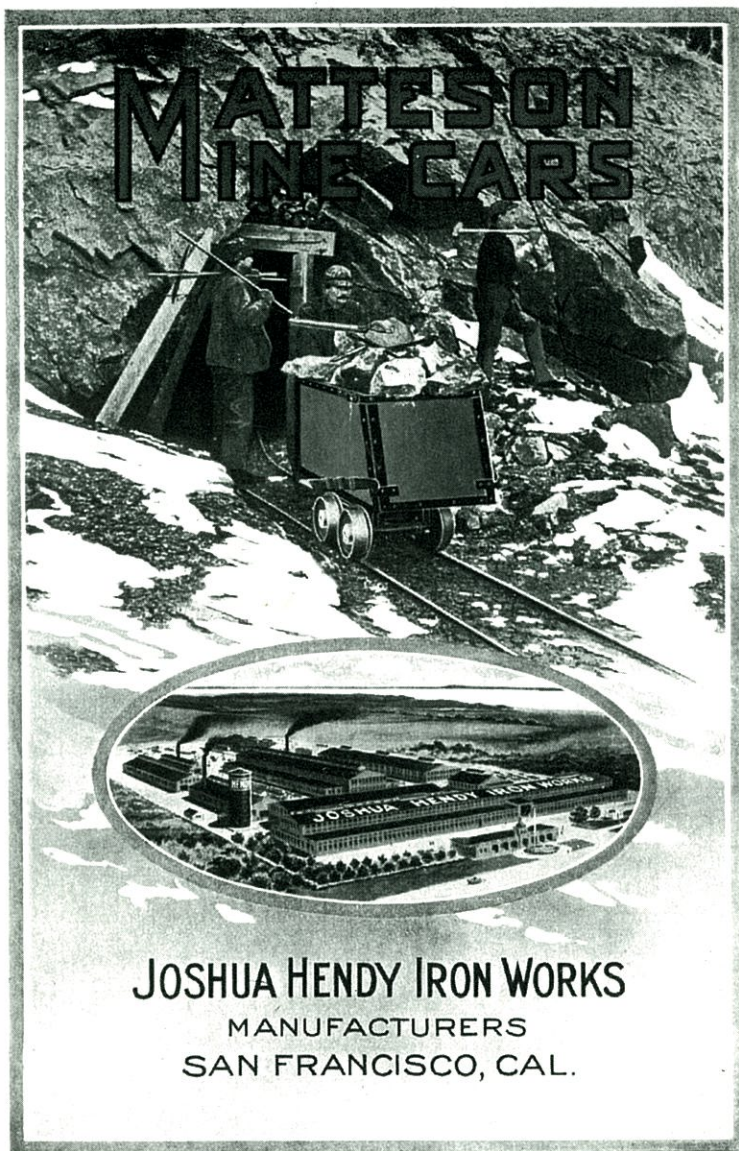


The **MINING REVIEW**
COLLECTORS

ISSUE NUMBER 4

SUMMER 1997



IN THIS ISSUE

Cap Tin Talk
Roots of the C & A, pt II
California Powder Works
Crimping, European Style

Commorative Coins
George Foott, Artist
Jim Finche's Mine Report
Cerro Gordo, A Search for Water

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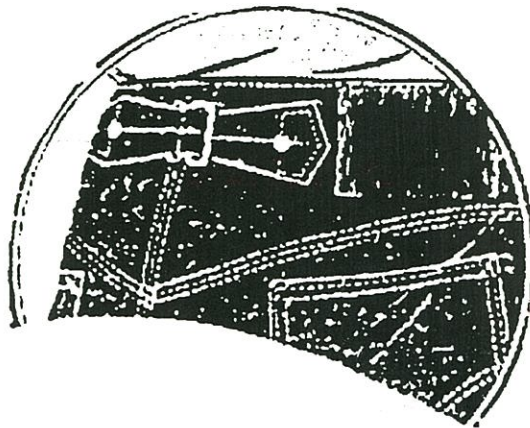
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(702) 746-1255

E-mail: geodent@geodent.reno.nv.us

Eric Twitty

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Boulder, CO 80303
(303) 499-4334

Deric English

24261 Sage Avenue
Boron, CA 93516
(460) 762-6208

E-mail: DJCEnglish@juno.com

H. Mason Coggin

Director, Arizona Dept. of Mines and
Mineral Resources
1502 W. Washington
Phoenix, AZ 85007-3210
(602) 255-3795

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REVIEW OF MINING



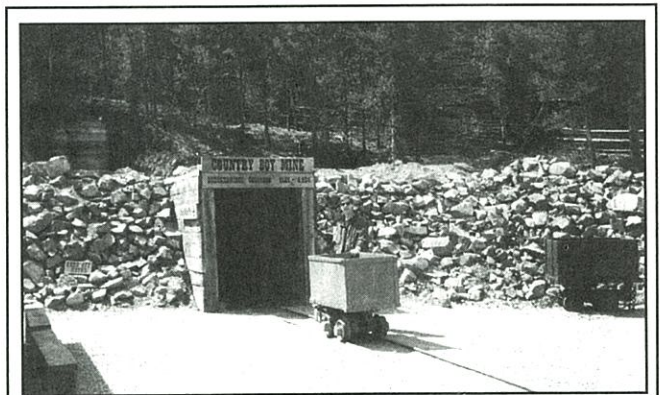
EDITORIAL

As I casually read the Sunday paper a small article caught my eye – ‘Amateur makes major fossil find near Rocklin, California’. An amateur, making a major find, what about all the expert paleontologists working for museums and universities? Apparently a firefighter, dazzled by dinosaurs since childhood discovered the evidence of the existence of the Tyrannosaurus rex in California. Over the years, the amateur had spent thousands of hours scouring construction sites in the area and had recently uncovered the outstanding fossils.

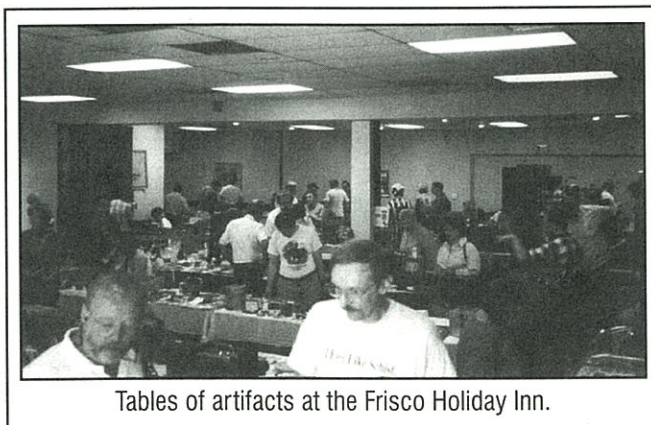
Despite what the experts say, we amateurs can make major discoveries all we need is our enthusiasm and perseverance. The artifact collector as archeologist-historian is a concept that is in evidence throughout the pages of the ‘Review’. If you collect artifacts of the past and care about the processes and people that created them then your efforts will be considered as significant contributions to the body of knowledge used to study “ancient” mining activities.

Speaking of artifacts, there were more mining related items displayed on tables in a single room at a Holiday in Frisco, Colorado than I have ever seen. A magnificent sight

and a wonderful meeting, it was great to finally meet people who had only been names in the past. Leo Stambaugh, Bob Guthrie, and the Rush's are to be congratulated on a well planned and executed gathering. After the Frisco function I visited the Mining museum in Leadville, but was a little disappointed because the artifacts they had weren't as good as those at the Holiday Inn. I was able to satisfy my underground desires by visiting the Country Boy Mine just outside of Breckenridge, where a rich vein of wallet leather is being actively worked.



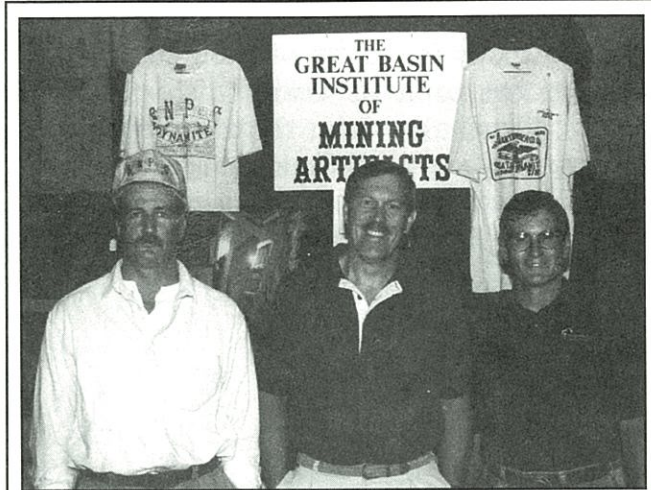
Larry Kuester at the Country Boy Mine, Breckenridge, Colorado. The owners are still looking for the ore car.



Tables of artifacts at the Frisco Holiday Inn.

Another mining meeting was attended by your editor as well as Brian Schrage and Tom Johnson. This time it was the Elko Mining Convention which annually holds a meeting to celebrate the mining activities in the surrounding Carlin Trend gold mining district. We had a great time selling a few artifacts, educating the open pit miners about why candles and carbides exist, and listening to many glorified stories about tons of lamps, boxes and other mining artifacts located in their grandfather's garage.

REVIEW OF MINING



Brian Schrage, Tom Johnson and Lane Griffin at the Elko Mining Convention.

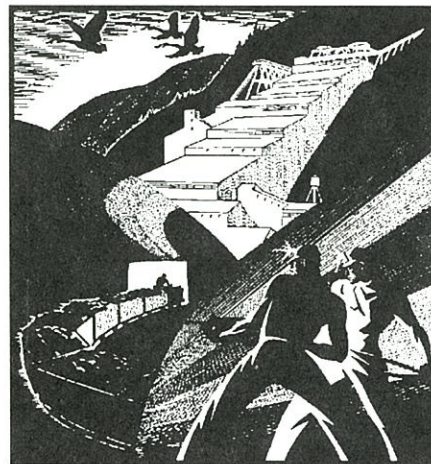
Don't forget, the Klondike centennial celebration continues up in Seattle, and the Mt. Baker gold rush will be celebrated in August at the Twin Lakes campground, 40 miles east of Bellingham, Washington. Obviously there are many activities and things to see this summer. One more thing to consider though, is a mine located on the 'Lonliest Road' in America, Highway 50. The New Pass mine is just 20 miles west of Austin, Nevada and well worth a visit. The mine was located in 1864 by prospectors from Austin and exploits the gold-quartz vein system with a network of underground workings. Headframes, stamp mill, old buildings and lots of old equipment are still intact. Don Jung lives on the property and has worked the mine with his wife for many years. They are now trying to develop interest in the property so that they can rehab the site and conduct tours. This place is an undiscovered and untouched treasure of mining artifacts and equipment and Don would personally show you around. If you're planning a trip through central Nevada and don't want to just see the sagebrush and brothels give him a call or take

the turnoff at the sign for the Newpass mine, its 5 miles on a good dirt road.



New Pass Mine near Austin, Nevada

I recently received information about the Midwest Federation Convention of Mineralogical and Geological Societies and their meeting in Davenport, Iowa, October 24-26th. An invitation has been extended to any subscribers to attend, display or sell mining artifacts at this gathering. This sounds like an interesting convention with a large attendance. Please contact Floyd Dopler, Jr., President, Black Hawk Gem and Mineral Club, P.O. Box 511, Andalusia, Il., 61232, (309) 798-5367, before 2:30pm weekdays, E-mail: Fdopler@aol.com.

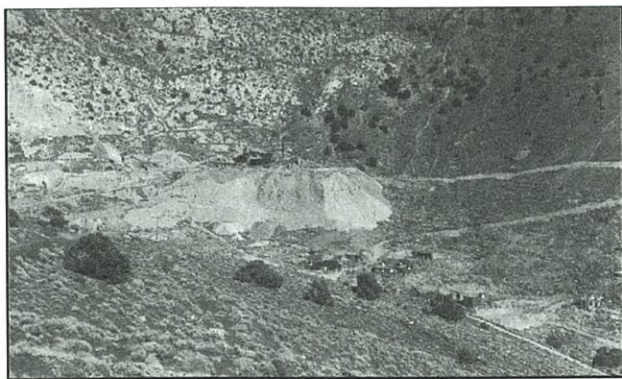


Ad from the Dept. of Mines, British Columbia. Northwest Mining Number 20 September 17, 1936

CERRO GORDO, A SEARCH FOR WATER

by Steve Rush

From its lofty perch near 8,000 feet, the old silver boom town of Cerro Gordo, California, contemplates the long view across the Owens Valley towards the eastern wall of the Sierra Nevada Mountains.. Situated just below a high saddle in the Inyo Mountains, the town and its owners, Jody Stewart and Mike Patterson, first became familiar to me in 1986, with introductions being made for both through George Copenhaver. George is a world class hard rock mining geologist and a true friend who I have shared many a campfire with. We've also made many a "dead soldier" out of live bottles around those fires, but that's another story entirely.

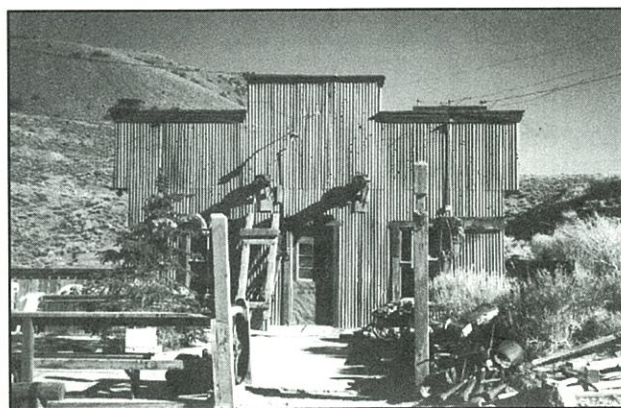


A far shot of the Cerro Gordo Mine buildings, with a portion of Cerro Gordo shown below. The tailing pile is indicative of over 37 miles worth of "the underground".

Mike and Jody have lived among the Cerro Gordo ghosts since the summer of 1985. The town prior to this wasn't in the best of shape with many of the original buildings and artifacts having been hauled down the hill to Lone Pine and points beyond. A tremendous amount of history had been scattered across the desert before their arrival.

They immediately began a series of historical restoration projects, notably on the 1871 American Hotel, the 1880's bunkhouse, the 1890's general store (just crammed with stuff from the past...) the 1908 Gordon House

where Mike and Jody now reside, the list goes on. Assistance has come to them through friends and historical organizations, but what you see today is mostly of their own doing. Mike refers to it as their "histo-reclamy" period. To wander about the town today is as close as it gets to touching the past.



The General Store, circa 1980's. Stuffed to the gills with Cerro Gordo artifacts.

And anyone can touch the past here, the town site is alive once more with modern pioneers who come to stay for one day or several. The Bunkhouse sleeps up to fourteen comfortably, with other buildings such as the American Hotel and the Belshaw House containing numerous furnished rooms. I've seen the town with more than fifty people moving about at various tasks or just relaxing with the view.

The culinary delights provided by Jody for her hungry minions would fill up pages of any restaurant reviewers accolades. And it isn't just plain good food either. It's gourmet style every time I've eaten here. To spend time here, working or otherwise, and enjoy the company and hospitality of Mike and Jody is almost as special as a mining artifact collectors show. Real close, anyway.

The mining district of Cerro Gordo, meaning "fat hill" in Spanish, goes back to the mid 1860's with rich outcrops of silver ore

being discovered by adventuring Mexicans . The ore found during this period was roasted in rough furnaces called “vasos”. Remnants of vasos and even some of the slag can still be found here. The town of Cerro Gordo itself dates to about 1866, when an enterprising French Canadian named Victor Beaudry opened a store around the mines being developed by others. As was often the case in young towns of the last century, it was the store owners who usually were the cagey ones to come out ahead of the miners, and Cerro Gordo was no exception with Beaudry.

