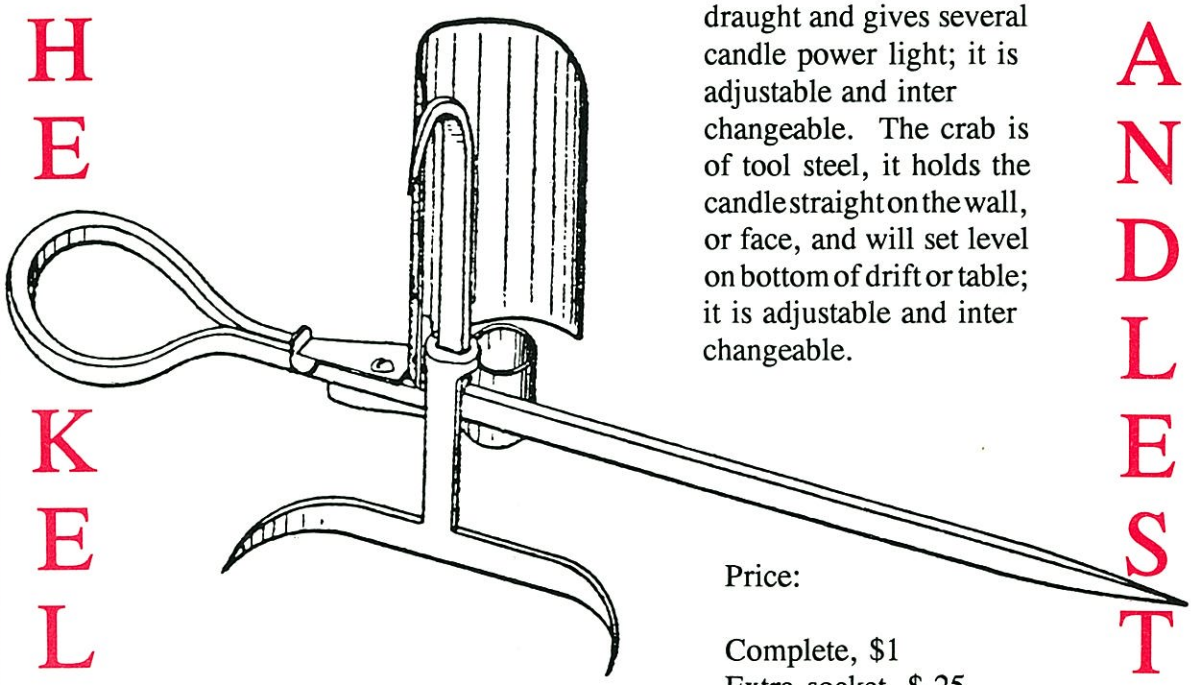
MINING
ARTIFACT COLLECTOR

Issue Number 15 Summer 1992

THE KELLY CANDLESTICK

The Kelly candlestick is made from the best tool steel, polished,and is 11 $^{1}/_{2}$ inches long. The candle socket is best spring steel and is interchangeable. The reflector, or shield, is brass, nickel plated, protecting candle against strong draught and gives several candle power light; it is adjustable and inter changeable. The crab is of tool steel, it holds the candle straight on the wall, or face, and will set level on bottom of drift or table; it is adjustable and inter changeable.



Price:

Complete, $1
Extra socket, $.25
Extra reflector, $.25
Extra crab, $.25

B. F. KELLY,
Inventor and manufacturer

311 KITTREDGE BLDG.
DENVER, COLORADO

FRONT ROW (left to right) - Bob Schroth, Jim Nagel, Jim Baird, Monica Baird, Ted Bobrink, Randy Marcotte, Dan Keys, John Kynor, Tony Moon, Deric English, Tom Foster.

SECOND ROW (left to right) - Debbi Schroth, Carol Nagel, Bill Collins, John Neilsen, Dave DesMarais, Jim Lorenzo, John Johnson, Pappy Yeats, Herb Dick, Steve Scott, Dave Thompson, Charlie Moore.

THIRD ROW (left to right) - Brenda Miller, Loretta Miller, Cliff Krueger, Jerry Pressler, Adrienne Vogt, Henry Vogt, Bob Claybrook, Marsha Claybrook, Alix Filer, Russell Filer.

BACK ROW (left to right) - Mark Bohannan, Larry Kuester, Andy Martin, Jeff Malmquist, Marilyn Malmquist, John Aurich, Bill Sullivan, John Wolbers, Joe Wolbers, Todd Town, Jim Waits.

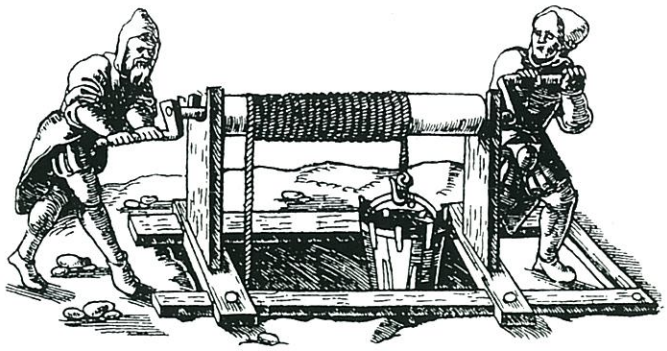
NOT PICTURED - Gil Schmidtmann, Steve Eady, Tom Martin, Romona Bivians, Tony Grey, Dwayne Anthony, Shawn McAlister, James Laas, Jim Steinberg, Sarah Martin.

Mining Artifact Collector

Summer 1992 • Number 15

Subscriptions
One year (4 issues): $25 U.S., $35 foreign
Two years (8 issues): $50 U.S., $70 foreign

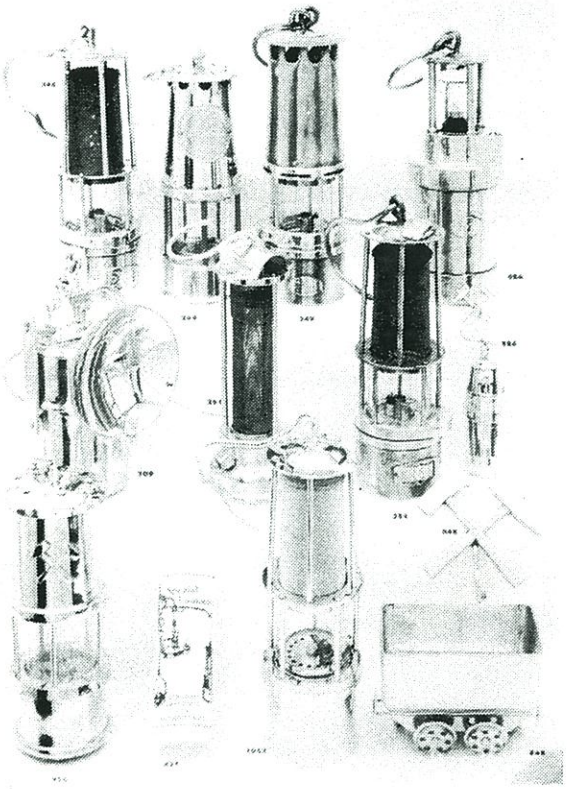
Back Issues
All back issues are currently available at $6 U.S. ($8.50 foreign) each, but supplies are limited. Order from Ted Bobrink.



Notes from the Editor

MODERN-MADE LAMPS

In the old days, mining companies (especially in Germany) made a point of giving special mining-related presentation pieces to retiring officials, mine captains and other important persons. The tradition continues today, and there is no better supplier of such items than Rupert Holl's company, *Mineralienecke Clausthal* (Postfach 1108, D-3392 Clausthal-Zellerfeld, Germany; telephone 011-49-5323-83533, Fax 011-49-5323-83221). His beautiful full-color catalog for 1991/1992 is 28 pages. It contains such items as new German-made safety lamps, reproduction brass oil-wicks of the American, Mansfield and British types, mining-theme bar utensils, a miniature brass ore car (beautiful!), an all-brass eight-hour carbide lamp, a reproduction Davy-style lamp, a wood and brass *Bergbarte* or ceremonial Saxon miner's parade axe, mining-theme beer steins and beer glasses, pewter platters and small mugs with mining scenes, various items of statuary, mining-theme neckties (I bought a nice one with little crossed hammers all over it), clocks, flasks, playing cards, pens, automobile grill ornaments, and so on. The miniature brass safety lamp (about 5.5 inches high, no bonnet) is especially attractive and comes with a brass crossed-hammers wall sconce to hang it from. I bought two, to hang on either side of a framed mining print; they look great. Write for a copy of his catalog, and don't feel guilty about indulging in a few non-antiques just for the fun of it. They're inexpensive, they're part of the mining tradition, and by the time your great-grandson inherits them they *will* be antiques.



RARE LAMP BOOK

A copy of a rare and historical miner's lamp book appeared on the antiquarian book market recently: Humphrey Davy's *On the Safety Lamp for Coal Miners; with some Research on Flame* (London, printed by R. Hunter in 1818, uncut octavo size, 156 pages). This is the book in which Davy (after whom the Davy lamp was named) collected his main memoirs on the development of a miner's safety lamp. The price today: $1,100. If interested call *The Antiquarian Scientist* (Raymond V. Giordano), P.O. Box 367, Dracut, MA 01826, 508-957-5267.

FAREWELL TO A FELLOW COLLECTOR

I regret to announce that I have received a letter from Kenneth Storey, informing me of the passing of his father, Mr. James Storey, this past January. Mr. Storey lived in Decatur, Georgia, and was an avid collector of mining lamps and other mining items.

I had known Mr. Storey from the beginning of the MAC and always enjoyed trading and having many fine conversations with him about collecting. The one thing I remember most about him was that he always tried to collect his lamps in as fine a condition as possible, as opposed to collecting anything and

everything, no matter what it looked like, just because it had a different name on it. Something we both had in common. I remember one time he told me that he would much rather look at a few really nice lamps instead of a room full of everything.

Kenneth informs me that he also has an interest in mining artifacts and will continue on with his fathers collection.

TB

LETTER TO THE EDITOR

The following letter was received recently regarding underground collecting.

Dear Editor:

I am writing in regard to some photographs which have appeared in the latest issues of MAC. The photographs show men entering mines "to find you the best mining artifacts available." While on the surface this may appear to be an innocent enough advertisement, I think it would be wise if the readers of MAC would all stop for a moment and reflect on the subtle messages that are being conveyed.

Some of the thoughts that come to mind when I view these pictures are those of trespass and theft. While these are powerful images, they are pale in the light of the message that abandoned mine exploration in search of adventure and valuable artifacts is an acceptable behavior and something to be actively pursued. As a geologist partly vested with the responsibility of maintaining security around open holes and non-operating mines, I feel that this message could aggravate the security problems faced by the company I work for and other mine owners. More important, it could greatly endanger the lives of the explorers, perhaps resulting in injury or even death. Non-operating mines represent an extremely hazardous environment to all who enter, even those with the expertise and proper equipment for exploration. Those with no such equipment or credentials are even more vulnerable. This is not a subject to be taken lightly.

It is not my intent to criticize any single person or organization, but rather to ask each reader of MAC to reflect upon the kind of image that we wish to portray. Let us not be so swept up in our enthusiasm for this most intriguing hobby that we inadvertently encourage someone to do something that could endanger their life. I would appreciate it if all MAC readers would take these thoughts to heart.

William T. Worthington
Silver City, New Mexico

Editor's Response:

Having been involved in the related field of mineral collecting for most of my life, I am very familiar with the unfortunate antipathy that many mine owners have for collectors. I agree that all collectors should avoid illegal trespass and the removal of items of potential use or value to mine owners. However many abandoned mines have long since reverted to state ownership, and in any case most of what collectors remove is just ancient trash and minerals worth only a few cents in ore value...hardly grounds for a serious accusation of stealing.

Proper collecting for antique mining artifacts involves advance research to assure that a site has not been mined at all since at least the 1930's and preferably since before the 1920's. More recent mining has generally swept away all earlier artifacts. Any mine that has stood abandoned continuously for 60-70 years or more cannot possibly contain any equipment still of use to a modern mining company.

As to the physical dangers involved, that is something each person must decide for himself. Personally I don't go in for things like hang-gliding, white-water canoeing, mountain climbing and so on. The danger of those hobbies outweighs the fun for me; but I don't criticize people who elect to accept those risks for the sake of the satisfactions obtained in those or other hazardous pursuits, especially in the case of activities which can make a scientific or historical contribution to knowledge.

That said, I will add my own warning that inexperienced, unprepared collectors have no business going into abandoned mines by themselves. The danger of accidental death or injury escalates far beyond reasonable levels in such cases. The *only* way to gain experience at minimum risk is to go with highly experienced companions, and learn from them as much as possible.

Following is a guest editorial on the dangers involved, which was published originally for mineral collectors *(Mineralogical Record,* vol. 20, no. 3; *Rock & Gem,* September 1988). It holds just as much wisdom for the would-be underground collector of mining artifacts.

WEW

Guest Editorial:

COLLECTING IN ABANDONED MINES

by **Steve Voynick**
P.O. Box 1258
Leadville, Colorado 80461

If you're a mineral collector, you know what it's like to be a bit unsatisfied with the typically abraded specimens you've found in the old mine dumps. And you've probably looked long and hard at the portal or shaft of abandoned mines and wondered if far better material might not be found in the underground workings.

Everyone has heard repeated warnings about entering old mine workings. But, face it, those deep, open shafts and dark tunnel portals seem to whisper promises of adventure, of mysteries to be solved, even perhaps of riches to be claimed. It's easy to imagine a virgin pocket of intact, glittering crystals or an overlooked vein of gold-bearing quartz that would not only provide spectacular specimens but might pay off the car as well. It's not surprising that many, perhaps even most collectors have ventured at least a short distance into abandoned mines.

Abandoned mines certainly aren't hard to find. Colorado alone has 15,000—most of them underground metal mines. The U.S. Bureau of Mines estimates that there are well over 100,000 throughout the West. These mines come in every size and configuration, most ranging in age from very recent to over 130 years old. They produced everything from gold and silver to base metals, coal, uranium and non-metallic minerals. A few hit it big, but many more went broke.

For all their diversity, abandoned mines share one commonality: They can be very dangerous. Each year mine rescue specialists and conventional search and rescue teams aid dozens of individuals who have somehow gotten hurt or become trapped in old mines. The lucky ones are found cold, hungry, wet, bruised and scared out of their wits; the less fortunate may be severely injured. The least lucky of all—usually 10 to 12 people a year—are hauled out dead. Some bodies are never recovered.

Whether to collect or for any other purpose, the physical risks of venturing into abandoned underground mines usually far outweigh any possible rewards. Generally, dangers can be grouped into five classifications: unstable ground, deteriorated ground support systems, bad air, fire and unsafe water.

The hazards of old underground mines actually extend to adjacent surface areas. Statistically, shafts are the most dangerous part of any mine; 90 percent of all accidents and entrapments in abandoned mines are shaft-related. Collars—the tops of shafts—are particularly dangerous, for exposure to the elements will have rotted timbers and eroded adjacent ground, making collapse likely. A fall, whether a few dozen feet or several hundred, will at least cause severe injury. Typically, old shafts contain projecting timbers and rusted pipes and the bottoms, or sumps are flooded with deep, cold water.

Tunnel portals may also be dangerous—especially if caved, as many are, just beyond the portal timbers. The last thing many early miners did before abandoning their mines was to dynamite the roof, not for reasons of safety, but to attempt to protect their work should they ever decide to return. Although it's possible to climb over the caved debris to enter such tunnels, dynamited roof sections are exceedingly unstable.

Never equate mines with caves. Caves—natural chambers thousands of years old—are usually chemically and physically stable. Mines, however, are not natural and are much more recent in origin; most are subject to both continuous chemical oxidation and physical rock stress. Historically, roof collapse in caves is rare; caving in abandoned and even working mines is rather common.

Mines are usually stabilized by ground support systems. Small workings and roof arches provide some natural ground support. The most common form of artificial ground support is timbering. In some old districts, entire forests have gone into underground mines to help support "bad ground." Timbers, of course, are susceptible to long, slow rotting processes. The loss of structural strength compromises the effectiveness of any ground support.

Some rock, or "ground," such as that near fault zones or certain sandstones, never stabilizes, but continues to experience enormous constricting forces which make caving inevitable. When timbers take on weight, or become severely stressed, they can literally explode into splinters when disturbed. In the narrow confines of an underground mine, shattering timbers can be as deadly as the rock fall which will probably follow.

Rock bolts—steel rods two to ten feet long—came into use as ground support devices after World War II. These bolts are inserted into overhead drill holes and tightened against expanding heads. When installed in fan patterns, they achieve support by locking fractured rock sections together. Rock bolts are also used to suspend compressed air, water and sump pipes, ventilation components and other mine fixtures.

Some tunnels are "bald-headed," having no timbering or rock bolts. This does not necessarily indicate stable rock. To save time and cut costs, miners sometimes crossed their fingers and let marginal ground take care of itself. Also, rock that was stable 50 or 100 years ago is not necessarily stable today.

Blasting is a heavy-handed process that, by its nature, not only removes designated rock but tends to fracture and loosen adjacent

*Reprinted by permission from *Rock & Gem*, September 1988.

rock. Never disturb any ground support system. Underground cave-ins rarely happen as portrayed in the movies, where some rock comes down followed by a little more, all of which, of course, provides the time for an exciting escape. In real life everything lets go at once, and a massive cave-in may trigger more extensive caving. Entrapment by cave-in can cause death by suffocation, starvation, thirst or even sheer fright. Western rural law enforcement agencies know that the answers to some of their missing persons cases lie—literally—in abandoned mines.

The underground environment can best be described as hostile and foreign. There is nothing as utterly and frighteningly dark as a mine when the lights go out. The darkness is so absolute that it sometimes causes panic and disorientation. Some misguided underground explorers foolishly rely on matches, candles, makeshift torches or flashlights for light. Not only are open-flame light sources easily extinguished, but they may result in fire or explosion. Flashlight batteries were never designed for long-term, reliable power; nor are conventional flashlights waterproof or up to rugged underground use.

The most practical underground light source is the cap-mounted, electric miner's lamp. It's sealed, extremely durable and allows free use of the hands; the rechargeable wet-cell battery provides about 18 hours of dependable light. Miners' lamps make two other recommended pieces of underground equipment necessary: a protective hard hat on which to mount the lamp and a heavy safety belt to carry the battery. In an accident, the D-ring on the safety belt can also be a vital rescue device.

Miner's cap lamps take a bit of getting used to. Since the light beam moves with the head, peripheral vision is effectively eliminated. First-time users tend to assume there is nothing at the edge of their vision. Many new miners have spent long, bruising first shifts getting used to their cap lamps—by turning and walking into pipes and timbers.

After mines have been abandoned, many flood—at least partially. When walking through shallow water covering a tunnel floor, don't ever bet on the continuity of the unseen floor. You wouldn't be the first to plunge into vertical workings like winzes (steeply inclined passageways), ore chutes or sumps. If you must walk through a partially flooded mine, always probe the floor ahead with a stick.

One of the biggest problems in old mines is bad air, air that will not sustain life. The danger is normally not from poisonous gases, but from air in which the oxygen has been consumed or displaced. Working metal mines are rarely classified as gassy, that is, likely to accumulate potentially explosive levels of methane gas. But in abandoned mines, decaying organic matter—anything from old timbers to animal carcasses—may, under the right conditions, generate methane gas. Remember, old mines are unventilated. Although methane is not poisonous, it can accumulate to displace oxygen. Oxygen deficiency causes light-headedness, shortness of breath and general weakness. Any of these symptoms means *get out of the mine immediately.* Remember, too, that an open-flame light source in a methane-rich atmosphere can create an explosion.

