

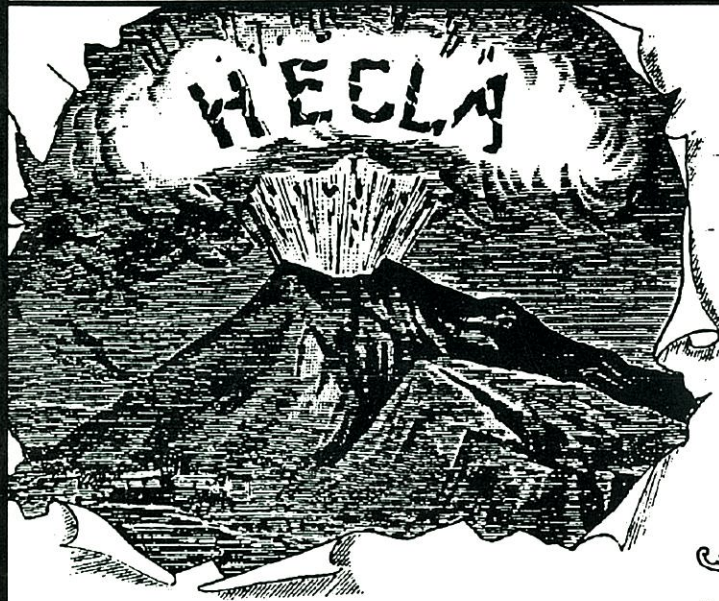
# EUREKA!

THE JOURNAL OF MINING COLLECTIBLES

ISSUE 10

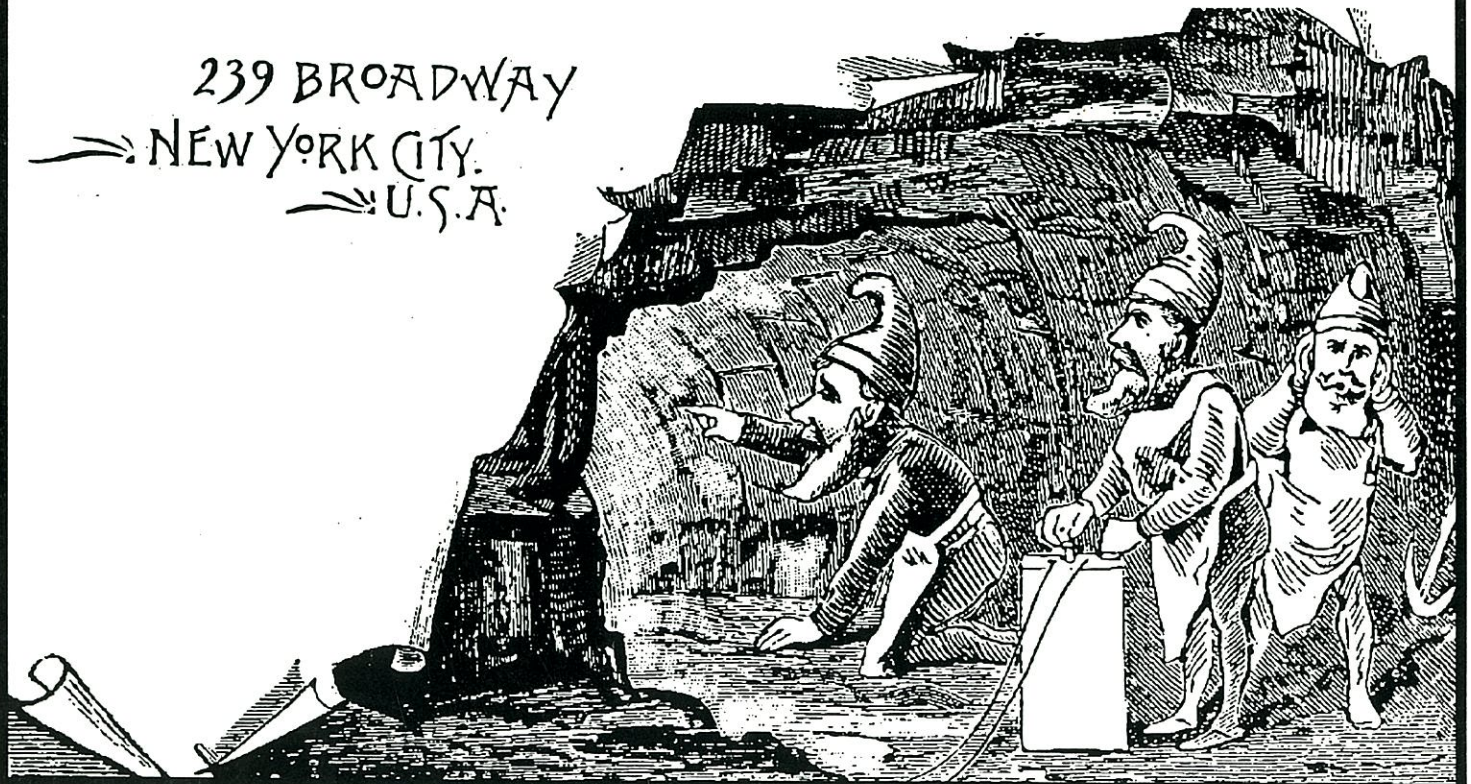


APRIL 1994



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239 BROADWAY  
NEW YORK CITY.  
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## General Information

**SUBSCRIPTION POLICY:** *EUREKA!* is published quarterly (January, April, July, October). Subscriptions are accepted for one year at a time. Price is \$25 per annum in the US, \$35 overseas. Back issues are available for \$6.50 US, and \$9 overseas delivery. A subscription form is included in the Fall issue. Requests should be mailed to: Jim Van Fleet, 222 Market St., Mifflinburg, PA 17844.

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***EUREKA!***

The Journal of Mining Collectibles

# EUREKA!



A PUBLICATION DEDICATED TO THE COLLECTING,  
PRESERVATION, AND HISTORICAL RESEARCH OF  
EARLY MINE LIGHTING AND COLLECTIBLES

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**Cover:** Hecla Powder Company Ad from pre-1900 magazine.





# NEWS



As promised in our January issue, summer events have started to fill the calendar. For the mining artifact collector willing to travel, we have information on the following:

**Black Hills Mining  
Collectors' Meet:**  
Lead, South Dakota  
May 28-29, 1994

Brad and Linda Ross, Al Winters, Chuck Tesch, and Keith and Kristie Schillinger are putting together a really exciting program of events for this memorial day weekend. One of the highlights will be the underground tour of the Homestake Gold Mine! For collectors who did not receive a flyer for this event, contact the Ross's at (307) 686-7070.

**Third International Mining  
History Conference**  
Golden, Colorado  
June 6-10, 1994

This conference is being sponsored by the Mining History Association and hosted by the Colorado School of Mines. It will include a "Symposium on the Preservation of Historic Mining Sites." For additional information and registration materials, contact the Office of Special Programs, Colorado School of Mines, (303)273-3321.

**Mining Artifact Show & Sale**  
Louisville, Kentucky  
June 25, 1994

See inside back cover for information.

Finally, we have several letters from Germany advising us of the following:

**Second International Mining  
Lamp Collector Meeting**  
Wilnsdorf, Germany  
June 4, 1994

Judging from the photos we have seen of last year's European meeting, this is the place to find frog lamps, tunnel or lenticular lamps, and a huge assortment of mine safety lamps. The meeting is at the "Festhalle" 57234 Wilnsdorf, from 10am to 5pm. For further information, contact Heinz Zander (Tel. 0 27 43 / 27 09) or Henner Schardt (Tel. 0 27 35 / 17 12)

We have received the following plea for information.

**Book Cataloging Dynamite Boxes  
and Blasting Powder Kegs in  
Progress.**

I am assembling a book which catalogs all known North American dynamite boxes and blasting powder kegs. In the book, I give the histories of all North American high explosives and blasting powder makers up to 1960, along with their assemblage of boxes and kegs.

The catalog section of the book can not be accurately and thoroughly completed without help from the collecting community! The help I need is identifying as many different boxes and kegs and their variations as possible. The quantity of items that the

collector possesses is not important, if you have two boxes or two hundred, I hope to have your help.

There are several means of communicating the box or keg you have: a photo is best, a photocopy of the box or keg is second-best, but an accurate sketch or verbal description may suffice, especially if the box is a fairly common type. It is crucial for me to know about both the front and back panels, and the sides if they say anything other than "HIGH EXPLOSIVES DANGEROUS ICC - 14." Borrowed photos will be returned. Anything contributed to my book which I use in the catalog will be credited to the owner or contributor. I will send on request to those collectors who wish to help:

- 1) a list of documented boxes and kegs.
- 2) fill-in forms for illustrating boxes and kegs.

Send Information to: Eric Twitty, 3146 9th St., Boulder, CO 80304 (303)447-3443

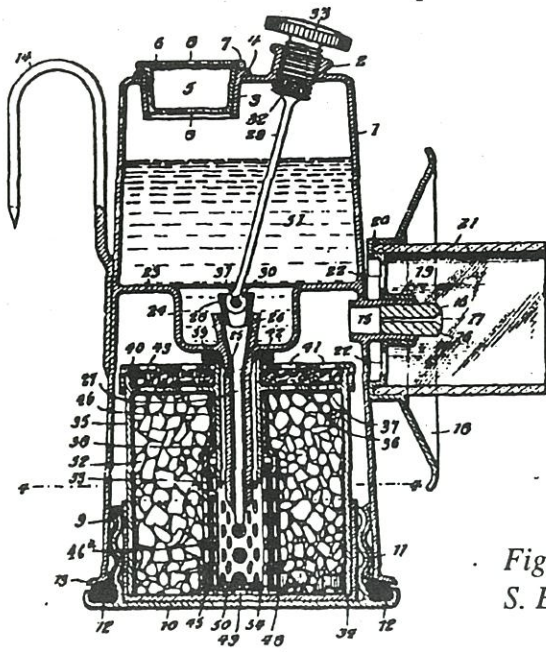
See Eric's article in this issue for a sample of the quality information in his upcoming book. Other contributors to be thanked for the great articles in this issue of **Eureka!** are Deric English, Phillip Zink, Larry Radford, Andy Martin, Lester Bernstein, Mike McLaughlin, and Howard Scotland. In fact, we received so many interesting submissions of article and photographs that we couldn't fit them all in this issue! You can look forward to additional articles on squib tins, stock certificates, and other artifacts in our July issue.





*Figure E: S. E. Sirimons cap lamp (Errol Christman collection, photo Dave Thorpe).*





# S. E. Simmons

by Mike McLaughlin

Figure B:

S. E. Simmons Carbide Lamp Pat. No. 976,611. Granted Nov 22, 1910.

The small town of Litchfield, Illinois lies between Springfield, Illinois and St. Louis, MO. It was there, on February 14, 1868, that Samuel E. Simmons was born and would later grow up to be the inventor of the rare S. E. Simmons carbide cap lamp. Samuel and his wife Stella had four children, two boys and two girls.<sup>1</sup> One of his children, the late Ted Simmons, Sr. was gracious enough to provide personal family information during conversations with Gregg S. Clemmer in February and March of 1981.<sup>2</sup> Most of the information contained in this article can be attributed to the foresight Mr. Clemmer had to document this historical data for present and future generations of mining artifact collectors and enthusiasts.

Samuel E. Simmons was a very gifted mechanic, a skill which seems to be prevalent in many lamp inventors. He was an active coal miner and had his own small workshop at home. There are many similarities with Samuel Simmons and Harry Gall.<sup>3</sup> Both were inventors, mechanics, tinker-

ers, had their own home offices and workshops, and patented their own carbide lamp. It appears that Samuel took a bigger manufacturing step and had more lamps made. (Fig. A)

While living at 430 South Jackson St. in Litchfield sometime in 1909, Samuel supposedly developed his first

lamp. Within a year or so, he was granted Patent #976,611 on November 22, 1910.<sup>4</sup> The original application was filed on Oct. 4, 1909. (Figs. B, C) Samuel set out to make improvements to carbide lamps and their inner workings. "The object of the invention is to provide a device which will be compact and simple in form,



Figure A: Samuel E. Simmons seated at far left with his brothers Clarence and Charlie



Fig. 2.

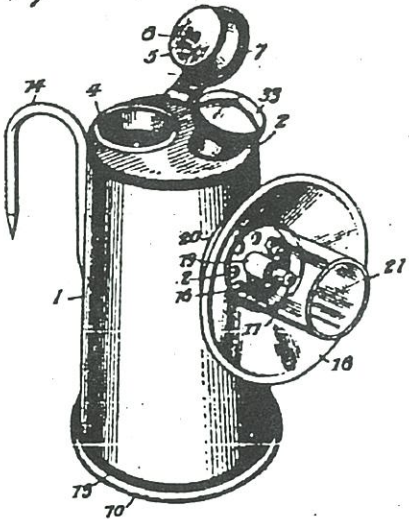


Fig. 3.

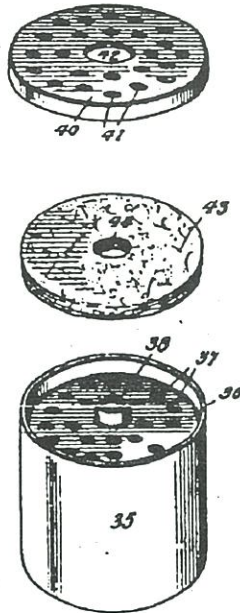
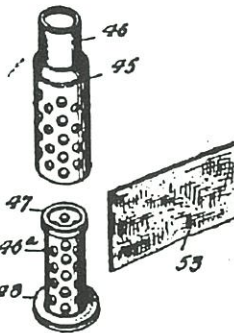
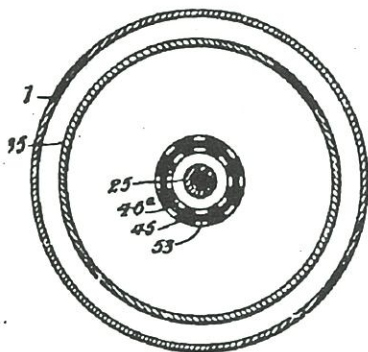


Fig. 4.



WITNESSES

L. H. Schmidt  
 C. C. Reimer



INVENTOR

SAMUEL E. SIMMONS,  
 BY *Munn & Co.*

ATTORNEYS

Figure C

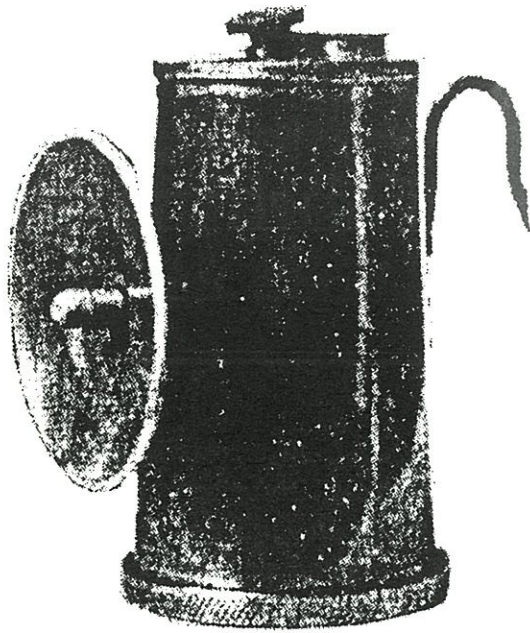
S. E. Simmons Carbide Lamp Pat. No. 976,611. Granted Nov 22, 1910.

containing both the water tank and generator in one receptacle, and wherein the admission of the water may be nicely regulated.”<sup>5</sup>

In 1912, Samuel moved to a home at 802 Randle St. in Litchfield. There he set up his company, the “S.E. Simmons Mfg. Company.” One mining artifact linked with this address is a business envelope. (Fig. D) This envelope pictures the S.E. Simmons miner’s carbide cap lamp and gives the 802 Randle St. address as the headquarters. The envelope measures 3 1/2” by 6 1/2” and is printed with black ink. At this address Samuel is speculated as having contracted with a St. Louis, MO. firm to manufacture his carbide lamp on a larger scale. Gregg Clemmer’s research introduces the Handlan Buck Mfg. Co., located at 212 North 3rd St., as the likely firm. There seems to have been a business problem between Samuel and the St. Louis firm which manufactured the lamps and further production was ceased. No records exist at this time showing how many lamps were made and according to today’s count, there are only a couple of known examples of this very rare lamp.