According to historical accounts of the times, Beaudry foreclosed on two of the richest silver mines on the hill through a settlement of past due accounts for goods sold to the mine owners. One of these mines, the Union, was in later years developed into the Cerro Gordo mine, by far California’s richest silver mine. In 1868, Mortimer Belshaw arrived in Cerro Gordo fresh from the silver mines in Sinaloa, Mexico, with driving ambition and the knowledge of smelting silver ore. A partnership between Beaudry and Belshaw developed and the town of Cerro Gordo was on its way into history as a camp soon to be known as a wide open town where fortunes, and lives, could be won and lost in a day.

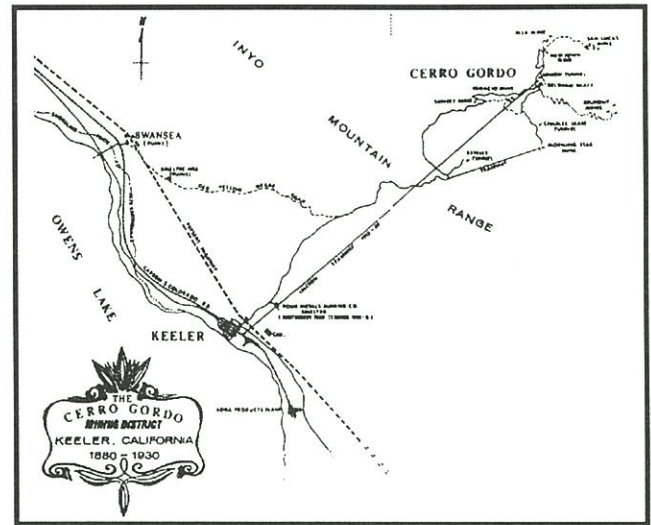
With a standing population around 2,000 and a population at its peak around 4800, the mining camp smelted silver ore and shipped bullion to the then small town of Los Angeles. It is no small fact the silver from Cerro Gordo financed the initial building of this city to its present day destiny.

With that very quick tour through a bit of this regions history, you’re now brought up to recent times. Notably April 17, 1997.

This day found Dan Quigley, Roger Peterson, Perry Sheffield, and myself on a slow dusty ascent to the town site. Our visit was to begin a search for a resource almost as valuable as the minerals men once sought here - water. Roger is a fellow Coloradan who was in California on business and was able to

pick up the three of us at the Ontario Airport about a three hour drive south of Cerro Gordo. Our descent into the Belshaw Shaft of the Cerro Gordo Mine was to be by rope, with Perry along as our expert in this field. Perry was later to say that the flight in from Denver was more frightening than any drop down a cliff face, or a mine shaft.

The “Yellow Grade” is an arduous climb from the Owens Valley floor to Cerro Gordo. It was a tough route for an eight up ore wagon laden with supplies, a tough route for today’s modern vehicles, and a very tough climb for an old Marmon heavy truck with 1200 gallons of water. Mike Patterson has been driving up and down from The Hill for several years now hauling water from the old mill site of Swansea to Cerro Gordos water tanks. Down, up, and back is a long twelve hour day.

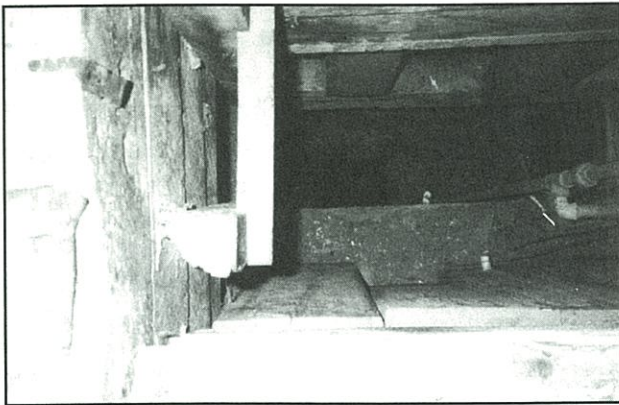


Our search for water was to make life at the present day townsite a bit easier for Mike and Jody. Why? Essentially, three motives. One, the world needs more people who will caretake our history the way these two have, two, life really is what you put back in, and three, well, the Cerro Gordo mine has never been open to modern eyes searching for artifacts.

Within Professional Paper Number 408 on the Cerro Gordo Mining District, reference is made to a cistern of sorts which was constructed in a drift off the 700 level. The

original intent was to contain nuisance water seeping into the mine here, with water as scarce then as now a pump had been placed here to pipe water up and out to the town. The pump is circa 1930's vintage, and hadn't seen use for about fifty years.

Exploration by mining companies during the period from 1965 to 1975 had rumored the water was still there. This trip we would confirm or deny for Mike and Jody that water was indeed there in useful quantities, and that it could somehow be brought to daylight.

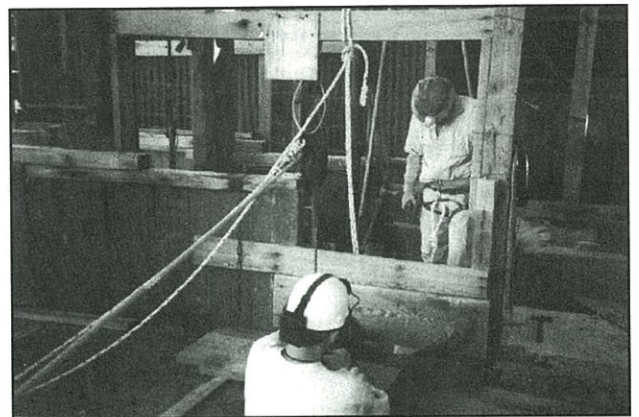


Belshaw shaft collar with view of the 900' ladder. A very deep hole indeed.

Two ways remain today to access the Cerro Gordo Mine. Both involve a decent down the 900 foot deep Belshaw Shaft; one by manway on a square nail constructed ladder and one by the old safety cage worked by the 100 year old Joshua Hendy hoist works. The hoist last saw use when put into dicey operation for a few days worth of exploration in 1984, so this left the manway.

Greetings exchanged and equipment unloaded, we opened the manway door and prepared our decline. Somehow, it was chosen that I should go first. I guess it made sense, since Perry was our expert in rope technology who was to belay, Roger "has kids", and Dan... well, Dan's about 6' 7". Besides, it was pointed out, I have no children am somewhat proportioned to the miners stature of the last century, and only act as vice president for my company (and we all know how expendable

they are). So away into the void I descended, well roped in from above.



Belshaw Shaft Collar

Dan Quigley on belay in foreground with Steve Rush peering down the 900' manway acting as "radioman" for Roger Peterson down the hole.

A quick perception on what a 900' shaft really is. Next time you're in a large city, crane your neck to size up the average tall building. Most of them are at least fifty stories or better in height, double that distance and you will be looking at something about one hundred feet shy of nine hundred feet.

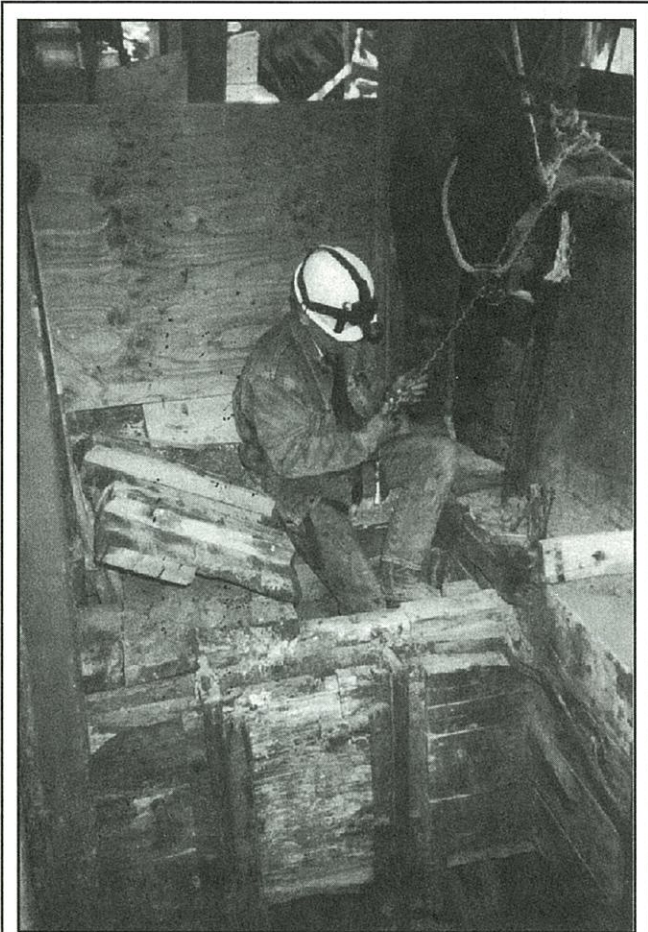
It's a far piece, up or down.

Several levels exit into the mine from the Belshaw. Read as a distance below the collar, they are the 86 level, 200 level, 400 level, 500 level, 550 sublevel, 700 level, and the 900 level. The manway ladder is continuous (except where rungs are missing...) the entire way with no landings. At the 86, the first hangup on this adventure proved to be a rock about two feet in diameter which had fallen and become lodged between the shaft wall and the cribbing separating the cage way from the ladder.

Down was no longer an option, so I crabbed my way over to the 86 station across the shaft cribbing. The black abyss yawned far below my heels. I felt a bit like Luke Skywalker in one of the Star Wars shots where he is outside the Empires ship, endless space below. Only this scene didn't pay as much.

Dragging a ladder stored in the drift

back across the shaft at least allowed the possible opportunity to remove the rock, with help from above (including Roger or Dan).



Roger Peterson preparing to descend into the Cerro Gordo Mine.

Observing that I had so far survived and was successfully climbing back up to the collar, Dan and Roger were in harness to descend in their turn by the time I arrived at the top. This evening, the Tommyknockers appeared to be taking a break.

It is important not to drop heavy items such as rocks down a shaft lest they destroy sections of ladder or cribbing, so it took some time and effort for the Dynamic Duo to carefully inch the rock up and onto the ladder then across into the 86. Did I mention how important ropes are here? Don't try this at home. Better yet, don't try this at all. Better to read about it from the relative safety of your arm chair close to the floor.

After a meticulous hour or so, rock safely ensconced into the 86, Dan and Roger resurfaced for water and to stand on something solid again. My turn in the hole, I made my way into the darkness. Past the 86, into new territory. Two days and thirty feet later I observed another problem. The rung in my hand, that I had so confidently placed my weight on, was broken in the middle. Another underground lesson, always keep your feet tight in against the inside of the ladder sides which keeps your weight distributed off the center so that if a rung is broken in the middle, you won't know it until you're eyeballing it at face height.

One hundred sixteen feet down, five hundred eighty four to go. This way was going to be a long night with several days attached if we were going to depend on the ladder to get us to the 700. The next few rungs were also shattered, and in a number of places the side pieces were split.

Back up to the collar with this disappointing news, it was greeted with a scowl by Roger. For those of us who know Roger well, this scowl usually means his bulldog determination to never say never is surfacing, at times with irritation towards whatever it is that made him scowl. This was one of those times.

Harnessed up like a farm mule and well roped to Perry, Roger lowered himself to "see what's down there myself". Down past the 120 mark, (hell, this isn't so bad, came his radioed message) then all the way to the 150 (uh oh, rungs gone altogether here..) then to the 200. At the 200 station, the tunnel entrance has been closed with lagging nailed from the tunnel side. Through space between the planks, you can peer into the mystery of miles worth of workings we never did get to.

It is also where the manway cribbing squeezes in like a wooden vise. It's tight in a few places above as well, places where you have to twist and contort yourself to get past. Roger radioed he was coming back to the surface.

A two hundred foot climb on a poor ladder is somewhat strenuous and time consuming. When Roger finally got his breath back (his scowl gone by this time, replaced by a kind of apoplectic look) he replayed how he got wedged into the manway for a short time, unable to move up or down.

His gyrations of how he was able to come up were met with hoots of laughter from us. Roger, however, was not yet able to see the humor in it and started to scowl again.

One thing was certain, we would not be getting to the 700 by ladder. This left only the Joshua Hendy hoist. By flashlight we eyed the cage, cable and hoist works. Dan smacked the old iron lightly with his rock hammer, producing a low heavy ring.

Back in conversation with Mike and Jody, we passed on the news that the manway was not safe as a mine access. The information back at us - a fellow I had spoken with earlier regarding the Belshaw Shaft was coming down from Gardnerville, Nevada, in the morning. Dave Pruett was the mining engineer with the mechanical knowledge to revamp the hoist into working condition. Dave was the one to run it in the early 80's and if it was to facilitate access to the mine depths, Dave was the one who could do it again.

Lightened in spirit and step (also somewhat relieved we wouldn't have a 700 foot ladder to face again) we retired to the 1880's refurbished bunkhouse. Tomorrow, we would either become involved in a historical undertaking or we would call it deep enough and go down the hill talking to ourselves. ✕

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2. The Album, Times and Tales of Inyo-Mono Dec. 1987 Issue, Chalfant Press, Inc., Bishop, California
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Down In The Mine Again

(Apologies to Masfield)

I must go down in the mine again, to
the granite, and the dark

And sharp steel, and a straight stull
if the hanging wall is sagging,

And all I ask is a leyner, and strings
to sight a mark,

And a full pail for the lunch hour,
and a twelve-inch lagging.

I must go down in the mine again for
the call of the seamy gangue

Is a sharp call and a clear call like the
pull-bob's signal clang,

And all I ask is a partner who is brisk
and chipper,

And a good boss and a motorman,
and a hard-boiled nipper.

I must go down in the mine again,
I'll trade my coat of tan

For the friendly ways and the busy
days in the life of a mining man,

Till my bits are checked and my tools
stacked and my drill dismounted,

And all I ask is a quick hoist when
the last shot's counted.

-J.B.

Reprinted from the 'Anode', a publication of the Anaconda Copper Mining Company, Butte, Montana, compliments of Herb Dick.

ROOTS OF THE CALUMET AND ARIZONA

A Short History of the Calumet and Arizona Company

Part II

by H. Mason Coggin, PE & LS

FORMATION OF THE CALUMET & ARIZONA MINING COMPANY

The property at this point had reached a state of progress where the original developers had envisioned the sale to an operating company. For this purpose, they formed the CALUMET & ARIZONA MINING COMPANY, naming it after their immediate area and the area of interest. It was formed with an initial capital stock authorization of \$2,500,000 with initial shares at a par value of \$10.00 each. The first 100,000 shares, were traded for the outstanding stock of the Lake Superior & Western Development Company. An additional 100,000 shares were sold for cash subscriptions at par value and 50,000 shares were retained to acquire additional properties of merit as opportunities arose. (see figure 12).

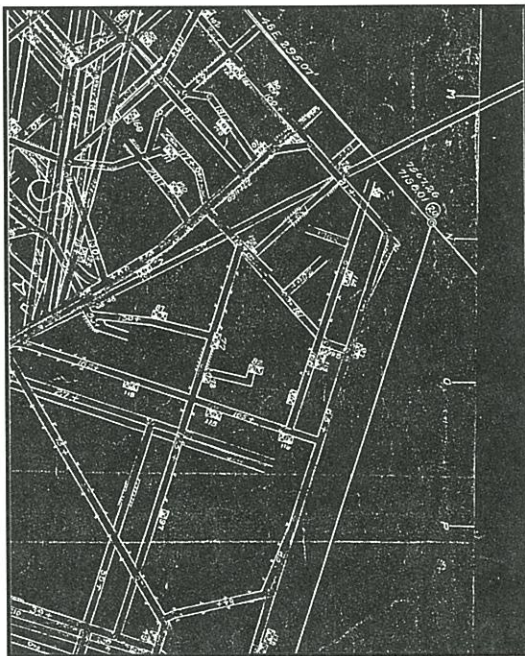


Figure 12. C&A Irish Mag Comp., 1916³⁷

This reproduction was taken from the 1916 Tax

Map of the Calumet & Arizona and shows a portion of the composite map from the Irish Mag Shaft drawn at a scale of one inch equal to fifty feet. The mine was mapped at this scale to allow accurate mapping of not only the workings on the levels, but also the workings for every floor at each eight and half feet of elevation between the 100 foot levels. The C&A mapped not only the workings but also the geology and assays on each level and each floor. It was this precise mapping that allowed them to maintain the close control that was needed to find and develop ore in the district. The originals of these maps were done on starched linen with colored inks.