The Colorado Bureau of Mines warns that bad air in old shafts can create a special hazard. A descent into an old shaft (which puts a lot of blind faith into old ladders and timbers) requires minimal exertion, meaning that the effects of bad air may not be noticed. Oxygen deficiency at the bottom, however, may make the more strenuous climb back up impossible.

If you insist on entering an old mine, it pays to know what the mine produced. Coal mines and some uranium mines are classified as gassy, indicating that methane accumulation in the unventilated workings is probable. Also, old uranium mines almost certainly contain hazardous levels of radon gas.

Oxidation is a natural chemical reaction affecting most mines, especially metal sulfide mines or those in which pyrite, is plentiful. Upon exposure to air, sulfide minerals begin to oxidize; metal sulfides combine with oxygen in air and water to form free metal ions and sulfuric acid. Mining, of course, can expose huge quantities of metal sulfides to the atmosphere. In some mines, the oxidation process actually makes the rock warm to the touch.

Oxidation will adversely affect rock stability and deplete oxygen in unventilated mines. Sulfide-bearing rock may have been stable when first exposed, but oxidation will eventually make it crumbly, loose and prone to cave, even in bald-headed tunnels. The sulfuric acid produced by oxidation can also, in time, weaken or dissolve the steel in rock bolts and cables. Never put weight on suspended pipes or other fixtures underground.

Oxidation causes mine drainage pollution problems that plague most old mining districts, near which stream beds and drainages are stained a characteristic yellow-orange. The highly acidic mine water loads on dissolved iron from pyrite. Surface dilution soon reduces the acidity, causing large quantities of iron to precipitate out of solution as yellow-orange iron hydroxide. Mine-polluted water almost always carries concentrations of far more toxic elements, too, like cadmium, silver, lead, zinc and copper—even extremely toxic elements like mercury and arsenic. In the underground, mine water is still highly acidic (pH may be as low as 3.0!) and may appear as crystal-clear as Perrier. Don't ever be fooled into filling a canteen with the stuff.

The possibility of fire in the underground poses another deadly hazard. Open-flame light sources may ignite highly flammable dry-rotted timbers as well as solvents, liquid fuels or explosives that early miners may have left behind. Underground fires consume the limited oxygen supply, while producing carbon monoxide. Carbon monoxide is so poisonous that levels of only 100 parts per million can be fatal.

Carbon monoxide from even small fires is so deadly that it is illegal for miners to enter the underground without a Self-Rescuer, an emergency personal breathing device. The Self-Rescuer is a catalytic breathing filter fitted with a SCUBA-like mouthpiece and is contained in a metal cannister worn on the safety belt. In use, it converts poisonous carbon monoxide in each inhalation to nonpoisonous carbon dioxide. Although the heat generated is enough to scorch the inside of the user's mouth, it will provide an extra hour in which to reach safety.

Explosives, such as dynamite and detonating caps, pose yet another potential hazard. Dynamites are "high" explosives that, in turn, require a high explosive trigger—the cap—to initiate detonation. Early caps, such as those found in abandoned mines, employed fulminate of mercury, a compound so shock-sensitive that merely dropping a cap sometimes causes detonation. In an unstable old mine, the concussion from the detonation of a single mercury cap can bring the roof down.

Early dynamite, originally called "giant powder," was simply nitroglycerin mixed with an inert filler—anything from sawdust to diatomaceous earth—which absorbed the nitroglycerin in solid form and reduced shock sensitivity to manageable—barely—limits. Unfortunately, time and temperature change often separated the components. Old dynamite may be dripping with a clear-to-yellow syrupy liquid. Don't play with it! It's pure nitroglycerin, with every bit of its notorious hair-trigger shock sensitivity.

Beware, too, of nitroglycerin fumes. Nitroglycerin has long been prescribed for heart patients; small amounts relax capillary walls, decreasing blood pressure and heart strain. The increased blood flow through the brain, however, can create blinding headaches. Just a few moments of inhaling concentrated nitroglycerin fumes in an unventilated old mine can bring on a debilitating headache when you need one least.

Now, if you still insist on venturing into abandoned underground mines, at least familiarize yourself with mining tools and methods, talk with some experienced miners, and procure and learn to use the basic safety equipment. Never enter an old mine alone. Someone must also remain outside the workings to go for help should trouble arise.

(See "A guide to underground collecting" by Wendell Wilson, vol. 5, no. 3, p. 128–137.)

In the underground, any sound or vibration, such as those caused by hammering, chiseling or levering specimens out of in situ rock, can cause rockfall. Also, blast-fractured rock may be delicately "keyed" in place. Disturbing the keystone can bring everything down, and it takes considerable experience to identify that keystone. Stressed rock can sometimes "talk," that is, emit an eerie, oddly humanlike groaning sound. Old miners will always tell you "rock that talks ain't happy, and it ain't gonna get happy til it moves." Talking rock is usually telling you to get out of the mine!

Should rescue from an abandoned mine become necessary, a regular search and rescue team or the local fire department may not have the equipment or experience to handle the job. A specialized mine rescue team may have to be called; since there are only a handful of fully-equipped, mobile mine rescue stations in the West, the nearest team may easily be hundreds of miles and many hours away from an accident site.

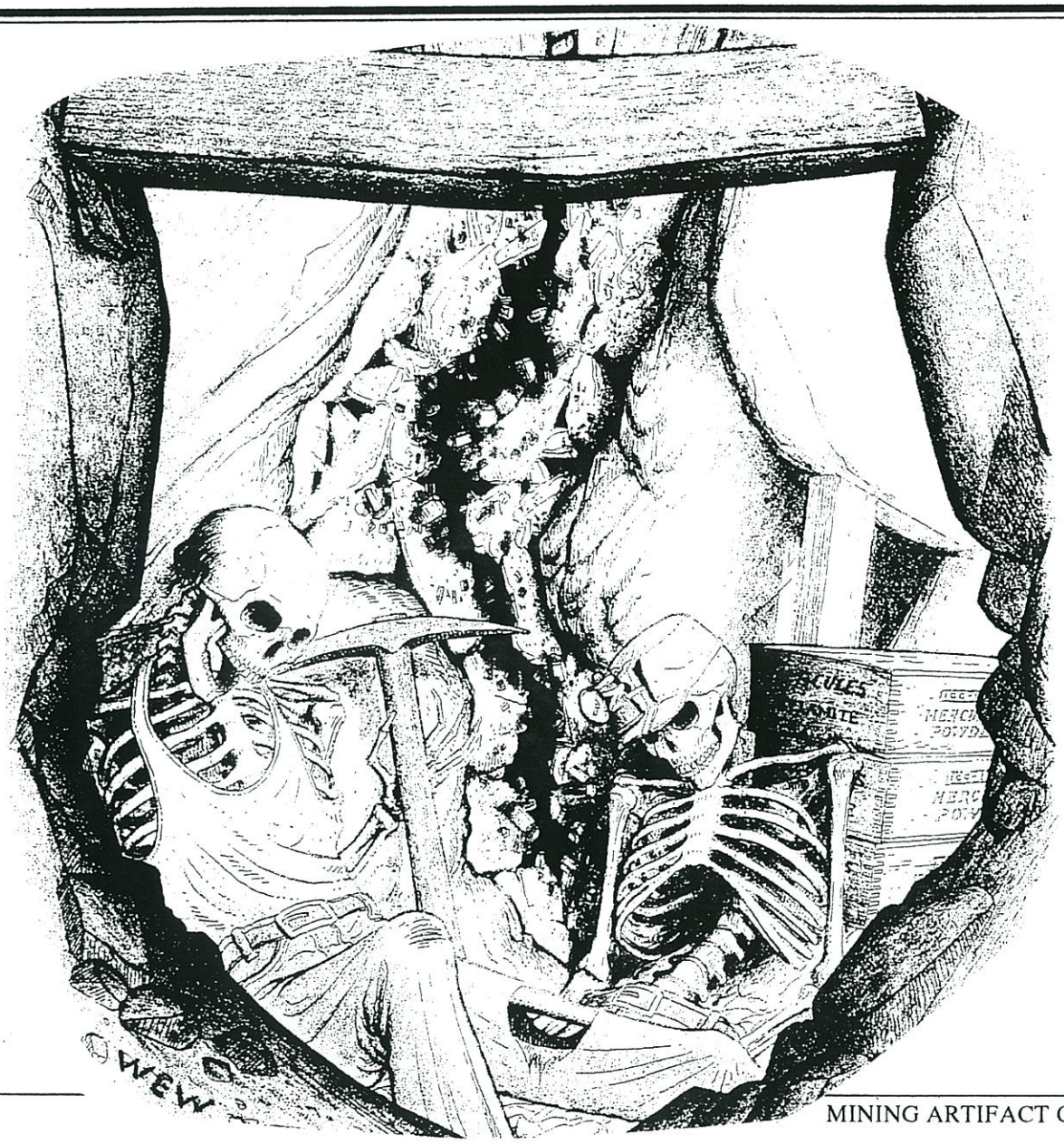
One mineral collector who fully understands the level of danger in abandoned mines is Joe Nachtrieb, a hardrock miner with 16 years experience, now Director of Operations at the Central Colorado Mine Rescue Station.

"Mine rescue stations were originally established to provide emergency backup for small mining operations," Nachtrieb says. "But the role is changing. More people than ever are using mountains, deserts and old mining districts for recreational purposes. And mixing too many inexperienced people with old mines guarantees trouble. Old mines aren't recreational resources. They're much more dangerous than sheer cliffs or white-water rivers. I think you need to have been a miner to really understand the risks you're taking when you enter old workings. If you haven't mined, you'll probably think the warnings are an exaggeration."

Even if you are rescued uninjured from an old mine, your troubles may just be starting. Since most mine sites—abandoned or not—are still on private property or valid claims, you could face trespassing charges. And in some states and counties you may even be liable for the costs incurred in your own rescue—which are never cheap.

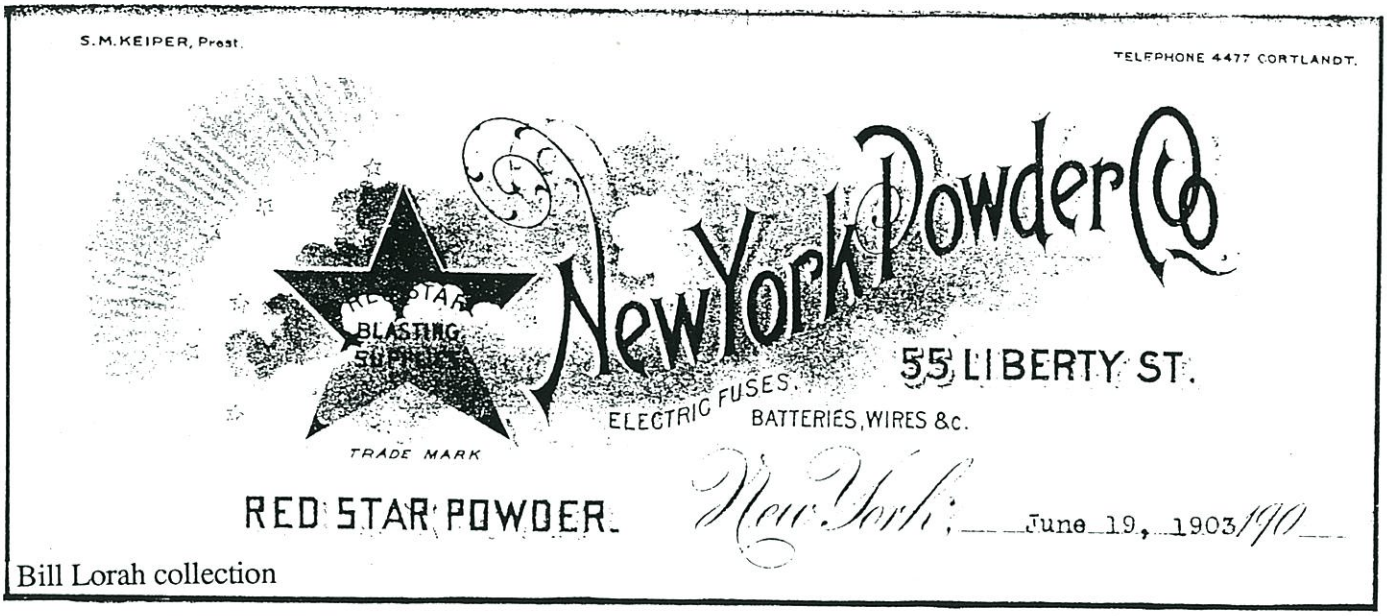
There may be readers who have entered abandoned mines and walked out with no trouble whatever. Well, they were lucky, that's all. But don't think the points made here have been exaggerated. Every single potential danger we've discussed is real—and has caused disaster at one time or another.

There are lots of specimens waiting in the dumps. Remember, to paraphrase Chuck Yeager, there are *old* miners and there are *bold* miners, but there are no *old bold* miners. Old, happy, healthy collectors got that way because they generally did their collecting on the dumps, not in abandoned underground mines.

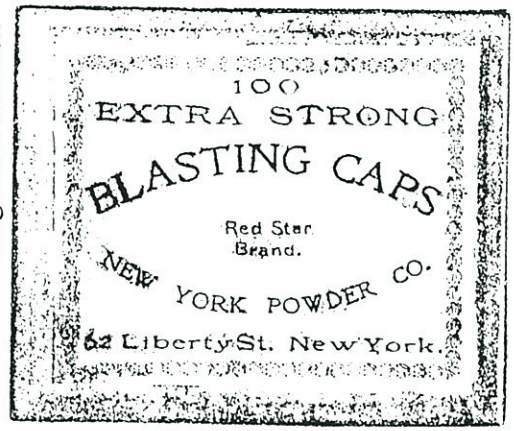


THE NEW YORK POWDER COMPANY

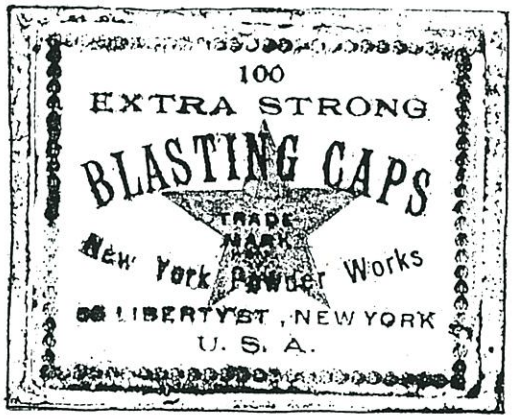
by **Mark Bohannan**
Star Route Box 107E
Oro Grande, California 92368



Bill Lorah collection



James Tillinghast collection



Bob Schroth collection

The New York Powder Company was organized in about 1891, in Pennsylvania, by S.M. Keiper. The dynamite factory was located at Nesquehoning, Pennsylvania, about 25 miles northwest of Allentown; they manufactured Red Star dynamite.

The business was sold to the Eastern Dynamite Company in 1896, and the plant was permanently shut down in 1908 when all of the business was transferred to the Eastern Dynamite Company.[1]

The only artifacts known to exist from this company are the two blasting cap tins shown below, a glass paperweight in the author's collection, and a few letterheads. Both of the cap tins have paper labels on the lid and have tabbed sides.

[1] Arthur P. VanGelder and Hugo Schlatter, *History of Explosives Industry in America*, (New York: Columbia University Press, 1927), pp. 595 and 695.

THE JUSTRITE #44 BELT GENERATOR HEAD-LIGHT

by **Ted Bobrink**
12851 Kendall Way
Redlands, California 92373

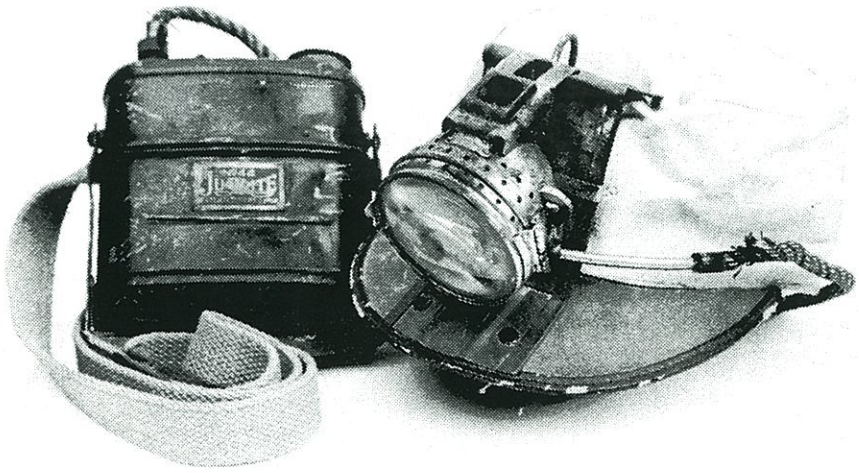
The Justrite #44 acetylene head-light is one of the most unique miners' lamps I can think of. I will be the first to admit that the belt generator type lamps just do not seem to be of much interest to most collectors. I am speaking of the ones we see the most, such as the Brilliant Searchlight and the later model #88 Justrite. Those lamps have very large head lamps and were advertised mainly to the public as hunting lamps.

The Justrite #44 is in a class of its own. First of all, it is the earliest of all of the belt generator lamps advertised to the mining trade. Patented on September 1, 1914, it started showing up in the Justrite catalogs soon after. This style lamp was also available in a mine car model.

The most unique feature of the Justrite #44 is the small nickel plated head lamp that resembles an early automobile head-light. The outside lens is hinged in the front so that you can service the inside bulls-eye lens and burner tip. On the left side of the lamp there is a striker that throws the sparks inside the burner chamber. The burner mechanism is attached to the hat hook and side braces, and can be pulled off for repair.

The belt generator consists of two steel tanks painted black, a bottom carbide container and a top water container. The two tanks are held together by a locking clamp. There is a very attractive brass plate on the lower tank that reads:

"NO. 44 JUSTRITE
PATENTED SEPT. 1 1914."

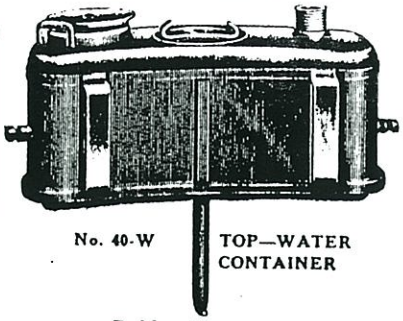


The Justrite #44 with the head-light mounted on a miners' soft hat and showing the original canvas belt.

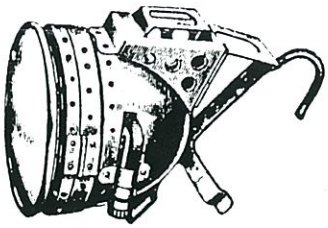
Justrite
TRADE MARK

REPAIR PARTS FOR ACETYLENE HEAD-LIGHT

No. 40-C
BOTTOM—CARBIDE CONTAINER



No. 40-W TOP—WATER CONTAINER



No. 40-L—HEAD LAMP—WITH HOOK AND SPRING CLASP, GLASS LENS AND LIGHTER

No. 41. BELT
For Lighter Parts, See Page 37.

Rubber Hose

No. 42. 4 FEET LONG
COVERED WITH FABRIC
Wing Nut and Ferrule Included
FOR PRICES, SEE PAGE 75.

No. 48
GLASS LENS
FOR DOOR

No. 49
SPECIAL
LENS
Metal Frame

CONTINUED

The "Liberty" water valve is located on top and in the middle of the water container. A hinged lid, similar to that on an oil lamp, is located on the right side. On the left side is the gas outlet with a fabric covered rubber hose that connects the generator to the head lamp.

The belt that comes with the lamp and holds the generator on the hip is made of canvas and has a small brass buckle similar to the ones used in the Army.