The S. E. Simmons lamp is approximately 3 1/4 inches high. The incuse stamping on the side of the lamp reads “S. E. Simmons Mfg. Co., St. Louis, MO. Pat’d.” Surviving examples of this lamp are made of brass (Fig. E). According to Mr. Clemmer, some lamps may have been made of copper and would truly be a scarce find.<sup>6</sup> Water is added through the top of the lamp by opening a hinged water cap, and flow is regulated by a threaded valve also located on the top. The base lip





**Simmons Miner's Lamp**

*After 5 Days Return to*  
**S. E. SIMMONS**  
**MFG. CO.**  
*802 Randle Street*  
**LITCHFIELD, ILLINOIS**

*Figure D: S. E. Simmons business envelope (enlargement of logo). (Author's collection).*

unscrews and exposes a cup area inside where carbide is then added. Patent drawings of the S. E. Simmons reflector are a source of much mystery to lamp collectors. The bizarre appearance of the reflector and its function have now been sorted out after further patent research.<sup>7</sup> It seems that Samuel invented a glass tube or "flue" that could be inserted into an "annular groove" or circular ring located in the reflector just outside numerous air vent holes. Sufficient air is supplied to the burner tip through these vent hole openings, and the "flue" which surrounds them protects the flame from drafty air currents. This glass flue allows the light from the flame to shine off the reflector for illumination. As of this date, no known specimen of this reflector has been found. Unlike the patent

drawing, the reflector pictured on the S. E. Simmons business envelope seems to be similar to a simple Baldwin push-on variety.

Samuel's last known address was 202 E. Martin St. in Litchfield. He supposedly moved there in 1916. Family records indicate that Samuel quit working in the mines in the 1930's, and passed away on February 13, 1943 at the age of 75. He is survived by four of his five grandchildren.

One last mining related item to look for would be a screw-top carbide can manufactured by S. E. Simmons.<sup>8</sup> To this date there are no known stamped examples to report on and no patent information has surfaced showing what one would look like.

Maybe if one of our readers turns up a drawing of this can, some unmarked examples could be identified.

#### References

1. Judith Simmons Stewart, Personal communications, Feb. 1994.
- 2., 4., 6., 8. American Miners' Carbide Lamps, Gregg S. Clemmer, Westernlore Press, Tucson, AZ, 1987. Pages 25, 88-89, 111.
3. EUREKA!, Issue 7, July 1993, "H. Gall" by M. McLaughlin. Pages 16-19.
- 5., 7. U. S. Patent and Trademark Office, Search Room, Crystal City, VA., Pat. No. 976,611. Pages 1-4.



# W. B. Bertels Wick Lamps

*Dave Johnson*

Since writing a short article on W. B. Bertels in the Winter 1991 MAC, I have obtained more information about Bertels and have acquired several more varieties of Bertels lamps.

The Wilkes-Barre, PA City Directory for 1875 lists William B. Bertels

as a maker of stoves and tinware at Market and Canal Streets. In 1878 he was listed as a tinsmith at 1875 Market Street. W. B. Bertels appears as a maker of tinware in the City Directory from 1873 to 1894. The 1900 listing was for W. B. Bertels, Son and Co., maker of tinware at Butler and Canal Streets.

By 1908 the firm was known as W. B. Bertels & Sons, Inc., tinware manufacturer at 415 N. Pennsylvania. W. B. Bertels was listed as President and Charles E. Bertels as Secretary/Treasurer. The firm produced lamps, caps, lunch buckets, water cans, cadgers and other items.



*Bertels lamp with unusual spout shield.*



The 1916 Directory listed Franck Dart as President of W. B. Bertels & Sons at the same address, still a manufacturer of tin-ware. The 1927 City Directory listed the Bertels Metal Ware Co. with George Goeringer as President. There is a reference to a relationship between W. B. Bertels and the Wilkes- Barre Can Co.

Pictured in this article are the ten models of W. B. Bertels oilwicks in my collection. One lamp (previous page) has a unique variety of shield. The only purpose that this configuration of shield could serve would be that described in the O'Keefe Patent, which while shaped differently would serve the same purpose. The O'Keefe shield was



*Bertels Black Diamond lamp with drip ring.*



*Black Diamond Bertels stamp.*

designed to prevent spilled fuel from running down the spout and igniting, which could melt the solder joint between the spout and wick tube causing the lamp to either fall apart or leak fuel from the open joint. This shield has the potential to serve this purpose.

There are three variations of the Bertels Black Diamond oilwick. These drivers lamps are distinctly different from the better known Hardsocg Black Diamond lamp and a similar but different lamp marked Black Diamond alone. They possess a single piece brass shoulder/collar piece, a font with barely sloped sides and the stamping shown here. One has a long wick tube with a drip ring, one has a short double spout and the third has a single long spout at a higher angle than the one with a drip ring.



*Long-spout Bertels Black Diamond lamp.*



*Short double-spout Bertels Black Diamond.*





*Left: Shielded-spout Bertels lamp.*

*Below: High-spout Bertels lamp.*

Another lamp has a unique vented shield wrapped around the wick tube and attached to the front. The design is similar to, but larger than, the Hardsocg model with holes at the base of the outer wick tube.

The Bertels high spout is similar to those produced by at least three other companies.

The last four lamps are varieties of Bertels lamps, two with long spouts and two with shorter spouts. One long spout variety has a brass collar and the other three are all tin.

Given the existence of at least ten different models, Bertels appears to have been a more prolific lamp maker than I first thought to be the case.







# Standard Bertels Lamps

*Standard W. B. Bertels stamp mark.*



*Tall-font Bertels lamp.*



*Long-spout Bertels lamp with brass collar.*



*All tin long-spout Bertels lamp.*



*All tin short-spout Bertels lamp.*





Heinrich Friemann 1809-1898

# History of the German Lamp Maker Friemann & Wolf Part I: 1861 - 1900

Manfred Stutzer



Carl Wolf 1838-1915

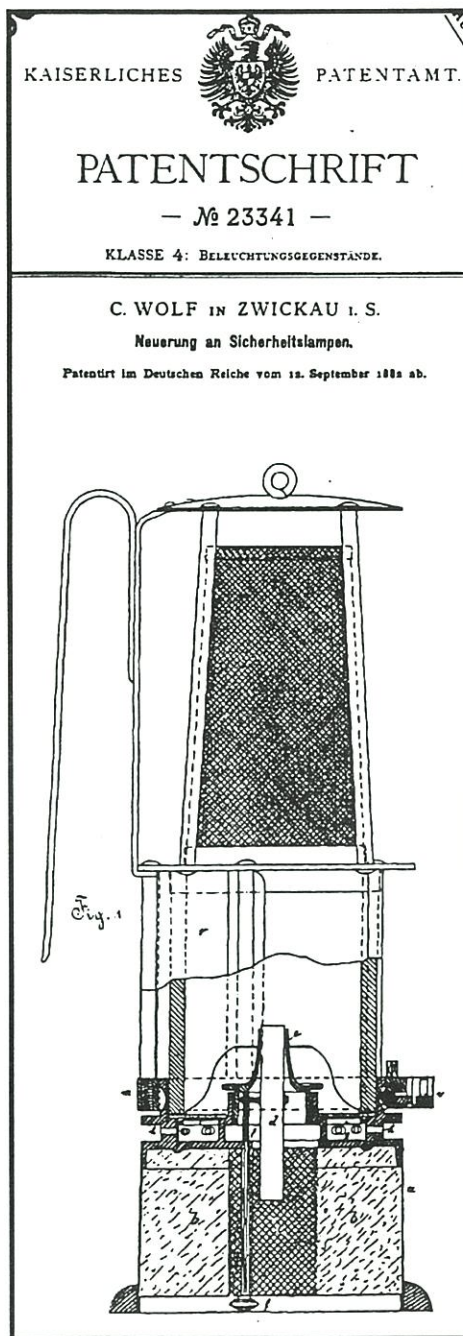
The firm of Friemann & Wolf is probably the best known producer of miners lamps in Europe. Friemann & Wolf have throughout their history produced safety, carbide and electric lamps for miners.

In 1838 Carl Heinrich Wolf was born in Oberhohndorf, near Zwickau, in Saxony, the son of a miner. Young Carl undoubtedly learned something of the dangers of mining from his father.

At age 23, in 1861, Carl Wolf founded his own small precision mechanical firm in Zwickau, located in a coal mining area.

Due to numerous firedamp explosions resulting in 89 deaths at coal mines near Brueckenbargschacht and Frietal in early 1879, the Saxon government established the Saxon Fire-damp Commission to investigate the condition of mines and the reasons for the explosions.

With his father working in the mines throughout his youth and his proximity to gassy mines, Wolf had a personal interest in mine safety.



Carl Wolf's first patent for a flame safety lamp (1892).

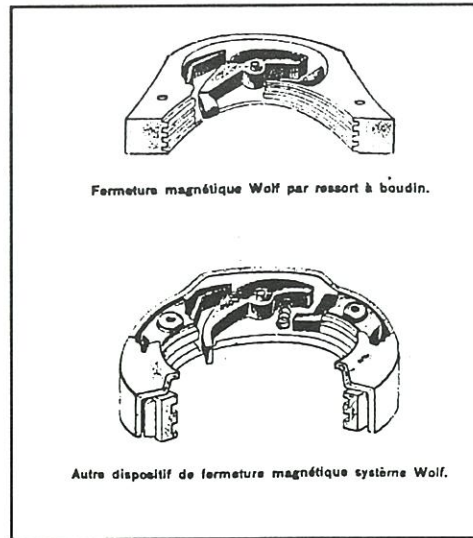
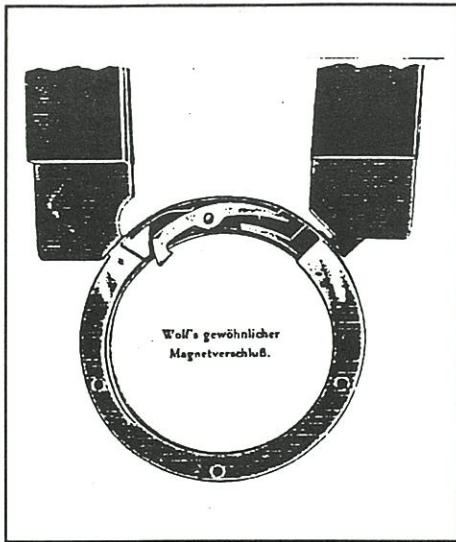
In 1881, at the age of 43, Carl Wolf developed the first benzene fueled safety lamp. This lamp burned brighter than earlier safety lamps and was virtually smokeless. His lamp featured a bottom filled with cotton wool to absorb the benzene, like the old Zippo cigarette lighters absorbed lighter fluid.

On September 12, 1882 his benzene safety lamp received patent No. 23341. That same year Wolf met Heinrich Friemann, a brewer in Eisleben. Friemann would be the one to provide the funds to enable Wolf to commercially produce his new lamp.

In 1883, Wolf's benzene safety lamp was fitted with the first internal igniter. This igniter was of the percussion variety. A total of 450 lamps were manufactured that year by Wolf with magnetic locks and percussion igniters.

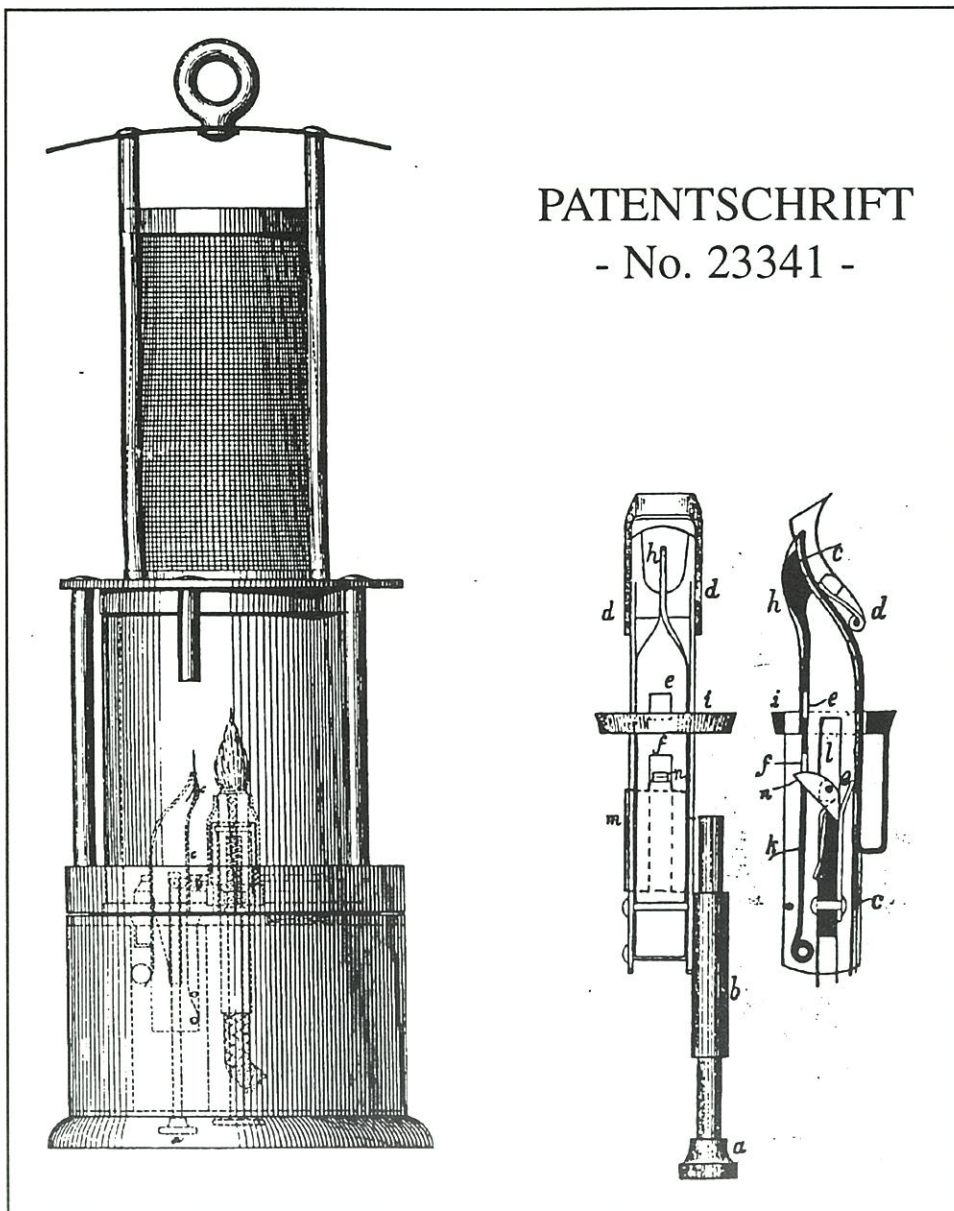
August 1, 1884 saw the founding and commercial registration of the firm of Friemann & Wolf, Maschinen-und Grubenlampenfabrik, Zwickau i. Sachsen.