Note also that the C&A defined the claim corners with a circular symbol which is referenced with a numeric value and north-south coordinates calculated to the nearest hundredth of a foot. This type of precision kept the C&A from mining into Copper Queen ground. The long crosscut leaving the Mag sideline was the result of cooperation between the two companies to share drainage, ventilation and access.

At this time the company controlled 150 acres of mineral lands and 480 acres of additional land. Seventy five men were working two shifts and the working shaft was down 1,256 feet on December 31, 1901.

Raising \$1,000,000 in Michigan in 1901 seemed formidable despite the encouraging ore reserves. A copper mine of this magnitude had not been floated for several years without support from the markets in Massachusetts. These markets controlled most of the American copper production. In March 1901, Briggs, Hoatson, Cole, Tener and d'Autremont went to Bisbee to reaffirm their faith in the venture. Thomas F. Cole examined the mine.

After reviewing the rich ore that was being developed Cole and the others wired their brokers in Michigan and Duluth to purchase all of the stock they could afford. They also encouraged their friends, relatives

and acquaintances to do the same. As a result of their enthusiasm, a large portion of the stock in the new company was acquired by wage earners in the Michigan copper and iron mines. This initial offering was over subscribed in its first day. The stock entered the market at a 200% premium over par.

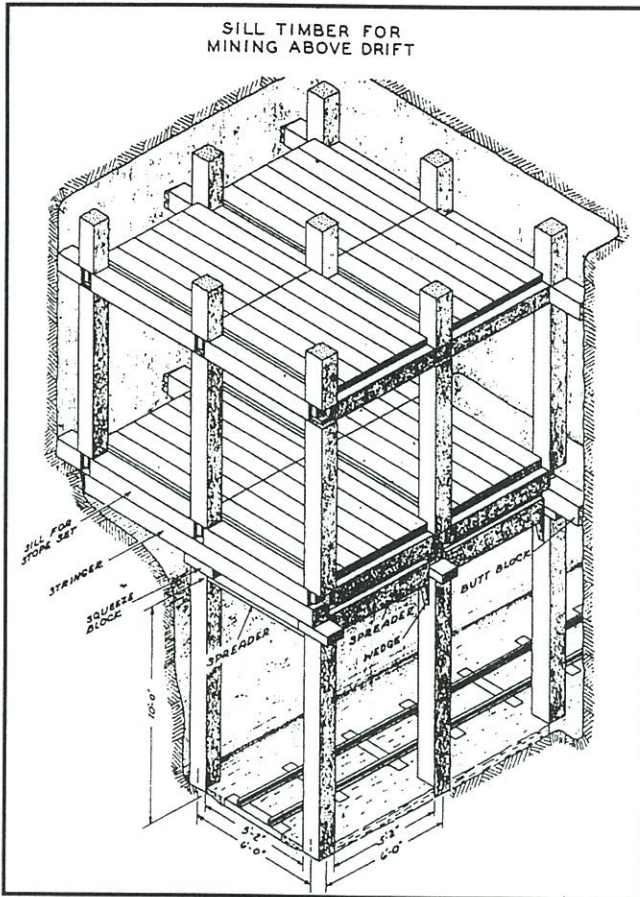


Figure 13. Sill Timber, 1968³⁸

Illustrated here is a typical design for a square set stope for the Copper Queen Branch of Phelps Dodge Corporation. It has changed little since the Calumet & Arizona brought it into the camp in the early 1900's.

In next year these funds would be spent to add production facilities to the mine in Bisbee and to build a 300 ton-per-day copper smelter in Douglas, Arizona. Douglas was 25 miles from the mine, but it was a more favorable site for the smelting facility. There was abundant water and the site was near the Copper Queen Smelter and close to the Copper Queen's El Paso and Southwestern

Railroad. The Copper Queen smelter had already set a precedent for smelter operations in the area.

In the Directors' Report for March 1st to December 31, 1902²⁵ Charles Briggs, president of the company, proudly stated that the first furnace at the Douglas Reduction Works was blown in November 15th, 1902. Production from then until the 31st of December was 2,066,647 pounds of copper, with gold and silver averaging \$8.00 per ton. By the end of 1903 assets of the C&A had grown to \$1,758,613 and \$400,000 was paid in dividends.²⁶ A view of Bisbee's Main Street in 1904 (Figure 3) shows the prosperity brought on by the C&A, the Copper Queen, and several other active companies in the district.

COPPER QUEEN FRIENDSHIP

A competitive friendship existed between the Copper Queen and the C&A from the very beginning. This was demonstrated by C&A's announcement that they had contracted with Phelps Dodge & Co. to sell the C&A copper. Further, they had contracted with the Copper Queen's El Paso and Southwestern Railroad for shipping of their ores to Douglas and then shipping their anodes from Douglas to the port of Galveston, Texas. From Galveston, the anodes were shipped to the Nichols Chemical Company of New York where they were electrolytically refined. As a further demonstration of cooperation, Douglas refused to apply the law of apex and instead arranged for a vertical sideline agreement between the two companies.

Without the cooperation of the Copper Queen, C&A may not have been successful with it, C&A was extremely successful. Over the 30-year life of the C&A the original investors received over \$164.00 in dividends for their initial \$10 per share investment price. In the merger of 1932, every shareholder of the C&A received seven shares

of Phelps Dodge Corporation stock for every three shares of C&A and a cash bonus.



Figure 14. C&A Certificate, 1923

This is a photo copy of a Calumet and Arizona Mining Company stock certificate of March 29, 1923. It was issued to Tucker, Bartholomew & Co. for six shares of Capital Stock. Note that by this time the company was registered under the laws of the state of Arizona.

COUSIN JACK TECHNOLOGY

C&A's real contribution to mining in Bisbee, However, was the great advance in technology that the Cousin Jacks and their experienced management team brought with them. This contribution included their detailed geological mapping techniques, ingenious methods of timbering, advanced engineering and equipment that had been perfected in Michigan's copper and iron country.

One of C&A's first priorities was to establish a detailed system of geological mapping. This included preparing an accurate base map of all the claim boundaries at a scale that would be easy to read and maintain. This turned out to be one inch equal to 50 feet (See Figure 12). The Copper Queen was mapped at a scale of one inch equals 200 feet (See Figure 11), which was inadequate for accurate mapping.

These base maps were duplicated for each level in the shaft and for each elevation of eight and one half feet above the levels. Most of the levels in the district were

established at 100-foot intervals. Workings and geology as they were developed in the mine were carefully plotted on each level and floor map. Assays from samples showing the copper values were added to these maps by the engineers and geologists. The Copper Queen quickly copied these practices.

The Spray Shaft was one of the Copper Queen's most modern shafts, yet its usefulness was limited by a hoist (See Figure 2) that did not allow continued sinking of the shaft.

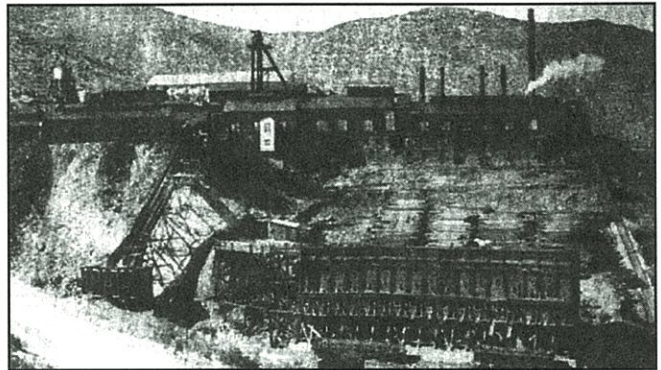


Figure 15. C&A's Irish Mag, 1912, Pay Dirt

The Irish Mag and surface works. This was the property that turned Calumet & Arizona Mining Company into a major copper producer. The C&A used some of the income from this mine to locate and acquire thousands of acres of claims in the Warren Mining District and cut off the Copper Queen from entering the south end of the district.³⁹

Both the Copper Queen and the C&A were using mule haulage in the first few years of the century (See Figure 4&5). The C&A, however, brought in electric haulage from Michigan's copper country as soon as possible (See Figure 6). This system was promptly copied by the Copper Queen.

As soon as money was available from the operation of the Irish Mag, the C&A started forming other exploration and development companies. Among these was the Junction Development Company (See Figure 7), Calumet and Pittsburg Mining, Lake

Superior and Pittsburg, Pittsburg and Duluth and the Superior & Pittsburg Copper Company.

As soon as these companies had developed ore reserves they were merged into the C&A and the C&A was reorganized to purchase and accommodate the new property. This was normally accomplished by issuing shares of C&A stock for the new company.

Beginning in Cornwall, the Cousin Jacks had developed extensive dewatering pumps to remove water from the underground workings. In the Warren Mining District, the C&A quickly developed a major pumping system for the district in the Junction Shaft (See Figure 8). In this effort, they drained not only their own workings, but also the workings of the Copper Queen, Shattuck and Denn mines.

Also from the Cornish experience, the C&A brought in extensive air moving equipment to provide ventilation to their lower workings. The fan shown in Figure 9 is typical of the ventilation equipment used in Bisbee during this period.

Cousin Jacks claimed to be the developers of square set mining (See Figures 10 and 13). The first use of this method of supporting heavy ground was in Nevada's Comstock in 1860. This method was adapted, perfected and modified to accommodate the heavy sulfide ground in Bisbee. Although it is a very slow and expensive method of mining, it insures safe and accurate extraction of the ore with little dilution. This is desirable with very high grade ores.²⁷

The C&A was also a pioneer in providing for its employees. Very early in its history, the C&A set up hospitalization and medical care for its employees. This practice was started by the Copper Queen and soon turned into competition between the two companies to provide good medical services for their employees and their families. Although Bisbee was a remote western mining town, it provided some of the best hospitals available

in the Arizona Territory.

Safety was always a goal of the C&A as well as the Copper Queen. Both companies developed strong safety programs at very early stages in their development. The Copper Queen authored and printed extensive instruction manuals for miners and mine workers. Today these manuals are highly prized as collectors items.

The C&A also provided its employees with housing and recreational opportunities. In 1903 they formed the Warren Company and started building the Warren Townsite. To provide transportation throughout the district the Warren Company also built the trolley car system.

CONCLUSION

At the end of 1904, the C&A was well on its way to becoming a major copper producer. In the first decades of the 20th century it became an aggressive and interesting company. It had a serious scrape with organized labor and played a major role in the Deportation of the IWW (Wobblies) in 1917. In the depth of the great depression of the 1930's it contributed it's assets to the survival of Phelps Dodge Corporation through a merger of assets, technologies and management.

While the C&A was being organized over a bar in Red Jacket Michigan, John C. Greenway, a 1895 Yale athlete was set to lead a charge up Cuba's San Juan Hill for Teddy Roosevelt "Splendid Little War". In 1910, after joining the C&A he lead the company to charge into new mines in New Mexico, Ajo and other Arizona deposits with new technologies that he helped to develop in the Minnesota Iron Ranges. Greenway married late in life to the widow of a fellow Rough Rider. She became the first woman congressman from Arizona.

Always the soldier, Greenway served in World War I to gain the rank of Colonel and

was decorated with high honors. His name has been given to American Legion Posts and Arizona landmarks. His likeness is enshrined in the nations capital with Father Kino as representatives of the state of Arizona.

Many long faces in Michigan's copper country watched the investment they once scorned support many rich and famous lifestyles as the western copper rolled out and dividends rolled in.

C&A's positive effect on the Phelps Dodge's balance sheet was felt until the Ajo pit was shut down in the 1980's.

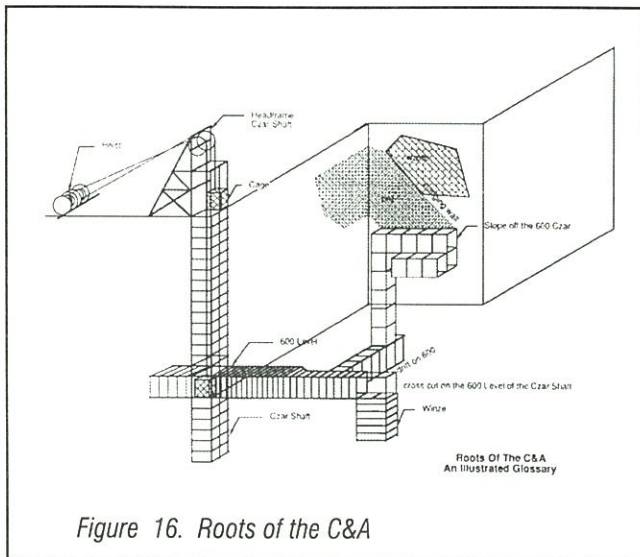


Figure 16. Roots of the C&A

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- 10) **Joralemon,** 1973, p. 120125.
- 11) Ibid. p. 142, Joralemon originally accused Dr. Douglas in his earlier book, Romantic Copper, of turning down the United Verde Mine that later paid out \$100,000,000 to Senator William A. Clark of Montana. Joralemon made the referenced quote in a footnote in his chapter on Bisbee. He was one of the many top notch geologists who worked for the Calumet in both Bisbee and Ajo. The association was also a good one for Joralemon. The reputation that he gained for his work with this very successful company helped him find important work later.
- 12) **Coggin, H. Mason., Frank Murphy,** *An Arizona Gold Miner, History of Mining in Arizona, Vol II,* Ed. M. Canty & M. Greeley, Mining Club of the Southwest, Tucson, 1992, p. 109. Indicates that Senator Clark bought the Jerome property shortly after Douglas insult for a price between \$200,000 and \$250,000. This price may have been too steep for the conservative Douglas.
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 - 29) **Graeme**, 1981, p. 270
 - 30) **Graeme** 1981, p. 272 Graham credits this image from the Bisbee Historical Museum to the Holbrook. The author obtained this copy from another source.
 - 31) **Graeme**, 1981. p. 276
 - 32) **Coggin**, experience
 - 33) **Coggin**, experience
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 - 36) Copper Queen Consolidated Mining Company, Copper Queen 6 Int., Arizona Department of Mines and Mineral Resources, Tax Map File, c. 1917.
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CAP TIN TALK

by John Kynor

With this column it is my intent that from time to time I can hopefully put out a little information that cap tin collector's will find interesting, or at least a little useful in their pursuit of that next tin for the collection. I've been collecting tins for 20+ years, and if I find a tin that is a little different it goes into the collection. To me these differences whether it be color, size, construction or wording are important in establishing a trail for that particular company's blasting cap acquisition process and their marketing. In many cases some of the differences pose more questions than they solve. Also, I hope maybe some additional data on cap tins will generate a few new collectors.

While looking for tins close observation to what you are looking at is a must, one of the best examples of this is the yellow 100 count round Hercules tin. This tin was produced for both #6 and #8 caps, can we all say without a doubt that we have not missed a #8 tin, by casting a quick glance at a round yellow tin and dismissing it as another common item. Always look close.

In my talks with other collectors I've found some who only want pristine tins, or only U.S. tins, or are satisfied with one style of a tin when there are several styles. I'm not knocking any method of collecting, but I believe that in order to get a total picture of blasting cap history, any tin located should be considered for addition to one's collection. Several of the tins in my collection are only 50% at best, but they are one of a kind, and others may only have two or three other examples known that are similar. Because I've found it easier to find the second example of a specific tin, I always hang onto the first one I acquire as long as it can be identified. Good hunting.