The Mine Car Lamp is just about the same in construction as that of the mines' head lamp, only they eliminated the rubber hose. Instead, the gas outlet comes out of the front of the generator with the lamp clamping directly onto the burner gas outlet. As you can see by the ad, you can use the Mine Car Lamp as either a tail light or a head light simply by changing the lens from red to clear.

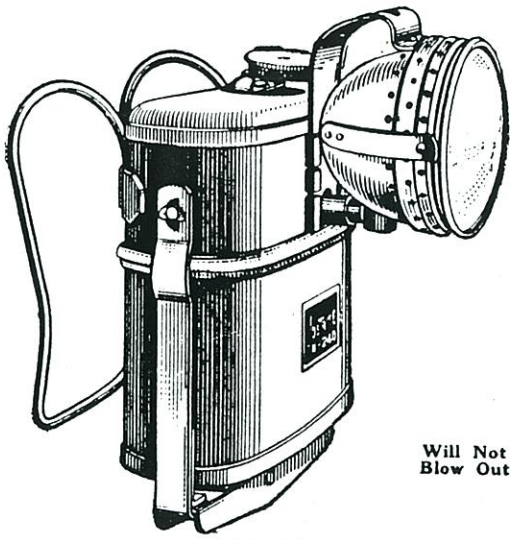
Of all the belt generator type carbide miners' lamps, the Justrite #44 will be the most difficult to find, especially complete with the original belt, rubber hose and bulls-eye lens. When, and if you are lucky enough to find a Justrite #44, it will display well with a miners' hat, just the way you saw it in the ad on the cover of Issue Number 14 (Spring 1992) of the Mining Artifact Collector.

CARBIDE LAMP

FOR

MINE CARS

Can Be Used as
TAIL-LIGHT OR HEAD LIGHT



Will Not Blow Out

PATENTED

It is SAFE, FOOL-PROOF, STRONG, DURABLE and adjustable to fit any mine car. It is absolutely dependable under the most severe conditions.

THE KELLY CANDLESTICK

by **Ted Bobrink**
12851 Kendall Way
Redlands, California 92373

and **George Foott**
6683 S. Yukon Way
Littleton, Colorado 80123

One of the most unique patented candlestick I have had the pleasure of owning is the Benjamin F. Kelly, patented in Salt Lake City, Utah, on January 19, 1909. May good friend George Foott sent in a fantastic ad he recently found for the Kelly candlestick in an issue of The Miners Magazine dated April 8, 1909. The Miners Magazine was a mouthpiece for the W. F. M. (Western Federation of Miners) and is full of articles related to union mining and ads for everything from badges and banners to miners' candlesticks.

The most unique features of the Kelly patented candlestick are the tall reflector or shield and the adjustable claw or crab. To my knowledge, the Kelly stick is the only production made candlestick to offer either of these unique features. The reflector is 3 $^1/_2$" tall and 2" wide. It is made of brass and is nickel plated. It is held on with a wide-head machine screw and can be rotated 180^0. The ad claimed that the reflector protected the candle against strong drafts and would give off several candle power of light. The claw or crab, as identified in the ad, was of tool steel and would hold the candle straight on the wall and could be adjusted by sliding the hook up and down to set level on the floor of the drift.

The known examples of the Kelly stick follow the patent drawing almost exactly, except for the thimble (attached by screws and having a cutout in the center) and the handle (cut out of one piece of steel). The over-all construction of the stick is smooth steel with a few file marks here and there. The nickel plated reflector is stamped on the back "PAT. APLD FOR."

The most interesting news to come from this ad is that only three months after Benjamin Kelly was granted his patent, he moved his business from the wastelands of Utah to Denver, Colorado, to be closer to the mining excitement. So to all of you Colorado collectors, now you have another Colorado candlestick to add to your list.

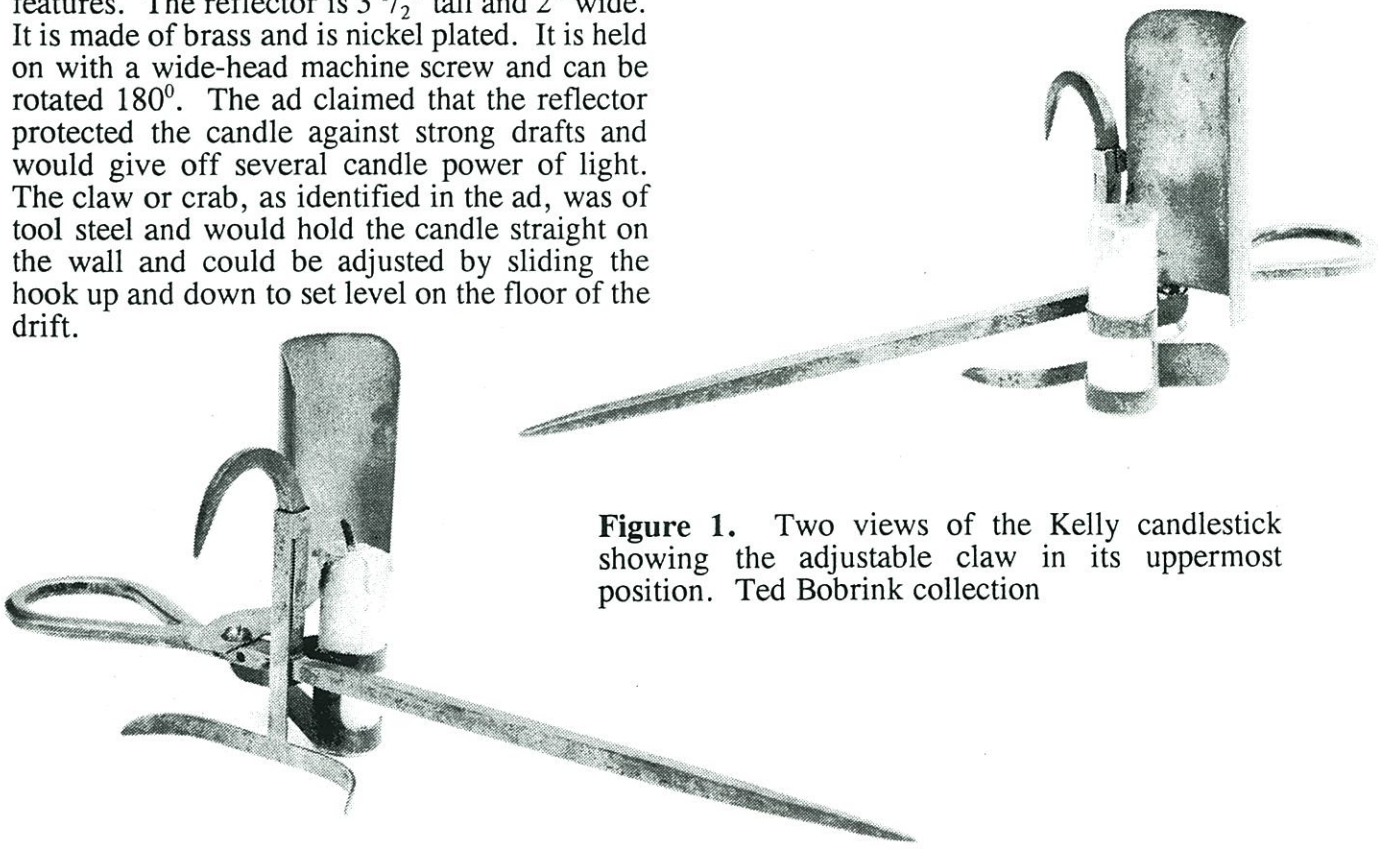


Figure 1. Two views of the Kelly candlestick showing the adjustable claw in its uppermost position. Ted Bobrink collection

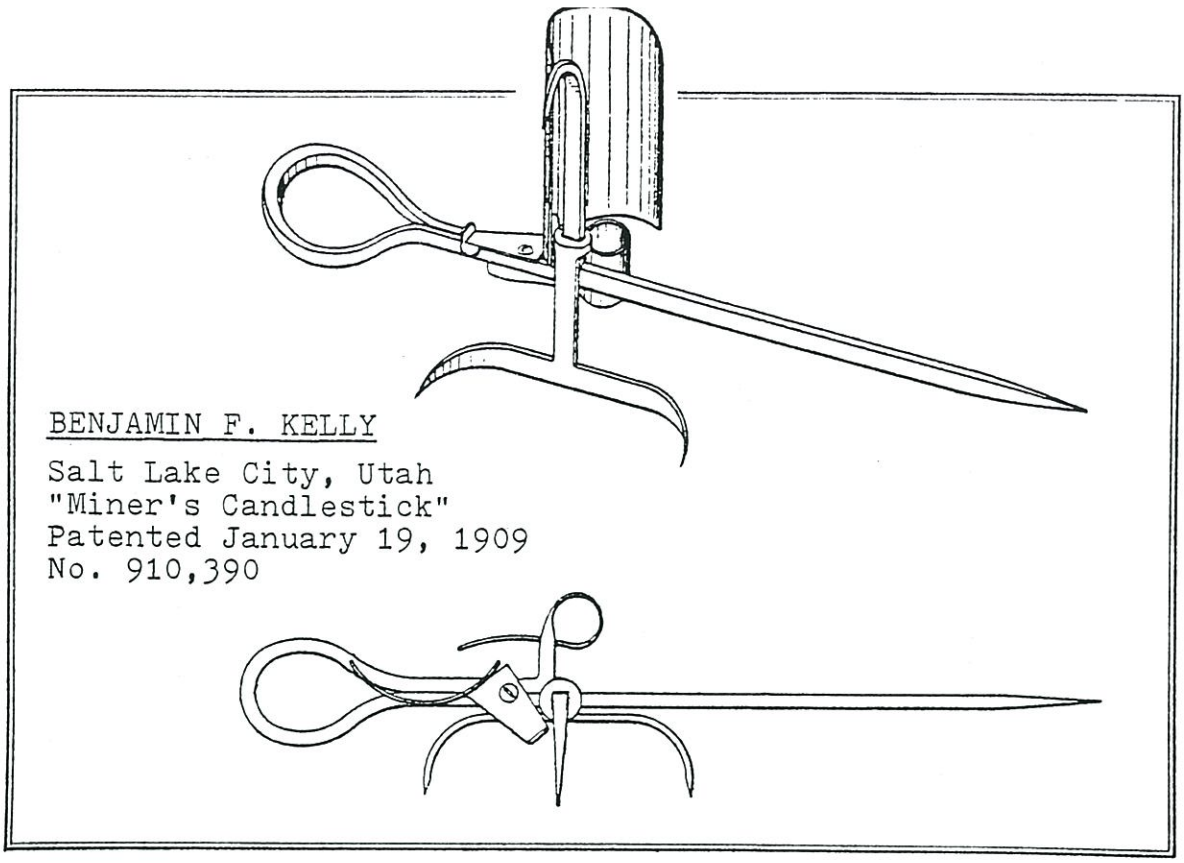
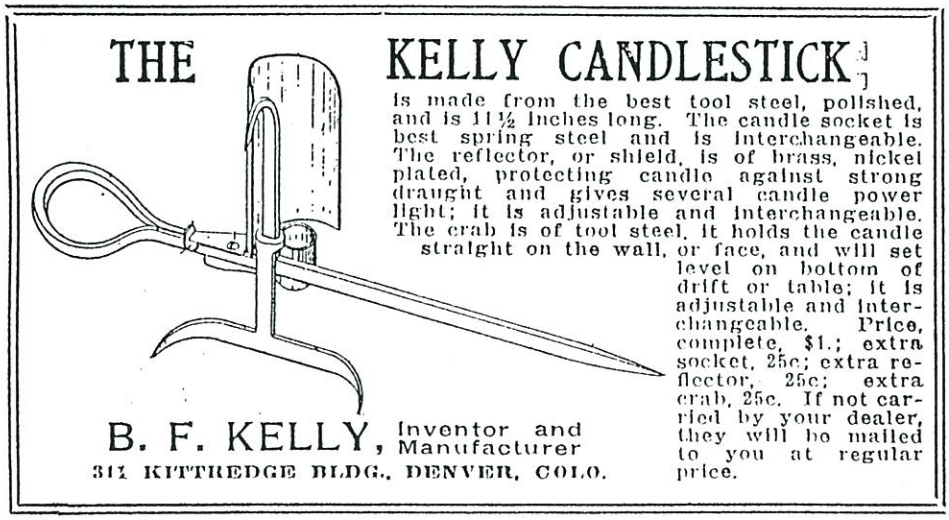


Figure 2.

Patent drawing of the Kelly candlestick.

The Kelly stick is one of the rarest patented candlesticks to find. I only know of four complete examples, by that I mean complete with the reflector and claw, but there ought to be a couple of these kicking around somewhere in a trunk in Denver! I have seen several of these sticks that were missing the reflector and claw. To those folks I say, all is not lost! If you look at the Kelly ad closely, You will notice that you could order extra reflectors, thimbles and crabs for 25 cents each. So, who knows, one of our MAC readers may just get lucky and find a couple of these parts!

Figure 3. An advertisement for the Kelly patented candlestick from a 1909 issue of *The Miners Magazine*.



MINATURE SAFETY LAMPS

by **Tony Moon**
2763 E. Willow Wick Drive
Sandy, Utah 84093

Most of us are fascinated by miniature or small examples of lamps. The high prices paid for the tiny oil wick and Baby Wolf safety lamps is the direct result of high demand for these items, none of which are particularly rare.

Over the years I have made a point of looking for and buying miniature safety lamps. Six different lamps from my collection are illustrated. I believe that all of them are from Europe, although five of them were purchased in the United States. I also believe that none of them were made for use in a mine; they are gifts, souvenirs, or maybe salesman's samples. All are very well made with three having adjustable wicks, but none have relighters of locks. Two are prominently marked with the maker's name and are probably promotional advertising from lamp manufacturers (salesman's samples!). The lamp in Figure 3 is wired with a light bulb instead of a wick. The wiring is plastic coated indicating that the item is post World War II.

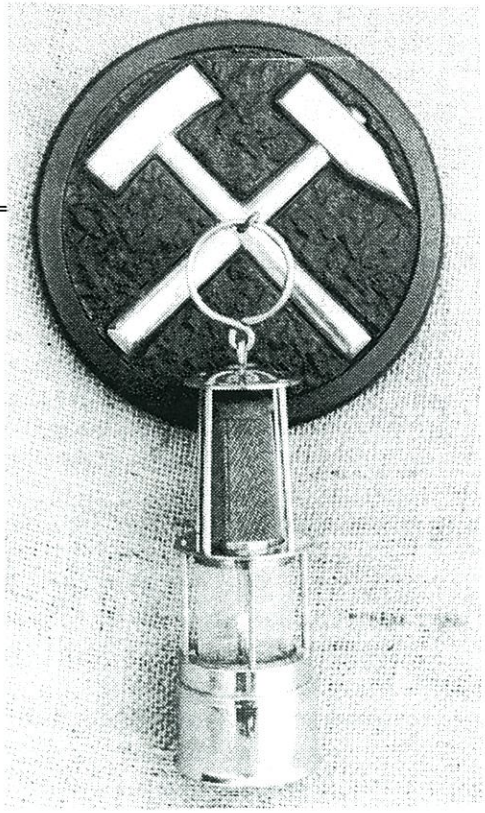


Figure 2. Lamp with carved anthracite plaque. The lamp is 6 $^{1}/_{4}$ inches high and is marked "Bochum July 1957."

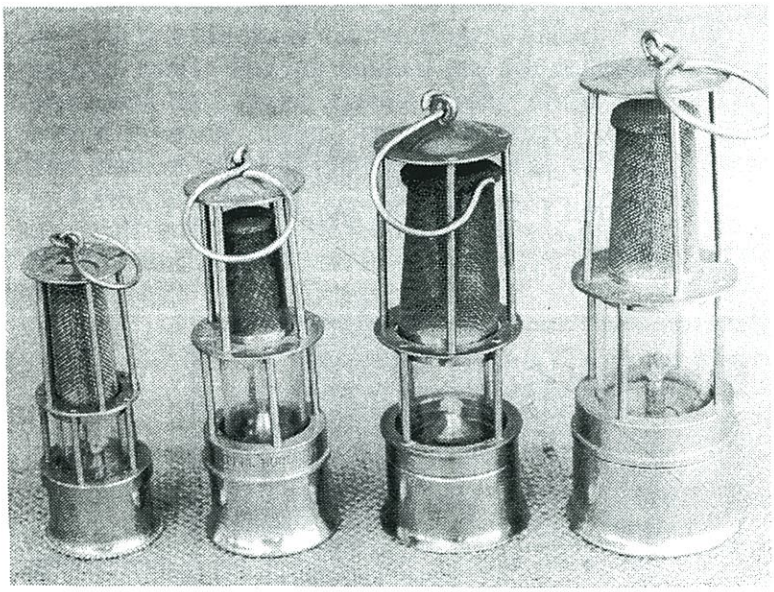


Figure 1. Four miniature lamps. From left to right: 4 $^{1}/_{2}$ inches high, marked CAMILLE CORNIL GILLY; 5 $^{1}/_{4}$ inches high, marked WILHELM SEIPPEL BOCHUM I. WESTFALEN; 5 $^{3}/_{4}$ inches high, unmarked; 6 $^{1}/_{2}$ inches high, unmarked. All heights do not include the hook.

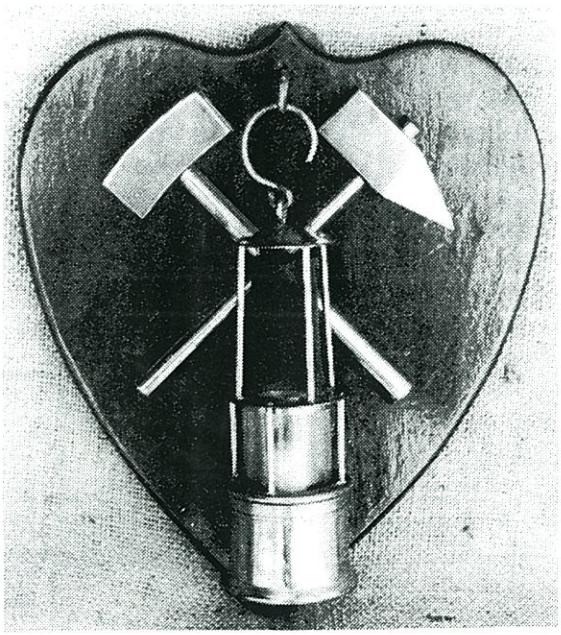


Figure 3. Lamp with wooden shield. The lamp is 6 $^{3}/_{4}$ inches high with plate from H & M Van De Sand Lamp Manufacturer, Bochum.

FROG LAMPS

PART III

by **Wendell E. Wilson**
4631 Paseo Tubutama
Tucson, Arizona 85715

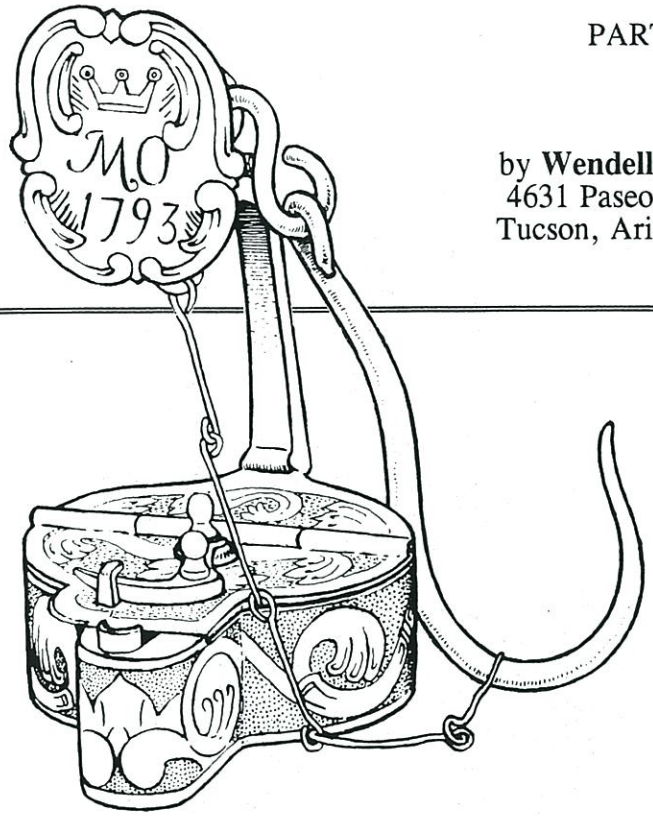


Figure 38. The lid style suggests that this is a Hessen frog, though the shield shape is unusual and the hook shaft has an uncharacteristic backward bend. The lamp is all brass and carries intricately engraved floral designs, a royal crown, and the date 1793. (Formerly in the Howard Stone collection, listed as a brass betty)

HESSEN FROGS

Frog lamps from the region of Hessen are characterized by a large, semi-circular lid comprising approximately half of the top face of the font. The lid hinge runs the full width of the font, and may be secured by a cross-bar or by a flat-lying hook which fits into an eyelet. The hook is most commonly J-shaped, without the extra bend in the middle of the shaft which is typical of Westphalian frogs. Furthermore, the hook shaft is usually embellished by two or three incised or raised bands.