*Left: First magnetic lock No. 2000.*

*Right: Magnetic locks 2025 and No 2075.*



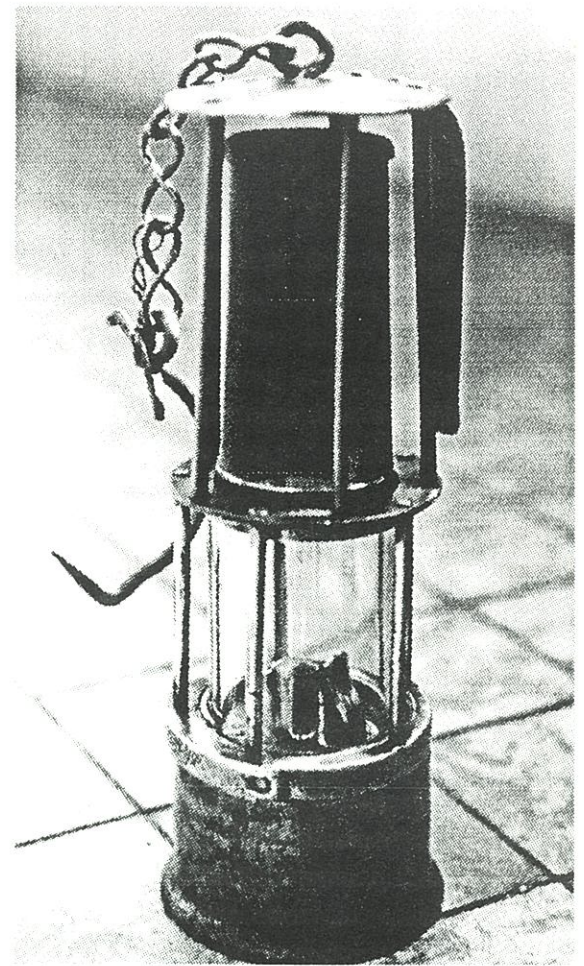
*Wolf's first patent included the first internal igniter.*

After some initial problems introducing the benzene safety lamp into a market dominated by oil safety lamps, Wolf saw his lamp gain rapid acceptance in Saxony, Prussia, and Austria-Hungary. Wolf's lamp had the advantages of producing a brighter light and of detecting firedamp at lower levels than previous lamps. Such was the success of his lamp that by the end of 1884 more than 7,500 Wolf benzene safety lamps had been produced.

Wolf introduced a rotary igniter for his lamps in 1888. By 1890 Wolf had introduced his lamps worldwide and the firm was producing 100 safety lamps per day.

Wolf's partner, Heinrich Friemann died in 1898, leaving Wolf in control of the firm. At this time Hubert Joris was the exclusive agent for Friemann & Wolf products in Belgium, headquartered in Liege. The agent for Wolf in Great Britain was Fr. Richter and Co. of Newcastle-on-Tyne. In the U.S. all Wolf lamps were marketed through the Fidelity International Agency of 621 Broadway in New York City.

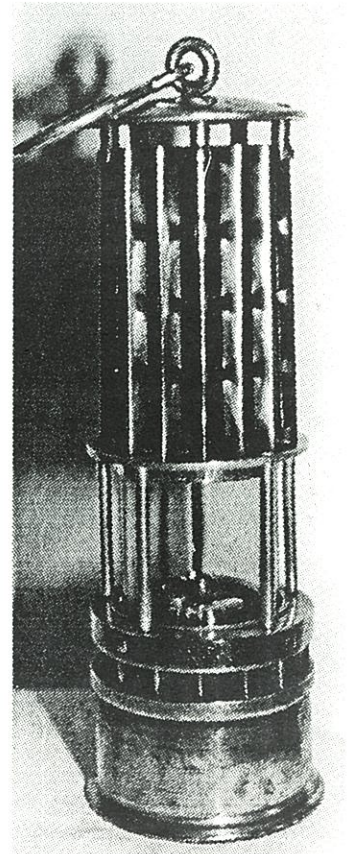
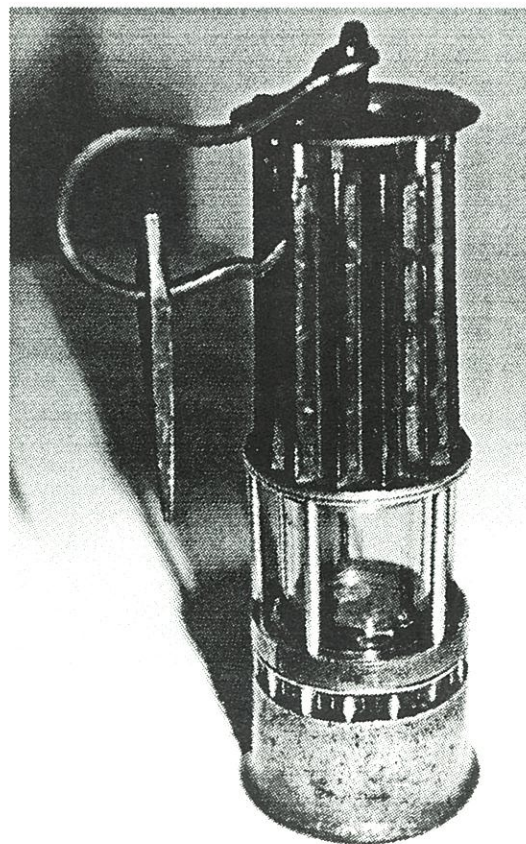




*Above and right: Wolf percussion igniter lamp.*

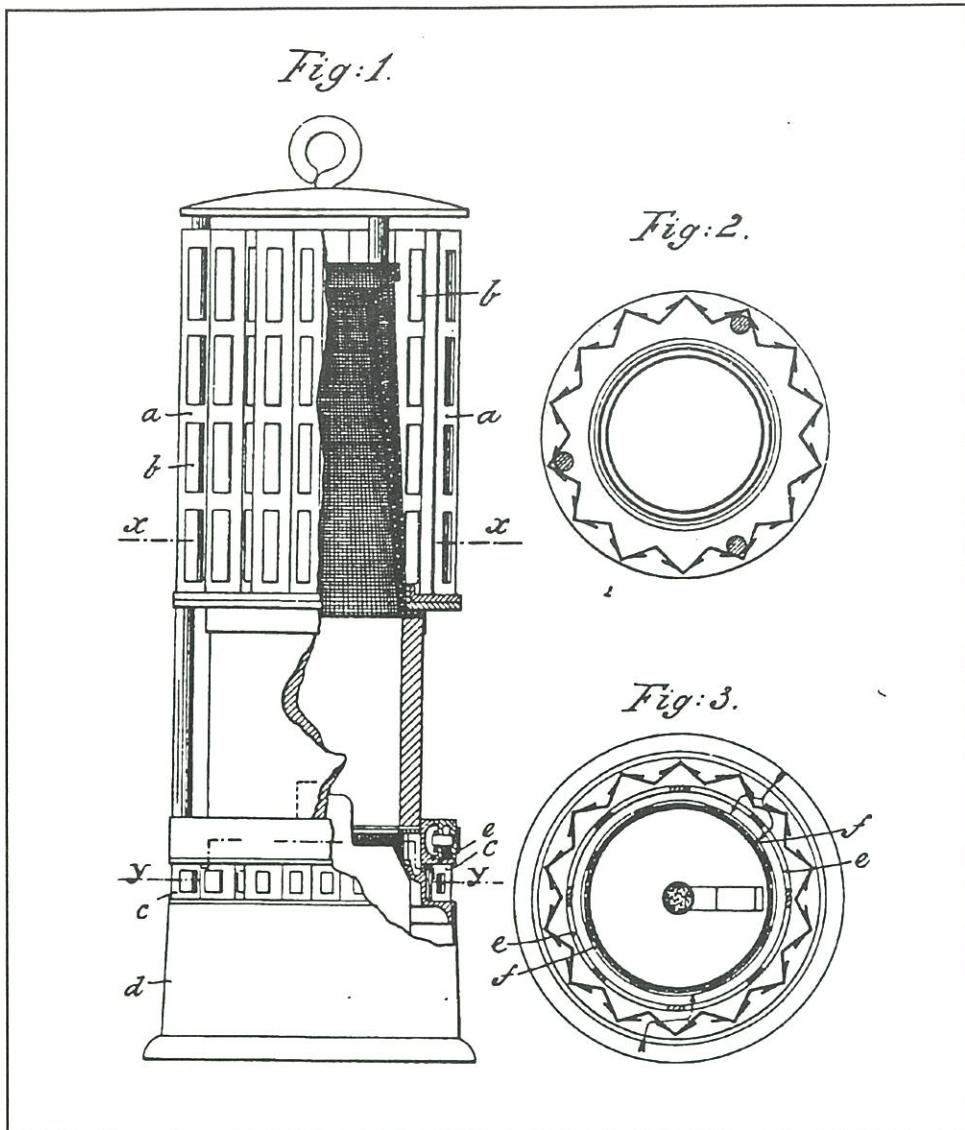
By 1900 Wolf had subsidiaries in Duisburg and Dortmund Germany and in Waldenburg Silesia. Lamps were also being produced and repaired in the Belgian facility in Loncin-lez-Liege.

*[Editor's note: Manfred Stutzer's exceptional history of the Wolf Company will continue in our July issue.]*

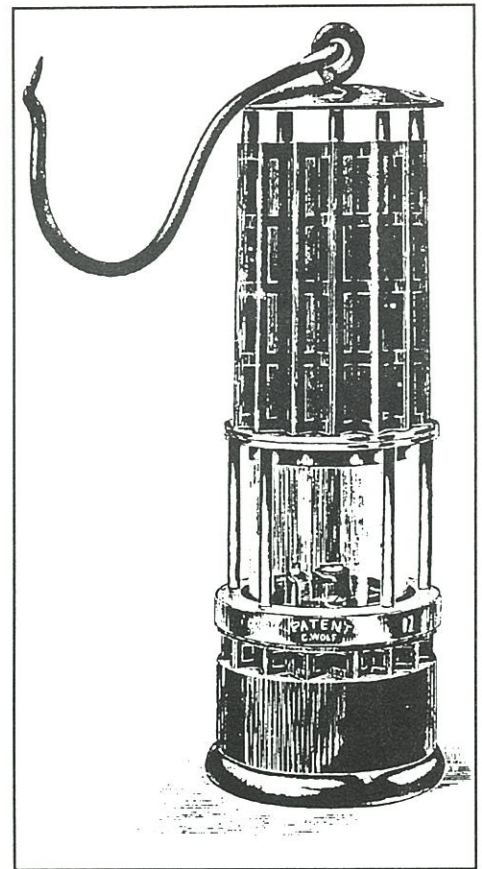


*Right: Two different Wolf safety lamps with air inlets on top of the base.*





Wolf's 1892 patent No. 69118 for a lamp bonnet.



Above: Wolf's lamp No. 101.  
Below: The No. 101 lamp with cut-away view.

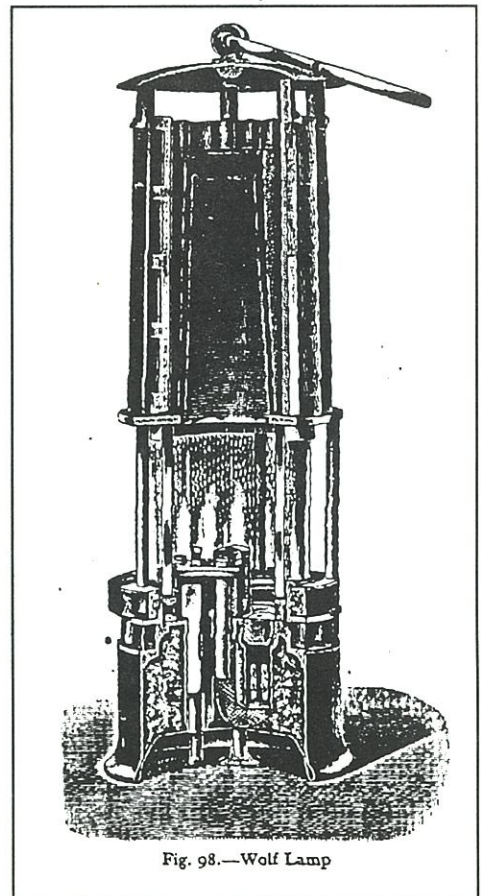
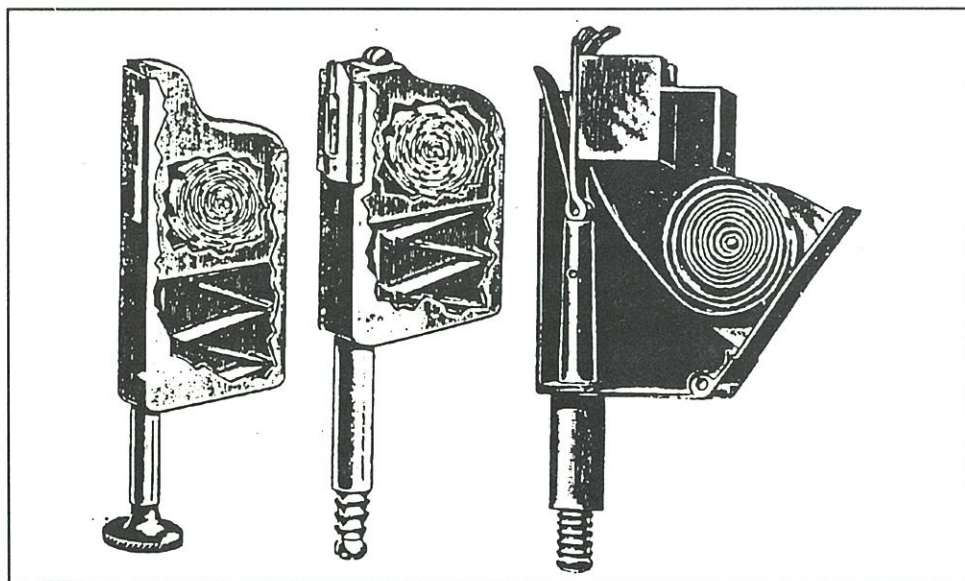
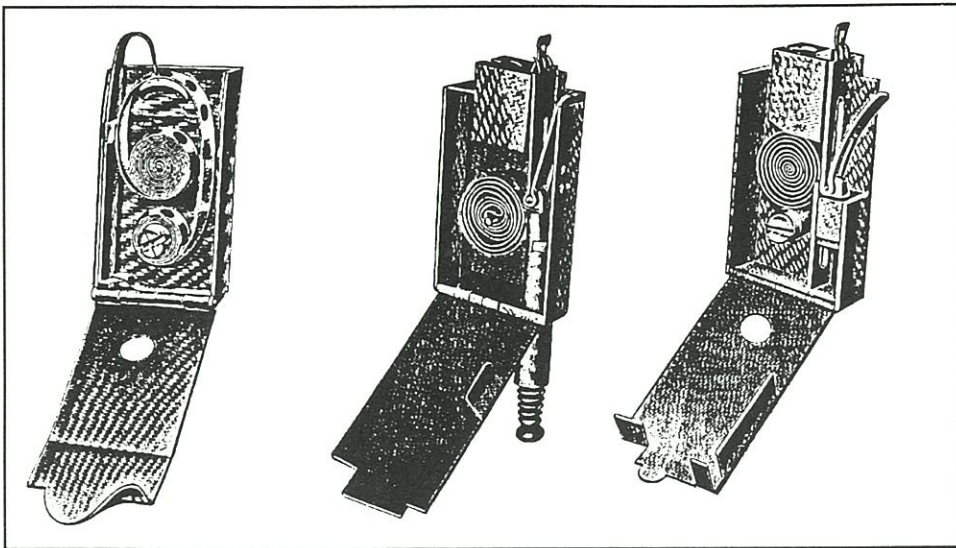


Fig. 98.—Wolf Lamp



Three different models of wax friction igniters. No. 1000 (left) ca. 1893, No. 1025 (center) ca. 1896, and No. 1050 (right) ca. 1897.