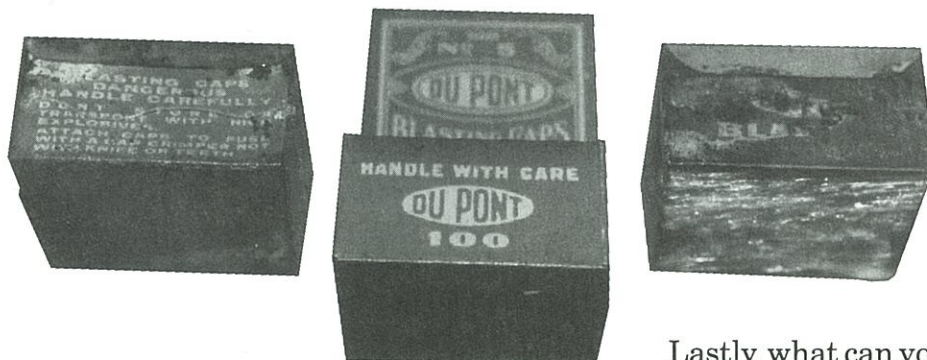
For this issue I want to address varieties of the Dupont #5 square cap tin. If you have a copy of Andy Martins's Blasting Cap Tin Catalog, it is shown on page 39. If you don't have Andy's book and you want to collect cap tins, you should invest in one ASAP. The #5 tin is listed as rare, but I've usually seen at least one for sale at any show I've been to. Do you know there are at least three types of this tin, an although they are all thought to be light blue and white, I know of one that is dark blue.

I have the three types in the collection, and have found they are all $1 \frac{3}{8} \times 2 \frac{1}{8} \times 2 \frac{1}{2}$ inches as reported in Andy's catalog. The lids are all printed the same, with what I refer to as a "scroll" style. The variations are found in the construction of the bottoms, the width of the lid overhang, and the different markings associated with a bottom. Refer to the attached photo.

The first tin and probably the oldest of the three has a paper Dupont logo wrapped around the bottom of it, this also acted as a seal. The bottom on this tin is of a tabbed type fabrication, and resembles the bottoms of early M.C. tins. This style could be from 1900 to 1920's era. The lid on this tin has a different width of overhang as it folds over to cover the bottom of the tin. This overhang is $\frac{3}{8}$ th's of an inch a opposed to $\frac{5}{16}$ th's on the other lids. I've noted on almost all of the tins I have with tabbed bottoms, the lid folds further over, this is true on the embossed Dupont and Aetna, Climax, Hecla, and M.C.'s examples, and I believe this is to provide an added degree of rigidity to the container. The paper label wrapped around the tin is blue and white, and printed with the oval Dupont logo and the same wording that was painted on the later tins. See page 38 of Andy's catalog under No. 6 round.

The second variety of the #5 tin is the one I see most frequently at shows and in collections. It is reported on page 36 of Andy's catalog. It has a painted bottom with the oval Dupont logo, the KEEP DRY warning, along with the HANDLE WITH CARE citation. This tin dates from about 1905 to 1920 and has a folded seam type construction at its corners. This is the middle tin in the photo.

The third variety is one I almost left on the table at a Denver gun show, my thoughts were, "Ah, another #5 which I already have, and in better condition." However, the more I looked at this tin the more I felt it was different, but I just could not determine how it differed from what I had. The price was right so I drug it home and was rewarded for the effort with a #5 scroll type tin with printed instructions (Variety 2), as written on page 40 of Andy's catalog. This tin also has the folded seam type bottom and dates from the 1920's to ?



As near as I can determine Dupont stopped production of #5 caps with this style of tin. I do not know of any #5 tins in the later style containers, nor do several elderly blasters I've spoken with. I found there is no mention of other than #6 and #8 blasting caps in the Dupont Blasters Handbook from 1925 on. As written instructions began appearing on a restyled type A #6 tin around 1915-20 (page 41), the end of the line for #5's could well have been the early 20's.

If you look closely on your #5 tin you will see some writing on the white border line

at the bottom corner, in this case its the American Can Co. logo. They were the manufacturer of many of the cap tins of this period. There is also a numeral on some of the tins I have, one is a 10, the other 11A. The 10 and 11A appear on many different Dupont tins, as well as Atlas, Austin, M.C., and Hercules, so it probably is a manufacturer code, not a date. For you history buffs, a great deal of the 37mm and 75mm artillery rounds expended in WWI were produced by American Can Co.

This takes care of the differences in the square #5 tin that I've seen, but if in your collection you have something different I'd sure like to know about it. Since the round #5 tins are also in many collections, look at them, there are some differences in labeling and in bottom construction also.

Lastly, what can you expect to find; since we know of a paper label, and two types of painted label #5 tins, does this hold true of the other cap sizes? I think it is fair to say that a paper label might exist in the #6 with a scroll type lid, someone may already have one. But, and I'm speculating here, I doubt that there is a square paper label #7 or #8 scroll type out there, or even with the oval painted bottom, but then that's what ROOT'N is all about-FINDING THEM.

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GEORGE FOOTT

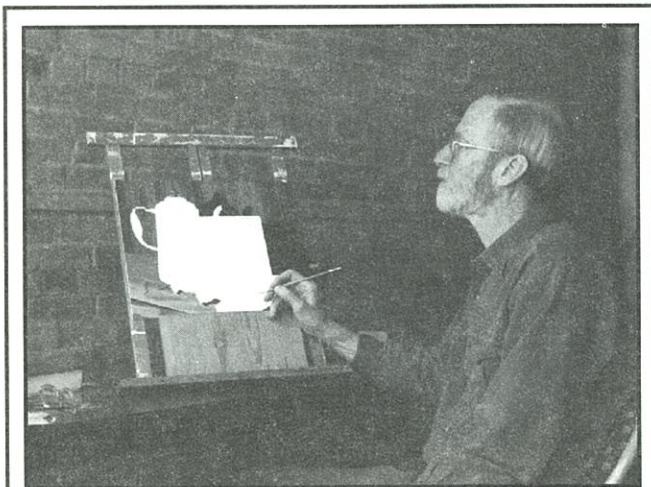
PORTRAIT OF A WESTERN ARTIST

by Steve Rush

Mining photographs are a hot item among mining artifact collectors. Artwork which details objects in old photos as small as waste rock on a spoil pile are as amazing to behold as the original picture. A sort of freeze frame in time squared, if you will.

George Foott of Littleton, Colorado is the artist behind the brush that duplicates in beautiful fashion the old photographs, mining artifacts, and western items that those of us fortunate enough to be at the Frisco, Colorado show in June viewed. An extremely fortunate pair of collectors were even able to purchase two original works in oil from George here.

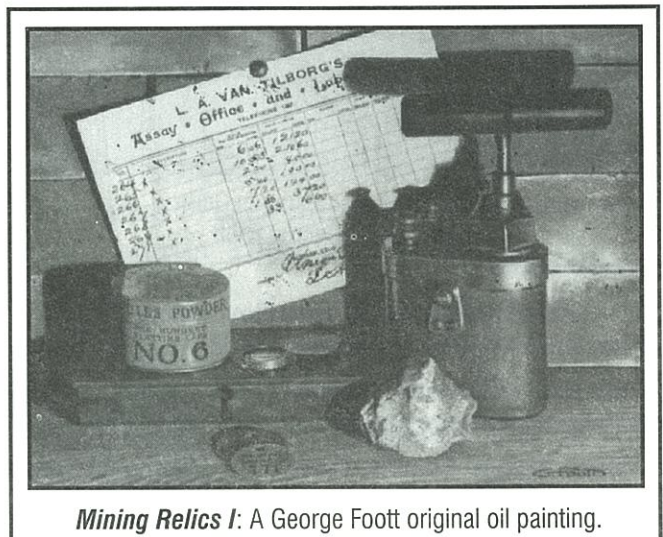
George is no stranger to the collectors world, having had his sketches of candle sticks published in the MAC several years ago as well as being well known for his outstanding collection of artifacts.



George Foott at work in his Victor, Colorado Studio.

His skills as an artist first met the public's eye in 1970 through pen and ink drawings of Colorado ghost towns. Remote mining camps were sketched by George on family backpacking trips into the Rockies

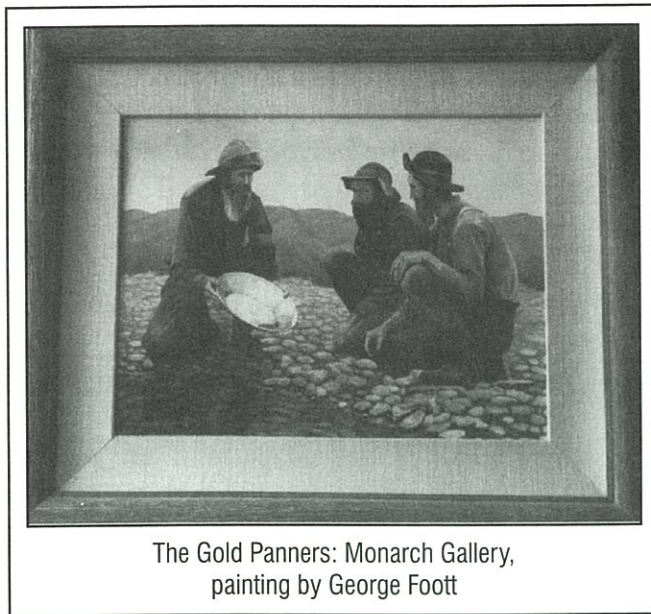
through the '70's with the drawings published as ghost town calendars, notecards and prints.



Mining Relics I: A George Foott original oil painting.

For a time in the mid 1970's (it would appear from George's biography that he was apparently the only productive member of society during the '70's, or quite possibly one of the few who even remember them) George and a partner produced pen and ink drawings which were etched onto brass plates mounted on walnut plaques along with weather instruments. Though he sold his interest a number of years back, this product is still marketed world wide.

His formal training in oil paintings began in the early 90's, at which time he set his pen and ink drawing aside for good to pursue a medium that would better lend itself to the items he would become known for; mining artifacts, trains and truly western scenes. George earns his daily bread and paint as a mechanical engineer for a prominent Denver firm, then goes home to his masterful creations while you and I are sacked out on the couch watching Seinfeld reruns.



The Gold Panners: Monarch Gallery,
painting by George Foot

He and his wife, Shirley, keep a second home in Victor, Colorado. For those of you familiar with the Cripple Creek area, Victor being the picturesque town around the hill from Cripple Creek, the mining history here

lends itself to inspire even those of us without talent to recreate at least by camera the headframes, log structures, and timbered portals scattered among the aspens.

George Foot's work is displayed at the Monarch Gallery in Victor and the Paint Horse Gallery in Breckenridge. When he isn't working or painting, he's on the road to art shows. These shows will pave George's way towards the future- his retirement from his present engineering career is expected to be replaced by full time self employment as an artist.

Based upon the awards his artwork has won at numerous shows, and the wonderful creations George continues to produce, his retirement is eagerly awaited by many. For more information on George's work, you may call him direct at (303) 979-8688 or reach him by mail at 6683 South Yukon Way, Littleton, Colorado 80123. ✂

Does anyone know...



This heavy brass medallion (perhaps a paperweight?) was recently acquired from a California source. I also know of one found in Kansas. My speculation is a hardware company of perhaps a law firm dealing with mining ventures. Anyone out there have any ideas? If you do, please contact:

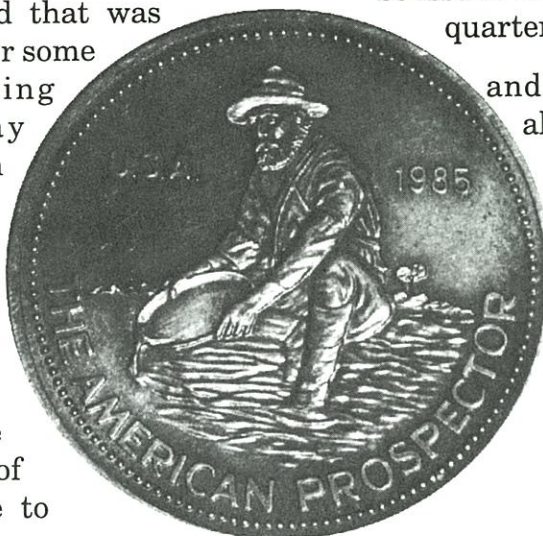
Steve Rush
31112 Shadow Mountain Drive
Conifer, Colorado 80433

COMMORATIVE COINS

by Lane Griffin



The history of the settling of the west is really a history of mining, for it was the pursuit of precious metals that propelled European settlers across the continent. This settlement often preceded the government and its services of monetary administration. There was often no money, no medium of exchange except for the very gold that was being mined. In search for some standardization mining companies or assay companies would often mint their own coin of the realm, thus insuring a fixed weight and purity. Thus began the minting of mining related coinage. Eventually coins were minted for purposes of awards or to distribute to investors.



What better way to celebrate the opening of a new mine, recognize achievements in work or safety, or commemorate important events of the past or present than specially minted coins made of precious metal. Like belt buckles, these coins are a relatively recent trend but very collectible and still relatively low in cost. Most coins are made of one ounce of sterling silver, .999 fine, although you will find some that



have a gold coating over all or selected features of the coin and some are made of alloys of brass or pewter. The coins that mining artifact collectors would be interested in would be those commemorating mining achievements such as those minted by Echo Bay Mines at their McCoy mine. A silver medallion would be issued to each miner after a zero accident quarter. These were prized by the miners and usually hard to acquire although some would turn up at pawn shops from time to time. The coins are sometimes encased in an clear acrylic container such as those commemorating Battle Mountain Gold's San Luis Mine near Alamosa, Colorado and the Pajingo Mine in Queensland, Australia.



Establishing value of these coins should be based on a number of criteria, not all of which can be verified. A mining theme or logo should, of course, be present, a precious metal especially gold alloyed or coated would be more desirable, a limited amount of coins struck and dies destroyed would insure exclusivity, and if you just happen to have an interest in that particular mine, event or company it will be precious in its own right. An average price for a new issue, one ounce of

COMMORATIVE COINS

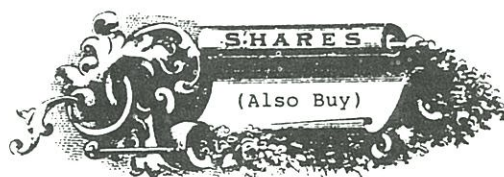
by Lane Griffin

.999 fine silver, is \$30-\$50, while a gold coated, or gold select should be priced between \$50-\$100. Sources for coins will vary and sometimes they will be found at garage sales or pawn shops. There are custom mints that will design and create coins for individual customers and they can be a good source for obtaining examples and information on who is minting and collecting the coins. One such mint is the Northwest Territorial Mint, P.O. Box 2148, Auburn, Washington, 98071-2148. Ross Hansen runs this operation and can be reached at 1-800-344-6468 and he will help answer any of your questions about mining coinage. ⚒



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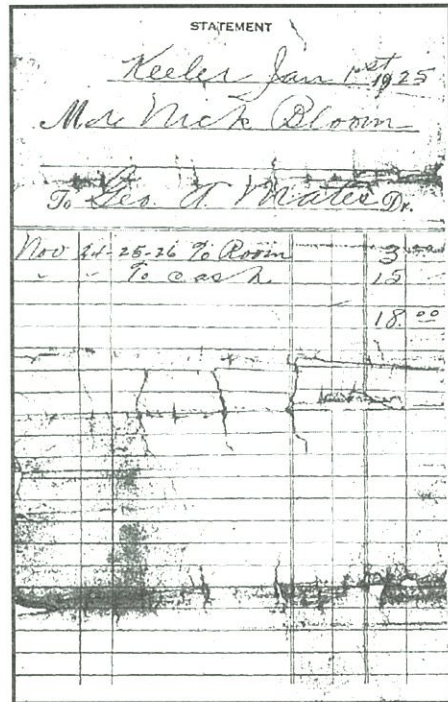
by Deric English

Approaching 8,500 feet in the Inyo Mountains of eastern California, one will find the mining camp of Cerro Gordo. The miners, prostitutes, Chinese laborers, and merchants of its heyday are ghosts of the past, but one can still sleep in its mining camp bunkhouse or shop Beaudry's General Store. Sections of the town have been restored and are just waiting for tourists that enjoy life in a mining camp ghost town.