Some Hessen frogs, particularly the plain, inexpensive, unornamented models, were exported to America. And some were probably made in the Hessen style but outside of Hessen.

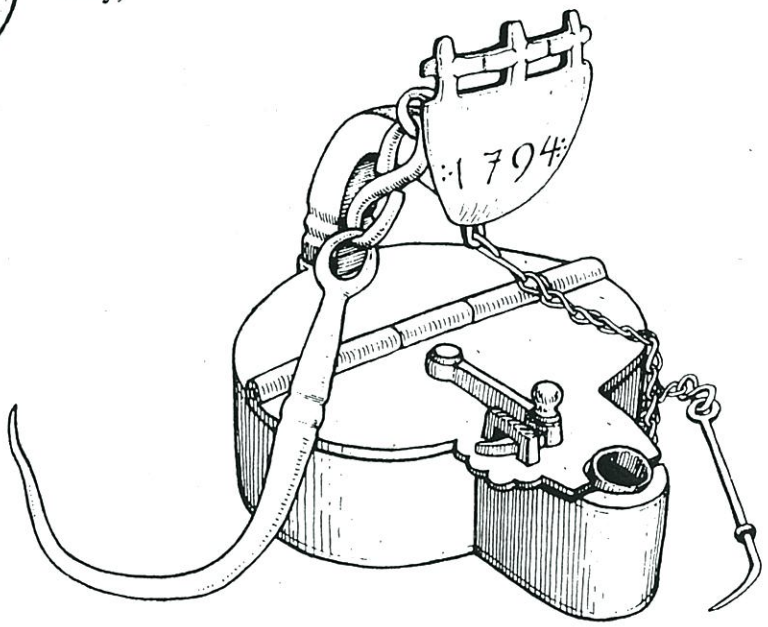


Figure 39. Kreuzschild Frog. The lamp above and the previous example are the earliest known dated frog lamps of Hessen design. The three crosses atop the *Kreuzschild* have dividing lines inscribed in the brass to separate the crosses, a feature unknown on later examples. (Collection of the Mining Museum, Freiberg)

Miners at Prayer at La Vieille-Montagne before descending the Shaft.

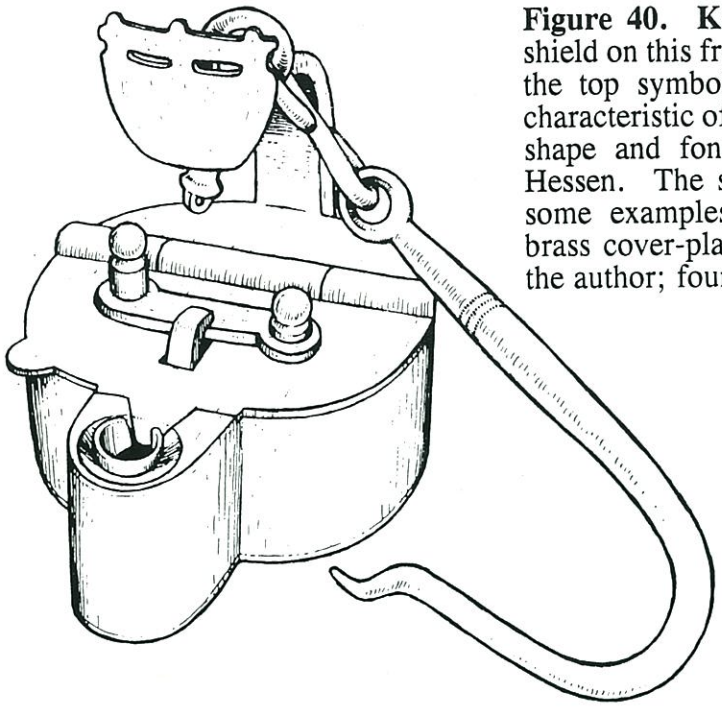


Figure 40. Kreuzschild Frog. The peculiar shield on this frog carries three linked crosses on the top symbolizing the Holy Trinity, and is characteristic of some Hessen models. The hook shape and font lid are also characteristically Hessen. The shield is unmarked iron, though some examples have a marked or unmarked brass cover-plate on the shield. (Collection of the author; found in the U.S.)

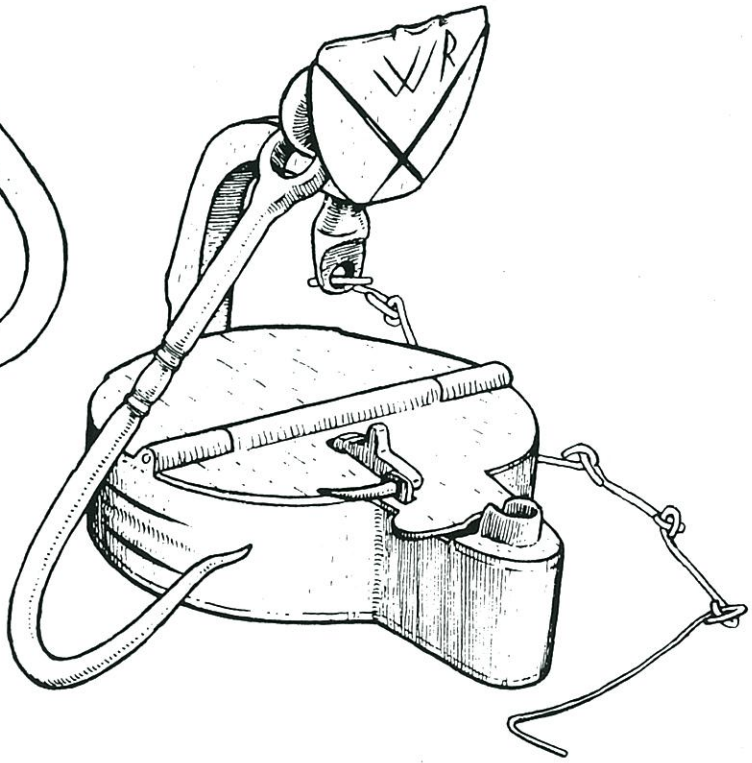


Figure 41. The lid and hook shapes mark this as a Hessen frog. The iron shield indicates that it is a rather early example, perhaps 1770-1830. It is rather small as frogs go (8.5 cm tall), and carries the owner's initials "WR" on the shield. (Collection of the author; found in the U.S.)

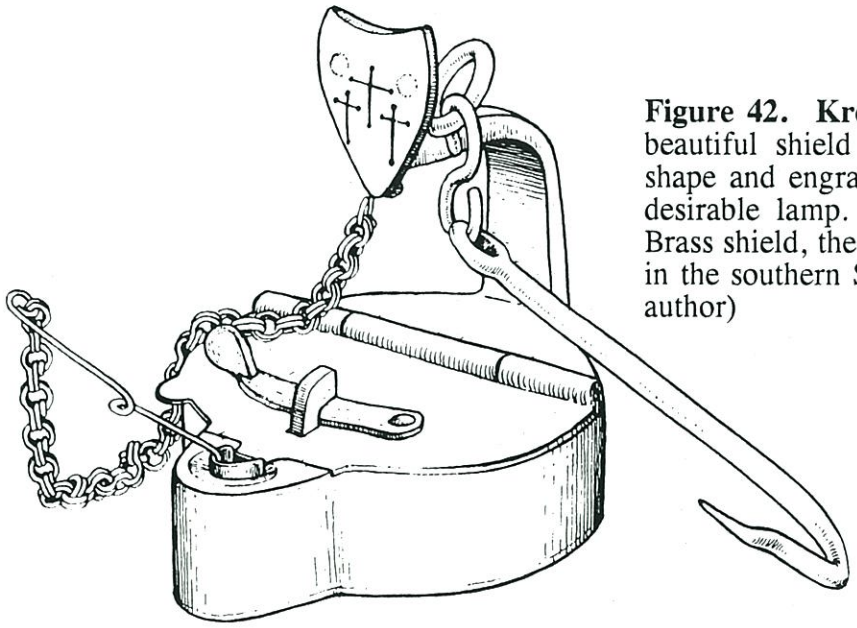


Figure 42. Kreuzschild Frog. The rare and beautiful shield on this frog, unique in both shape and engraving, makes this a particularly desirable lamp. The chain is a replacement. Brass shield, the rest is iron. The lamp was used in the southern Siegen area. (Collection of the author)

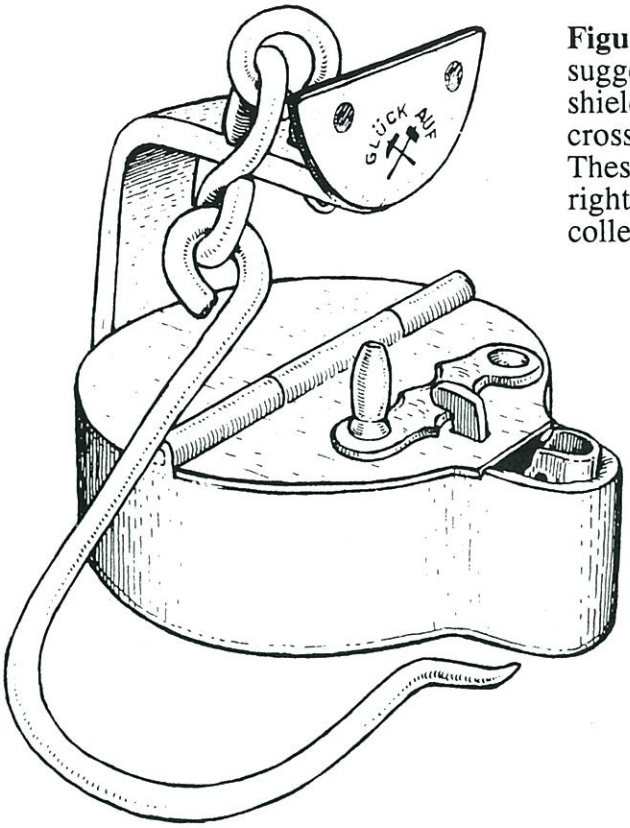


Figure 43. The hook shape and semi-circular lid suggests that this frog was made in Hessen. The shield is common enough, but the scalloped cross-bar latch is probably unique to one maker. These latches, incidentally, came in left- and right-handed versions. (Ken and Betty Roberts collection; found in the U.S.)

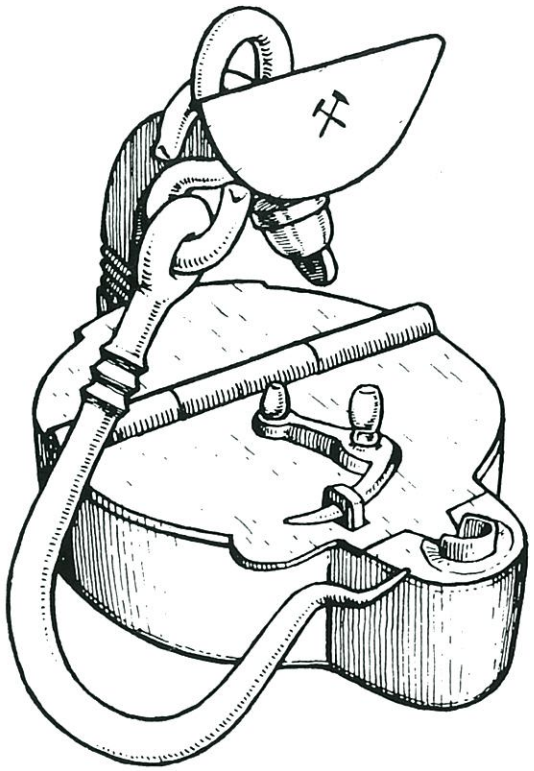


Figure 44. The lid and hook shape suggest that this is a Hessen frog. The shield is brass, marked only with a stamp of the *Schlagel* and *Eisen.* (Collection of the author; found in the U.S.)

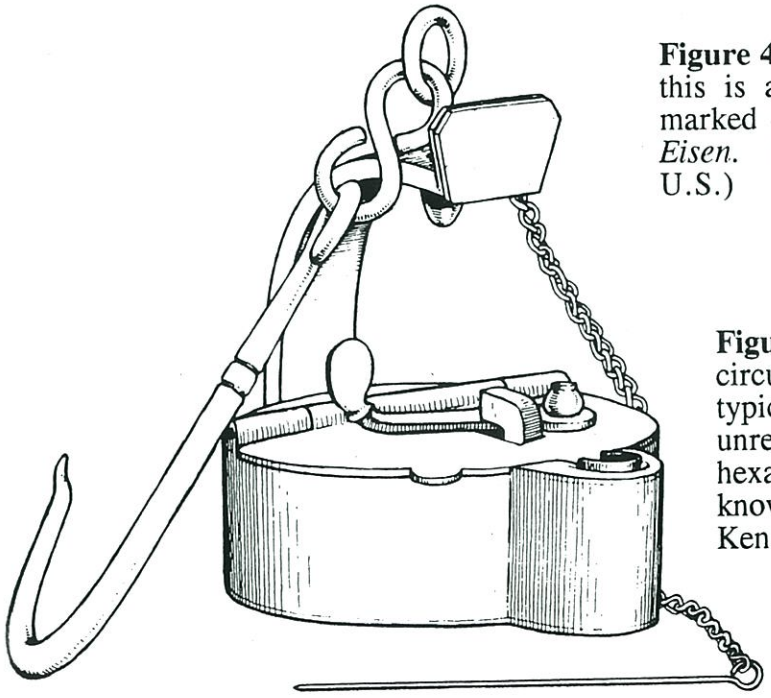


Figure 45. The hook shape and the semi-circular lid with cross-bar latch mark this as a typical Hessen style of frog. The lamp is unremarkable, except for the unmarked hexagonal shield; the only example as far as I know. (Collection of the Science Museum, Kensington, England)

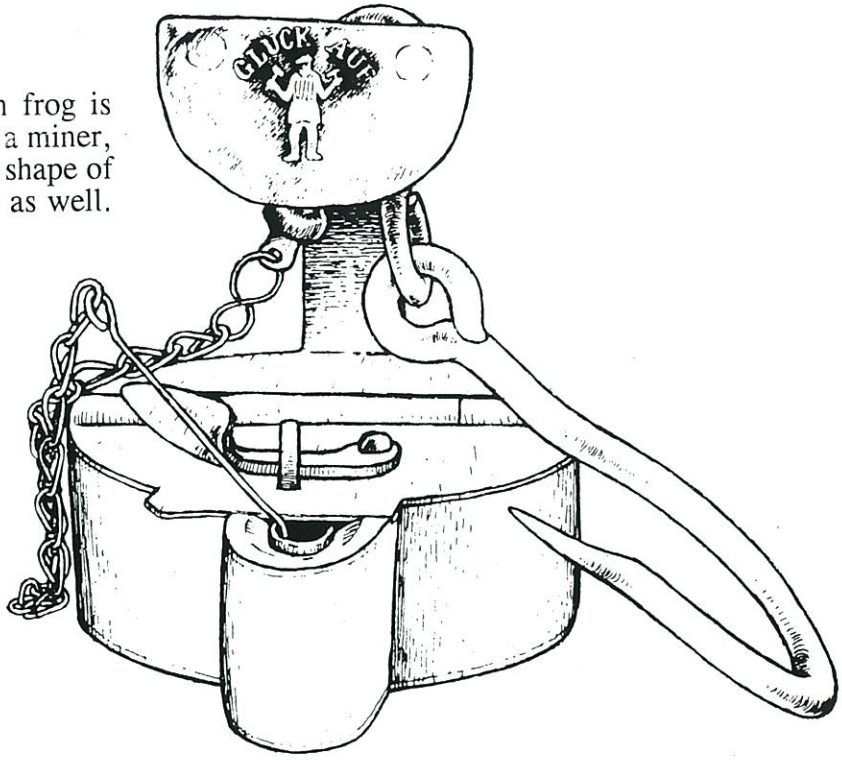


Figure 46. The shield on this Hessen frog is remarkable because of the full figure of a miner, holding up his *Schlagel* and *Eisen.* The shape of the cross-bar latch handle is interesting as well. (Karsten Porezag collection)

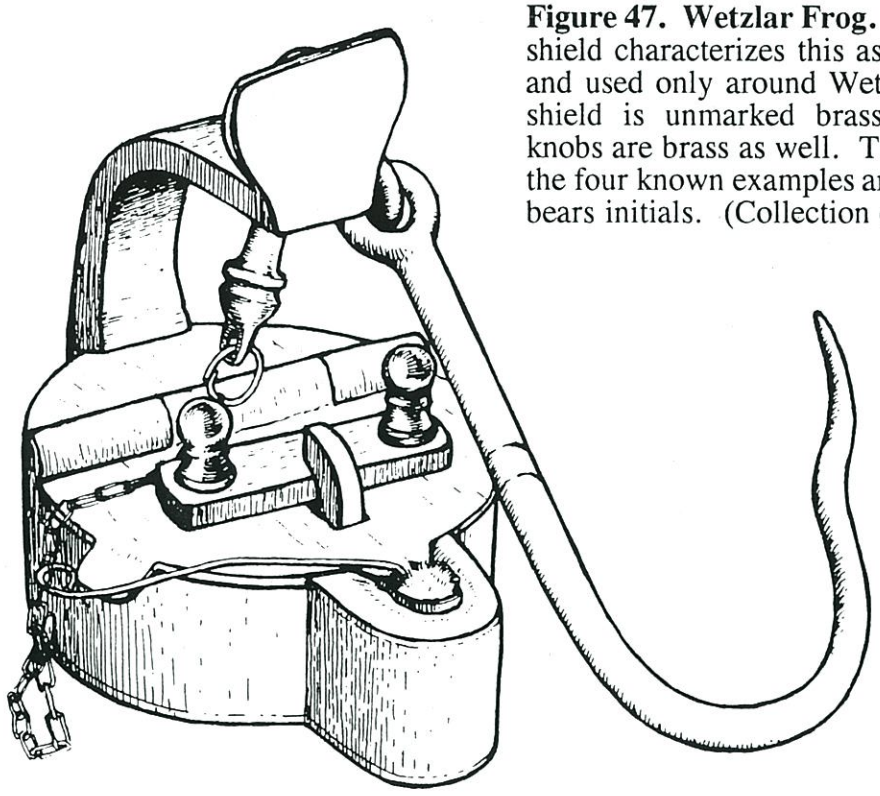


Figure 47. Wetzlar Frog. The uniquely shaped shield characterizes this as a type of frog made and used only around Wetzlar in Hessen. The shield is unmarked brass, and the cross-bar knobs are brass as well. The shields on three of the four known examples are unmarked; a fourth bears initials. (Collection of the author)

A Smoke After The Shot

by **John Kynor**
4404 14th Ct. NW
Albuquerque, New Mexico 87107

This interesting DuPont promotional piece came to my attention several years ago while rooting through a small shop in Leadville, Colorado. I have seen many pictures of miners smoking a pipe; I'm sure that DuPont felt this was an excellent way to keep their products on folk's minds.