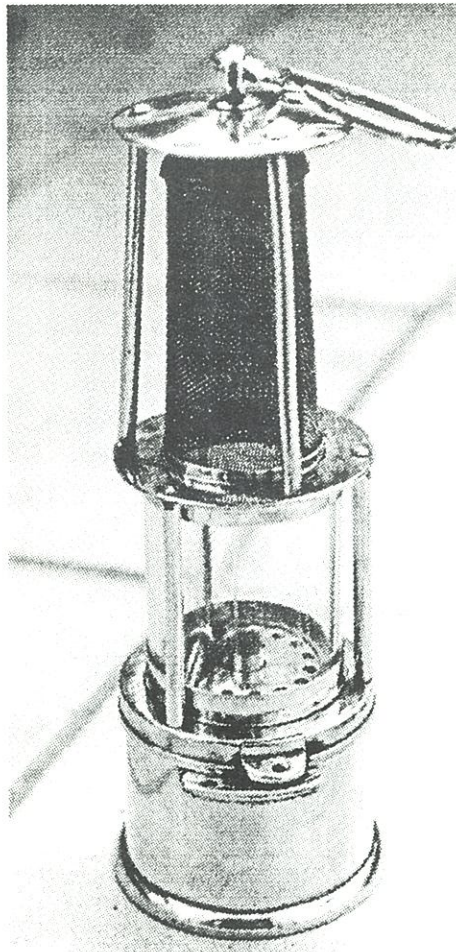
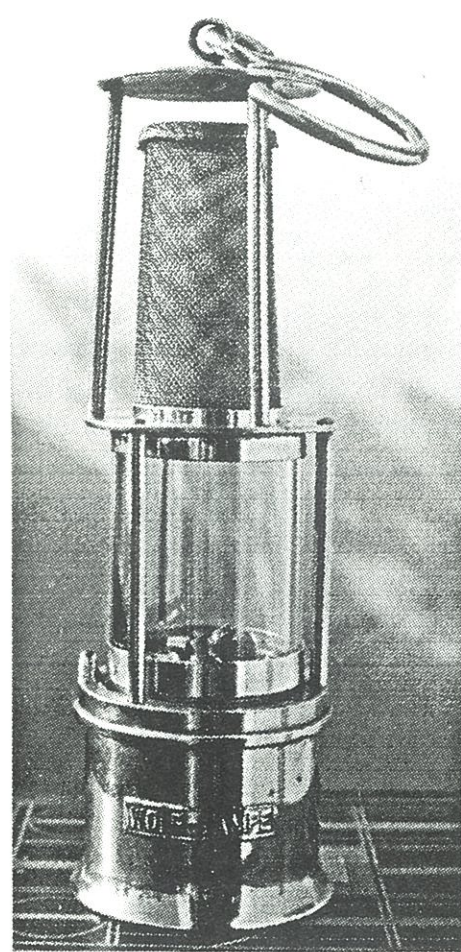


*Left: Three different paper strip igniters.*

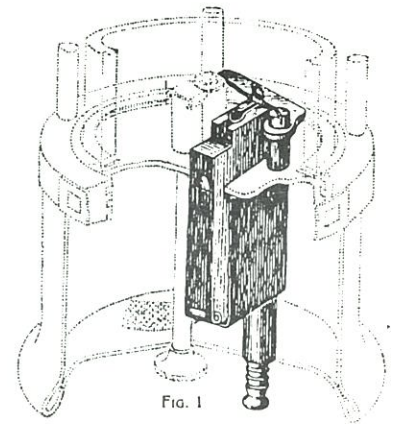
*No. 1200 (left).*

*No. 1150 (center), ca. 1907.*

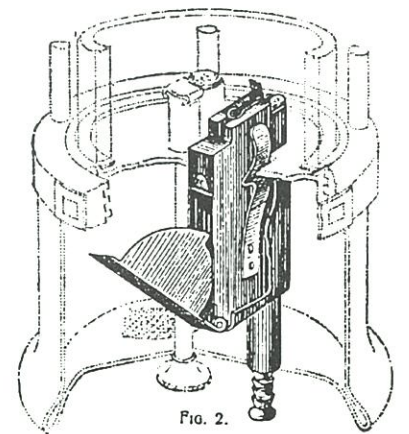
*100 N.P.A igniter (right).*



*Two small brass Wolf benzene lamps with different igniters and locks.*



*FIG. 1*



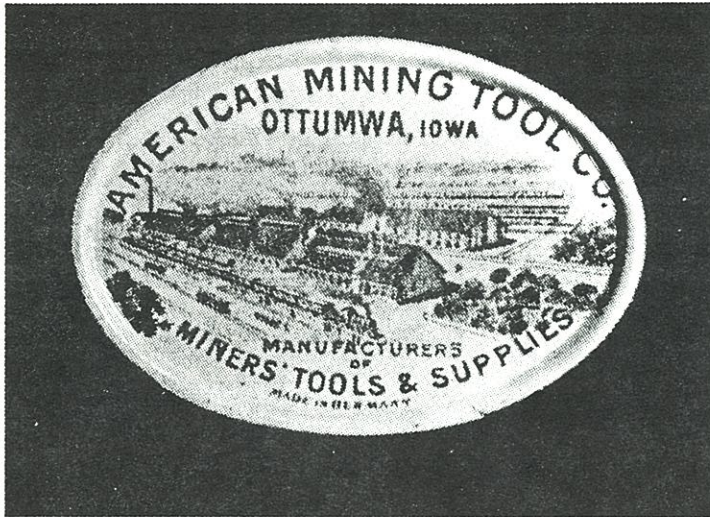
*FIG. 2.*

*Above: Igniters shown installed in lamp bottoms. Fig. 1. is the No. 1050, ca. 1897. Fig. 2. is the No. 1100, ca. 1905.*

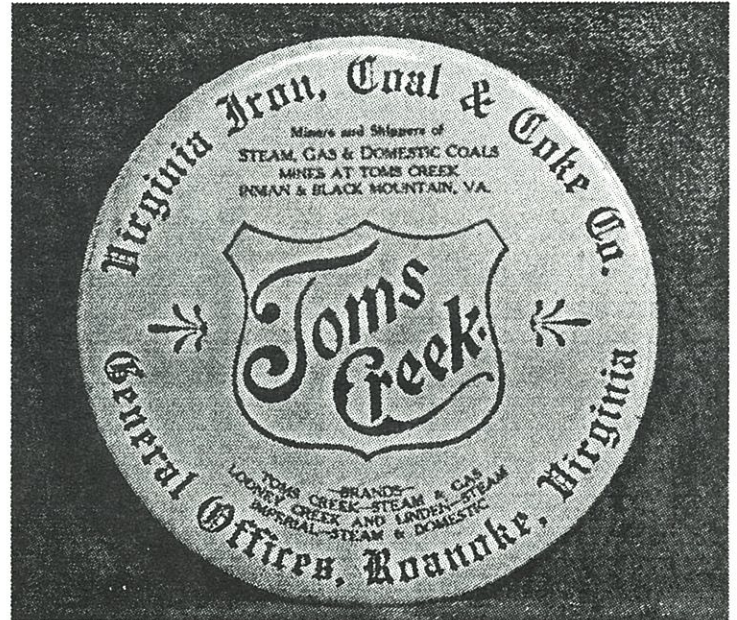


# Advertising Pocket Mirrors

Dave Johnson



American Mining Tool Co. pocket mirror.



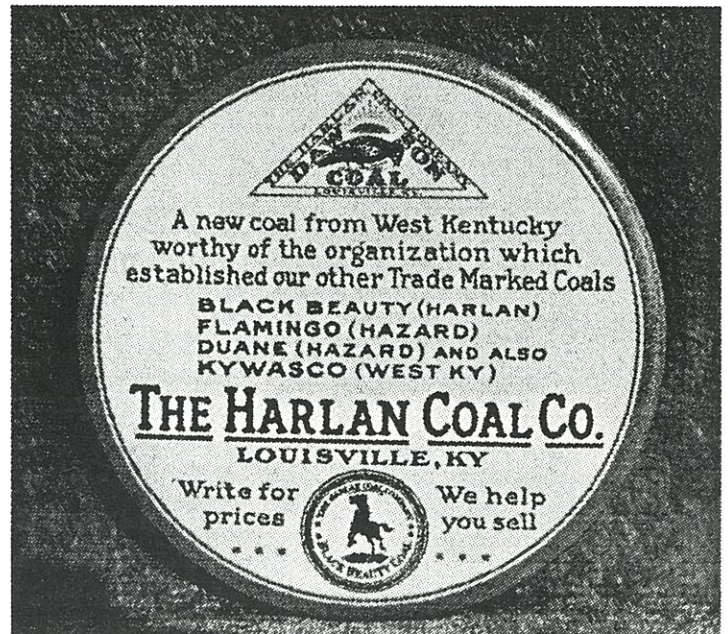
Virginia Iron Coal & Coke Co. pocket mirror.

Many different types of premium and novelties have been given away as advertising pieces by coal companies and mining tool companies. These include pens and pencils, blotters, calendars, key chains, and watch fobs. Some of the most interesting advertising

pieces are pocket mirrors as seen in these four examples. All examples I have seen have been either round or oval, the majority being round.



The Kentucky Fuel Co. pocket mirror.



The Harlan Coal Co. pocket mirror.



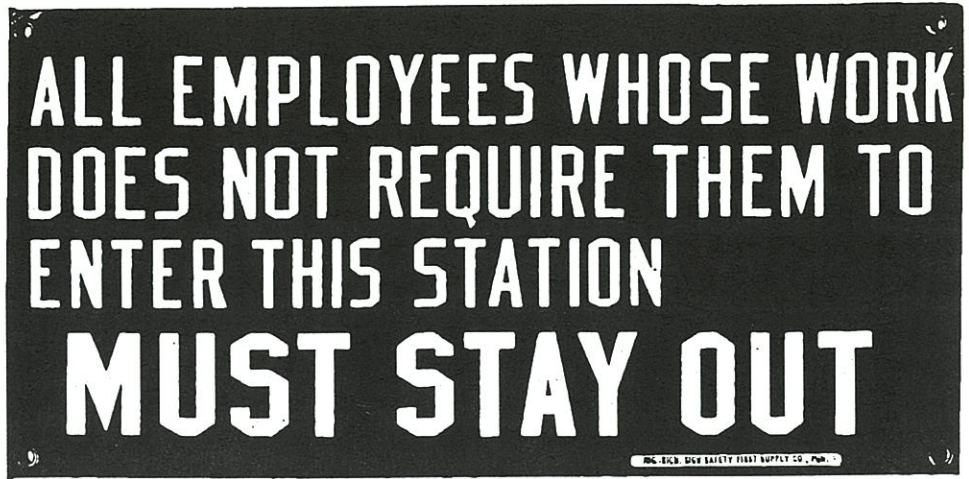
# The Hoist House: a Lonely Place

Dave Thorpe

"Intrusion! Intrusion!" the electronic alarm sounded, as my friend Todd Town entered the new hoist house at the Old Dominion Mine. This building had replaced the old one which closed down in 1930. The hoist house was strictly an "off-limits" place Todd explained. Many accidents have been recorded in history where a distracted hoist operator moved the cage at the wrong time or failed to stop it at the proper place. Such a mistake was often fatal with those in the cage being either cut in two at the stations or crushed as the cage wound into the massive spindle in the hoist house.

Before the advent of electronic alarms, the hoist house was adorned with bold-lettered signs telling all to keep out unless they had specific business to attend to. The sign shown above is from the "old" pre-1930 hoist house (Old Dominion Mine, Globe, Arizona). It reflects the seriousness with which the mine intended the hoist operator to be left undisturbed. The porcelain sign measures 7 by 13 inches, and is blue with white lettering. The manufacturer's name in the lower right corner reads: Ing.-Rich. Safety First Sign Co., Pgh., PA.

At the turn of the century, the hoist operator was paid more than other miners: \$4 a day compared to the usual three. But, prestigious as this may have seemed, the job was not all roses. The hoistman's day was by necessity devoid of social contact,

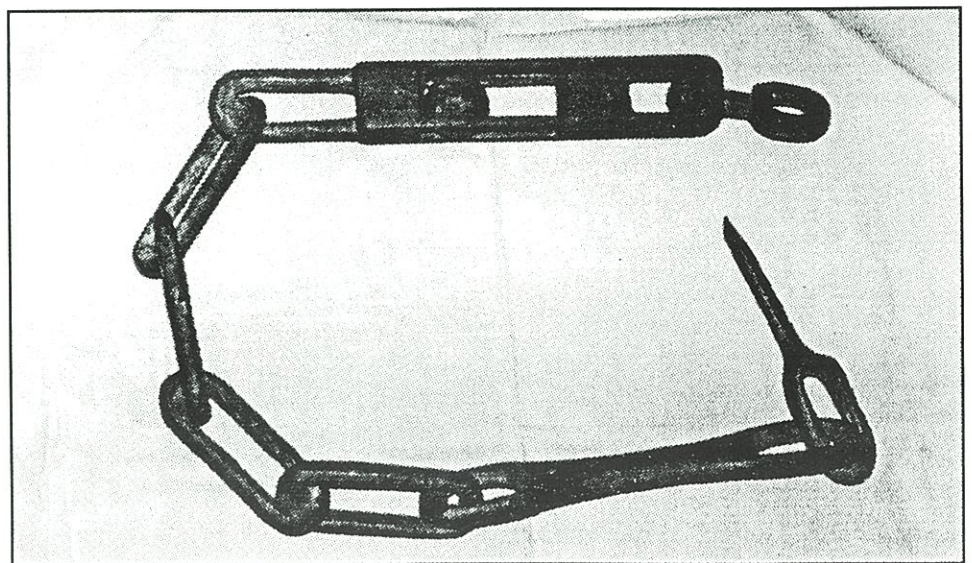


*Sign from the Hoist House at the Old Dominion Mine.*

and severe boredom was the inevitable consequence.

Recently, Bruce Beck introduced me to an artifact which I had never seen before. Shown in the photo below is a "hoistman's chain." By amazing coincidence, this too was from the Old Dominion Mine. To pass the

time, the hoist operator would whittle down a wooden tamping rod into various forms, often a chain. The wood chain shown here has a little ball within a square cage carved into the end. The loop at the end swivels too! When I asked Bruce what its purpose was, he answered quite matter-of-factly: "No purpose."



A Hoistman's chain. Carved from one piece of wood. (Bruce Beck collection)

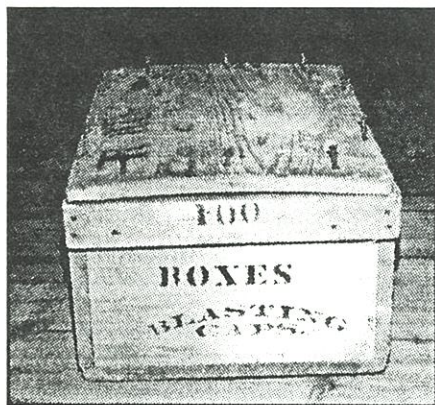


# Mystery Box

*Deric English & Andy Martin*

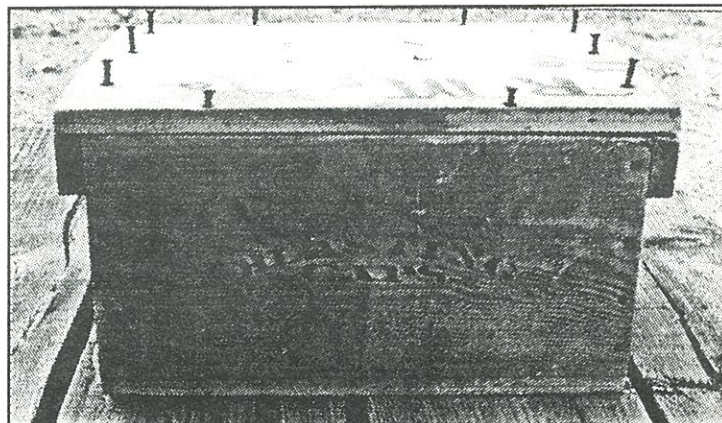
Those who have experience collecting underground know that several kinds of wooden boxes can be found. The most common are dynamite boxes, while quite a bit rarer are candle boxes. You will also occasionally find a box that held canned goods, or other items that were packed in wood crates. However, it is next to impossible to find boxes that held blasting cap tins. These were rarely taken below in the first place.