Mining Company, Owens Lake Company, and Great Western Ore & Reduction Company began investing capital and equipment for underground mining. It is during this time that bullion from Cerro Gordo was loaded onto two steamers named Bessie Brady and Molly Stevens. The bullion was sent across the (now dry) Owens Lake, and destined for San Pedro Harbor. Some have ventured to say that Cerro Gordo and its riches made it Los Angeles' Comstock Lode.



The Boss brand jeans found in the Cerro Gordo mining district. Description of information retrieved from jeans includes, "The Boss, Union Made, Cohn Goldwater Co. Maker Los Angeles, size 34 waist, 31 length."



Statement from George A. Mates to Nick Bloom, January 1, 1925. This appears to be for a room and cash advance and was found in the pocket of Nick Bloom's jeans. (Actual size: 3½ H x 5½ V).

In 1865, Mexican miners found and named Cerro Gordo for its "fat" content of silver. Pablo Flores is the individual credited for discovering this rich silver deposit. These Mexican miners, with little or no capital, developed this deposit through open trenches and pits.

As time went on, those with capital began to develop Cerro Gordo. Companies like the Union

Similar to many mining camps, an eventual decline took place which resulted in many leasers trying their luck at procuring riches from Cerro Gordo. Nick Bloom might have been a lessee when, to keep dust at a minimum, he stuffed a pair of his Boss jeans between a wooden ore shoot and surrounding rock. Little did he know that seventy-two years later an underground explorer would find the pants, look in the pockets, and become just as thrilled as Nick Bloom would have been in finding a high-grade silver deposit. ✕

JIM FINCHE'S MINE REPORT

by Ashurst Whiteside
submitted by H. Mason Coggin

So onward went Jim and onward went Bill,
On up the Sonora, past valley and hill;
On up the Sonora, no thought to turn back-
Sans booze and sans money, sans grub and sans jack.
On up the Sonora and still did not Flinch,
Jim found Judge Stevens and Bill found Jim Finch.

Says Finch; "I've a mine, and, yes, it's for sale;
A heritage priceless, to describe it words fail.
It's as wide as the river and almost as long,
One million dollars? Hell! That's just a song
A mine report? No! But there's plenty of ink,
An engineer nothing, they're all on the blink.
I can romance myself, "says Jim with a wink.
"And I'll write a report to make'em sit up and think."

Jim labored and wrote, and labored and swore,
And started again as sheet on sheet tore,
Till along toward evening, says Jim: "Its complete.
A good full shift's work and all on one sheet.
It sure is a gem and from my own brain,
But by your leave, Bill, ill just read it again."
But the mine was not sold, for said Jim, as he swore:
"That mine's too good to sell" and this too he tore.
Himself he'd convinced, but I question in short
If that mine were as priceless as that mine report.

Ashurst Whiteside

Ashurst Whiteside was a mining engineer who came to Arizona before 1900. He found work in the mines at Bisbee with the Calumet and Arizona Mining Company and then drifted into Mexico and back to the U.S. He was involved with Cananea, Ajo, and finally published his poems in "Desert Odyssey and Other Poems" from Miami, Arizona in 1925. If anyone has more biographical information on this picturesque old scout, I would like a copy.

I have started putting together a collection

of poems, photos, sketches and paintings depicting the life of a miner in the early 20th century. I will be using the material as a slide presentation, an article for this publication, and perhaps an exhibit. If you have anything that you feel might be helpful, would appreciate a copy and permission to publish.

Please send it to **H. Mason Coggin, Director, Arizona Department of Mines and Mineral Resources, 1502 West Washington, Phoenix, Arizona, 85007.**

SMOKING PERMITTED HERE

Photo submitted by Tony Diebold



...“I guy I know got me this photo as he knew I was interested in miner’s candlesticks. Since every miner in the photo has a stick and a cigar, I thought they might have been celebrating the electrifying of the mine, (see wire in left of photo).

The thing that stuck out to me was that there are candlesticks and electricity but no carbide lamps. Is there a reason you know of (for the lack of lamps, or the cigars)?”... *Tony*

Tony,
Thanks for the photo, the questions and
the nice comments about the magazine.

Lane

Do you have an interesting photo that you want to share? Send it along with a description to:

The Collector's Mining Review
Att: Lane Griffin
1633 Shadow Wood Road
Reno, Nevada 89523

COLLECTOR'S FOCUS

Steve Rush

Beginning with this column the 'Review' will showcase a mining artifact collector, providing a little biographical information about both the collector and the collection and how it is displayed.

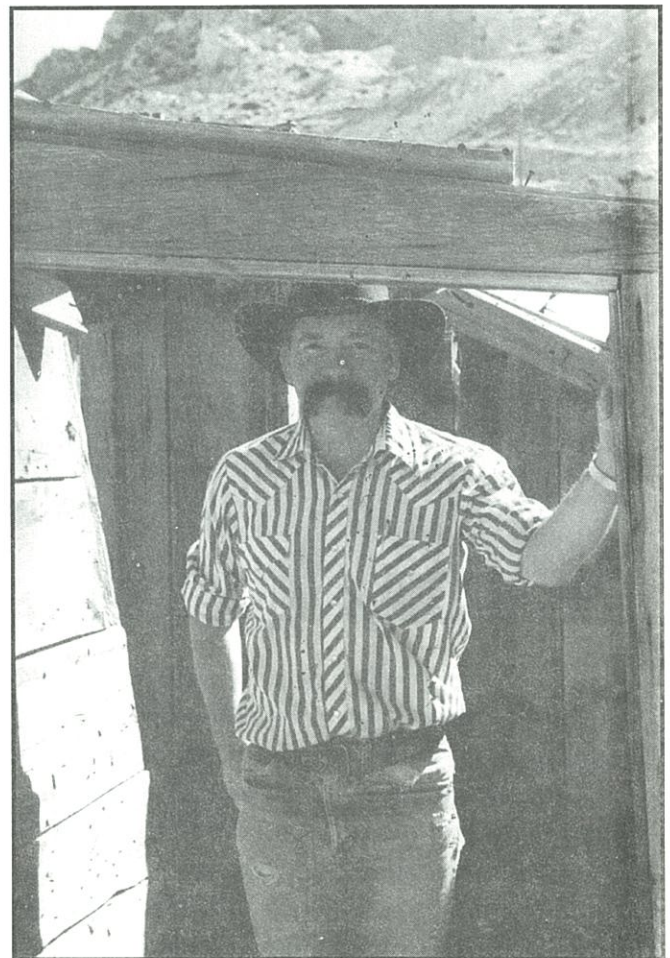
THE RUSH ESTATE

If you're like me you are happy to have a little showcase or a portion of the garage to store your 'funny mining things'. Steve Rush has a more understanding wife and he and Malia have adorned their house with a variety of western memorabilia, emphasizing Steve's great mining artifact collection. Nestled in the foothills of Denver, stately Rush manor consists of a wooded lot complete with stables, stream and pond, and house that looks from a distance like a mill and at over 5000 square feet could easily be one.

Steve's serious interest in mining artifacts began in 1990, but as he put it -he's been collecting rusty stuff since he was twelve years old. His primary motivation is a sense of preservation of mining heritage and its tangible legacy-artifacts. His priciple areas of interest are blasting related items and larger pieces of equipment, used to recreate scenes in his yard. Like many of us collectors, Steve is employed in a field related to the mining and construction industry and is the vice-president of a geotechnical company in Denver.

Of particular interest in his collection are the following items: a Fielding and Peterson folding candlestick, a John Raab stamped candlestick, a Comstock type reciprocating candlestick, California Cap tin with Columbia Powder Co. label, a brown and white 25 count Hercules cap tin, and a ten count yellow Hercules cap tin.

Steve and Malia often play hosts to itinerant artifact collectors or geo-types and would welcome those who would like to see their treasures on display. Please give them lots of notice and try not to stay more than a couple of months. They can be reached at 31112 Shadow Mtn. Dr., Conifer, CO. 80433, 303-670-9158.



Hi... Steve Rush here at Cerro Gordo. It's a great place to contemplate our history. And speaking of history, I'd like to invite you to take a quick photo tour of my place in Conifer, Colorado.



Here's some powder boxes and one of my display cases.



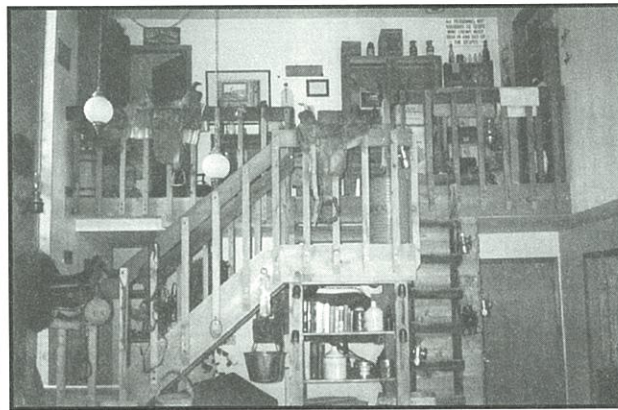
Entry into the "Rush Homestead". A lot of firewood can be stored in one of these cars. The car & track was Malias idea and design... How lucky can a guy get?



Over here are some cap tins, fuse wrappers, old bottles and candlesticks.



Display case with more cap tins, candle sticks and other cool stuff.



Western memorabilia adorns the staircase in the living room.



A mining scene in the back yard.



My house is reminiscent of a mill in outward appearance and the mining equipment looks right at home

CRIMPING! EUROPEAN STYLE

by John Kynor

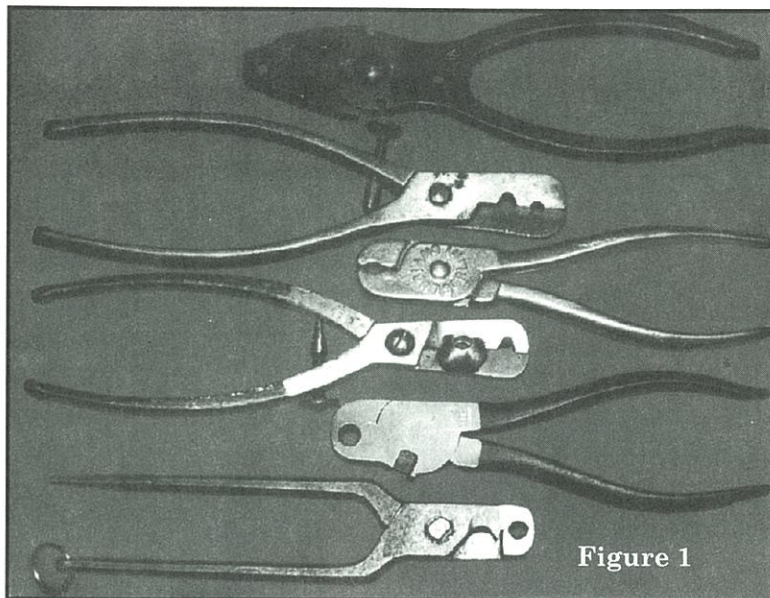
We all know about the “Old Blaster” and the “Bold Blaster”. In my opinion it was the “Bold Blaster” who required a Forensic Dentist to inspect the canine crimp applied to that Fulminate Blasting Cap; but it was the “Old Blaster” who used a proper crimping tool to help insure his old age. Cap crimpers have been around from the time that old Alfred figured out how to make his Dynamite invention go bang. In fact, European type crimpers have probably been on the scene longer than those #1’s or Miner’s Safety Tools we see around the trade shows. Therefore, the purpose of this banter reduced to words is to acquaint you with six distinctive types of European crimpers that do the crimping job well, and also perform various other functions. One of the common traits of these six crimpers is that they are constructed of good heavy material, and obviously their manufacturer meant them to be around for many years. The crimpers referred to in this article date from the teen’s to current production, and based on their construction it would behoove some U.S. firms to try and match the quality.

For the purpose of this article, the information imparted will match picture #1 going from top to bottom.

1. The first set of crimpers in more of a multi purpose tool, (see picture #2), and they are very close in construction to the E-B crimpers that were shown in volume #1, page 23. However, these crimpers are Italian made,

and were used both in the commercial and military world. This set of crimpers is listed in an Italian explosive publication, *Istruzione*

Sui Lavori Di Mina E Sugli Esplosivi, dated 1935. This is about the same time as the E-B crimpers appeared. Did someone do some copying here? This tool is constructed of heavy steel and has a black oxide finish, with a fuse splitter blade that can be

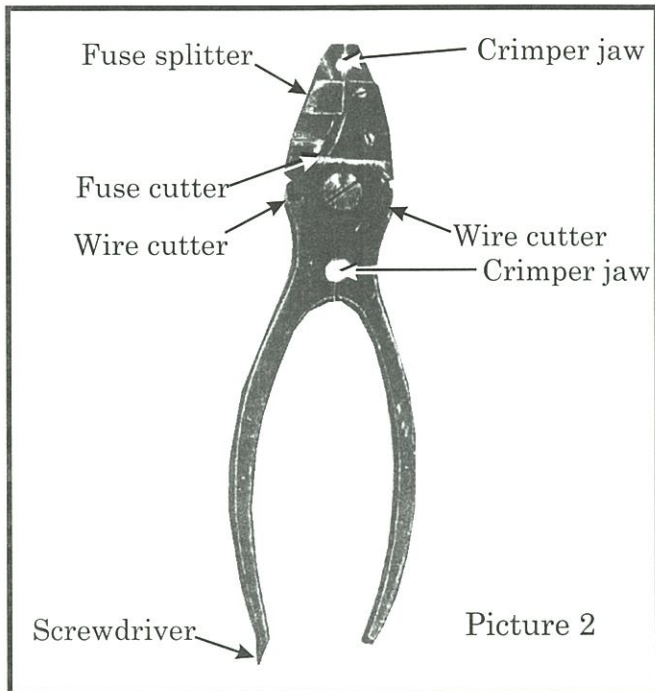


removed for sharpening or replacement. Judging by the workmanship in this tool, it was not one that every miner had, as it was probably costly.

2. This is also a set of Italian crimpers, and are very close in construction to set #4. This set has a fuse cutter in the front set of jaws, and a compression type ring crimper in the rear set of jaws. This crimper has an adjustable thumb screw that functions as a stop and regulates the depth of the crimp. These crimpers were used commercially and by the military, and date to the WWI era. The name RUBINO is stamped into one of the handles, and this is thought to be the manufacturer.

3. An all brass set of Italian made crimpers, which only have a single function, produce a sleeve type crimp, which was probably not water tight. Although functional, they are crudely cast, and joined together with a rivet, with one handle being tapered at the tip to act as a cap well punch.

The name LUCIANO SORLINI is cast into one half of the crimper around the rivet, with the opposite side reading I.N.D. EXPLO. I have been told that Sorlini is an Italian explosive manufacturer. This pair of crimpers is currently available to the Italian market.



4. This pair of Italian crimpers is similar to number 2, but made of heavier steel and they have a better finish. The jaws are the same, and a compression type ring crimp is made by the crimper jaw. These crimpers are marked FAT, which is a military arms factory in Ternt, Italy but, crimpers of this type were also used in commercial operations. These crimpers date from the 1940's.

5. This set of crimpers is currently available and are produced by IBC in Germany. A similar set has been used by the Dutch military for many years, but they are marked Candidus KL. The tool makes a sleeve type crimp, and its doubtful if it is watertight, with a fuse cutter also incorporated into the tool. These crimpers are for the blasting industry, and do not have a military application in Germany. The tool is of heavy construction and finished very

nicely. There is a flat on one handle that could be used as a pry bar, but I don't think you would generate too much leverage.

6. This pair is marked BARTOOL, and was manufactured in Germany for Norway military usage. However, it is believed that the same type crimper was used by the German army in WW II. The crimper produces a compression type ring crimp, and has a fuse cutter directly below the crimper jaw, (note the half moon jaw). One handle of the tool has a pointed copper insert for use as a cap well punch, and the other handle has a ring for attaching a lanyard. This tool shows its military origin as it is crude, not finished well, but gets the job done.