The pipe is an excellent French Briar, and was still sealed in the box when I obtained it. As you can see from the picture, the DuPont logo and the word "EXPLOSIVES" are engraved on the pipe stem in gold. The most unique part of the pipe is the bowl, which is in the shape of a black blasting powder keg. The box is also in excellent condition.

The shopkeeper did not know anything about the pipe or it's age, but did say that it had been acquired from a local resident. In order to learn something about the pipe and it's use, I contacted a friend who has contacts within DuPont. His response was that these pipes were a dealer gift item. They had been given out in the early to mid fifties.

I use the pipe to enhance the collection of DuPont cap tins, crimpers, dynamite boxes and wrappers that seem to gather dust in my work shop. I'm sure there are more pipes around, and they will make a good addition to any collection.

I have seen one other, but this one had a small slide viewer on the stem with an interesting picture of a lady.

I suppose that one of these days I'll have to see if DuPont pipes are as good as their dynamite. When I do, I'll light the pipe with the Austin Powder Company lighter. But that's another article.

FANCY BISBEE CANDLESTICKS

by **Wendell E. Wilson**
4631 Paseo Tubutama
Tucson, Arizona 85715

The Bisbee area is certainly the most famous and historic of all Arizona mining districts. Steve Eady has given a brief history of the district in an earlier issue (MAC #8, p. 11) and Ted Bobrink has written about touring one of the Bisbee mines (MAC #5, p. 30) and seeing the porcelain mine bell signs still being used.

Bisbee has been a fairly prolific producer of mining collectibles. The most famous is the Justrite "Copper Queen" model of Little Giant 8-hour carbide lamp (see Ted Bobrink's article on this lamp in MAC #8, p. 12). Among candlesticks there is the Varney-style model made by a local mining company blacksmith, some of which are stamped "C.Q.C.M.CO." for Copper Queen Consolidated Mining Company (see Wilson and Bobrink's book, *A Collector's Guide to Antique Miners' Candlesticks*, p. 53). I,ve even seen open-ended wrenches, for use with drill rigs, that have "Copper Queen" cast into them.

There were four or five private blacksmithing establishments in Bisbee during the first years of this century. It is probable that one of these is the source of several surviving fancy candlesticks which, with the Copper Queen lamp, are the most elegant and desirable of all Bisbee collectibles.

Shown in Figure 1 are two views of an extraordinary pistol-grip candlestick, obviously some kind of presentation piece. The current owner is a retired antiques dealer in Phoenix who obtained it many years ago from members of the O'Brien family in Bisbee. It is inscribed to "N. O'BRIEN" and is dated "MARCH 1905." The initials "L. B." and "T. M." are also present...perhaps the initials of the presenters. The inch markings along the spike were ostensibly for measuring fuse, and the cross-hatched areas for striking matches.

"N. O'Brien" may be connected with "Jack" O'Brien, a "troublesome Irishman" who (according to Lynn Bailey's *Bisbee, Queen of the Copper Camps*) was involved in a barroom altercation in Bisbee in 1881 in which his fellow countryman Peter Hogan was killed. The 1904 and 1914 Bisbee directories list numerous O'Briens (Ed, John, Terry, Thomas, Dennis and William), all of them miners or muckers but none with initial "N." Nevertheless, the presence of O'Brien families in Bisbee is a least definitely established.

Gardner mine, Bisbee, Arizona, ca. 1905 (Arizona Historical Society)

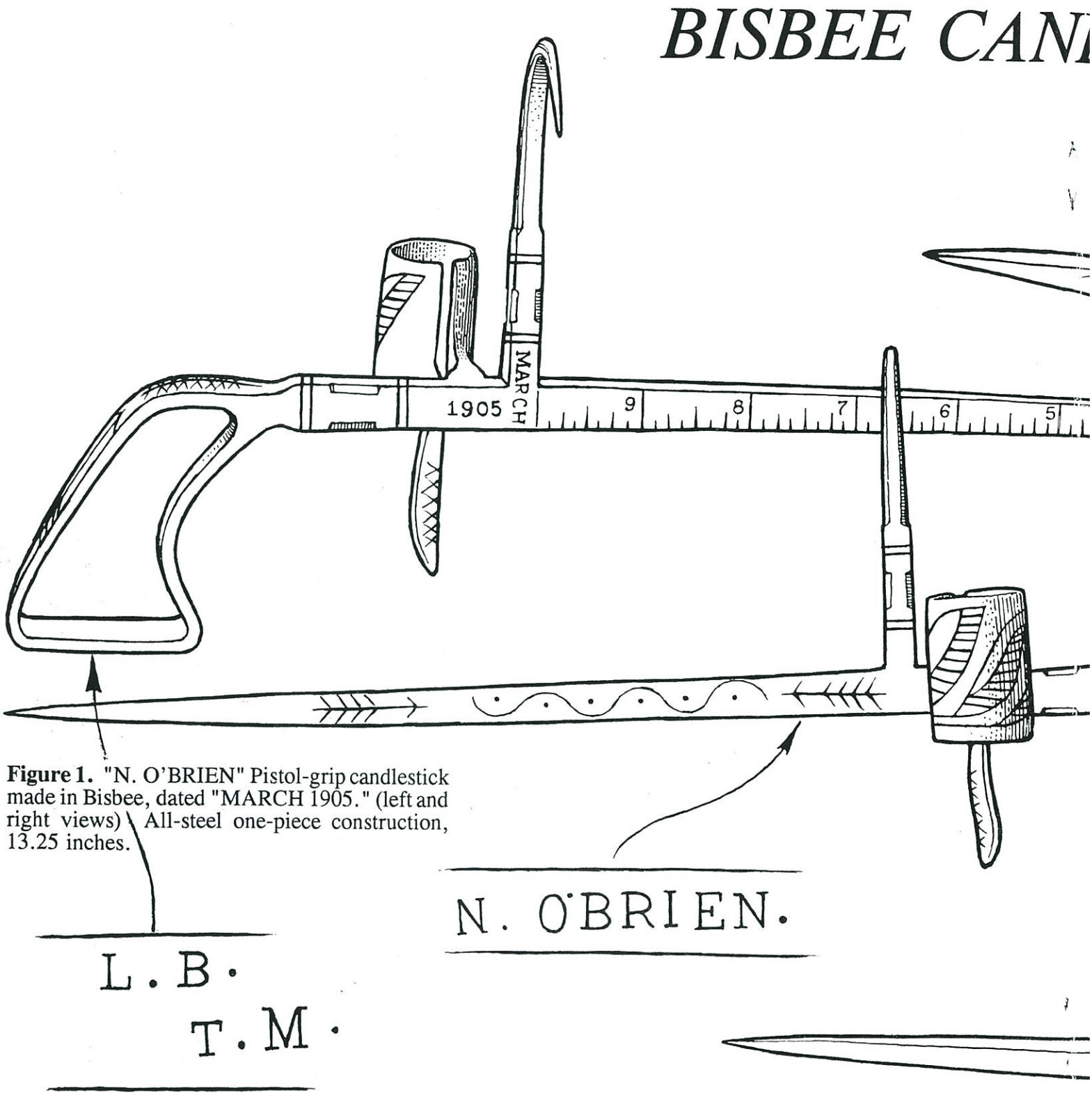


Figure 1. "N. O'BRIEN" Pistol-grip candlestick made in Bisbee, dated "MARCH 1905." (left and right views) All-steel one-piece construction, 13.25 inches.

)LESTICKS

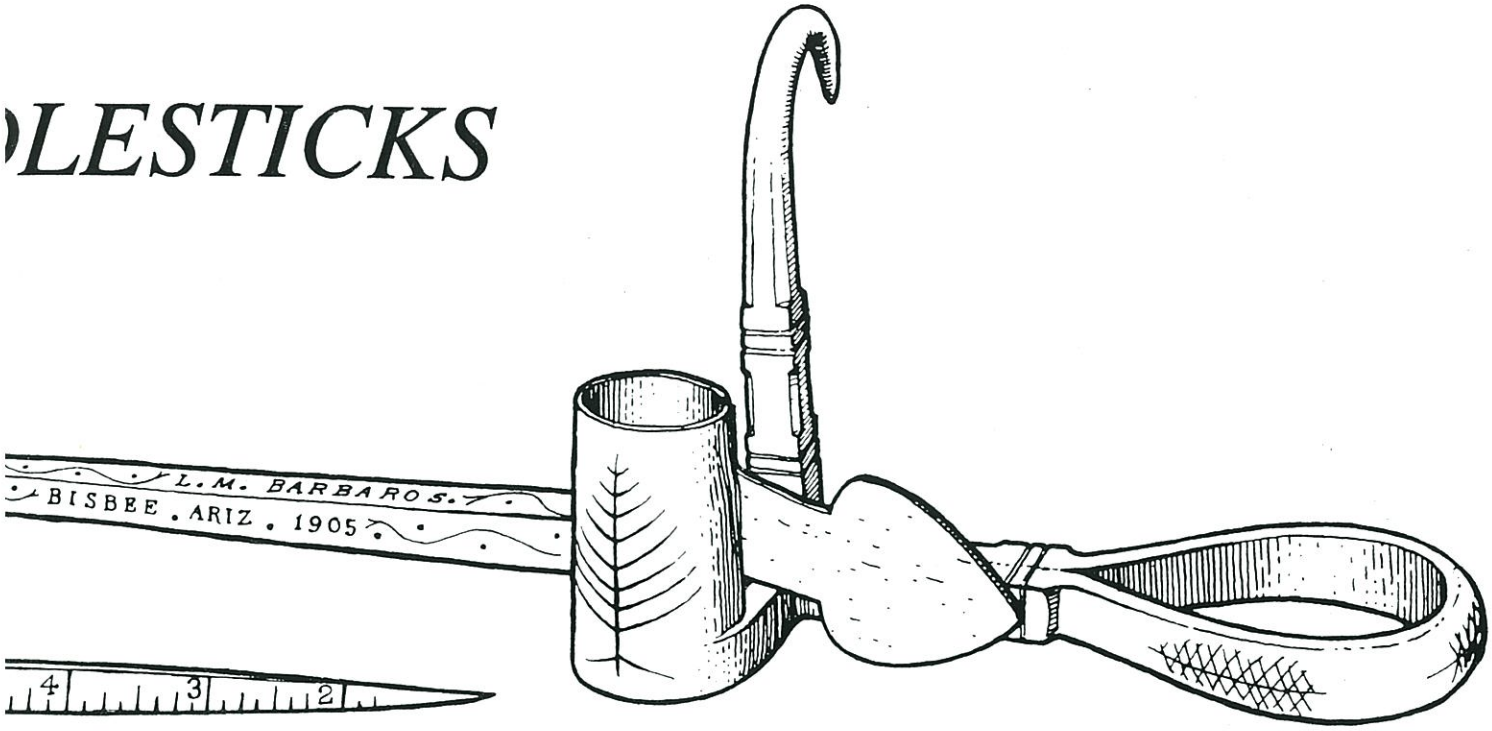


Figure 2. "L. M. Barbaros" candlestick made in Bisbee, dated "1905." All-steel one-piece construction, 11.25 inches. Ted Bobrink collection.

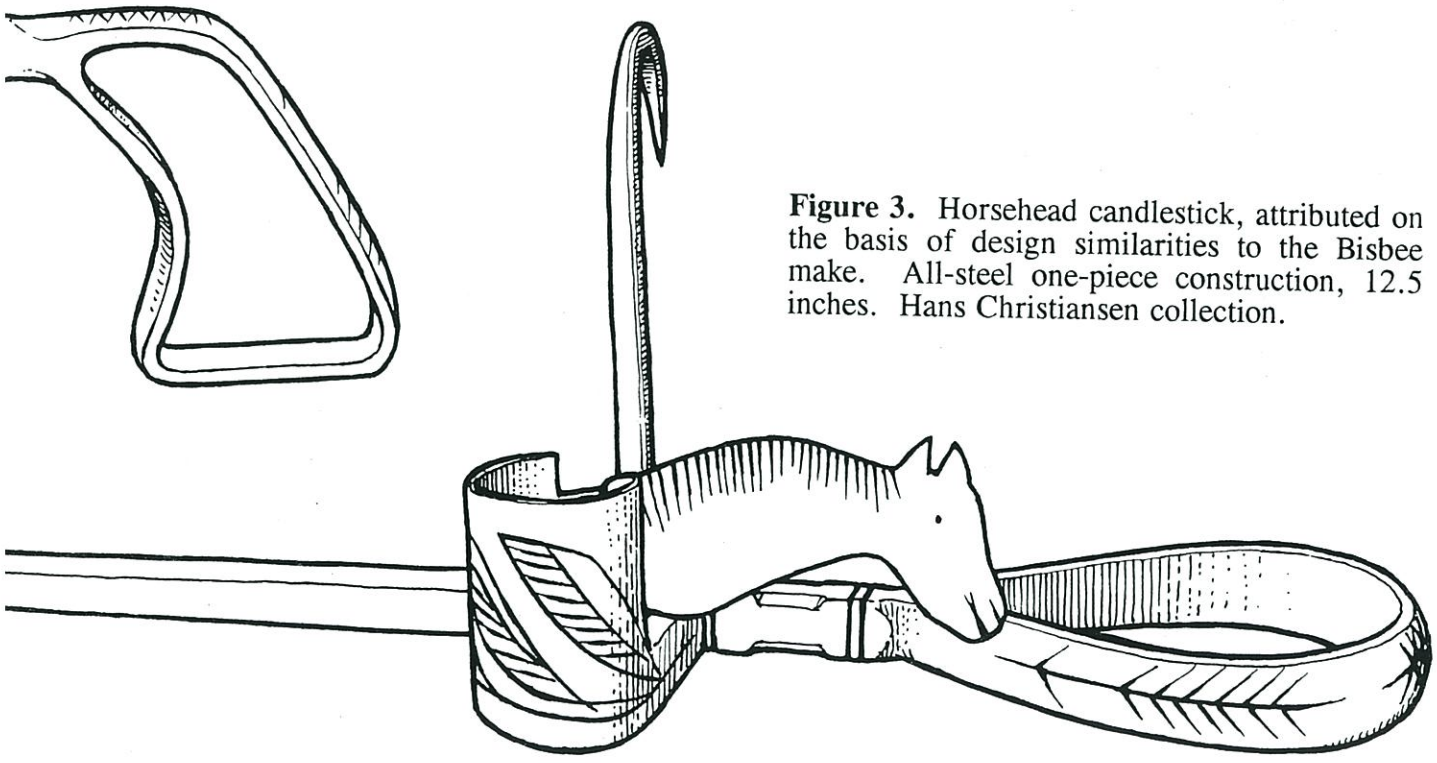


Figure 3. Horsehead candlestick, attributed on the basis of design similarities to the Bisbee make. All-steel one-piece construction, 12.5 inches. Hans Christiansen collection.

This candlestick is clearly by the same hand as two other known examples. Figure 2 shows a candlestick with identical hook embellishments, cross-hatching design on the handle, and wave design with dots on the spike. It is actually marked "Bisbee, Ariz.," is dated in the same year, and carries the name "L. M. Barbaros." Perhaps it is not a coincidence that the initials "L. B." on the O'Brien candlestick match those of L. M. Barbaros. Barbaros may have been the maker of both, or more likely the recipient of the one bearing his full name and the presenter of the one bearing only his initials.

The possibility remains that "T. M." are the initials of a mine instead of a person. Although none of the major Bisbee mines had names beginning with "T," F. L. Ransome's 1904 U.S.G.S. Professional Paper on Bisbee lists several minor claims (the Tunnel, Triangle, Top Gallant, Truro, Twilight, Tip Top, Tack, Tamarack, Tuscarora, Trotter, Transatlantic, Tombstone, Thurdell and Thordenshall mines). Still, that seems like a long shot.

In any case there is known to have been a Peter Barbarus living in Bisbee and working as a miner in 1914 (according to an old city directory). So at least the presence of the family is confirmed.

The candlestick shown in Figure 3, an unusual horse-head model, carries wing-like designs on the thimble, arrow designs on the handle, and cross-hatching which perfectly match corresponding features on the pistol-grip example. And the combination of double grooves separated by edge bevels on the neck matches the design of both the Figure 1 and 2 candlesticks. It is not dated or inscribed, and was not previously known to be a Bisbee stick, but the similarities with the other two make it virtually a certainty.

The design features of the three candlesticks shown here, (especially the bar-bar-bevel-bar-bar filing on the handle neck and the wing pattern on the thimble) should allow other similar candlesticks to be attributed to the Bisbee maker. If any reader notices these features on a candlestick in their own collection, please send us a photo or make arrangements to loan it to us and we'll illustrate it in the MAC.

A group of miners at the Spray shaft, Bisbee, Arizona. Could one of them possibly be either N. O'Brien or L.M. Barbaros? (Arizona Historical Society)

THE LEADER CARBIDE POCKET CAN

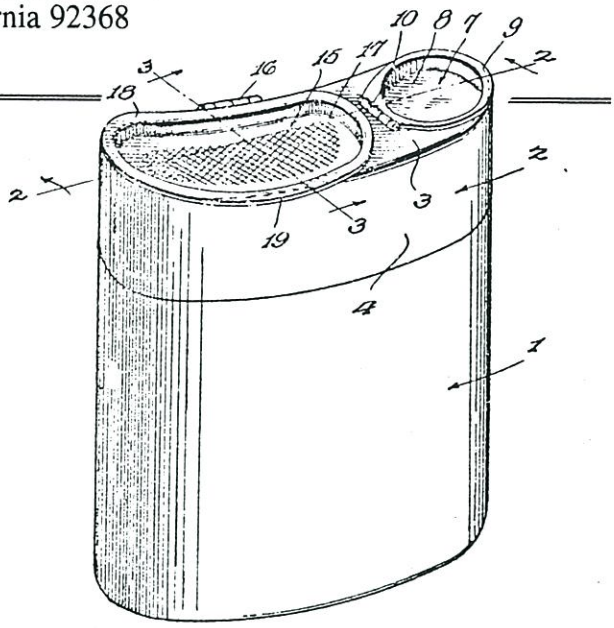
by **Mark Bohannan**
Star Route Box 107E
Oro Grande, California 92368

One of the most sought after carbide pocket can is the Leader. It is 4.25 inches high, 4 inches wide and 1.5 inches deep. This carbide can was patented on October 23, 1923, by Eli Israel of Wilks-Barre, Pennsylvania.

There are two lids on the top of the can, the larger lid covers a compartment that could hold matches, extra burner tips, or other small articles. The other round lid is the pouring opening for the carbide in the container. A unique feature of this carbide can--one which many owners of these cans may not know--is that the entire top of the carbide can can be removed so that the carbide could be quickly and conveniently poured into the container. The front of the can is embossed in raised letters:

PAT OCT 23 1923
LEADER
TRADE MARK

There are two styles of Leader carbide cans known. The earliest style looks like the patent drawing with indented lids, while the later style has flush lids. The Leader carbide cans were electroplated with cadmium (giving a blue-white color) or cadmium sulfide (giving a yellowish orange color).



UNITED STATES
PATENT OFFICE.

ELI ISRAEL, OF WILKES-BARRE, PENNSYLVANIA.

CARBIDE CONTAINER.

Application filed February 16, 1923. Serial No. 619,453.