As a long time collector of California Cap Co. (CCC) tins, I (A.M.) have always been on the lookout for their boxes, especially the early ones dating back to the 1880's. Several years ago I turned up a nondescript box in terrible condition. It said "BLASTING CAPS" on four sides, and also said "BOXES XXX" on the ends. There was no hint as to manufacturer. This box was so miserable that it took two or three trips to the mine before I reluctantly hauled it home and stuck it in the "ugly wing" of the collection.



Unlike my box, Deric's is in near mint condition, and was found still filled with some of the sawdust that was used to cushion the 100 tins packed inside it. The sides of the box are attached with the old "square" nails, while the lid is held on with screws, just like the old time dynamite boxes.

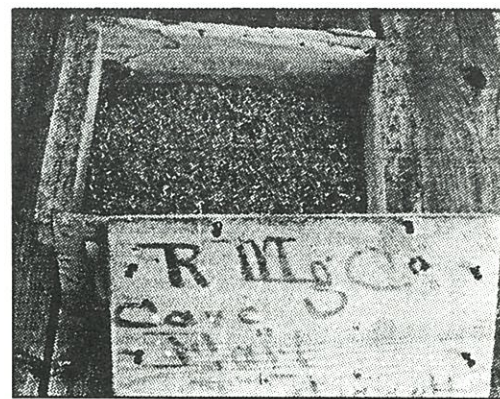
An interesting detail is the two carrying slats on the ends of the box. Each is carved out in the middle, making it easier to keep a good grip. Anyone who dropped a box like this when it was full was apt to find his mining career cut short.



The stenciling on Deric's box reads "BLASTING CAPS" on four sides, and "100 BOXES" on the two ends. Lightly penciled on one end are the words "Cala Cap Co Stege" (Stege was the shipping point for CCC). The writing, and the fact that Deric found the box in California, where CCC pretty much had the market sewn up in the 1880's, make it almost certain that this type of box was the one used by CCC in the early days. It is unfortunate that they did not stencil their name on this box, as they did in later years. A big Maltese cross would also look pretty slick!

Imagine my surprise when Deric English recently proved that my box was an early California Cap model! The accompanying photos show the sides and top of a box recently found in an abandoned mine by Deric and

Making up for the dull side stenciling is the nifty hand lettered shipping directions on the lid. Deric believes that "R Mg Co" stood for Runover Mining Company, and "Earl" was D.W. Earl, a merchant in the Calico / Daggett area as early as 1883.



It is interesting to conjecture about how this box was used underground.

The sawdust in the box and presence of the original lid suggest that it was used to distribute caps, yet it seems unlikely that a full box would be taken underground, where it would be a safety hazard and subject to theft. Perhaps the box was sent into the mine when it was nearly empty, and after the last tin was taken it just lay empty for over 100 years in the isolated drift where Melvin and Deric found it.



**F**orty four collectors responded to the request for survey information on handlamps which was published in the July 1993 issue (No. 7) of EUREKA! The typical shortcoming of such surveys is that a relatively small percentage of collectors respond, and that both the smaller collections and the more casual collectors are underrepresented among the respondents. Smaller collections hold the bulk of the inventory of common lamps. Therefore, common lamps are underrepresented in the present survey, relative to the rare lamps. Still, the survey probably identifies which lamps are common, uncommon and scarce.

Table 1 is identical to the survey form published in issue No. 7 of EUREKA!, but with the survey results included. In the text below, these results are discussed in more detail. Also, several collectors offered helpful comments and corrections with their survey results, and I have attempted to include these. I thank Bill Bowman, Forbes Freeburg, Len Gaska, Gene Knight, Tony Moon, Bob Otto, George Reis, Tom Stranko, Manfred Stutzer and Bob Werner for their contributions. I have not associated their names with specific lamps, in order to maintain the privacy of their collections.

A summary of hand lamp rarities is given in Table 2. The lamps were grouped into four rarity categories (common, uncommon, rare and "extinct?"). The grouping is influenced somewhat by a subjective appraisal of the number of lamps which have appeared recently at collectors' reunions and elsewhere. Hopefully this listing will be a useful guide for your future trades and purchases.

# American Carbide Hand Lamp Survey

*David J. Des Marais*

**Arnold carbide candle.** Although hard to get and highly valued, the carbide candle is not as rare as are many other hand lamps. Apparently many a miner and early collector saved one because of its unusual features and its Colorado origin.

**Baldwin full shift.** This is the hand lamp version of the lamp with the double-walled base which Baldwin made for the "Vitak" movie projector (see J. Van Fleet's article, EUREKA! issue 7, p. 24). Unlike the movie lamp, the hand lamp version with its single-walled base is very rare.

**Baldwin #36, type 2.** This lamp apparently came with either the deep dish reflector or with a shallow reflector.

**Baldwin #35, 44, 45 & 54.** None were reported; are they "extinct"?

**Big Boy.** The supply of these very common lamps is probably exceeded only by the Dew-R-Lite or the Justrite #95, #100 or #50 hand lamps.

**Dew-R-Lite.** This could well be the most common handlamp, although the survey results might be skewed by the fact that one collector reported 24 in his collection! A few steel Dew-R-Lites were reported.

**Guys Dropper.** Among all of the Guys Dropper varieties, only the Tall Boy can be considered as common. The Squarelite hand lamp is uncommon, although it is not as rare as the Squarelite cap lamp.

**ITP.** Variations exist in addition to those mentioned in the survey. These include cast aluminum reflectors, ribbing designs on the base, and varieties represented by both bail-and-hook and supervisor handle configurations.

**Justrite Acme.** The survey list did itemize the hook-and-bail versus supervisor handle varieties, but it did not itemize the "Type I, II and III" sequence of designs (see L. Gaska's article, EUREKA! issue 8, p. 7).

**Justrite Anaconda, Arizona and Western Specials.** The survey indicates that all three varieties are equally rare. However many experienced collectors feel that the Western Special is the most common.

**Justrite Jumbo, Little Giant and Uncle Sam.** Both the survey and many collectors agree that the Jumbo is the rarest and the Uncle Sam the most common of these three. However an Uncle Sam complete with reflector is probably at least as rare as the Little Giant. Rarest of all are the Uncle Sams with the umbrellas. Umbrellas came on all sizes of Uncle Sam lamps, not just the 6 hour size as noted in the survey.



**Justrite Lanterns.** The survey is consistent with my perception that the #10 lantern is more common than the taller #12.

**Justrite #39, 95 and 100.** These larger versions of the horizontal cap lamp are almost as abundant as the Justrite #50 hand lamp.

**Justrite #50.** The most common Justrite hand lamp and possibly the most common U.S. carbide hand lamp. Some brass lamps were tinned.

**Justrite #56.** Like the #50, but with supervisor handles and much rarer.

**Justrite #77.** The rarity of the "candlestick lamp" is no surprise, although more have turned up recently.

**Justrite #81, 82 and 84.** These railroad-style lamps are uncommon in the mine lamp collecting community. Is this because they are rare, or do mine lamp collectors ignore them? I suspect that they really are rare.

**Justrite #103.** This sticklamp version of the #39, 95 and 100 lamps came with smooth, beaded and ribbed bottoms, and thus represents a series of designs similar to the horizontal cap lamps.

**Justrite #2-500 and #3-100 series.** Most collectors view plastic lamps with disdain, therefore some models are pretty rare in collections. It will be interesting to see whether these lamps eventually become valuable among those collectors seeking a large variety of lamps in their collections.

**Luminum.** These lamps are pretty common in collections, perhaps more so than had been thought. In sharp contrast to the plastic lamps, the Luminum is treasured by virtually all hand lamp collectors.

**Maple City, Milburn and Nathan.** The rarity of these lamps is no surprise. Most collectors would agree that the Milburn Miners A and Milburn #22 are by far the most common in this group.

**Oxweld and National Carbide.** I am pretty sure that the low numbers in the survey indicate that most mine lamp collectors simply choose not to acquire these railroad lamps. They may well be as abundant as the most common mining carbide hand lamps..

**Scranto and Pathfinder.** The rarity of these lamps is no surprise. The Scranto hand lamps are more common than the cap lamps, however.

**William H. Ott.** This lamp was reported in the Underground Lamp Post, but none of the collectors in the survey reported one.

**WOLF LAMPS.** This survey was to be limited to U.S. carbide handlamps. Therefore, nonsafety hand lamps marketed in the U.S. by the Wolf Safety Lamp Company of America qualify for the survey, but Wolf lamps made and marketed only in Europe do not. However, several other variations of Wolf hand lamps were marketed in the U.S. but were not included in the survey. Len Gaska sent a copy of the 1914 catalog from the Wolf Safety Lamp Company of America. **The pictures with this article (page 22) depict those U.S. Wolf lamps which were not included in this survey.**

**Wolf aluminum lamps.** All of these are pretty uncommon. The lamp with the gap in the top of its reflector was definitely marketed in the U.S. by Wolf, as some examples bear a U.S. label on top. It is not clear whether the "tall, narrow" or the "horizontal" top Wolf lamps were marketed here.

**Wolf "fat body."** This is actually a cap lamp, probably Model #911. A Model #911d had a wooden handle and thus was a hand lamp. However, both the #911 and the #911d probably were not marketed in the U.S.

**Wolf "original."** The two photos in the survey article (EUREKA! issue #7) are actually of different lamps. Note that the Wolf labels on the bases are different. The one on the left is in Spanish, consistent with its origin south of the U.S.-Mexico border.

**Wolf #900.** This is the most common Wolf hand lamp.

**Wolf #905A.** This lamp probably is relatively more abundant than the survey results indicate, but it still is uncommon.



Table 1. Handlamp survey results.

PICT?	LAMP	COMMENTS	BRASS	STEEL	ALUM.	PLASTIC
X	ARNOLD CARBIDE CANDLE	SHAPED LIKE CANDLE	8	----	----	----
X	BALDWIN FULL SHIFT	WIRE WATERFEED THROUGH LID, SINGLE- WALLED BASE,WIRE FINGER LOOP	----	1	----	----
X	BALDWIN #34	WIRE FEED THROUGH LID, FINGER LOOP, 4 HR, SMALL REFLECTOR, SHORT BASE	----	3	----	----
X	BALDWIN #35	4 HR., SMALL REFL., TALL BASE, HOOK ONLY	----	0	----	----
X	BALDWIN #36 TYPE 1	4 HR., GALV. IRON, WATERFEED THROUGH LID	----	2	----	----
X	BALDWIN #36 TYPE 2	4 HR., GALV. IRON & BRASS, HINGED DOOR	----	6	----	----
X	BALDWIN #36 TYPE 3	4 HR, Np BRASS, HINGED WATER DOOR	16	----	----	----
	BALDWIN #38	LIKE #36 TYPE 2, BUT TALLER BASE	----	2	----	----
X	BALDWIN #39	4 HR., WIRE BAIL WITH CHAIN & HOOK	4	----	----	----
X	BALDWIN #44	4 HR, SMALL REFL, SHORT BASE, BAIL&HOOK	----	0	----	----
X	BALDWIN #45	4 HR, SMALL REFL., TALL BASE, BAIL & HOOK	----	0	----	----
X	BALDWIN #54	RESEMBLES EARLY DEW-R-LITE, NO RIBS	----	0	----	----
X	BIG BOY WITH STRAP	BAIL ATTACHED WITH STRAP ON WATER TANK	28	----	----	----
X	BIG BOY W/O STRAP	NO STRAP AROUND WATER TANK	27	----	----	----
X	COLUMBIA	ADVERTISED AS A MINE LAMP	7	----	----	----
X	DENVER LAMP	ALL TYPES	----	----	1	----
X	DEW-R-LITE	ALL TYPES	84	----	----	----
X	FULL MOON	CYLINDRICAL BODY, HOOK & HANDLES	1	----	----	----
X	GUYS DROPPER	8 HR., STRAIGHT SIDES ON WATER TANK	6	----	----	----
X	GUYS DROPPER	8 HR., INDENTED WAIST	13	----	----	----
X	GUYS DR.SQUARELIGHT	SUPERVISOR HANDLES	6	----	----	----
X	GUYS DR.SQUARELIGHT	HOOK & BAIL	1	----	----	----
X	GUYS DR.SQUARELIGHT	CANDLESTICK AND SPIKED HOOK	41	----	----	----
X	GUYS DR., TALL BOY	HALF SHIFT, ALL VARIETIES	27	----	----	----
X	ITP "MINE LAMP"	FULL SHIFT, "MINE LAMP" ON LABEL	----	24	----	----
X	ITP #150	6 HR., BAIL & HOOK	15	----	----	----
	ITP #160	LIKE #150, SUPERVISOR HANDLES	28	----	----	----
X	ITP #203	9HR, SUPERVISOR HANDLES	----	11	----	----
	ITP #205	LIKE #203, BAIL & HOOK	----	17	----	----
X	ITP #210	6 HR., VERTICAL BURNER & UMBRELLA	----	4	----	----
X	ITP #215	9 HR., RR HANDLE, WIDE BASE	----	3	----	----
X	JUSTRITE ACME #50	BAIL & HOOK	2	19	----	----
X	JUST. ACME #56, 60, 80	SUPERVISOR HANDLES	----	24	----	----
X	JUST. ANACONDA SPECIAL	#93, STICK & HOOK, LOW BURNER	2	----	----	----
	JUST. ANACONDA SPECIAL	#93, STICK & HOOK, CENTERED BURNER	5	----	----	----
X	JUST. ARIZONA SPECIAL	#83, BAIL & HOOK	8	----	----	----
X	JUST. COPPER QUEEN	BODY SAME AS LITTLE GIANT	----	----	3	----
X	JUSTRITE JUMBO #50	BAIL & HOOK WITH STICK, LOW BURNER	----	----	0	----
	JUSTRITE JUMBO	BAIL & HOOK, LOW BURNER	----	----	9	----
	JUSTRITE JUMBO	CENTERED BURNER	----	----	1	----
X	JUSTRITE LANTERN #10	BASE BOTTOM IS DEEPLY INDENTED	20	----	----	----
	JUSTRITE LANTERN #12	TALLER THAN #10, FLAT BASE BOTTOM	9	----	----	----
X	JUSTRITE LITTLE GIANT	LATER VERSION OF JUMBO	----	----	15	----
	JUST. UNCLE SAM 6 HR.	5 1/2 " TALL (TO TOP OF BODY)	----	----	11	----
	JUST. UNCLE SAM 6 HR.	AS ABOVE, BUT WITH UMBRELLA	----	----	1	----
X	JUST. UNCLE SAM 8 HR.	6 " TALL (TO TOP OF BODY)	----	----	11	----
	JUST. UNCLE SAM 10 HR.	6 1/2 " TALL (TO TOP OF BODY)	----	----	3	----
X	JUST. WESTERN SPECIAL	#105, SUPERVISOR HANDLES	9	----	----	----
	JUSTRITE #39, 95, 100	1/2 SHIFT, RESEMBLES #204 W/O STICK	53	----	----	----
X	JUSTRITE #50	BAIL & HOOK	42	2	----	----
X	JUSTRITE #56	LIKE #50, BUT HAS SUPERVISOR HANDLES	15	4	----	----
X	JUSTRITE #77	"CANDLESTICK LAMP", CAST BODY	2	----	----	----
X	JUSTRITE #81	TALL RR HANDLE, WIDE BASE	2	----	----	----
	JUSTRITE #82	LIKE #81, BUT HAS ENCLOSED BURNER	2	----	----	----
X	JUSTRITE #84	HOOK & BAIL, HANDLES, WIDE BASE	1	----	----	----
X	JUSTRITE #103	STICK & HOOK ONLY	25	----	----	----
X	JUSTRITE #204	STICK, HOOK& SUPERVISOR HANDLES	11	----	----	----
X	JUST. #2-500 SERIES	TOP: BRASS OR STEEL; BOTTOM: PLASTIC	5	1	----	----
X	JUSTRITE #2-770	CAP LAMP WITH LARGE HANDLE & REFLECTOR	7	----	----	----
X	JUST. #3-100 SERIES	LARGE HORIZONTAL PLASTIC BODY	----	----	----	3
X	JUST. #3-200 SERIES	LARGER VERSION OF PLASTIC CAP LAMP	----	----	----	13
X	LUMINUM	ALL VARIETIES	----	----	25	----
X	MAPLE CITY	MAY LACK "MAPLE CITY" LABEL	1	----	----	----
X	MILBURN LANTERN	FOR HAND OR TABLE, IN LARGE CAN	1	----	----	----
X	MILBURN MINERS A	MILBURN #20	1	----	----	----
X	MILBURN #22	LARGER THAN #20	----	3	----	----
X	NATHAN	"NATHAN" STAMPED ON WATER DOOR	----	2	----	----
X	NATIONAL CARBIDE	LARGE LAMP	2	3	----	----

"PICT?" column at left indicates which lamps have pictures in EUREKA! issue 7.