These are just a few of the interesting crimpers from the collection, but I'm still fascinated by the ol' bold blaster who did the crimping process with his teeth. Those warnings about not using teeth for crimping found on old cap tins are not written there just to generate a few laughs. If you're doing any non electric ALWAYS use a set of GOOD cap crimpers.

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CALIFORNIA POWDER WORKS

by Eric Twitty

At the outbreak of the Civil War, the Union Government enacted a shipping embargo to prevent mining powder and gunpowder from falling into Confederate hands. This had a severe impact on the West because the chief powder supplier, E.I. DuPont de Nemours & Co., was forced to close its magazines in San Francisco for want of stock. The embargo created a seller's market in which buyers came begging for powder. No doubt there was plenty of room in the West for an independent powder company, and one short year later the California Powder Works was organized in San Francisco to take advantage of the demand. In addition to the lack of powder in the Western states and territories, several other factors played significant roles in the formation of CPW. The newly-formed Central Pacific Railroad prepared to let lucrative contracts for blasting powder as it began blasting its way through half a continent of mountains. The

other major reason that prodded capitalists to form CPW was a heavy demand for explosives associated with development of the Comstock Lode, and the subsequent resurgence of activity in other Western mining districts. The first powder maker to capture even a portion of this market would enjoy all the business it could handle, and the California Powder Works was organized to be that company.

THE CALIFORNIA POWDER WORKS.
MANUFACTURERS OF
 Sporting, Cannon, Mining, Blasting and
HERCULES POWDER

HERCULES POWDER will break more rock, is stronger, safer and better than any other Explosive in use, and is the only Nitro-Glycerine Powder chemically compounded to neutralize the poisonous fumes, notwithstanding bombastic and pretentious claims by others. It derives its name from HERCULES, the most famous hero of Greek Mythology, who was gifted with superhuman strength. On one occasion he slew several giants who opposed him, and with one blow of his club broke a high mountain from summit to base.

No. 1 (XX) is the Strongest Explosive Known.
No. 2 is superior to any powder of that grade.

PATENTED IN THE UNITED STATES PATENT OFFICE.
ORDERS RECEIVED FOR HERCULES CAPS AND FUSE.
JOHN F. LOHSE, SEC'Y.
Office, No. 230 California Street - - San Francisco, Cal.

CPW ran this and similar advertisements for its dynamite through the 1880s in Pacific Coast mining journals. The ad holds an indirect attack on Giant in its fine print, which notes how Hercules was the almighty slayer in Greek mythology.

In 1861 San Francisco entrepreneurs John Baird and John Peck enlisted Santa Cruz paper-maker John Simes to build a powder mill for the new California Powder Works. Simes chose a fine site deep in a Redwood valley on the tiny San Lorenzo River about five miles north of the small seaport town of Santa Cruz. High quality Redwood lumber abounded, there was plenty of hardwood available for making charcoal, and powder could be shipped easily and quickly by schooner from Santa Cruz north 80 miles to San Francisco. Although the plant was completed by 1863, it did not begin

BLASTING POWDER.

—

PRICE, \$3.00 PER KEG.

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-ALSO-

**SPORTING, CANNON AND MUSKET
 POWDER,**
Of superior quality.

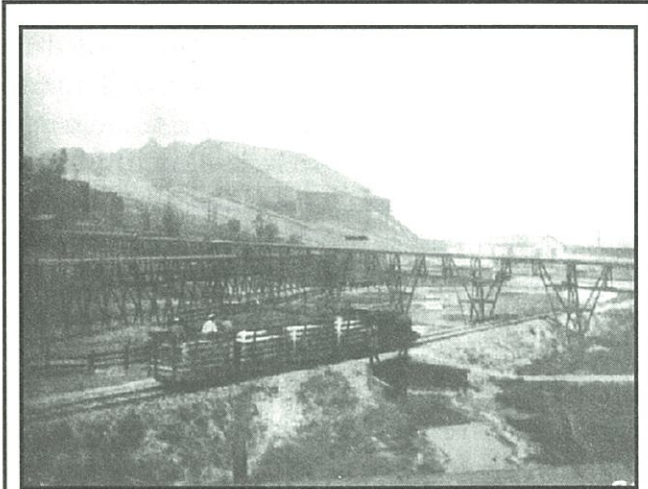
FUSE AND SHOT,
Always on hand and for sale at the office of the

CALIFORNIA POWDER WORKS,
No. 218 California Street.

JOHN F. LOHSE, Secretary.
25v14qr

Advertisement run by CPW in September, 1867 issue of the Mining & Scientific Press.

turning out powder until 1864 because of clumsy management. Consequently, Bernard Peyton replaced the original manager and he hired a number of ex-Hazard Powder Co. employees as bosses to supervise a mainly Chinese crew.



Advertising poster released in the 1880's depicting CPW's Santa Cruz mills. The illustration depicts the Santa Cruz & Felton Railroad, several water flumes, and various mill buildings aligned on one of the flumes to harness its power (left portion of image). Courtesy of Hagley Museum & Library.

Business was good for the first few years while CPW tried to satiate the heavy demand for blasting powder. Profits were high. So was the price of CPW blasting powder at \$7.00 per keg, while the going rate for powder in more competitive regions in the nation was about \$2.50 per keg! However, in the late 1860's several events clouded CPW's rosy picture. First, DuPont reinstated a sales agency and magazine in San Francisco after the Union dropped its shipping embargo. Due to the new competition, blasting powder prices in the West dropped to a more-competitive \$2.75 per keg. Second, DuPont managed to buy a significant portion of CPW's stock in 1869, which jeopardized the control CPW's directors held over the company. The third event was one of the most momentous in American history, the

Giant Powder Co., organized in 1867, began to manufacture Alfred Nobel's new dynamite in substantial quantities. Although the price for dynamite was exorbitant at \$1.75 per pound (compare this with approximately 10¢ per pound in the 1890's!), demand was surprisingly heavy. Even though the price of blasting powder was approximately 12¢ per pound, "Giant Powder" enjoyed a heavy demand at the expense of blasting powder because it was much better for blasting hard rock encountered through-out Western mining districts.

CPW officials quickly moved to imitate Giant, being motivated by the potential profits and the foresight that dynamite would displace blasting powder. In 1869, CPW President John Baird decided to compete head-to-head with Giant, and from that moment the relationship between CPW and the Giant Powder Co. turned strictly adversarial.

The first product CPW released to compete with Giant Powder was high-grade gunpowder packaged in paper cartridges. The product fooled no one and it did not become very popular, but it did buy CPW a little time to find someone who had the knowledge to make dynamite.

In 1869 CPW's directors secured the expertise of James Howden who previously operated a nitroglycerine plant near Donner Lake, California for the Central Pacific Railroad. Howden supervised the construction of a small, experimental nitroglycerine plant on land owned by Baird in the sand dunes west of San Francisco. Satisfied with initial operations, he built a larger plant which employed himself and a handful of Chinese workers.

Howden's first product, a mealed black powder with a nitroglycerine coating, was released in 1871 under the trade name of "Black Hercules". However, it did not perform as well as Giant Powder in hard rock and therefore did not enjoy the same demand.

Black Hercules was very similar in constitution to one of Nobel's first nitroglycerine-based explosives that also used blasting powder. Like Nobel, Howden found that the powder did not hold onto the nitroglycerine well and that the behavior of this product's explosion was too much like blasting powder, not like the shattering explosion of nitroglycerine. On a side note, ten years later Egbert Judson realized this formula had distinct applications in blasting softer rock and he patented and successfully sold a version as "Judson Powder".

Finally Howden developed a nitroglycerine dynamite with an active base capable of competing with Giant Powder. He played around with compounds until he found a satisfactory mix of magnesium carbonate, India saltpeter, potassium chlorate, and sugar. CPW released this new explosive in 1874 under the brand name of "White Hercules". It enjoyed instant success and put CPW in direct, heated competition with the Giant Powder Co. throughout California, Nevada, Oregon and Arizona.

CPW's dynamite brand-name "Hercules" originated during a brainstorming session held between two of the company's directors, General W. R. Rosecrans and Joseph Willard. They thought their deliberate choice of "Hercules" as CPW's brand-name was very amusing because it was the mighty Hercules who slayed the giant in Greek mythology.

Howden was considered by CPW directors to be unreliable because of his deep affection for liquor. Therefore, they appointed Thomas Powning as superintendent of operations and retained Howden merely as a technical advisor until his death in 1874. Unfortunately, Powning died a year after Howden when he inhaled vapors during the excitement which accompanied an unusually large accidental nitric acid spill.

CPW ran into the same frustrating

distribution problem experienced by the Giant Powder Co. There was a strong market for dynamite in mining districts in the Rocky Mountains, the Midwest, and in the eastern states, but because of a number of disasters the Central Pacific, other railroads, and freight outfits refused to ship dynamite. Like the Giant Powder Co., CPW was forced to move its operations to where the demand was. In 1875 Joseph Willard traveled to territories east of the Rocky Mountains to locate a branch plant. Blackhawk, Colorado was his first choice because it was in the heart of Colorado's gold and silver mining country. However, it was not to be; high-grade chemicals were not available anywhere near Denver and shipping them from capable manufacturers in the east would have been too costly. The next best location was Cleveland, Ohio. Cleveland was proximal to iron, copper, lead, and coal mining and it was the home of the Grasselli Chemical Co. which was known for pure chemicals. CPW's directors ordered a twin to the San Francisco plant built in 1877. The first case of dynamite rolled off the line in 1878, by 1879 production reached upwards of a ton of dynamite per day, which doubled by 1880.

Hercules Powder enjoyed great popularity east of the Rocky Mountains, keeping the new Cleveland plant going full time. But, despite the branch plant's success, it was sold in 1881 to officials associated with E.I. DuPont de Nemours & Co., the Laflin & Rand Powder Co., and the Hazard Powder Co. Why did CPW's directors let go of their lucrative plant? The most likely explanation was that the "Big Three" powder makers considered the plant an invasion of their cartel's market regions and they "suggested" to CPW that it sell its plant to them or suffer serious competitive repercussions. Because CPW was also a member of their explosives cartel, the Gunpowder Trade Association, CPW wished to maintain friendly relations with GTA members.

California Powder Works' gun and blasting powder mill on the San Lorenzo River had developed into a sizable self-contained village by 1875. At that time the mill facilities included miles of flumes to carry water, a saltpeter refinery, a charcoal house, mills for composing, mixing, and pressing powder, a corning mill, a glazing mill, drying houses, a cooper shop, machine shop, carpentry shop, materials supply houses, a 30,000 keg magazine, goods and powder warehouses in Santa Cruz, and a schooner which plied the Pacific Ocean between San Francisco and Santa Cruz.

In 1875 a narrow-gauge rail siding was built down into the mill grounds by the Santa Cruz & Felton Railroad. Mill workers loaded cars with kegs of powder which were drawn by leather-shoed mules up to the main line where they were switched. The rail line which ran through the San Lorenzo River gorge was a steep and treacherous one, and it was the site of several train break-in-two's. In one harrowing event, a railroad crew lost a full car of powder it was trying to switch out of the siding. As the car rolled out of the siding it picked up speed with no one on board to apply the break, and it became a run-away! The engine managed to catch it on the fly, link up with it, and bring it to a stop uncomfortably close to Santa Cruz. Lo for the daring brakeman who coupled the cars back together at what must have been great speed.

CPW's powder mill experienced few serious explosions or fires, the worst of which happened in 1891 and 1894. A "small loss of life" was reported in each case and as the workers were almost all Chinese, subject to prejudice, little note of their death and injury was made at the time.

CPW was almost the only supplier of blasting powder in the western states, in part because the Gunpowder Trade Association had granted the territories west of the Rockies to CPW as per agreement, and the

GTA kept its member-companies from selling their powder in CPW's market. CPW experienced minor competition not worth worrying about. Between 1881 and 1886 the Granite Powder Co. sold its blasting powder to California mercury mines and Nevada mining districts. In 1891 the Giant Powder Co. built a blasting and gunpowder mill at Clippergap, near Auburn, California to muscle in on the uncompetitive blasting powder market. But this venture proved to be no match for a well-entrenched CPW. Curiously, Giant, CPW's arch-rival, leased the mill to CPW from the mid-1890s until 1901.

In 1877 CPW's dynamite plant in San Francisco experienced its first large explosion. The sand dunes around the plant reverberated as 600 pounds of nitroglycerine blew up, wrecking the nitrating house on one of the rare days when the superintendent was not carefully watching the process. A similar event occurred at the Giant Powder Co. plant located not far away in 1879. Except, this time more than just the sand dunes were disturbed. Accompanying the enormous explosion was a disastrous fire which consumed Giant's plant and threatened nearby public structures as winds blew from the west. Before Giant had the chance to rebuild its plant, the city of San Francisco "invited" both CPW and the Giant Powder Co. to leave and do business somewhere else. In a hurry to relocate the company and minimize downtime, Baird and Bernard Peyton surveyed the territories encompassing San Francisco for a suitable plant site. The best location was in empty land on the San Jose & San Francisco Railroad between San Francisco and San Bruno, to the south. But Peyton correctly surmised that it would not be long before this region would be heavily settled. The site which company officials settled on was a 3,000 acre tract near Point Pinole across the bay from San Francisco. The property had access to San Francisco Bay and was serviced

along the shoreline by the South Pacific Coast Railroad and at its rear by the Santa Fe Railroad.

As soon as the site was finalized, CPW's engineers rapidly pushed construction of a massive plant. By 1881 boxes of dynamite began to roll out of its boxing houses. For a period of time the plant and supporting village was named Powning, after Thomas Powning, but company directors ultimately changed the name to Hercules.

The 1880's saw several changes to CPW's product line. In 1881 chemists instituted a formula change in which inactive magnesium carbonate was substituted for a more active compound. With CPW's improved product, its brand-name was changed from "White Hercules" to "Hercules Powder". After Egbert Judson proved to the explosives industry his patented railroad powder indeed filled a niche in mining and construction, CPW created its own formula in 1885, sold under the brand-name of "Champion Powder".

CPW's directors, in search of a capable manager for the Hercules Plant, lured Lieutenant William Quinan away from the California Vigorit Powder Co. in 1883. He had proved his worth by winning a patent infringement lawsuit for California Vigorit, despite a lack of formal training in law, and under his leadership the California Vigorit turned around into a competitive manufacturer.

Quinan, a hands-on manager, immediately set to work modernizing and mechanizing CPW's plant. In 1884 he invented the first hand-operated machine for stuffing paper shells with bulk dynamite to form finished cartridges. Due to Quinan's improvements in the plant, by the mid-1880's production jumped from two to six tons of dynamite per day, and by 1895 production had increased four times to a little over 24 tons per day! At that time, the Hercules plant held the world's record for production and was

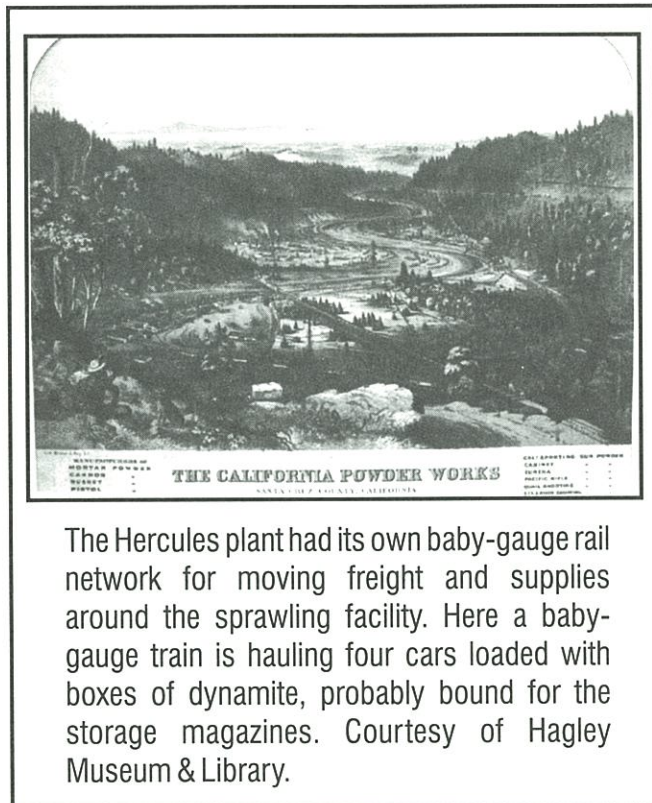
recognized as being one of the world's most modern and largest dynamite plants.