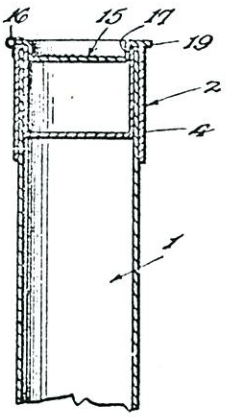


Figure 2. Patent drawing.

Figure 1. The two styles of Leader carbide pocket can with the earliest style on the left and the later style on the right. Mark Bohannan collection

THE BIRTH OF THE WESTERN FEDERATION OF MINERS

by **Jim Steinberg**
2425 Cooley Place
Pasadena, California 91106

The medallion from a WFM ribbon.

1890 was the year in which events began in the Couer d'Alene mining district of Idaho that would ultimately spur the creation of the Western Federation of Miners. For a number of years, western hardrock miners had been forming localized independent unions specific to a particular mining district or town. The most notable among these were the Gold Hill and the Virginia City Miners Unions on the Comstock Lode of Nevada.

The first problem was the extreme volatility of the price of silver, which overall, was falling drastically. In August of 1890, the Sherman Silver Purchase Act of July boosted the price of silver from a depressed value of ninety-two cents per ounce all the way up to $1.21 per ounce for a short while. Many previously closed mines reopened and soon a glut of sliver forced the price again down to eighty-four cents per ounce. In 1893, the repeal of the Act dropped the price of silver down to sixty cents per ounce. The prices for copper and lead also fell.

The mine operators responded to the reduced value of silver by cutting the wages of the miners or by closing their mines. Even before this, miner's wages had fallen from the previous standard of $4.00 per day to from $3.00 to $3.50 per day, depending on the work.

Late in 1890, the thousands of miners in the Couer d'Alene area began forming unions in the towns of Wardner, Gem, Burke and Mullan. They also formed an association called the Couer d'Alene Miner's Union. The new union decided to seek the unified pay of $3.50 for all miners.

Gradually, the mine owners acceded to the union's demands. However, many did so only because they were left with no choice. The Operators of the Bunker Hill & Sullivan and the Helena & Frisco were particularly unhappy about this. They, together with other mine operators, formed the Mine Owners Association of the Couer d'Alene.

Both the Pinkerton and Thiel detective agencies were retained to work in the Couer d'Alene area with the ultimate aim of destroying the miner's union in its entirety through spying and provocation.

In January 1892, with the excuse of a hike in rail shipping prices, the mines closed during the winter, laying off thousands of miners in the hardest part of the year. The railways rescinded the hike, but the Mine Owners Association announced a return to the split wage schedule for the miners. For many of the miners this was a loss in pay and they didn't buy it, no deal.

The Mine Owners Association began to recruit scab miners from the midwest to displace the miners who wouldn't agree to the new wage schedule. When the scab miners arrived, the local miners escorted them out of town. The Mine Owners Association responded by getting court injunctions against anyone in or out of the union whom they thought might interfere with the importation of the scab miners. Even with the help of lawyer James H. Hawley, the union unsuccessfully fought the injunctions. Many of the scab miners left when they found out what they were being brought in for, but the mine owners were bringing in so many that the work force grew quickly. Still, the Couer d'Alene Miner's Union remained unbroken.

Now the Mine Owners Association attempted to have martial law declared. With state troops brought in, the mine operators would have some relief from the expense of maintaining guards at the mines. Even the fabricated and exaggerated stories did not convince Idaho's governor, Norman Willey, that martial law was needed.

On July 7, 1892, the miners in Gem discovered that the union's secretary, Charles A. Stringo--using the alias of C. Leon Allison--was actually a pinkerton spy. Angered, some of the miners dynamited the mill of the Frisco mine. One man inside was killed and the scab miners and guards inside the Frisco mine, and later at the Gem mine, were taken prisoner. All of the prisoners were then sent out of the area. In all, six men were left dead, three of them union men.

Later, the miners approached other mine operators demanding the discharge of the scab miners or else. The mine operators acceded and the miners celebrated an apparent victory.

Once again, the Mine Owners Association called for martial law, this time receiving it. With the governor declaring martial law, and President Harrison agreeing to help, about 1,500 troops came to the Couer d'Alene Mining District.

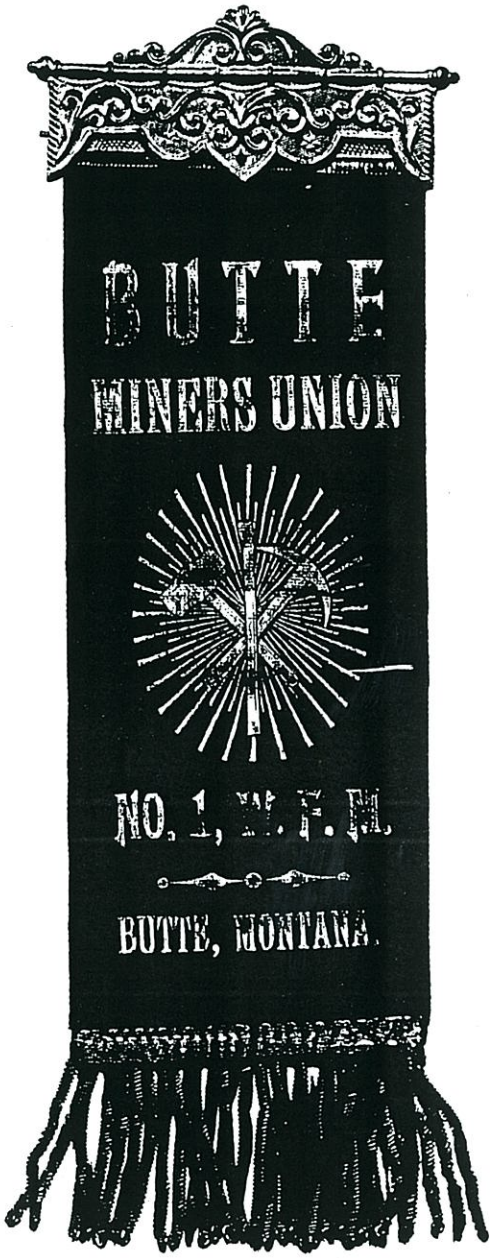
Idaho National Guard Adjutant James F. Curtis discharged all the justices of the peace and the county sheriff. Courts were suspended and saloons closed.

Back came the scab miners. Wholesale arrests of local miners and any of their sympathizers were made throughout the Couer d'Alene district. The arrestees were accumulated in stockades that became known as the "bullpens." Up to almost two months elapsed while detainees waited to be charged or released. Sanitation in the bullpens was an abomination.

Unions leaders, including Tom O'Brien and Joe Poynton were taken to Boise for trial where they were defended by, among others, James H. Hawley. They were sentenced to eight months in the Ada County Jail in Boise. Later, along with other union leaders, George Pettibone was sentenced to two years in the Detroit House of Correction. In March of 1893, the U.S. Supreme Court overturned the convictions of Pettibone and several other union leaders. Soon thereafter, Tom O'Brien and Joe Poynton were also released.

It was while incarcerated in the Ada County jail--at the suggestion of their lawyer, James Hawley--that thirteen miners decided to form a union for all of the miners in the West.

On May 15, 1893, a convention was held in Butte, Montana, by representatives of the miners union from Utah, South Dakota, Idaho, Montana and Colorado. They created the Western Federation of Miners that same day and based a large part of their objectives and bylaws on those of the miners unions on the Comstock Lode. Resolutions were passed and officers were elected. In five days, the hardrock miners of the West had created a union big enough to better resist the power of the Mine Owners Associations.



The Butte No. 1 WFM ribbon, ca. 1893. John Neilsen collection

References:

Lingenfelter, Richard E., *The Hardrock Miners,* University of California Press; Berkeley, Los Angeles, London, 1974.

Grover, David H., *Debaters and Dynamiters,* Oregon State University Press; Corvalis, Oregon, 1964.

THE SUN-RAY AND ITP CAP LAMPS

by **Mark Bohannan**
Star Route Box 107E
Oro Grande, California 92368

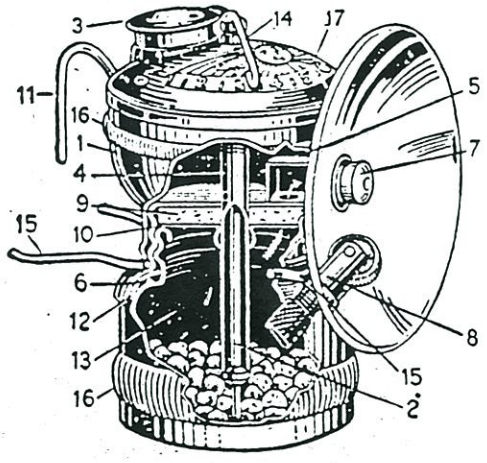
In 1914, Wilbur Cochrane, Francis Coffin and John Brock formed the Dewar Manufacturing Company and began producing the ITP 8-hour hand lamps. Coffin had been associated with the Scranton Acetylene Lamp Company and both Cochrane and Brock were lamp inventors/designers and were associated closely with the John Simmons Company. Around 1918 the Dewar Manufacturing Company began to manufacture the Sun-Ray cap lamp.[1] This, incidently, would have been about the same time that the John Simmons Company had begun the process of shutting down their carbide operations.

It appears that many of the patents granted to John Brock were incorporated into both the Simmons lamps and the Dewar lamps. This would explain why so many features--such as the lamp bases--are almost identical in appearance in the Simmons Pioneer and Sun-Ray and ITP lamps. Other cross-over similarities which indicates a co-operative relationship between the John Simmons Company and the Dewar Manufacturing Company is the reflector illustrated in an early Sun-Ray lamp instruction sheet. The reflector shown on the lamp looks identical to the screw-on reflector common to the Pioneer lamps.

HOW TO USE THE BOTTOM VALVE

SUN-RAY

CARBIDE LAMP



To Fill the Carbide Container.

Half fill the container No. 13 with Miners Lamp Union Carbide, about 1½ oz. is the proper amount. Never put in more as carbide expands at it slacks, if too much is put in it will pack too hard, cutting off the gas supply and making it difficult to empty the container.

Miners Lamp Union Carbide is made specially for miners' use and gives best service in this lamp.

See that the "Rubber Gasket" No. 12 is in place otherwise gas will escape at the screw threads. If gas escapes, with gasket in place, tighten up on the screw. Keep the screw threads and gasket free from dirt. When emptying the container be careful not to dent the screw threads.

To Fill the Water Tank.

Move the "Valve Handle" No. 14 to the left as far as it will go. Then fill tank No. 1 with water, use care when doing this, for if water drops on the burner it may stop up the small "gas way." Should this happen, either remove the burner and blow out the water or dry out the burner with a lighted match, keep the flame on the burner until the gas lights.

Before Screwing "Container" to "Water Tank."

Open the valve by moving the lever No. 14 several notches to the right, this opens the valve and permits the water to flow. Allow a few drops to enter the container. The gas this will make displaces the air in the container and will relieve the pressure when the "Container" is screwed to the "Tank" preventing blowing at the burner.

Figure 1. Early Sun-Ray lamp instruction sheet.

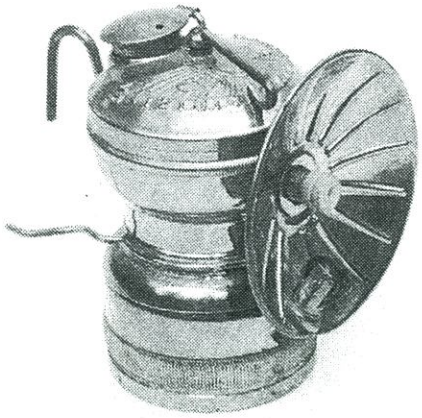


Figure 2. The Sun-Ray lamp with the radial-ribbed or "sunburst" reflector (3.5 inches tall).

Figure 3. Patent drawing for the Ha-Mer-It cast aluminum reflector.

It is possible--given the close relationship between Cochrane and Brock to the John Simmons Company--that they were able to use many of the dies used to produce the Pioneer lamps to produce the Sun-Ray, and later, ITP cap lamps. This would have been of great value because very little re-tooling would have been necessary, especially in the dies that produced the Simmons intermediate Pioneer lamps, because of the close similarity in appearance (see Issue No. 14, p. 24, Fig. 4).

The first style of Sun-Ray cap lamp manufactured was probably that shown in Fig. 1. Later the reflector was re-designed into the more desired screw-on radial-ribbed or "sunburst" style reflector (Figure 2).

March 25, 1924. 1,488,193

W. A. COCHRANE

ACETYLENE LAMP

Filed Oct. 16, 1920

FIG. 1.

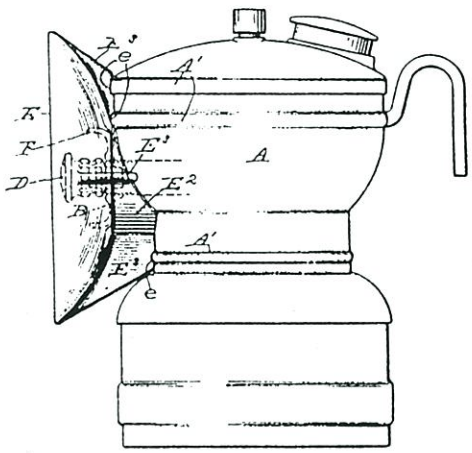


FIG. 2.

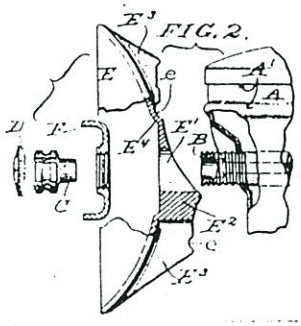


FIG. 3.

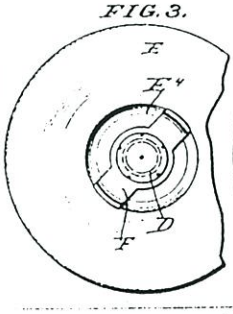
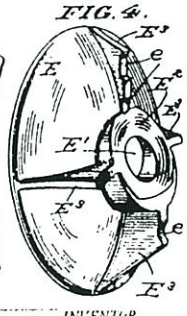


FIG. 4.



INVENTOR.

Wilbur A. Cochrane

BY

Rogers, Kennedy & Campbell ATTORNEYS

Figure 4. Late style Sun-Ray lamp with box. The box is white with red lettering.

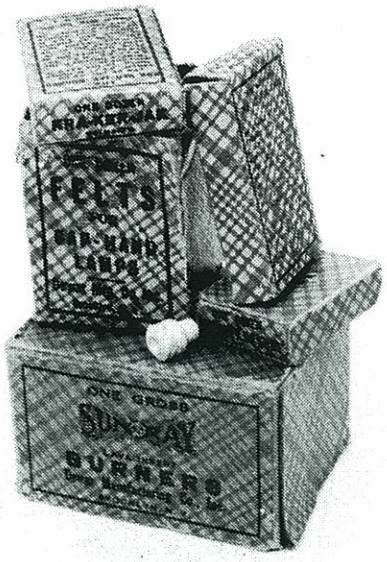


Figure 5. Sun-Ray parts boxes and Kra-Ker-Jak tip.

Figure 6. Ad for the Ha-Mer-It reflector.

No. 12 HA-MER-IT REFLECTOR

ot Break—Bend or Dent

The HA-MER-IT is well named—you can hammer it—jam it up against the roof or wall—drop it—jump on it and it won't even show a scar.

Use that would crush other reflectors, abuse that would send other reflectors to the "scrap heap" cannot break, bend or even dent the HA-MER-IT.

The HA-MER-IT "stands the gaff". It takes those pile driving bumps a reflector so frequently gets and is none the worse for it. The HA-MER-IT stays right on the job no matter how rough the going.

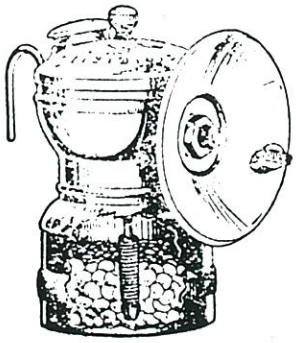
Cast in one piece of special white alloy. No soldered parts, no plating to wear off. Polishes easily—a rub or two and it's bright as new silver.

Size, 2¼ inches, just large enough to take the roof bumps and save the top of the lamp.

Weight no more than brass—but—stronger than steel. The HA-MER-IT will out wear a dozen lamps.

DEWAR MFG. COMPANY

34 THIRTY-FIFTH ST. BROOKLYN, N. Y.



The Operation of The

SUN-RAY

Is As Follows

The container is half filled with carbide; when this is screwed to the water tank, the button at the bottom pushes aside the carbide, allowing the (wire coil) Float Feed to go to the bottom, as illustrated.

When water comes into contact with carbide, the carbide slakes, and forms a sludge or cement; if this is not broken up, it will seal the water outlet, but as carbide slakes, it, at the same time, expands and as it does, it causes the Float Feed to move up gradually, and each time it is lifted, the sludge is cracked or broken up, so that the water can flow and reach the unslaked carbide.

The Float Feed automatically produces the same results as when other lamps are raked or regulated by hand—with this advantage, however—by this unvarying method, the raking is done at just the right moment. It is done more often, but never vigorously. Consequently, there is never any excess agitation, over-generation is impossible and never any waste of gas.

In other lamps, the water delivery point is fixed, it is always at the bottom, in the slaked mass, through which all of the water must pass. It is entirely different in this lamp—the water is always delivered above the slaked mass. Thick, pasty sludge is not formed. Instead, the slaked carbide is in loose powdered form, making it easier to clean the *SUN*RAY*. The Float Feed automatically regulates the water supply and rakes the carbide. Unvarying pressure is maintained. The flame produced is of good size and remains constant throughout the charge—as steady as a ray of sunshine.

Severe agitation—even a fall—will not affect the uniform burning of the *SUN*RAY*.

Miners Lamp Union Carbide is made especially for miners' use and gives best service with these lamps.

DEWAR MANUFACTURING CO.

28-34 Thirty-Fifth Street

BROOKLYN, N. Y.

Board of Trade Bldg.
SCRANTON, PA.

357 College Street
TORONTO, ONT.
CANADA

Figure 7. Instruction sheet that came in the box shown in Figure 4.

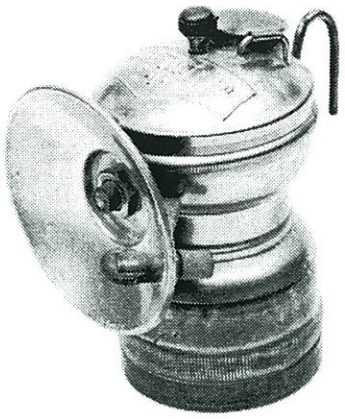


Figure 8. The ITP Float Feed cap lamp.

On October 16, 1920, Cochrane filed for a patent for a cast aluminum reflector (Figure 3) which was called the "HA-MER-IT" in advertisements. This reflector was held onto the lamp by a flat wing-nut (indicated on the patent drawing as "F"). This is the second style of Sun-Ray lamp. On the back of the reflector is cast "PAT. PEND." in raised letters. Both this style and the style with the radial-ribbed reflector were produced with a wire hat brace that went all the way around the lamp.

