of holes. The rock breaks upward so you don't gain any depth below the bottom of the drill holes. Only one man could work at a time [at the bottom of the shaft]. No use for two. Anybody else is just in your way. The other guy was above, [running the hoist and] working on other things, like framing [timber] sets.



Bob Bell was born in Bodie and well seasoned as a miner. Here he is in 1996 at age 82, revisiting the Bell Lode Mine that he and his partner, Ed Wiley, located and excavated over 40 years earlier. Bob remarked, "Never did find anything, just a pocket of sulfide rock, no ledge, just sulfide rock and some quartz stringers, but didn't find much else."

When drilling rock with a jackhammer, cuttings had to be removed periodically from the bottom of the hole. In dry ground, the cuttings were flushed from the hole with water forced through the hollow drill rod. The injected water also suppressed the dust. "You can blow the holes with air. . ." Bob told me, ". . . but the dust will kill you." Once the shaft reached ground water, however, the cuttings were already wet, and dust was no longer a problem:

When we were drilling, the bottom was so wet, we could just blow out the holes with compressed air. There was always water in the holes. The air blows everything up in your face - all that muck hits you in the face. You get covered with mud when you blow a hole.

The holes were loaded with dynamite and fired with electric detonators, known as "blasting caps." Dynamite was usually

called "powder," a carryover from the days when black powder was used in underground mining. Sticks of dynamite that did not explode were called "misses" or "missed holes." These were extremely dangerous, and had to be discovered before work continued. Many a miner was maimed or killed by accidentally drilling into a "missed hole," and setting off the charge. Bob explained drilling and blasting in the Bell Lode this way:

We didn't use fuse much, mostly electric caps. We had a plunger to fire the caps. You just push down on the generator handle to fire them. You use one stick of dynamite for each foot of hole. If the ground is hard you could load them a little heavy. It doesn't hurt to add an extra stick. Then you can be sure it will break it.

Electric caps are made to fire at different times. They call them "delays." They go one through ten. If you don't use delays, they'll go off at one time - instantaneous. The center [detonating first] relies the center, blowing a core out of the center so the sides can cave into it. There is just enough delay, about a second or so, that you can tell if you have any misses. If you have a missed hole you have to dig down to it, add some new powder and shoot it again. That usually does the job.

The mine was so wet we'd get a lot of misses from the water so we had to soak everything in shellac the night before. We dipped the sticks of dynamite and caps in shellac and let them dry overnight. If you get leaks in the shellac, they won't fire. We had to load the holes and shoot them before the water came in. If you leave them under water too long, the cap may fire but the powder won't go off.

After blasting, the broken rock was removed from the bottom of the shaft by shoveling it into the ore bucket and hoisting it out of the mine for dumping. This business of shoveling was known as "mucking." With one man at the hoist and the other man at the bottom of the shaft, it was necessary to devise some method of communicating. By pulling a cord, the man below could ring a bell inside the hoist house:

We used bell signals. You've got to have signals to talk to the guy on top. You don't need them below. I can't remember what our signals were, but all you need are signals for up, down, and stop. "Stop" means "Stop right now!" That was usually one bell. The big mining companies had more complex signal codes. They had ten or twelve levels calling all the time.

You could land the bucket over to the side to give you more room to shovel. The hoist man would hold it just above the dirt while you pushed it to the side, then he would lower it.

When the signal was given, the loaded ore bucket was hoisted up the shaft. At the surface, it was dumped automatically into a waiting mine car. Fig. 1 illustrates the how the bucket was dumped before it was returned to the shaft for the next load. A 60-gallon bucket held enough rock to fill one 1,100-pound-capacity mine car. These cars were prevalent in small mining operations because they fit inside a tunnel and could be handled by one man. They also pivoted, so that dumping could be directed to either side of the tracks. Larger cars had to be pulled by mules or electric locomotives.

The timber cribbing that supported the rock and earthen walls of the shaft was framed to fit, then lowered into the mine in the ore bucket. Each framed section was known as a "set." Since shaft sets are placed from the surface downward, each new set had to be suspended from the set above until it was wedged in place. Iron rods known as "hanging rods" provided temporary support. The shaft had to be kept straight and plumb - to allow the raising and lowering of the free-swinging bucket. Bob describes the shaft:

...The large [hoisting] compartment was about 5 feet by 5 feet and the small one was about 3 feet by 5 feet. The small compartment was a ladderway. You needed the extra space to work down there. . . . There were no guides in the shaft. It was all boxed in so the bucket wouldn't catch any exposed timbers if it started swinging. It's pretty hard to keep a bucket on a hundred-foot cable from swinging...

The men rode in the bucket only while lining the shaft with planks. This was risky, and done with extreme caution. As Bob said: "With no guides in the shaft, it [the bucket] might catch on something and tip you out. We always used the ladder to get in and out [of the mine]."

In this way, the two men drove the shaft downward in their search for gold, even though the mining companies that had made Bodie famous were largely forgotten:

We got the shaft down about 90 feet. We were out there about 2 months sinking the shaft. Never did find anything, just a pocket of sulfide rock, no [gold-bearing] ledge, just sulfide rock and some quartz stringers, but didn't find much else. Just a little bit of quartz that didn't have much in it. We didn't do enough work to hit anything. I suppose if we'd crosscut, we might have picked up something. There must be a ledge down there, somewhere. You never know - it might be down there - might not.

Over the decades, Bodie's discovered riches had electrified telegraph wires across the country. But the Bell Lode never contributed to the district's estimated production of nearly 34 million dollars in gold and silver. By Bob Bell's definition, the Bell Lode never really qualified as a mine: "If you don't make any money, it's a prospect." Today, in the shadow of the celebrated mining district, the Bell Lode is visible from the dusty road that leads to the old ghost town. Abandoned and forlorn, it is a fitting symbol of the closing chapter in Bodie's long quest for gold.

I would like to thank Bob Bell and J. Brad Sturdivant, Supervising Ranger of Bodie State historic Park for their help in the preparation of this article. I am writing a book that presents the history of Bodie from the standpoint of its only industry - mining. The 256-page book is scheduled to be published in March 2002. A free descriptive brochure may be obtained from the publisher - Nevada Publications, 4135 Badger Circle, Reno, NV 89509. 775/747-0800, fax 775/747-2916.

**NOTE:**

Today the ghost town of Bodie and the Bell Lode Mine are preserved by the State of California as a State Historic Park. If you visit Bodie, please observe all restrictions. Old mining sites pose extreme hazards.

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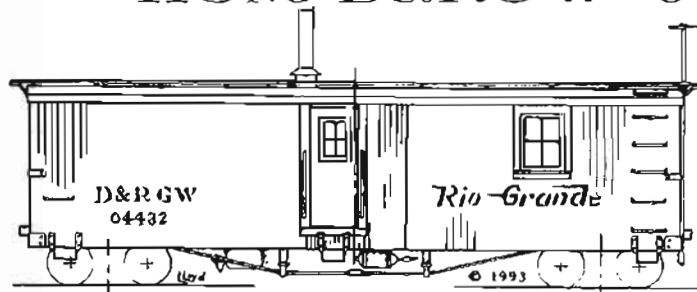
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