Table 1. Handlamp survey results.

PICT?	LAMP	COMMENTS	BRASS	STEEL	ALUM.	PLASTIC
	OXWELD MODEL A	6.25 IN. DIA. REFL. COVER, ALUM. BODY	----	----	11	----
	OXWELD #2155	4.8 IN. DIA. REFL. COVER, STEEL & BRASS BODY	----	9	----	----
X	PATHFINDER	ALL TYPES (A, B & C)	1	----	----	----
	SCRANTO	NO REFLECTOR	0	-----	----	----
X	SCRANTO	SLANTED REFLECTOR	2	-----	----	----
	SCRANTO	VERTICAL REFLECTOR	3	-----	----	----
X	20TH CENTURY	MODIFIED FROM BIKE LAMP	1	-----	----	----
X	TOLEDO ACETYL. LANTERN	GENERATOR MOUNTED OFF CENTER	----	3	----	----
X	WILLIAM H. OTT	BRASS-CLAD TOP & REFLECTOR, STEEL BASE	0	----	----	----
X	WOLF ALUMINUM	TOP OF REFLECTOR HAS GAP	----	----	2	----
X	WOLF ALUMINUM	TALL, NARROW BODY	----	----	1	----
X	WOLF "FAT BODY"	WIRE BAIL & HOOK	1	1	----	----
X	WOLF HOODED REFLECTOR	BRASS BODY RESEMBLES #905A	2	----	----	----
X	WOLF INSPECTION	ENCL. BURNER, MAY HAVE "NAT. CARB." LABEL	3	1	----	----
X	WOLF "ORIGINAL"	BAIL, HOOK & HANDLES, LABEL ON BASE	----	6	----	----
X	WOLF "HORIZONTAL"	HORIZONTAL WATER TANK, LABEL ON BASE	----	----	1	----
X	WOLF #856 4 HOUR	CANISTER STYLE BODY IS 4 3/8" TALL	7	25	----	----
	WOLF #856 8 HOUR	CANISTER STYLE BODY IS 5" TALL	4	22	----	----
X	WOLF #871	HOODED REFLECTOR, HANDLEGRIP & HOOK	----	1	----	----
X	WOLF #900	BAIL & HOOK	11	24	----	----
	WOLF #900 (NAT. CARB.)	HAS "NATIONAL CARBIDE LAMP" LABEL	0	1	----	----
X	WOLF #905A	BURNER CENTERED IN REFLECTOR	----	5	----	----

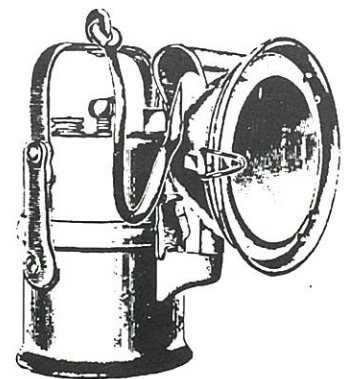
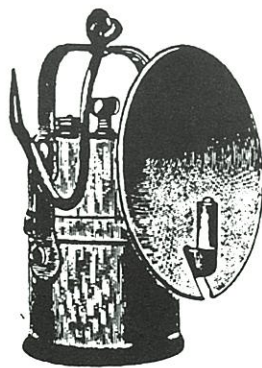
Table 2. Relative rarity of handlamps

<u>COMMON LAMPS</u>	<u>NO.</u>	<u>UNCOMMON LAMPS</u>	<u>NO.</u>	<u>RARE LAMPS</u>	<u>NO.</u>
BALDWIN #36 TYPE 3	16	ARNOLD CARBIDE CANDLE	8	BALDWIN FULL SHIFT	1
BIG BOY	55	BALDWIN #34	3	BALDWIN #36 TYPE 1	2
DEW-R-LITE	84	BALDWIN #36 TYPE 2	6	BALDWIN #38	2
GUYS DROPPER 8 HOUR	19	BALDWIN #39	4	DENVER LAMP	1
GUYS DR., TALL BOY	41	COLUMBIA	7	FULL MOON	1
ITP "MINE LAMP"	24	GUYS DROP. SQUARELIGHT	8	JUSTRITE #77	2
ITP #150	15	ITP #210	4	JUSTRITE #84	1
ITP #160	28	ITP #215	3	JUSTRITE #81	2
ITP #203	11	JUST. ANACONDA SPECIAL	7	JUSTRITE #82	2
JUSTRITE #204	11	JUST. ARIZONA SPECIAL	8	MAPLE CITY	1
ITP #205	17	JUST. COPPER QUEEN	3	MILBURN LANTERN	1
JUSTRITE ACME	43	JUSTRITE JUMBO	10	MILBURN MINERS A	2
JUSTRITE LANTERN	29	JUST. WESTERN SPECIAL	9	NATHAN	2
JUSTRITE LITTLE GIANT	15	JUST. #2-500 SERIES	5	PATHFINDER	1
JUST. UNCLE SAM	27	JUSTRITE #2-770	7	20TH CENTURY	1
JUSTRITE #39, 95, 100	53	JUST. #3-100 SERIES	3	WOLF w HOODED REFLEC.	2
JUSTRITE #50	63	MILBURN #22	3	WOLF "HORIZONTAL"	1
JUSTRITE #56	19	NATIONAL CARBIDE	5	WOLF #871	1
JUSTRITE #103	25	SCRANTO	5	WOLF #900-NAT. CARBIDE	1
JUST. #3-200 SERIES	13	TOLEDO ACETYL. LANTERN	3		
LUMINUM	25	WOLF ALUMINUM	3	<u>"EXTINCT" LAMPS?</u>	<u>NO.</u>
OXWELD MODEL A	11	WOLF INSPECTION	2	BALDWIN #35	0
OXWELD #2155	9	WOLF "ORIGINAL"	6	BALDWIN #44	0
WOLF #856	58	WOLF #905A	5	BALDWIN #45	0
WOLF #900	32			BALDWIN #54	0
				WILLIAM H. OTT	0



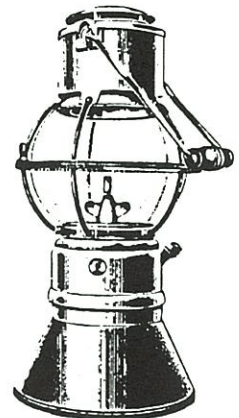
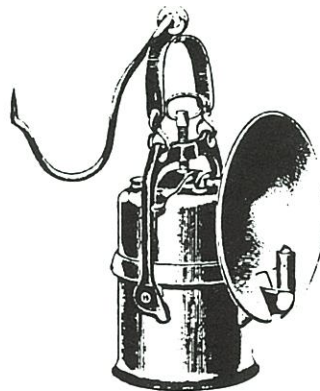
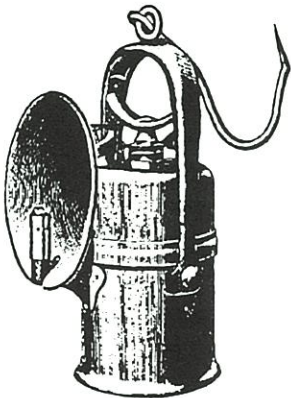
# Additional Wolf Hand Lamps

(not included in  
original survey)



**Wolf's Acetylene Lamp with Ordinary Bridle Lock.**  
Order No. 850.

Made in Steel or Brass and in Sizes O, I, II or III.



**Wolf's Acetylene Lamp with Wolf Wedge Lock.**  
Order No. 851b.

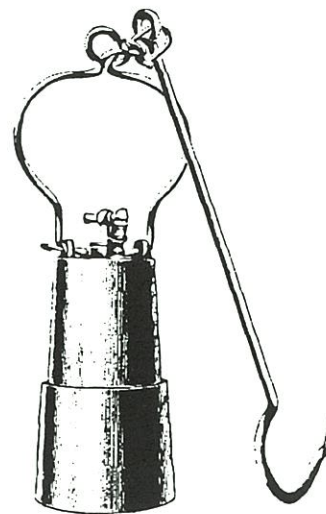
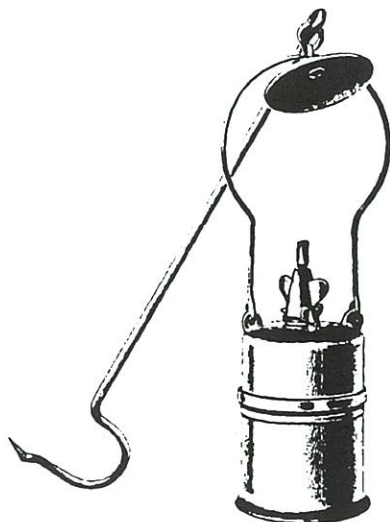
**Wolf's Acetylene Lamp with Ordinary Bridle Lever Lock.**  
Order No. 905.

**Wolf Storm and Rain-proof Acetylene Lamp.**  
Order No. 752.

Made in Steel or Brass and in Sizes I, II or III.

Made in Steel or Brass and in Sizes O, I, II or III.

Made in one size and steel only.



**Wolf's Acetylene Lamp with Wing Nut Spindle Lock.**  
Order No. 909.  
Made in Steel or Brass and in Sizes O, I, II or III.  
Extra parts on following pages

**Wolf Acetylene Lamp with screw lock (Shell Lamp.)**  
Order No. 912.  
Made in one size only and in brass and aluminum



# Miner's Nystagmus

Robert Guthrie, M.D., Waterloo, Iowa

How often have you asked one of your fellow collectors, "How did they ever see to work with that thing?" The amount of light provided by that early Davy, Anton oil or miner's candle was quite minimal and eye problems did occur. A form of nystagmus (ni stag'mūs) was seen exclusively in coal mines.

I first became acquainted with Miner's Nystagmus when I read Jim Steinberg's article in issue No.1 of the Mining Artifact Collector.<sup>9</sup> In my thirty years as a physician, I had never learned of Miner's Nystagmus. In Eureka! #6, the article "Daylight" by Thorpe and Johnson on The Daylight Carbide makes reference to Miner's Nystagmus in old advertising. (Fig. 1).<sup>10</sup>

Nystagmus is a condition of uncontrolled flickering of the eyes. This flickering can be side to side (horizontal nystagmus), up and down (vertical nystagmus) or a combination (rotatory nystagmus). Most cases of Miner's Nystagmus were of the rotatory variety. Oscillations occurred at 100-350 per minute!! Miner's Nystagmus occurred among coal miners and never among other metalliferous miners.

The history of Miner's Nystagmus is interesting but complex. As early as 1861 eye physicians in Belgium began to see a peculiar type of nystagmus, but they did not clearly relate this to mining. Miner's Nystagmus was reported as a "new disease" in 1875 at a London eye convention.

Most of my research centers on the original articles from the British literature 1875-1915. I was fortunate to obtain a copy of Bulletin 93 (1916) published by the U.S. Dept. of Interior, Bureau of Mines, describing the problems of Miner's Nystagmus in the United States and Europe.

Two theories advanced as to the cause of this disease and controversy raged back and forth in medical literature. Both theories will be presented here. One theory blamed muscle fatigue due to "holing." The other blamed the inadequate light of safety lamps. Dr. Simeon Snell writing in 1875 in the British Medical Journal felt that the cause of Nystagmus was directly related to a type of coal mining called 'holing.'<sup>8</sup> Miners were paid only for coal tonnage that did not pass through a certain size screen so that the larger pieces of coal, the more profitable. Snell's description of this mining method:

...the man engaged in winning the coal and the manner in which his work is accomplished possess the most interest to us. His business is to detach the coal from the coal seam generally by holing under the seam. To do this he has to work in a peculiar position. He sits down with his legs crooked up, lying almost on his side and strikes with his pick at the bottom of the coal, his object being to undermine or undercut the seam. He will clear away the coal thus to a height of 18 inches or two feet and then as he gets deeper in, he gets his body under the coal, lying on one or

## Acetylene Lamps for Mines.

They are simple in construction.  
They are easily managed.  
They are well made and do not wear out readily.  
They cost far less to maintain than oil lamps or candles.  
They give a bright cheerful light of much higher candle power than oil lamps or candles.

They prevent Nystagmus.

The printed report of the Committee which investigated the cause of Nystagmus shows the advantages of using Acetylene Lamps to overcome this complaint.

### CAP LAMP.

This is a neat well made lamp in polished brass. Will burn 3 to 4 hours on one charge and can be made to last a full shift by having an extra Carbide container filled with a spare charge.

Weight	.....	.....	under 5 ozs.
Height	.....	.....	3 $\frac{3}{4}$ inches.
Price	.....	.....	4/6

Extra Carbide Container, 9d.



Fig. 1, from *Eureka*, 6:26, April, 1993



the other of his sides. The distance he may undercut the coal varies considerably.

This position, lying on one side of the body, while swinging the pick in a horizontal fashion caused the miner to have to look upward or obliquely and to tilt his head in an upward manner (Fig. 2).<sup>2</sup>

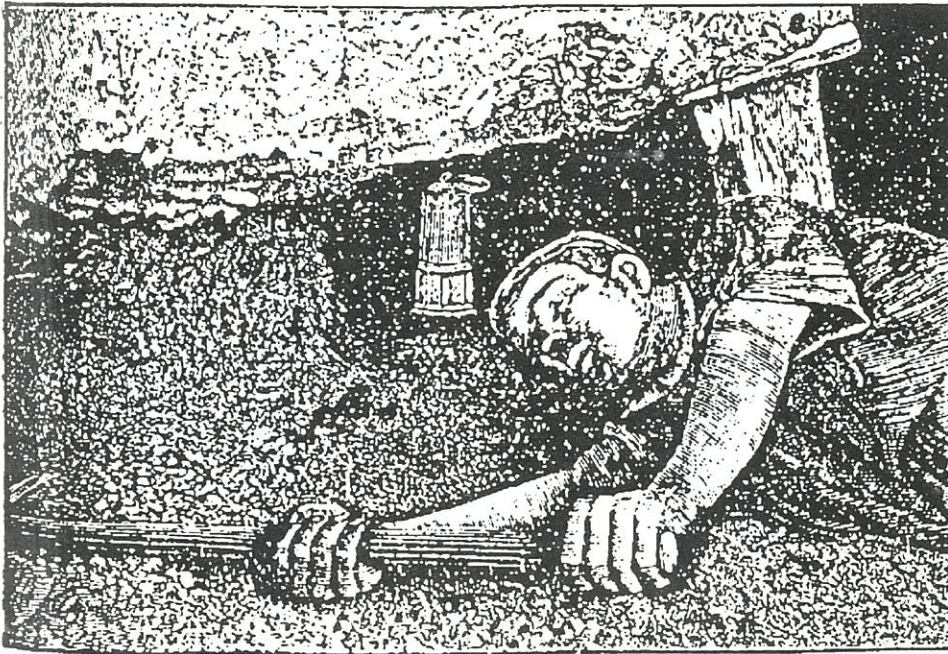


Fig. 2, from *BMJ*, Oct. 15, 1892, pg. 837

His light had to be placed some distance from the coal face either near his head or feet. Snell theorized that this prolonged fixation of the eyes led to a fatigue of the muscles of the eyes and resulted in the involuntary twitching.