The last--and latest--style Sun-Ray lamp (Figure 4) has a slightly re-designed reflector that is held on by a hex-nut. On the back of the reflector, in raised letters, is cast:

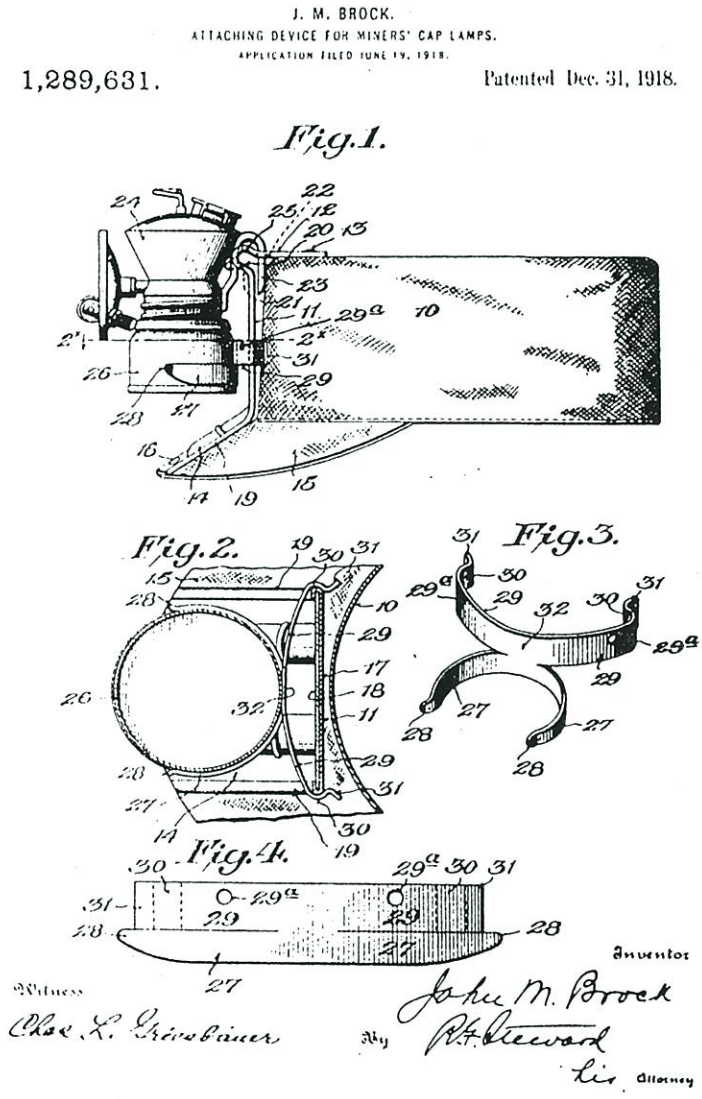
DEWAR MFG CO. N.Y.
PAT. PEND.

The wire water lever has been replaced with the new "Float Feed" knob, and the wire hat brace has been eliminated--probably to accommodate the Detachable Lamp Clip patented by Brock in 1918 (Figures 9 & 10). The Sun-Ray lamps were supplied with the "Kra-Ker-Jak" burner tip shown in Figure 5.

The "ITP Float Feed" cap lamp shown in Figure 8 was probably the last of the Dewar cap lamps produced. It also has the later style Ha-Mer-It reflector, the knobbed water valve and no hat brace.

There are only four patent dates listed on the bottom of the ITP lamp and the Sun-Ray lamps with the cast aluminum reflectors. Whereas, on the Sun-Ray lamps with the smooth and radial-ribbed or sunburst reflectors, there are five patent dates.

All Sun-Ray and ITP cap lamps are nickel-plated, although there may be a few examples of the Sun-Ray lamp in brass. For some reason these lamps seem to be difficult to obtain in very nice condition. Many have small dings in the sides of the water tank and it seems that the nickel-plating was easily rubbed off, especially on the lamp's base.


J. M. BROCK.
ATTACHING DEVICE FOR MINERS' CAP LAMPS.
APPLICATION FILED JUNE 19, 1918.

1,289,631. Patented Dec. 31, 1918.

Fig. 1.

Fig. 2.

Fig. 3.

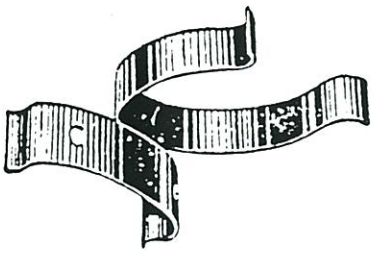
Fig. 4.

Witness
Chas. L. Grimbaier

Inventor
John M. Brock
By R. H. Steward
Its Attorney

Figure 9. Patent drawing for the Detachable Lamp Clip.

Detachable Lamp Clip



Takes the place of the spreader wires on the lamp. When used on the regulation miners cap the clip snaps onto to the tin shield of cap. If used on a hat the snaps can be cut off and clip fastened to hat by rivets or staples, and in this same manner the clip can be fastened to the lapel of a coat. The clip holds lamp securely and lamp can be snapped into place or removed with greatest ease.

Patented

List Price, Each 10c.

Figure 10. Advertisement for the Detachable Lamp Clip shown on the back of a lamp instruction sheet.

1. Gregg S. Clemmer, American Miners' Carbide Lamps, (Tucson, Arizona: Westernlore Press, 1987), p. 69.

UNDERGROUND SURVEYING: A CANDLE TRIPOD LAMP

by **Tony Moon**
2763 E. Willow Wick Drive
Sandy, Utah 84093

A previous MAC article (Issue No. 12, Summer 1991) described two types of tripod lamps which used small oil lamps as the light source. These lamps were used as target lamps and the surveying technique used was briefly described in that article.

A candle version of a tripod lamp was also manufactured and is illustrated in Figure 1. This surely must be one of the most elaborate precision candle holders ever manufactured! A candle is held in a long tube with two bubble levels mounted on the tube with the tube itself mounted on a ball and socket arrangement with levelling screws. The whole device was mounted on a tripod and was interchangeable with a transit. An example of an underground surveying kit consisting of a candle holder, two tripods, and a Lean's dial type transit was recently available on the market. The kit was made by E. T. Newton & Son of Camborne, Cornwall (England). The candle holder in Figure 1 is attributed to the same manufacturer.

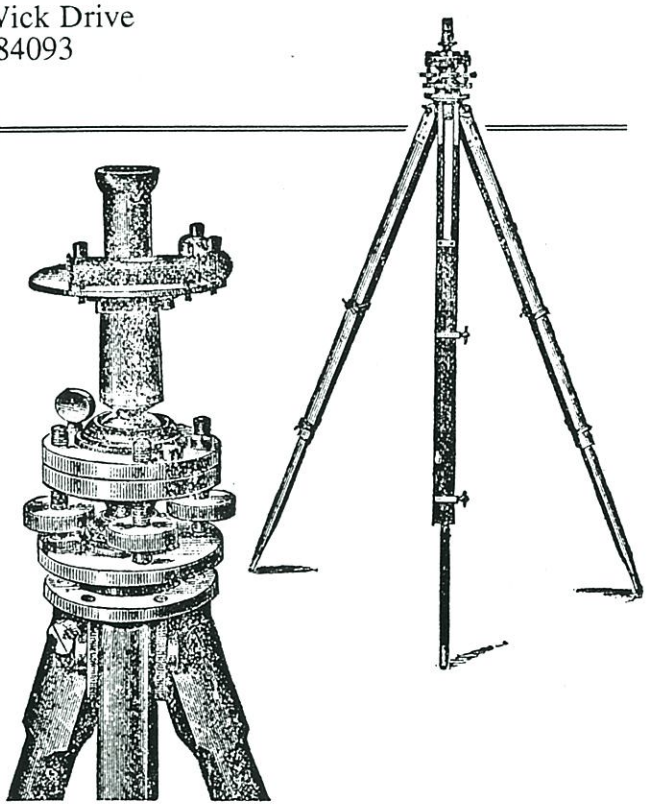
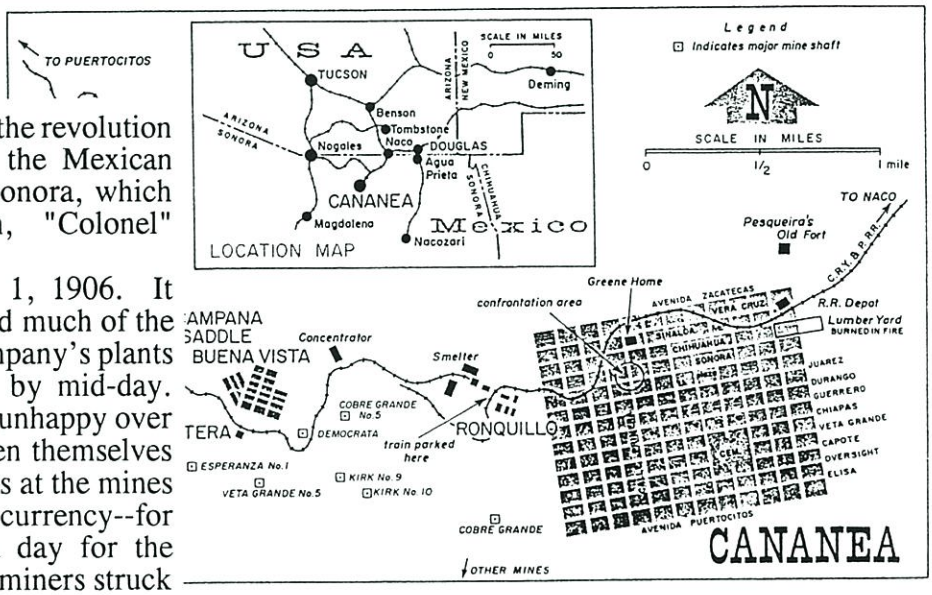


Figure 1. Candle holder and tripod (From B. H. Brough's *A Treatise on Mine Surveying,* London, 1896)

THE CANDLESTICK MURDER AT THE BEGINNING OF THE MEXICAN REVOLUTION

by **Susan Dalton**
880 E. Osage
Apache Junction, Arizona 85219

and **Jim Steinberg**
2425 Cooly Place
Pasadena, California 91106



Mexican historians say that the revolution in Mexico started as a strike by the Mexican miners at the mines in Cananea, Sonora, which were owned by the American, "Colonel" William C. Greene.

The action began on June 1, 1906. It started early in the morning and had much of the Cananea Consolidated Copper Company's plants and mining operations shut down by mid-day. The striking Mexican miners were unhappy over the extreme pay differential between themselves and the well paid American workers at the mines (three pesos a day--$1.50 in U.S. currency--for the Mexican workers to $5.00 a day for the American workers). The Mexican miners struck for better wages and the 8-hour day.

Inflammatory handbills from an unknown source were apparently being circulated in the crowds of Mexican miners as negotiations proceeded with the representatives of the mining company. The Mining company did not make any concessions to the striking miners. It was explained that the company was receiving pressure from the Mexican government to not only keep the wages down, but to reduce the wages. It was said that they were high enough compared to other enterprises (several times that of ranch or farm workers) and that the high wages would disrupt commerce.

Disgruntled, the Mexican miners began to march throughout the mining operations at 3 p.m., with the object of shutting down all of the operations of the mining company. Their ultimate objective was to arrive at the lumberyard operated by the unpopular Metcalf brothers, George and Will.

Having received warning by phone that the strikers were on their way, George Metcalf had gotten his rifle from home. He then unwound a four-inch fire hose, brought it out to the front of the yard, closed the gates and waited for the on-coming strikers. The strikers wanted to talk to George's Mexican workers, but George warned the Striking miners that he would hose them down with water if they tried to enter. When the miners advanced, George soaked the men, who were wearing their best clothes. Enraged, the striking miners attacked George and his brother Will, who was providing support. Within minutes, three of the striking miners were dead, apparently shot. Also dead were George and Will Metcalf, having been stabbed to death with the candlesticks of the striking Mexican miners. The lumberyard was then set on fire. Two other charred bodies (probably American) were later found in the ruins of the lumberyard.

These then were the first to die in the Mexican revolution, which grew and evolved well beyond this catalyzing event.

Reference: C.L. Sonnichsen, "Colonel William C. Greene and the Strike at Cananea, Sonora, 1906," Arizona and the West, Winter 1971.

THE SEVENTH ANNUAL MINING ARTIFACT COLLECTORS' REUNION

The Seventh Annual Mining Artifact Collectors' Reunion, which was held on Saturday, June 27 in Ontario, California, at the Holiday Inn. It was a great event and drew the largest turn-out ever (see the group photo inside the front cover).

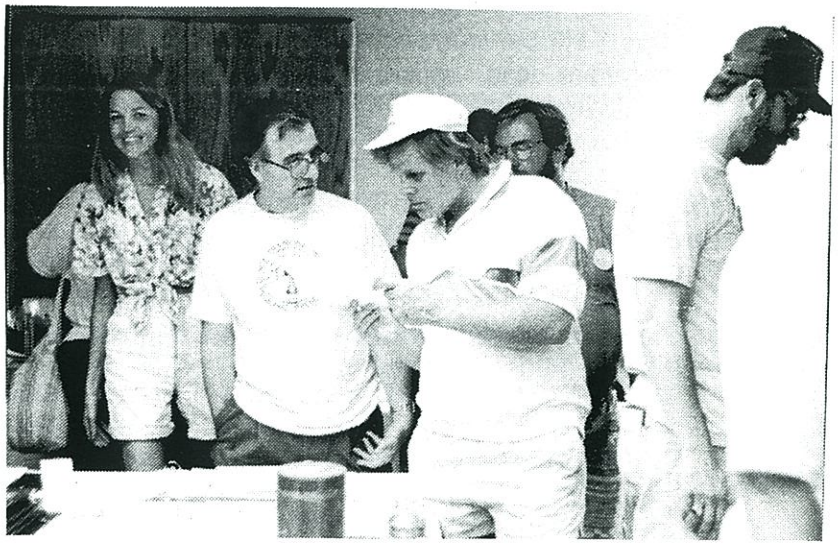
Collectors started showing up early on Friday night to get in some early trading and conversation. By 8 p.m. over twenty collectors were on hand to enjoy a great slide show by Andy Martin about his underground collecting adventures in abandoned mines throughout the western states.

Bob "Cap Tin" Schroth, and his wife Debbi, came in Friday evening with a fantastic welcome poster (see back cover of this issue) that she had painted for the MAC reunion. As you can see, Debbi is a very talented artist and we appreciate her thoughtfulness.

One of the high points of the event was the great collection of blasting cap tins and related artifacts that John Kynor of Albuquerque, New Mexico, brought for sale and trade. John had just acquired a very large blasting cap tin collection and had many duplicates to offer. There are only about six or so key cap tins that John needs to complete his collection, so I guess we can now call him, John "The Cap King" Kynor.

Trades and sales were brisk, with blasting cap tins being the most popular items--as both Bob Schroth and Ted Bobrink had their share of rare cap tins to offer, along with those of John Kynor. Dave DesMarais had a table full of nice carbide lamps for sale, as did Loretta Miller and Tony Moon. Russell and Alix Filer had two full

Shown from left to right are John Kynor in front of his table with John Johnson, Herb Dick and Randy Marcotte.



Shown from left to right are Loretta Miller, Tony Moon and Bob Schroth standing in front of Cliff Krueger's table. Standing behind Bob is John Neilsen with Bill Collins to the far right.

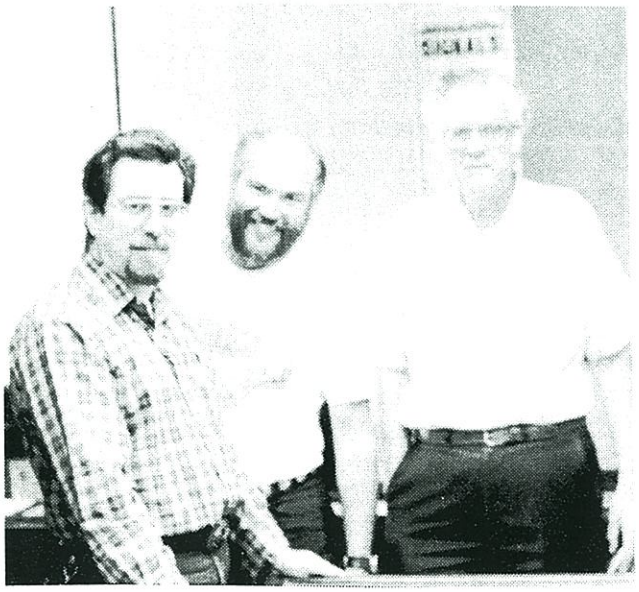
tables of super paper items, along with a fantastic collection of photographs for sale from Cripple Creak, Colorado.

Ted Bobrink set up a display case of fabulous candlesticks for everyone to enjoy and Jim Steinberg had a case full of memorabilia from the Western Federation of Miners. The busiest table of all was that of Bill Collins. He had for sale everything from silver spoons to jack hammers and went home with his pockets full. Jim Lorenzo, of Covina, California, acquired a fabulous, rare DuPont Powder Company display board that is usually a once in a lifetime deal.

Because of the fact that good mining artifacts are so hard to find today, it was no surprise to see so many collectors show up for this annual event. Where else could you go to find such an abundant array of fabulous mining artifacts for sale or trade?

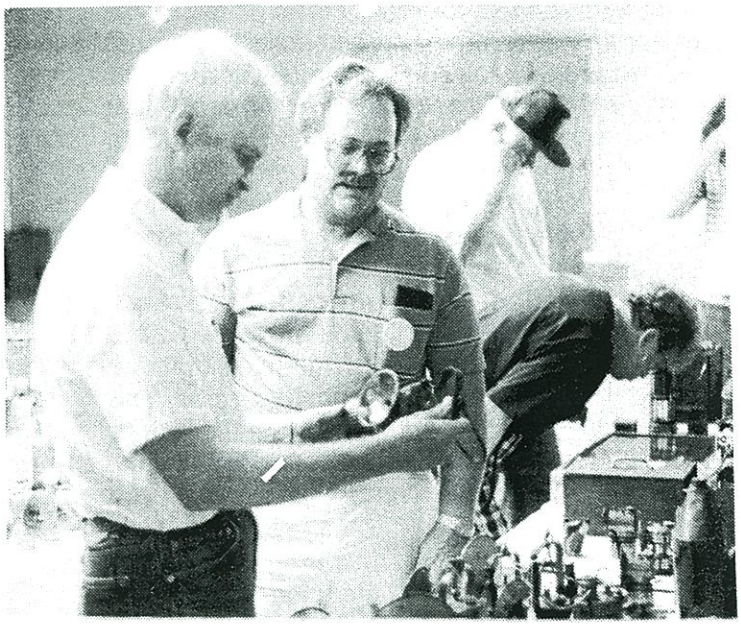
Our congratulations go out to Bob Claybrook, who won the drawing for the Nevada mine bell sign, and John Neilsen, who won a poster of the MAC's first centerfold (Issue #5 Fall 1989). V.L. (Pappy) Yeats won a free 1993 subscription to the MAC for being the person who traveled the furthest distance to the reunion.

The MAC staff would like to thank everyone who attended, and we hope to see all of you next year for an even bigger and better Eighth Annual Mining Artifact Collectors' Reunion.



Shown from left to right are Jim Steinberg, Ted Bobrink and Cliff Krueger.

Shown from left to right are Andy Martin, John Johnson and Herb Dick in front of Andy's table.



Shown from left to right are Dave DesMarais and Randy Marcotte examining an 8-hour hand lamp. Henry and Adrienne Vogt are examining the artifacts on Bob Schroth's table.

THE BLENDE LAMP

by **Siegbert Zecha**
Windecker Pfad 1
D-6369 Schoneck 2, Germany

The Blende type of miner's lamp has been known in Germany since the mid-1700's, and is considered a prime collectible by European mining artifact collectors. It was commonly used in the Saxon Erzgebirge, a great silver mining region, up until the advent of carbide lighting.

The German word *Blende* can mean a false window or door, but in this context refers more precisely to a blind niche in a wall, rather like the recessed, arch-topped niches used for statuary in Catholic churches. The shape of the lamp closely resembles these niches, thus the name "Blende." Germans capitalize all their nouns, so *Blende* is correctly capitalized in all cases even though it is not a proper noun in English usage. The plural of *Blende* is *Blenden.*

The term "Blende" refers only to the box, and not to the actual lighting device inside. Some contained candles, but most used a spherical-bodied oil-wick lamp called a *Kuckuck* ("Coo-coo") lamp. The inside surfaces of the Blende were generally lined with sheet brass or tin, which served primarily as a reflector, and perhaps also to protect the wood from the heat of the flame. The body of most Blenden is lime wood, although other woods have also been used.