By the early 1890's the town which grew up around the plant was officially incorporated as Hercules, California. CPW was the first explosives company to provide for its employees a social club in 1896, known as the Hercules Club, with enthusiastic support from Quinan. At the club, employees could play billiards, cards, board games, read in its library, attend dances and imbibe beer and wine.

During the 1890's CPW added several dynamites for mining to its product line. CPW began manufacture of ammonium nitrate in 1893 under the rights of Penniman & Schrader, who developed the explosive at the Atlantic Dynamite Co. The success of this product as a pure explosive was limited, but with it CPW manufactured an improved extra dynamite. CPW became one of the earliest companies to manufacture gelatin dynamite, which it did in 1895. The trade mark CPW used was the California Bear printed on its boxes.

Similar to the major eastern explosives manufacturers, in 1884 dynamite makers in the Bay Area struck a secret deal to reduce what they considered "injurious competition". Their agreement stated that companies' production levels and sales quotas were to be strictly regulated, and based on then-recent sales figures. Naturally this meant that CPW and the Giant Powder Co. received the largest portions of the cartel's quotas, amounting to 37.5% each, while the Vulcan Powder Co., the California Vigorit Powder Co., and the Safety Nitro Powder Co. held only approximately 6% each. Like many other cartels, the members of this one squabbled over market shares and accused one another of breaking the set quotas. The cartel finally fell apart in 1888 after the Vulcan Powder Co. made angry accusations implying that its members chronically broke their production quotas and under-priced their dynamite. A

devastating price war ensued which ultimately took its toll on the smaller explosives companies. Only the Giant Powder Co., the Judson Dynamite & Powder Co. (formed in 1890), and CPW were in any position to really slug it out. Much to the delight of the mining industry, prices of dynamite dropped from approximately 20¢ to 10¢ per pound.



The Hercules plant had its own baby-gauge rail network for moving freight and supplies around the sprawling facility. Here a baby-gauge train is hauling four cars loaded with boxes of dynamite, probably bound for the storage magazines. Courtesy of Hagley Museum & Library.

Due to the trade war prices were so cut-rate Bay Area dynamite became cheaper in the Rocky Mountain states and Midwest than dynamite from Midwestern and Eastern companies. In fact, CPW explosives were so cheap that large shipments were sent as far away as gold fields in Australia! Needless to say, the Gunpowder Trade Association was very agitated over Bay Area company infringements into its established Midwestern sales regions. A team of senior officials from E.I. DuPont de Nemours & Co. and dynamite companies which it controlled in the east were promptly dispatched to San

Francisco in the late 1890's to mediate a solution to the price war. J. Amory Haskell and Hamilton Barksdale helped Bay Area explosives manufacturers settle on another arrangement similar to the original, but quotas were based on 1896 sales figures. The Vulcan Powder Co. and the California Vigorit Powder Co. were crippled by this settlement because in 1896 the price war was at its zenith and the disparity between production levels of the massive CPW and Giant Powder Co. and the other, smaller companies was greatest. Basically, CPW and the Giant Powder Co. gained market shares while the smaller companies lost them.

1903 was the beginning of the end of independent explosives makers in the Bay Area. In that year an agent set up by DuPont in San Francisco posing to help administer to the business of CPW, bought out the California Vigorit Powder Co. and the Judson Powder & Dynamite Co. These two companies were dissolved but their plants continued to make dynamite under their original names. Also in 1903 DuPont bought the rest of the shares of stock in CPW and installed R.S. Penniman as president, formerly with DuPont's Atlantic Dynamite Co. In 1906 DuPont dissolved CPW's and Judson's corporate structures and absorbed their assets. CPW's plant then manufactured products under DuPont brand-names such as Hercules Powder (connected to the Hercules Powder Co.) and Red Cross.

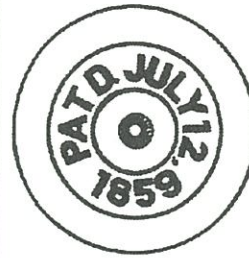
When the U.S. Supreme Court ordered DuPont to dismember portions of its dynamite empire in 1911 for violating the Sherman Antitrust Act, the Hercules Plant changed hands again. DuPont handed it over to the new Hercules Powder Co. in 1912 and Hercules ran it profitably into the 1970's.

The following illustrations show the Lineage of the California Powder Works dynamite boxes and powder kegs.

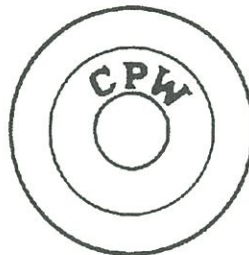
Lineage of CPW's blasting powder kegs. Rarity rating is based on the relative number of kegs known to exist.



1. **Wood keg end**
Age Range: 1861-early 1870's
Label is stenciled
Rarity: one known - Mark Bohannan.



3. **Powder Keg:** steel with threaded zinc bung
Age Range: Late 1860's-Early 1890's
Lettering is embossed.
Rarity: several known - Author.

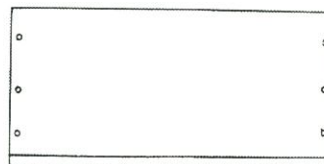
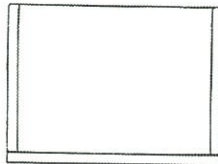
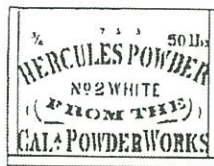


2. **Powder Keg:** steel with threaded zinc bung
Age Range: Late 1860's-Late 1880's
Heavy lettering is embossed, light lettering is stenciled.
Rarity: one known - Author

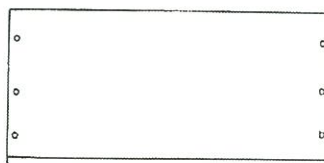
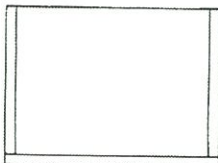
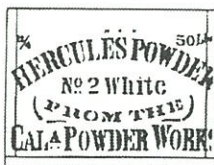


4. **Powder Keg:** steel with cleat seal bung
Age Range: Late 1880's-1906
Lettering is embossed
Rarity: several known - Author.

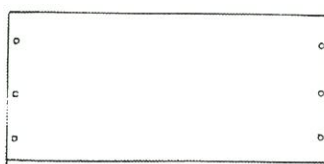
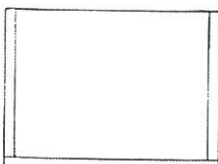
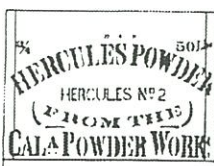
Lineage of CPW's dynamite boxes predating approximately 1890. Rarity rating is based on the relative number of boxes known to exist. Many thanks to the mining artifact community for sharing data.



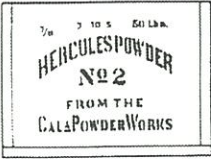
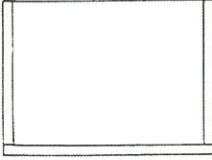
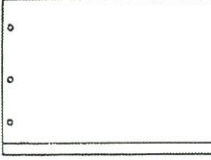
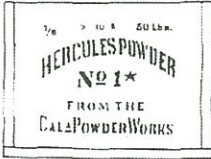
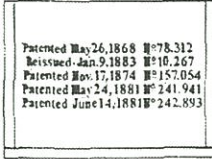
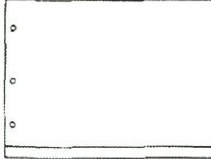

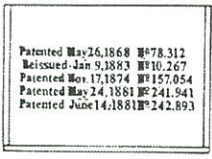


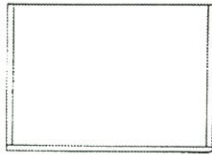
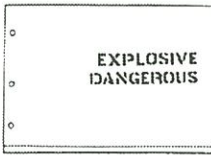
1. CPW's earliest style of box, dating from the early 1870's-late 1870's.
Several known - Author




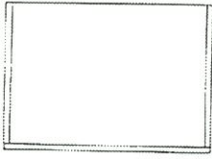
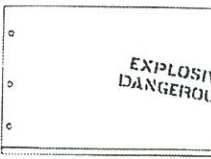


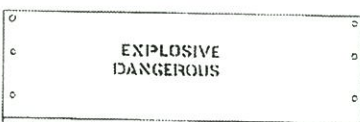


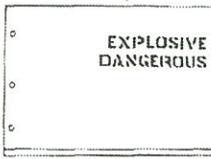
2. Late 1870's - 1881. Note that the stenciled lettering bleeds onto the side panels.
Several known - Author



3. 1881. Note that the stenciled lettering bleeds onto the side panels. The "No.2 White" product reference has been replaced by "Hercules No.2", reflecting the changed dynamite formula manufactured beginning in 1881.
One known - Brian Schrage.

			<p>4. CPW's standard box used after 1881 until the late 1880's, following the switch to another dynamite formula. The product reference is now "No.2". <i>Several known - Author.</i></p>	
	 Patented May 26, 1868 #78,312 Reissued Jan. 9, 1883 #10,267 Patented Nov. 17, 1874 #157,054 Patented May 24, 1881 #241,941 Patented June 14, 1881 #242,893			<p>5. Mid 1880's-late 1880's. The addition of the patent dates may reflect the trade war fought among Bay Area explosives makers during the mid 1880's. Most dynamite boxes of this vintage from Bay Area companies feature an identical listing of patent dates. <i>Several known - Lane Griffin</i></p>
	 Patented May 26, 1868 #78,312 Reissued Jan. 9, 1883 #10,267 Patented Nov. 17, 1874 #157,054 Patented May 24, 1881 #241,941 Patented June 14, 1881 #242,893			
				

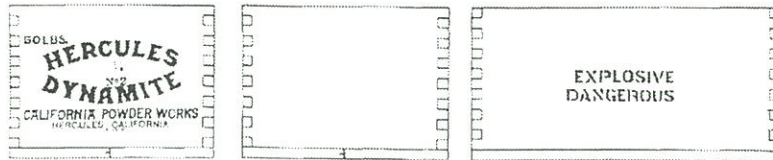
Lineage of CPW's dynamite boxes postdating approximately 1890. Rarity rating is based on the relative number of boxes known to exist.

			<p>8. 1889-mid 1890's. Several exceptions post dating 1900 have been encountered. Side and end panels are assembled with wire nails, and they are thinner than boxes assembled with cut nails, because wire nails do not split thinner wood. <i>Very rare - Author</i></p>
			
			<p>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". <i>Rarity: several known - Author</i></p>



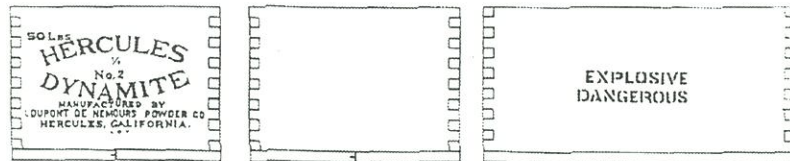
11. Mid 1890's-1906. In the mid 1890's CPW began manufacturing boxes with "lock corner" joints, instead of nailing on the side panels. Such joints allowed all box panels to be cut from uniform lumber, with nail-together boxes the end panels were thicker to accommodate the nails driven into them. Note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

Rarity: rare - Author



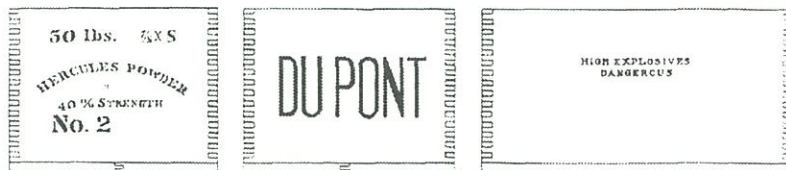
12. 1906; possibly an "earthquake box". Boxes of this style when encountered underground have been associated with 1906 artifacts, including California Cap Co. tins with earthquake markings. These boxes tend to be poorly made with half inch lumber, and their labels are often askew.

Rarity: three known - Author



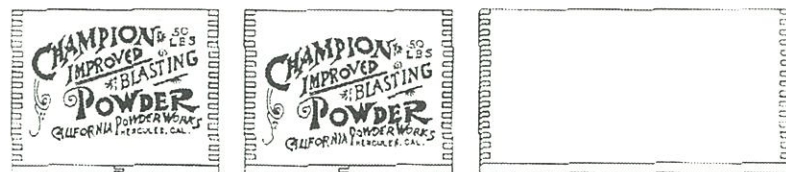
13. 1906; also possibly an "earthquake box". Boxes of this style when encountered underground have been associated with 1906 artifacts, including California Cap Co. tins with earthquake markings. These boxes tend to be poorly made with half inch lumber, and their labels are often askew.

Rarity: several known Author



14. 1907-1909. This appearance of this label format marks DuPont's take-over of the Hercules plant. The format was adopted from the Hercules Powder Co., which DuPont owned and absorbed in 1903. In 1909 DuPont replaced the tall "DuPont" block letters on the back panel with the company's famous oval logo.

Rarity: rare Author



15. 1885-1906. CPW's version of Railroad Powder, which was a blasting powder with nitroglycerine-coated grains.

Rarity: one known - Steve Koehler

			<p>16. 1895-late 1890's. CPW's gelatin dynamite, packed in boxes marked with the California state bear. Undoubtedly the fancy, elaborate image printed by CPW was intended to compete with the Giant Powder Co.'s gelatin labeled with a spread-eagle on the box. <i>Rarity: one known - Author</i></p>
			<p>17. 1895-late 1890's. CPW gelatin box marked with the California state bear on the face, and a blank rear panel.</p>
			<p>18. CPW used this label format for lids on all types of boxes manufactured from the late 1870's until 1906.</p>



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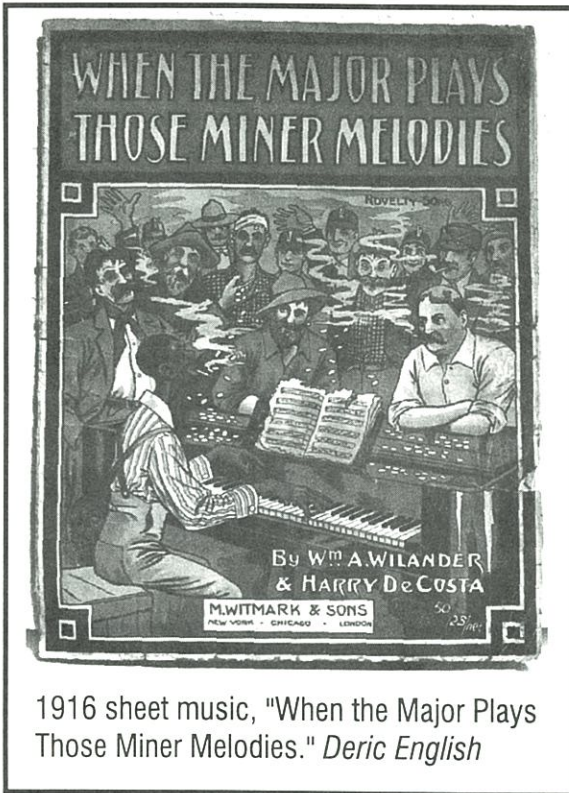