Snell makes arguments showing that miners doing other jobs in the mines seldom developed nystagmus unless they also did holing. In Snell's district, the use of safety lights was the usual form of lighting so he solicited other physicians to contribute patients to his study who had developed nystagmus

using "naked" light such as torches or candles. His conclusion was that it was the fatigue of the eye muscles from "holing" that caused the miner to develop nystagmus.

The other prominent theory advanced by Dr. T. Lister Llewellyn in 1912 was that safety lamps were the culprit in causing Miner's Nystagmus. "Owing

to the deficient light in a coal mine, the images formed in the eyes are indefinite and inexact; this leads to indecision on the part of the controlling mechanisms in the brain, with the result that irregular inco-ordinate (sic) movements of the eyeballs ensue."<sup>6</sup>

Llewellyn goes on to present data to show that nystagmus rarely happens in colliery districts where the predominant lighting is candles. He presents data to show that almost 50% of his cases of nystagmus had done no "holing". He further advances his theory

by explaining that the wax candles provide one candle power but that tallow candles commonly used may be equal to two wax candles. The candle was also placed closer to the coal face and since the intensity of the light is inversely proportional to the square of the distance, a much more intense light resulted.

Oil safety lamps rarely gave more than  $\frac{1}{3}$  candlepower and inevitably gave much less light as they became dirty very quickly. The safety lamp had to be placed much further away from the head wall, further decreasing the illumination. As oxygen percentage decreased, the intensity of light from safety lamps decreased rapidly. In coal mining practically all ambient light is absorbed and the advantage of reflected light is lost. These factors led Llewellyn and others to conclude that the inadequate illumination in the coal mine from the use of safety lamps led to Miner's Nystagmus. In fact, it was not until after compulsory use of safety lamps in 1876 that a steady increase in the number of cases of Miner's Nystagmus was noted.

Regardless of the theory (holing vs. light) the symptoms and findings of Miner's Nystagmus were now being recognized. Nystagmus usually did not develop until a miner had worked in the mines for 10-20 years. The disease was very uncommon below the age of 25 and the average age was 39 years. The oscillations were often accompanied with headache, lightheadedness, nausea and vomiting, and general nervousness. Lights were seen to flicker and run into each other. A miner with nystagmus was often unable to read the "CAP" on his safety lamp.<sup>7</sup> Night blindness and photophobia (avoidance of light) were



also common. Twitching of the head and muscle spasms in the neck were ominous signs. Suicide and insanity were also attributed in a rare case.

If the miner was removed from the pit for a considerable length of time, some could return to work (35%), others were able to resume work at the surface (43%), but the remainder (22%) remained idle or left mining entirely. The prognosis depended on age, length of symptoms before failure, how much vision was affected, and presence or absence of twitching of the head.<sup>5</sup>

In 1906, English law included Miner's Nystagmus as an occupational disease under the Workman's Compensation Act. This resulted in a considerable increase in the number of cases reported. Estimates of frequency vary but one source reported 5-25% of all workmen employed underground to be affected.<sup>7</sup> Llewellyn estimates the disease to have cost England over 155,000 pounds for disability, a considerable amount of money in today's dollars (\$8 - 12 billion).

By 1913 most English physicians accepted Llewellyn's theory and called for a Royal Commission to study lighting in British mines. They felt that if the electric light were compulsory, nystagmus would become a historical disease.<sup>1</sup>

In the United States, Miner's Nystagmus failed to attract the level of attention it did in England and Europe; in fact there are few reports on this disease in U.S. literature. One source I was able to find was Bulletin 93 on Miner's Nystagmus which contained a report of an Illinois Commission On Occupation Diseases of January 1911.<sup>4</sup> This Commission reported the low

incidence of nystagmus in this country attributable to two factors. First, the greater use of mechanization, and second, the gross-weight law allowing the size of coal to be unimportant and making it unnecessary to practice "holing" - remember Snell!! The Commission's conclusion was that the disease was rare due to these factors and that the only cure was a cessation of the occupation that caused it. Their conclusion lacked a great deal of scientific thoroughness - they never even mentioned light!!<sup>4</sup>

The conclusions printed in Bulletin 93 published in 1916 included facets of both theories of the causes of Miner's Nystagmus. It was concluded that there was less nystagmus in the U.S. because of increased use of mechanization to undercut the coal rather than the use of the pick for holing. Also, the safety lamp was largely supplanted by open flame oil lamps, carbides, or electric lights.

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I discussed these reports and conclusions with two current medical colleagues (both ophthalmologists). Though they were unfamiliar with Miner's Nystagmus they recognized the condition to be due to lack or absence of light. Though both theories (Snell and Llewellyn) were interesting to review and plausible in their time, retrospectively one must conclude that the cause of Miner's Nystagmus was safety lamps. A subsequent report of the U.S Public Health Service, 1941: Soft Coal Miner's Health and Working Environment fails to mention Miner's Nystagmus.<sup>3</sup> Indeed it had become only a historical disease.

I would like to express my gratitude to Sandra Piper, Medical Librarian at Covenant Medical Center, for her help in obtaining the medical articles and to my secretary, Shirley Smith, for her help in preparation of this manuscript.



# James W. Queen & Company

*J. Roger Mitchell*

Anyone who has ever tried to research the history of a mining artifact usually encounters a grim realization. Information about the artifact is harder to find than the item itself. This is not the case with the mining lamps and other mining instruments which were once supplied by James W. Queen & Company, Philadelphia. The information about his products presented in this article was drawn from many sources. The lamps featured here are extremely rare.

The Queen Company's greatest claim to fame were the microscopes and transits which

they manufactured. These were sold and exhibited all over the world, and are among the most sought after instruments among collectors of scientific antiques. Collections of Queen instruments exist in most of the major museums in the United States.

Besides these instruments which might have seen use in an assayers office or in underground surveying, Queen supplied "Anemometers, Safety-Lamps, Water Gauges, Aneroid Barometers, [and] Thermometers

for Miners." The anemometers made by Queen were the finest in the world, as were all of the instruments which the company made themselves. The anemometers were sold not only for mine use, but also to measure the flow of air in public buildings. Calibration was achieved by attaching an anemometer to each end of a large

able to identify six examples with the Queen Company stamping. Of the six lamps, five are featured in Queen's catalog of meteorological instruments issued in 1882 and again in 1888. The controversial question is, "did Queen make these lamps?" This is unlikely, as the catalog states that the miners' safety lamps were "of the best English make."



*Queen microscopes - Delaware County Institute of Science collection.  
Photo: Dave Williams.*

beam and rotating at a known velocity ranging from a fraction of a mile per hour to that of a cyclone.

Another specialty of Queen's was their thermometers. Only the finest German glass blowers were employed in their manufacture, at a separate factory in the glass industry center of Vineland, New Jersey.

The rarest of the Queen products are their miners' safety lamps. After an extensive survey, the author was only

However, the sixth lamp revives the controversy. A lamp in Lester Bernstein's collection is stamped with the Queen Company name, and with the patent date of December 18, 1883. This patent (No. 290510) was issued to an American named John Lloyd Williams of Shenandoah, Schuylkill County,

Pennsylvania. The patented feature of this lamp was an added wick tube which was used to extinguish the flame without having to open the lamp. This was an important feature in the presence of an explosive fire-damp atmosphere.

Speculation as to the actual manufacturer of this lamp centers around the Everhart Brass Works in Scranton, PA.

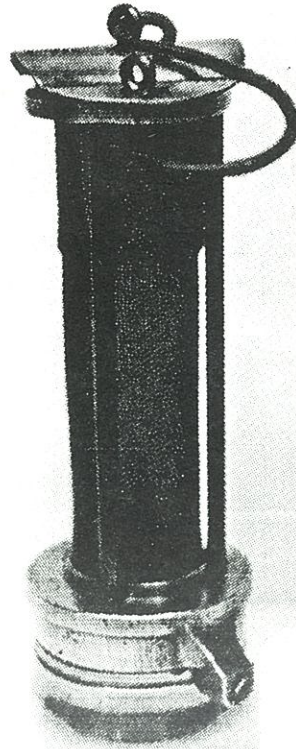


# Queen Safety Lamps

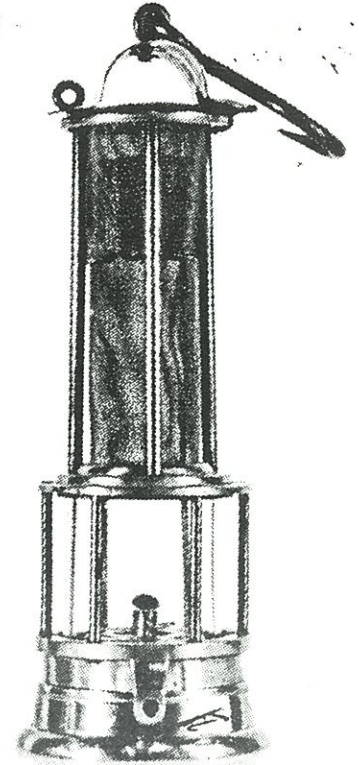
James W. Queen was born in Philadelphia, Pennsylvania, in 1811. His parents were Irish immigrants. He started working at the age of seven and by the age of thirteen had only attended school for one year. Soon afterwards, he was apprenticed to John McAllister, who was the leading scientific instrument dealer in Philadelphia at the time. By 1836 Queen had become a partner in the firm, and would remain so for seventeen more years. Queen went into business for himself in 1853 and advertised as "Optician, Importer and Dealer in Optical, Mathematical and Philosophical Instruments." In 1859 he took on a partner named Samuel L. Fox and named the new business James W. Queen & Company.

Queen withdrew from the business in 1870. He died on July 14, 1890, and was buried in Laurel Hill Cemetery in Philadelphia. Shortly after his death his wife Abby endowed a large portion of his fortune to establishing the James W. Queen Memorial Library which is located at 33rd and Wharton Streets in Philadelphia.

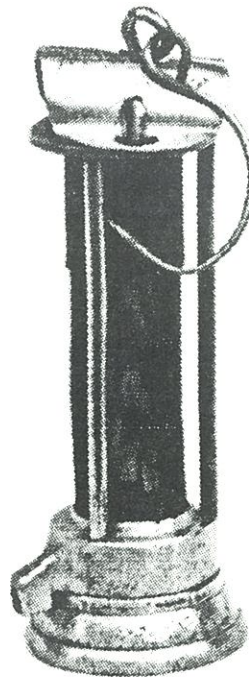
Following Queen's retirement, Fox took on two new partners and by 1877 turned the company into a virtual department store of scientific instruments. Items from this period are signed J. (or Jas.) W. Queen and Co. The signature "Queen and Co." began to appear in the late 1880's. Over the years as the company grew, it changed owners and names several times: Queen-Gray (1912), Gray Instrument Co. (1926), Biddle-Gray Corp (1963). The Biddle-Gray name was dropped in 1967, but the Gray line of electrical instruments are still in production today.



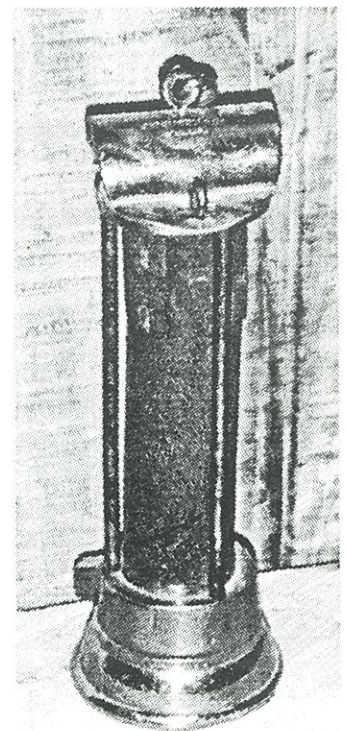
8 1/2 "  
(Lester Bernstein collection)



10 1/4 "  
(Lester Bernstein collection)



9"  
(J. Roger Mitchell collection,  
photo by Dave Williams)

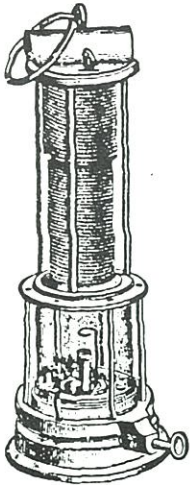


10 1/2 "  
(Brad Ross collection /photo).

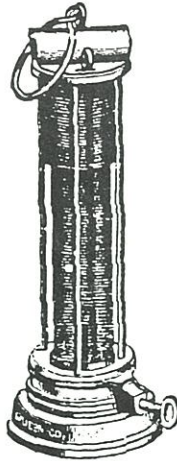


**MINERS' SAFETY LAMPS,**

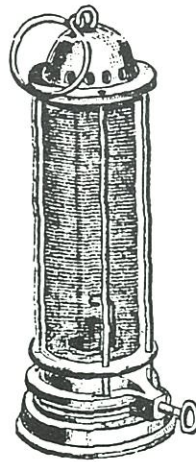
OF BEST ENGLISH MAKE.



No. 14,526.

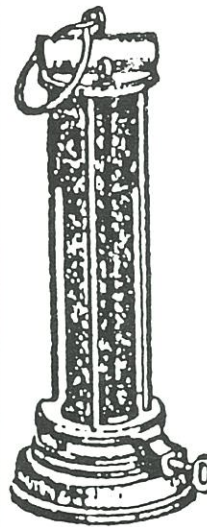


No. 14,525.



No. 14,528.

Three safety lamp models from Queen catalog.



**ANEMOMETERS,  
Safety-Lamps,**

**WATER GAUGES**

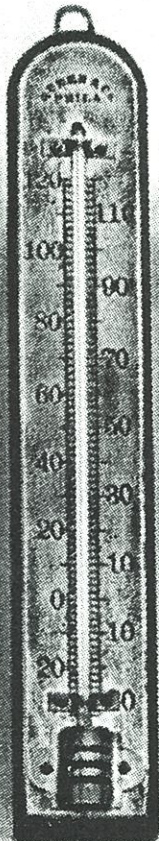
**Aneroid Barometers,**

**THERMOMETERS,**

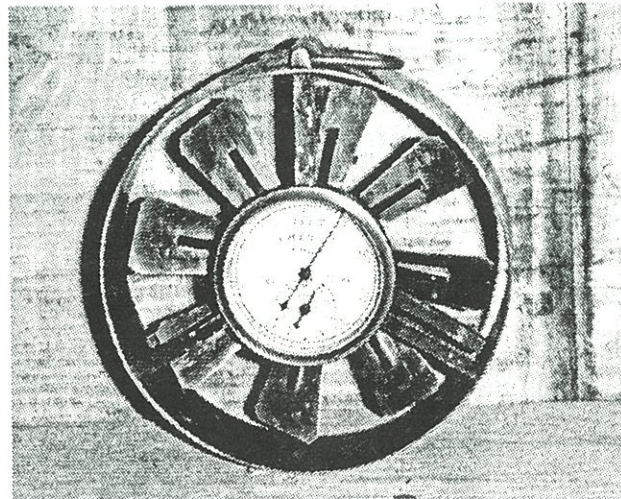
For Miners. Priced and  
Illustrated Catalogue of  
120 pages on application

**JAMES W. QUEEN & CO.,  
Philadelphia, Pa.**  
18-17

Advertisement.