The lamp was described in Johann Caspar Zeisig's *Mineralund Bergwerks-Lexicon* ("Mineral and Mining Dictionary") of 1743. He states that it is a wooden lantern box closed on all sides so as to prevent wind or dripping water from extinguishing the flame. The front face is a sliding door with a glass window, allowing light to be cast in only one direction. The sliding door can be removed (where underground winds are not a problem) and stowed in a slot on the back.

Attached to the back is a large hook, usually very well made by a blacksmith and comparable in quality to good American miners' candlesticks. This hook is typically made of

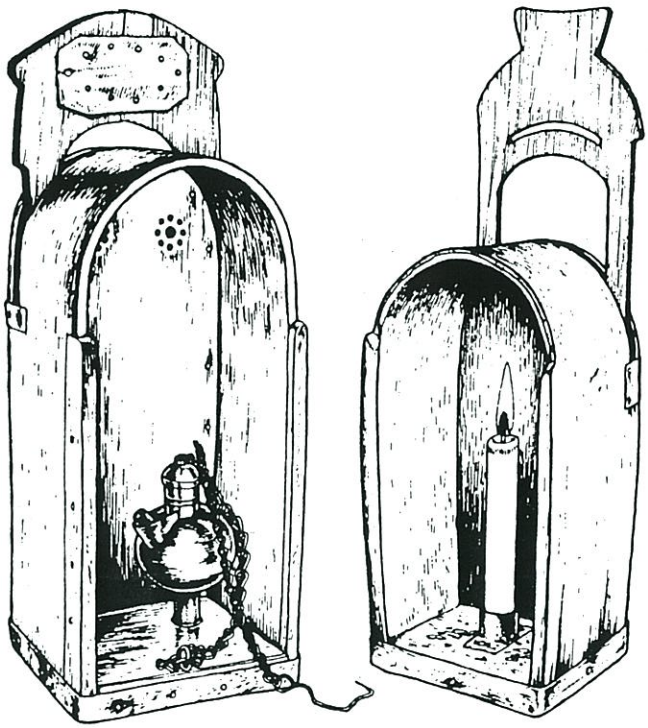


Figure 1. The example at left, with its brass "coo-coo" lamp and full sheet-brass lining, is from Schneeberg, Saxony, and the example at right is from Hallein; hence they are called a *Schneeberger Blende* and a *Halleiner Blende* in Germany. The wooden-framed glass window, shown here stowed in the back slot, can be inserted over the front to protect the flame from drafts.

iron, but copper and brass hooks are also known. Using this hook, the Blende could be hung on an ore car like a headlamp, held in the hand like a carbide superintendent's lamp, or hung from a chain around the miner's neck. Suspended over the miner's chest in this way it provided good light while leaving his hands free. All underground workers in the Saxon mines, from the miners and muckers to the mine superintendents and mine officers, used Blenden, except for those who used Frog lamps.

Carl Robert Hoffmann, in his book *Der belehrende Bergmann* ("The Well-informed Miner")(1830) states that the sheet-metal linings for the Blenden of supervisory personnel were always brass as a sign of high rank, and that the common miners' lamps were to be lined only with tin-plated steel. This may have been true in the earlier years of the lamps use, but in later years virtually all the miners carried brass-lined lamps. This brass lining, incidentally, had to be carefully cleaned each day.

Figure 2. A trammer with his Blende hung on the front of the ore car (illustration from Eduard Heuchler's *Des Bergmanns Lebenslauf,* 1867).

Vent holes, usually punched or drilled in a decorative pattern, are often found in Blenden. A tight-fitting sliding door could cut off all air and extinguish the flame through lack of oxygen; in such cases the vent holes were a necessity.

The typical brass coo-coo lamp mounted inside the Blende consists of a spherical chamber for oil or lard (*Unschlitt*), with a cylindrical female connector on the base for attaching to a plug or post on the bottom of the Blende. A wick spout projects forward near the top, and there is also a filler opening stoppered with a cork or chain-mounted metal cap, and sometimes a chain-mounted wick pick. Miners would sometimes remove the coo-coo lamp from the Blende and affix it to a lump of clay on a rock near the working area.

The Blende is best known from the Saxon Erzgebirge ("Ore Mountains") region, especially the Freiberg district, and is often generically referred to as a "Freiberger Blende." It was also used in Saxon coal mines near Lugar, Zwickau and Plauen. In the salt mines of the Hallein district, and also in the salt mines of Berchtegaden in Austria, Blenden were used as well, but only with candles and not with oil lamps.

The Blende was a rather fragile device and many were broken or destroyed through heavy use. Consequently relatively few have survived, and nice examples in good condition are rare. However, Blenden are highly sought-after German mining collectibles, and a good one can be the highlight of a collection.

They are, however, quite expensive on today's collectibles market. An average lamp with an iron hook and no decorative pattern on the inside will sell for about $1,700. Prices can easily go up to $3,000 for a small officer's lamp with a copper hook and a nice pattern, especially if the owner's name and date of manufacture are marked, and the lamp is in excellent condition.

Open Blenden, made without provision for a sliding door, are older and therefore may fetch a slight premium. Small officers' lamps are naturally rare, having been produced in smaller numbers than lamps for the common miners. The most important factor determining value is condition. But mint-condition Blenden are extremely difficult to find; I've never had one myself.

Because Blenden are so rare and expensive, it is not surprising that some fakes have appeared on the market. Most which I have seen so far are poorly made and easily recognized once you've seen a few authentic examples for comparison. Clues to look for in spotting fake Blenden include wood that appears fresh and unaged, lack of wear on the high spots, and a hook held onto the back with screws. Check the vertical slots for the sliding door; after so many years they should have accumulated a significant amount of dust and dirt. Old sheet brass commonly develops cracks which, if present, are a good sign of authenticity.

Surely there are other points that one might look for as well. And surely there are fakes around. Any collector without a great deal of experience evaluating Blenden should buy only from a trusted friend or a dealer with a good reputation. "Bargains" usually turn out to be fakes.

Figure 3. Miners driving a tunnel with only *Schlagel* and *Eisen* (hammer and pick). Three are wearing their Blenden on their chest, while a fourth has removed his coo-coo lamp and mounted it on the working face (illustration from Eduard Heuchler's *Die Bergknappen in Ihren Berufs- und Familienleben,* 1857).

Figure 4. Miners at the Marcus Semmler tunnel, Schneeberg, ca. 1880.

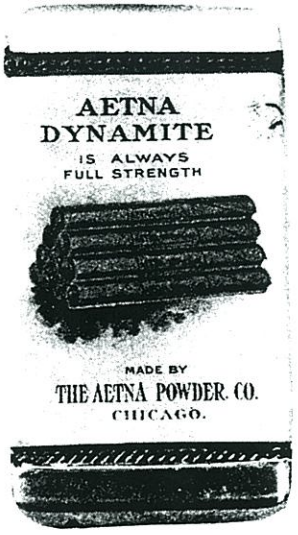
Collector's Talk

Tin Sign

I came across this tin sign in a local antique shop. The sign is painted tin measuring 12" x 23" with black letters on a yellow background with a red border and a red star. The "STAR BRAND" SOLID LEATHER SHOES WEAR LONGER - COST LESS is embossed whereas THE MINERS STORE, BISBEE is slightly debossed. The manufacturer of the shoes had these signs stamped out and then each sign was printed with the names of the different dealers that sold their shoes. The signs were then sent to the shoe dealers for their use, hoping that the individual stores would post the signs on the outside of their stores and elsewhere to help sell their product. In the lower right corner it says: "Stout Sign Co., St. Louis," the maker of the sign. I really don't know the age of the sign, but would expect it to have been made somewhere between 1920 and 1950.

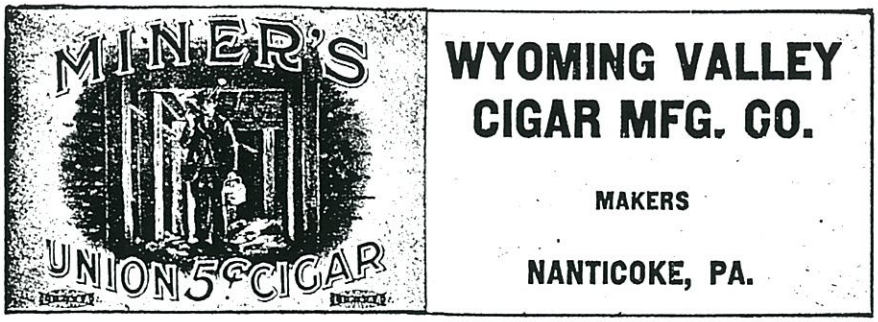
I collect both tin and porcelain advertising signs and this is the first advertising sign that I have owned that had the name of a mining town on it. I would be interested to find out if anyone knows during what period of time the Miners Store was in business in Bisbee.

Michael Ebers
Clinton, Tennessee



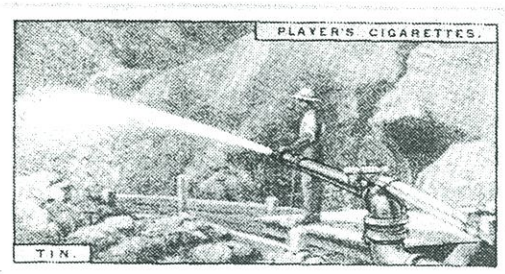
Another Match Safe

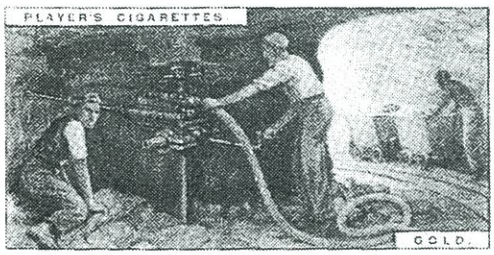
Richard Hauck of Bloomfield, Colorado, has this different mining related match safe. It is made of celluloid plastic and has a flip top lid with a metal strike plate on the bottom. The advertisement is in black on a off-white background.



A Miner's Cigar Box

Dean Stone of Macomb, Illinois sent in this advertisement from an issue of the *United Mine Workers' Journal*. Does anyone know of an example of this box?





Mining Cigarette Cards

Another different style of cigarette cards related to mining has been found. These cards--also issued in a series of 50--appear to be of later origin. These cards were issued by John Player & Sons, a branch of the Imperial Tobacco Company. These cards are lithographed, whereas the other set (Issue 14, p. 17) seemed to be hand painted.

Mark Bohannan

An Update on the Union Carbide Can

A few informational additions to the article about the Union Carbide Pocket Can (Issue 14, p. 32). From Tony Moon, he pointed out that marked--in very small letters--on the lower right front side of the can is:
T. BROS, PARSONS, PA. "CAN MAKERS"
The T. Bros. stands for Trethaway Brothers. Also Tony points out that the lid of the can is the same as many of the lids on oil wick lamps.

There is also a different style of Union Carbide can. This other style looks just like the common Justrite-style hip can with a sliding top. The can is lithographed in the same colors--gray, blue and white--and is in the collection of Errol Christman.

A New Blasting Cap Tin

Keith Williams of Colorado Springs, Colorado, has recently found this previously unknown style of Nobel cap tin. The tin is for No. 8 strength blasting caps and has a white lid with black lettering--the star and 8 in the upper corners, the word "STAR" in the lower corners and the thick and thin border lines are in orange. The sides are yellow with black lettering. The wording on the sides has not be translated yet, but appear to be Scandinavian. If anyone can translate the writing, we would to hear from you.

Trades & Sales

Advertising Rates
Rates (per ad per issue) are: Full page, $100; half-page, $50; quarter-page, $35. Ads must be submitted camera-ready; we are not responsible for errors. Any ad may be rejected at the editor's discretion. Classified-style ads for trades or exchanges only (no sales) are free, subject to the availability of space.

Advertising Deadlines
Winter Issue—Dec. 15
Spring Issue—Mar. 15
Summer Issue—June 15
Fall Issue—Sept. 15

WANTED TO BUY: COLLECTIONS, ALL OR PART, LAMPS IN VERY GOOD OR BETTER CONDITION. ESPECIALLY LOOKING FOR: GEM, ELKHORN, MAPLE CITY, HANSON, BRITE-LITE, GRIER BROS. WITH J&T TIP CLEANER, EARLY GRIER BROS., SURVEYOR'S LAMP, AND ANY OF THE BETTER OIL WICK LAMPS. HAVE ITEMS FOR TRADE ALSO. CALL--KEN RUPP, (814)944-9307 BETWEEN 5 AND 8 PM. EST.

FOR SALE: A LARGE SELECTION OF UNCOMMON TO RARE BLASTING CAP TINS. WILL ALSO TRADE GOOD FOR ONES I DON'T HAVE OR NEED TO UP GRADE ON. I AM ALSO LOOKING FOR CAP CRIMPERS AND BLASTERS HANDBOOKS. WANT LIST AVAILABLE. JOHN KYNOR 224 ADAMS NE, ALBUQUERQUE, NEW MEXICO 87107. (505)344-4368.

FOR SALE: A NICE SELECTION OF RARE PHOTOGRAPHS AND MINING PAPER. FREE DESCRIPTIVE LISTS OF OLD MINING STOCK CERTIFICATES ISSUED PERIODICALLY. EACH CERTIFICATE DESCRIBED, GIVING BRIEF HISTORY OF COMPANY, LOCATION,AND VIGNETTES. RUSSELL FILER, 13057 CALIFORNIA ST., YUCAIPA, CA, 92399. (714)797-1650.

FOR SALE: I AM A DEALER IN MINING ARTIFACTS AND ALWAYS HAVE A WIDE VARIETY OF NEAT STUFF. SEND ME YOUR WANT LIST. LEO STAMBAUGH, 614 ROSE BOX 779 GEORGETOWN CO, 80444.

WILL TRADE MY MINING ITEMS THAT I HAVE COLLECTED UNDERGROUND CANDLE BOX'S, CAP TINS AND YOU NAME IT. DERIC ENGLISH, 24261 SAGE AVE BORON CA, 93596 (619)762-6208.

FOR SALE OR TRADE: A NICE GEM CAP LAMP BRASS, VERTICAL JUSTRITE SPADE MOUNT, TWO NICE BALDWINS AND 30 DIFFERENT BLASTING CAP TINS THAT ARE PRICED TO SELL. BOB SCHROTH, P.O.BOX 687, TWIN PEAKS, CA, 92391. (714)337-7102.

FOR SALE OR TRADE: A RARE GRANITE CANDLE BOX IN MINT CONDITION. SEVERAL NICE POWDER BOX ENDS AND A GOOD SELECTION OF CALIFORNIA CAP TINS IN MINT CONDITION. ANDY MARTIN, 6852EAST KINGSTON DR. TUCSON AZ, 85710.

FOR SALE: MINING PAPER, PHOTOS AND BOOKS. WILL ALSO TRADE FOR MINING PHOTOS THAT ARE IDENTIFIED. CLIFF KRUEGER, 625 MARKET ST.#802 SAN FRANCISCO CA, 94105.

FOR SALE: ABOUT 20 DIFFERENT CARBIDE CAP LAMPS, WILL TRADE OTHER MINING ITEMS FOR CAP LAMPS. DAVE DESMARAIS,1015 WOODLAND AVE MENLO PARK CA, 94025.

FOR SALE: TEN DIFFERENT BRAND NAME CANDLESTICKS, SOME RARE AND IN EXCELLENT CONDITION. TED BOBRINK 12851 KENDALL WAY, REDLANDS CA, 92373 (714)794-5518.

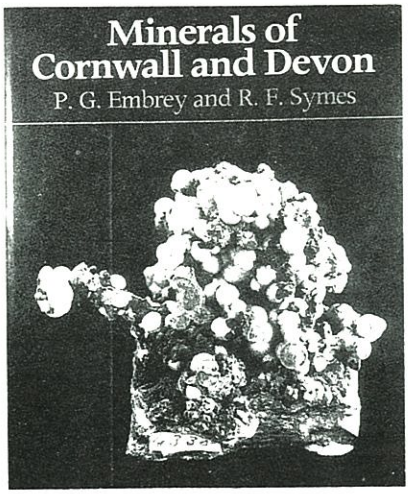
LET'S TRADE: I WANT YOUR BOX, ANYTHING RELATED TO MINING, I WILL TRADE GOOD CARBIDE CAP LAMPS. MARK BOHANNAN, STAR ROUTE BOX 107E ORO GRANDE CA, 92368 (619)246-4418

FOR SALE: I HAVE A NICE COLLECTION OF MINING ITEMS FROM SPOONS TO SPARE BOTTOMS. I ALSO COLLECT CANDLESTICKS AND LIKE TO TRADE. BILL COLLINS, 9525 MISSION GORGE RD. #33 SANTEE CA, 92071.

I'M ON MY WAY DOWN TO FIND YOU THE BEST MINING ARTIFACTS AVAILABLE. SEE MY NUMBER 4 CATALOG SENT WITH THIS ISSUE OF THE MAC.

TED BOBRINK

Books for the Collector



Minerals of Cornwall and Devon

by P. G. Embrey and R. F. Symes (1987) published jointly by the British Museum (Natural History) and Mineralogical Record Inc.; available from the Mineralogical Record. Hardcover, 154 pages, 9 x 11 inches, $32 postpaid.

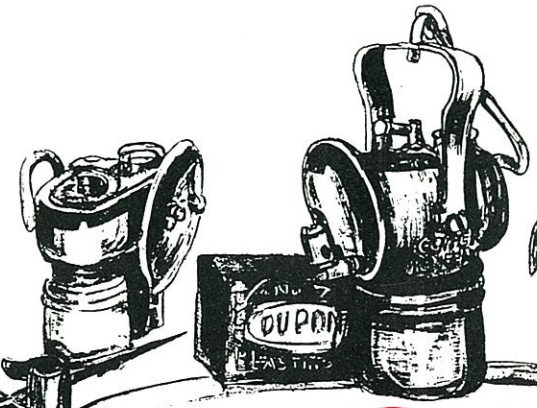
This surpasses anything that has been published on the minerals of Cornwall and Devon. That which follows will amply demonstrate the fact that it is a magnificent work. This is not to be wondered at when it is appreciated that both workers were colleagues in the Mineralogical Department of the British Museum (Natural History) where a wonderful collection of choice mineral specimens from Cornwall and Devon is housed. In addition, the authors have a long acquaintance with the mining fields of southwestern England, particularly their geological and mineralogical character, and with the ancient and modern methods employed to exploit their mineral wealth. For a long time they have also assiduously researched the major collectors and mineral dealers whose activities have been largely responsible for the preservation of those beautiful specimens whose photographs, in color, adorn the pages of the work under review, and for that of many other specimens in many museums of the world.

Not surprisingly, *Minerals of Cornwall and Devon* is far from being a collection of excellent photographs of minerals set in a matrix of rather gray, matter-of-fact mineralogical details. Its lively construction is such that the minerals seem to acquire a vital quality. One becomes aware of the nature of their birth, where they were born and who were their mineralogical neighbors. One learns of those who uprooted them and of those who acquired them, and of those who sold them. One is also provided with the means of discovering much more about all these topics and related ones.

Beyond doubt, *Minerals of Cornwall and Devon* is a major addition to the literature that is concerned with mineralogy and related subjects. It is a scholarly work that is both easy and entertaining to read. It can be recommended, without reservation, to all who have an interest in mineralogy and associated fields and not solely to those concerned with southwestern England.

That this publication, an amalgam of much knowledge and beauty, can be acquired at such a modest price, is little short of the miraculous.

Dr. K.F.G. Hosking
Camborne School of Mines



WELCOME TO THE 7th Annual Mining Artifact Collector's Reunion