1915 Justrite Ad

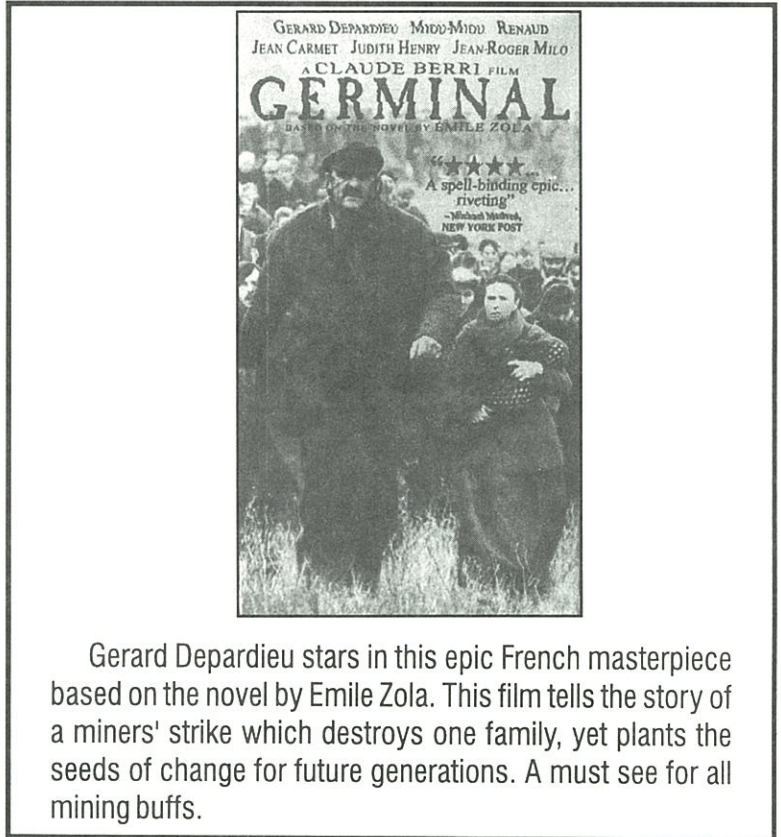
Reproductions available for \$50
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THE MINING SUMMARY

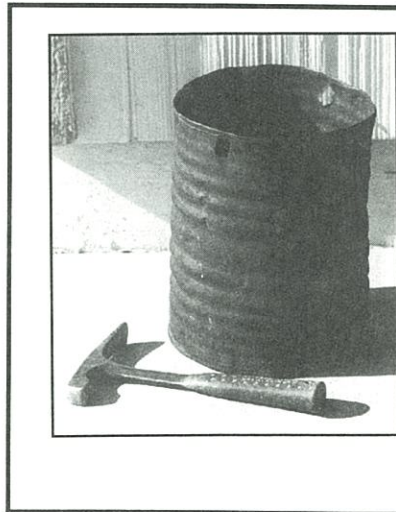
WHAT'S NEW IN COLLECTING



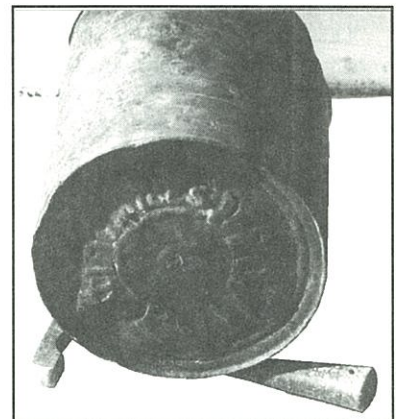
1916 sheet music, "When the Major Plays Those Miner Melodies." *Deric English*

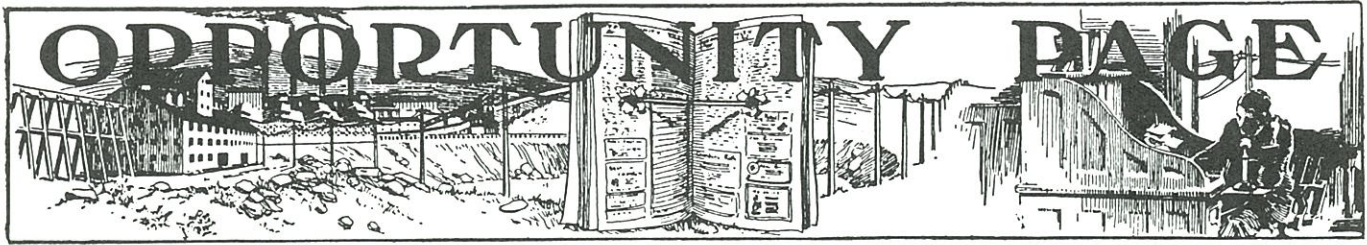


Gerard Depardieu stars in this epic French masterpiece based on the novel by Emile Zola. This film tells the story of a miners' strike which destroys one family, yet plants the seeds of change for future generations. A must see for all mining buffs.



A large number of metal black powder cans were uncovered in central Nevada recently by Tom Johnson. These have stood the test of time quite well, being on the surface since the 1880's. These are 25lb cans manufactured by the California Powder Works, Vulcan Powder Company, and Pacific Mills (Dupont). The photo shows a Pacific Mills Powder can, displaying its ribbed metal construction and embossed bottom





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All photos are custom printed and mounted on ¼ foam core by a professional photo lab.

	16 x 20	16 x 24	20 x 30
1200 Level - Northern Belle	\$60	\$75	\$125
Ghosts of Miners Past	\$60	\$75	\$125

Dynamite Boxes \$30 ea.
 Dynamite Box Ends \$7.50 ea. /3 for \$20
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Safety Nitro Powder Co. Giant Gelatin
Giant Powder (1892) Giant Eagle
Candelaria

Blasting Machines \$ 75 ea.
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Hats & T Shirts
 All hats and shirts printed black on ash gray.
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 (M. L. XL only)

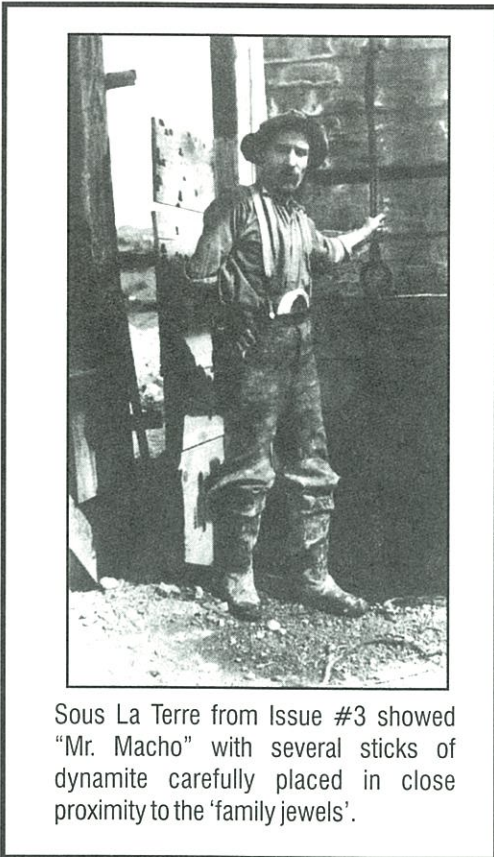
Shipping Charges

Photos: 16 x 20 & 16 x 24 \$10 ea.
 20 x 30 - \$15 ea
 Dynamite Boxes/Blasting Machines: \$7.50 ea

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 Free shipping for orders that include dynamite boxes - provided all items will fit in the boxes(es). Otherwise please include 10% of total charges for hats, shirts & box ends.



Response from Issue 3 Sous La Terre



Sous La Terre from Issue #3 showed "Mr. Macho" with several sticks of dynamite carefully placed in close proximity to the 'family jewels'.

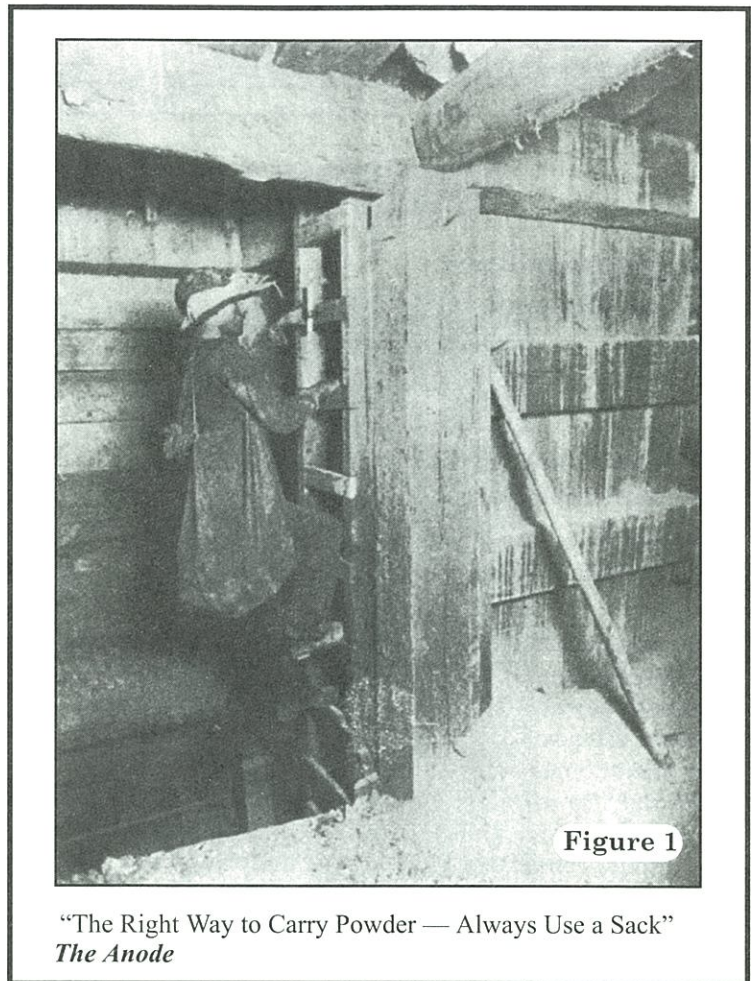


Figure 1

"The Right Way to Carry Powder — Always Use a Sack" *The Anode*

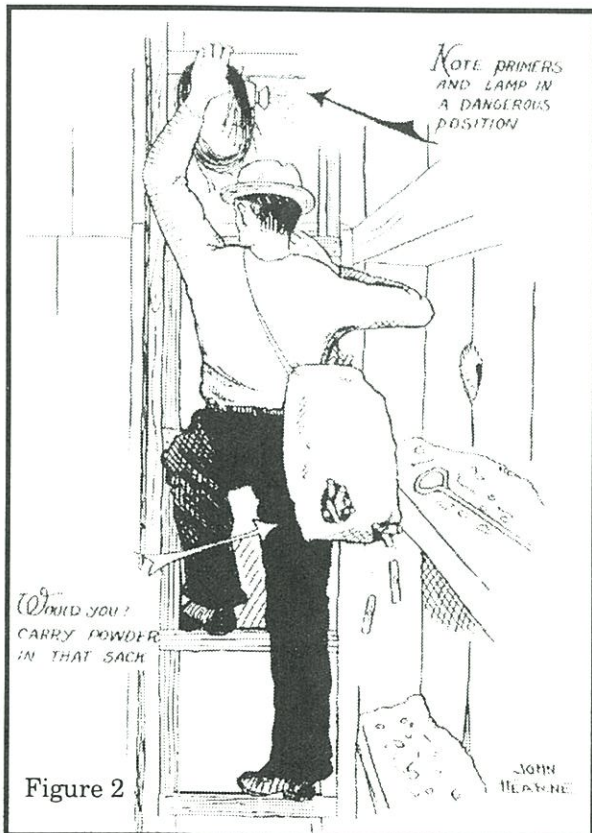


Figure 2

Figures 1 and 2 were copied from a recently obtained old issue of "The Anode", a publication from Butte, Montana.

Courtesy of Herb Dick



Mining Artifact Meeting

September 5th — Errol Christman's, Cedar Ridge, California - Noon 'till dark.

September 6th — The White's Place - Morning 'till ????

 **Mystery of the Silver Ingots** 

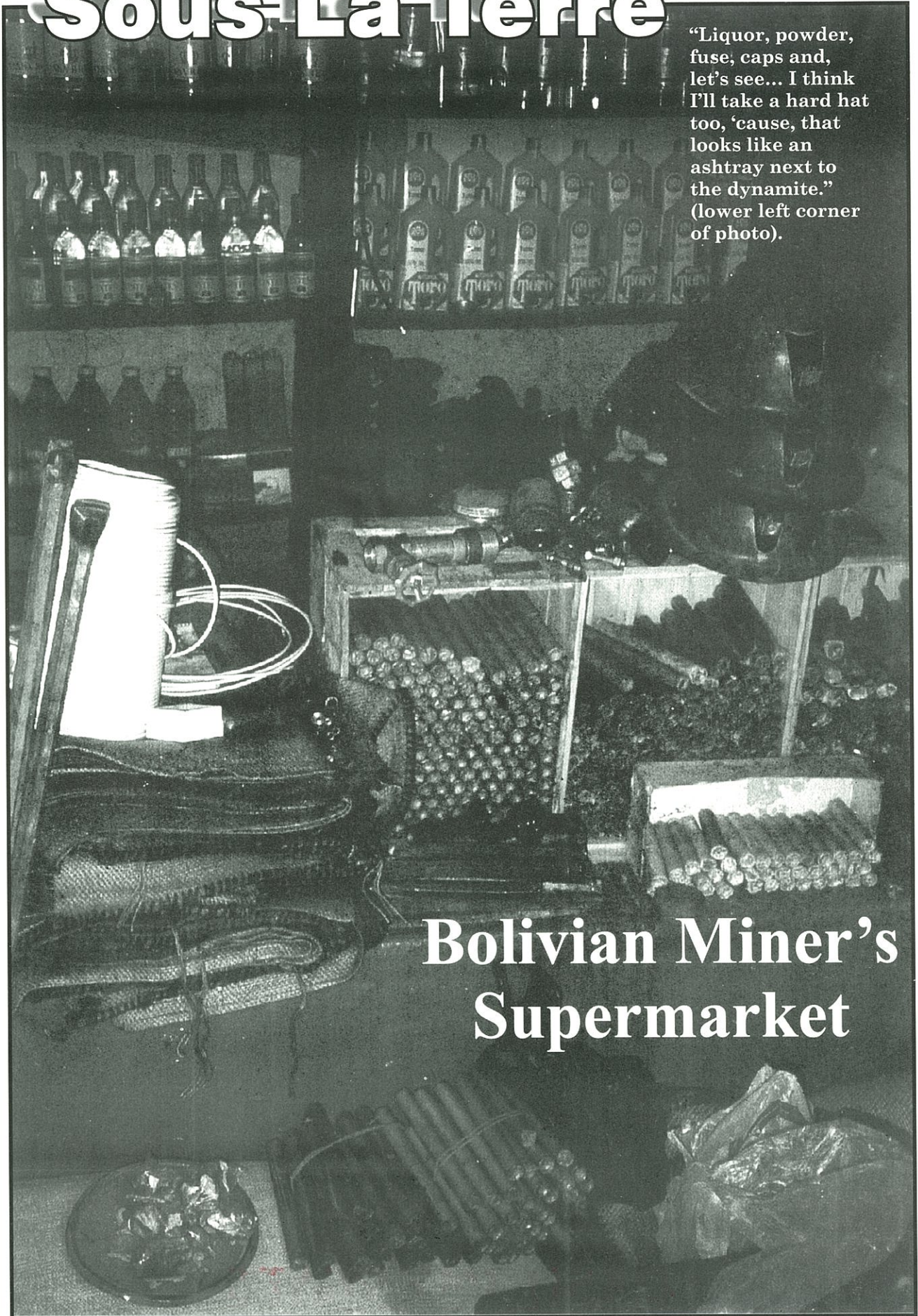
According to Bob Weldin, Miner's Quest, the Silver Ingots described in the last issue are not legitimate.

Doug McDonald, (Gypsyfoot Ent.) has determined that these ingots have been **cast and not stamped** as was the custom during the time period the ingots were produced.

Sous-La-Terre

“Liquor, powder, fuse, caps and, let’s see... I think I’ll take a hard hat too, ‘cause, that looks like an ashtray next to the dynamite.”
(lower left corner of photo).

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