Queen & Co. Phila.  
Thermometer, 11" tall (J.  
Roger Mitchell collection, photo  
by Dave Williams).



Queen &  
Co. Phila.  
Anemometer  
(Harold  
Bailey  
collection,  
photo by  
Brad  
Ross).

**Sources**

The Queen factory and brass foundry were featured in an article in Scientific American for April 28, 1888, and were shown on the cover.

The history of James W. Queen & Company was found largely in a reprint of the Company catalogs, with an introduction written by Deborah Jean Warner of the Smithsonian Institution. My sincerest thanks go out to her and to Gretchen Worden, director of the Mutter Museum in Philadelphia. Without their help this article would not have been possible.

I also wish to thank Lester Bernstein, Harold Bailey, and Brad Ross for providing pictures. Lastly, I thank John Bell, Dave Williams, Tony Moon, Mark Ballard, and everyone who contributed to this article.



# Permissible Explosives

Eric Twitty

Many mines in sedimentary ground can be gaseous; coal mines, which are notorious for this, also often contain well-trampled, well-pulverized, fine coal dust. Both of these elements have been the cause of many mine disasters in the form of explosion and fire. Later studies conducted by the U.S. Bureau of Mines proved that explosives, especially blasting powder, threw a flame during explosion which ignited mine gas and dust. The shock waves generated by the detonation of high explosives were also proven to suspend near-by coal dust in some instances, making it more vulnerable to ignition.

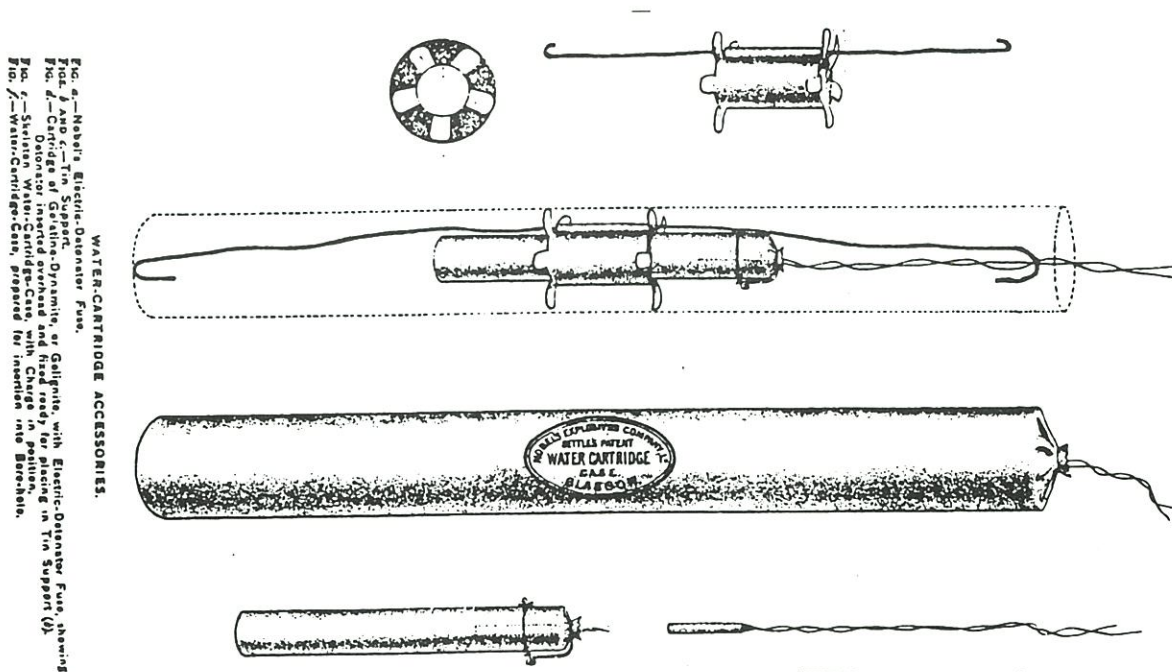
The hazard presented by explosives in coal mines was acknowledged early on in Europe and by the late 1870's and early 1880's several commissions had been appointed to develop solutions.

Despite this, the problem explosives posed in gaseous and dusty mines in the United States was not formally addressed until shortly after 1900.

The first solutions, which were devised in England in the 1880's, were very awkward indeed. Several "safety devises" developed at this time included: a water canister which was tamped into a loaded drill hole on top of the charge and designed to

rupture the water squelching any stray flame; an explosive charge which was suspended in the center of a water-filled canister by spokes; a special sprinkler system to shower the working face in a mine with water during a blast; and attempts using saturated moss as tamping material. Needless to say, these attempts at suppressing blast flame were rather inconvenient to use and probably not very effective.

The first practical solution was an attempt to modify the explosive rather than modifying the blasting environment. It came in the form of a "safety explosive" patented in 1887 under the name of "Carbonite" in Germany



## SETTLE'S PATENT WATER CARTRIDGE

Dynamite cartridge (d) is held in center of tube of water (e) by sleeve (b). Entire assembly is tamped into drill-hole. Water in tube suppresses flame given off by detonation of dynamite. Patented in early 1880's.

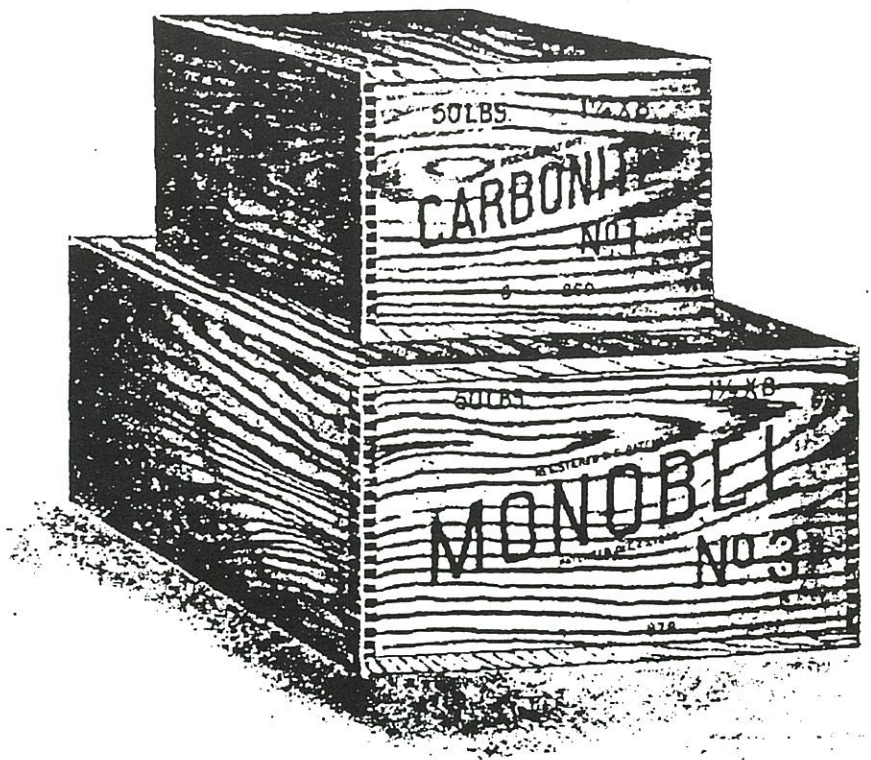


by a Mr. Bichel. "Carbonite" was a breakthrough for the explosives industry because although it was based on a straight dynamite, carbonaceous matter had been incorporated into the formula which had a cooling effect on the explosion. Unfortunately, it had the drawback of producing a lot of carbon monoxide gas due to the carbon in the formula.

Shortly after "Carbonite" was developed, "Monobel" was patented in England based on an ammonium nitrate/nitroglycerine formula which incorporated hydrated salts. Ammonium nitrate produced a naturally cool explosion which was further cooled by the hydrated salts, while producing cleaner gases than "Carbonite."

Although it was not until 1907 that a group was formally organized in the United States to study the problem of explosives in gaseous and dusty mines, the problem was certainly well known amongst miners in coal mining districts.

Serious research and development and mass marketing of "short-flame" explosives was undertaken by DuPont beginning in 1902. In that year DuPont sent its chemical director, Dr. Charles Reese to Europe to study state-of-the-art research and manufacturing techniques. Two years later, DuPont established its Eastern Laboratories at the sprawling Repauno Plant in New Jersey and research on "safety explosives" was undertaken immediately. By 1905 DuPont's experts concluded that the two most practicable and economical formulas to make were "Carbonite" and "Monobel", the former of which was made by DuPont for at least 40 years. Manufacture and distribution commenced at once.



*Above: The first "safety explosives" offered by the E.I. DuPont de Nemours Powder Co., c. 1908.*

*Below: A blueprint for the box of one of the Atlas Powder Co.'s first permissibles. This brand-name was taken from the Hecla Dynamite Co. and was used by Atlas for a very short time, c. 1915. Courtesy of Curt Kremer.*





1907 began the chain of events which ultimately gave rise to the widespread use of "safety explosive", later known as "permissibles." That year Dr. Joseph Holmes, who directed the Technologic Branch of the United States Geological Survey organized a formal study on the effect of explosives in gaseous and dusty mines.

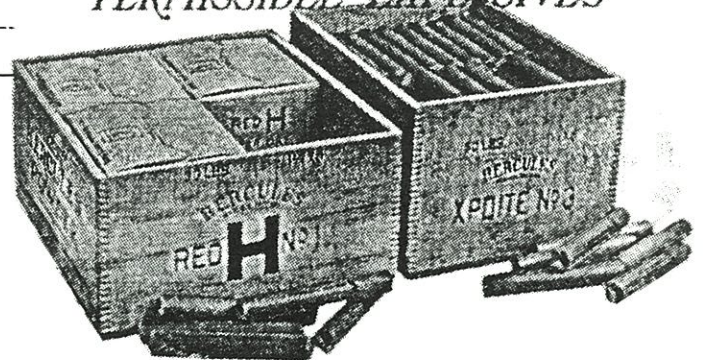
In 1909 the Technologic Bureau made a general announcement to explosives manufacturers that it was ready to begin testing of formulas to determine if they were safe. Those which passed certain tests would be posted on a list of "permissible" explosives. Perhaps the term "permissible" suggested to explosives makers future regulation

of explosives permitted in gaseous and dusty mines, for the Pittsburgh Testing Station received no less than 134 samples in one year. Later in 1909, the first list of "Permissible Explosives" was published, and after that a list of new permissibles was published at least once per year until 1913.

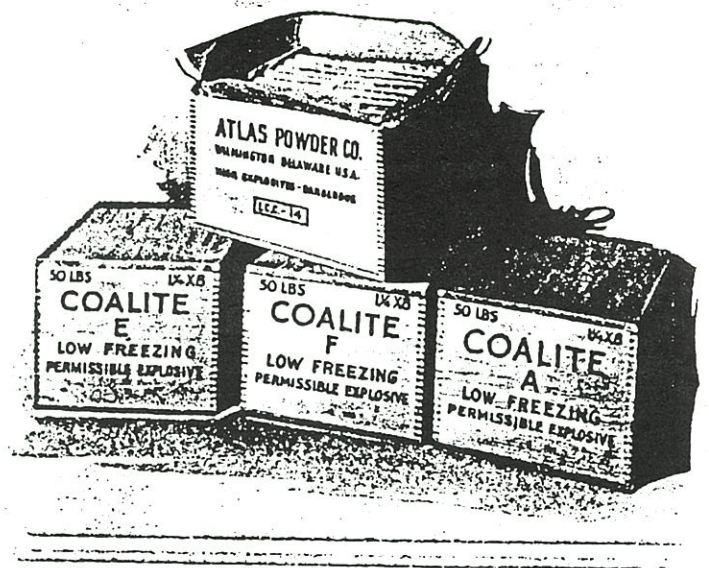
## List of permissible explosives as of 1911

Brand.	Manufacturer.
*Aetna coal powder A	Aetna Powder Co., Chicago, Ill.
*Aetna coal powder AA	Do.
*Aetna coal powder B	Do.
*Aetna coal powder C	Do.
*Aetna coal powder D	Do.
*Bental coal powder No. 2	Independent Powder Co. of Missouri, Joplin, Mo.
*Bituminite No. 1	Jefferson Powder Co., Birmingham, Ala.
*Bituminite No. 3	Do.
*Bituminite No. 4	Do.
*Bituminite No. 5	Do.
*Bituminite No. 7	Do.
*Black Diamond No. 3	Illinois Powder Manufacturing Co., St. Louis, Mo.
*Black Diamond No. 4	Do.
*Carbonite No. 1	E. I. du Pont de Nemours Powder Co., Wilmington, Del.
*Carbonite No. 2	Do.
*Carbonite No. 3	Do.
*Carbonite No. 4	Do.
*Carbonite No. 1-L. F.	Do.
*Carbonite No. 2-L. F.	Do.
*Coalite No. 1	Potts Powder Co., New York City.
*Coalite No. 2-D	Do.
*Coalite No. 2-D. L.	Do.
*Coalite No. 3-X	Do.
*Coal special No. 1	Keystone National Powder Co., Emporium, Pa.
*Coal special No. 2	Do.
*Coal special No. 3-C	Do.
*Coal special No. 2-W	Do.
*Coal special No. 3-W	Do.
*Coal special No. 4	Do.
*Coal special No. 6-L. F.	Do.
*Collier powder No. 2	Do.
*Collier powder No. 4	Do.
*Collier powder No. 5	Do.
*Collier powder No. 5 special	Do.
*Collier powder No. 5-L. F.	Do.
*Collier powder No. X	Do.
*Collier powder No. 2-L. F.	Do.
*Collier powder No. 3	Do.
*Collier powder No. 6-L. F.	Do.
*Collier powder No. 8-L. F.	Do.
*Detonite special	The Detonite Co., Cincinnati, Ohio.
*Eureka No. 2-L. F.	O. R. McAbee Powder & Oil Co., Pittsburg, Pa.
*Giant A low-flame dynamite	Giant Powder Co. (Consolidated), Giant, Cal.
*Giant B low-flame dynamite	Do.
*Giant C low-flame dynamite	Do.
*Ilecla No. 2	E. I. du Pont de Nemours Powder Co., Wilmington, Del.
*Kanite A	W. H. Blumenstein Chemical Works, Pottsville, Pa.
*Masurite M. L. F.	Masurite Explosives Co., Sharon, Pa.
*Meteor AXXO	E. I. du Pont de Nemours Powder Co., Wilmington, Del.
*Mine-ite A	Burton Powder Co., Pittsburg, Pa.
*Mine-ite B	Do.
*Monobel No. 1	E. I. du Pont de Nemours Powder Co., Wilmington, Del.
*Monobel No. 2	Do.
*Monobel No. 3	Do.
*Nitro low-flame No. 1	Nitro Powder Co., Kingston, N. Y.
*Nitro low-flame No. 2	Do.
*Titanite No. 3-P	Waelark Titanite Explosive Co., Corry, Pa.
*Titanite No. 7-P	Do.
*Titanite No. 8-P	Do.
*Trojan coal powder A	Pennsylvania Trojan Powder Co., Allentown, Pa.
*Trojan coal powder B	Do.
*Trojan coal powder C	Do.
*Trojan coal powder D	Do.
*Trojan coal powder E	Do.
*Trojan coal powder F	Do.
*Tunnelite No. 5	G. R. McAbee Powder & Oil Co., Pittsburg, Pa.
*Tunnelite No. 6	Do.
*Tunnelite No. 7	Do.
*Tunnelite No. 8	Do.
*Tunnelite No. 6-L. F.	Do.
*Tunnelite No. 8-L. F.	Do.

## PERMISSIBLE EXPLOSIVES



*Hercules Powder Co. permissible, c. 1915-1925. "Red H" is named after U.S.B.M. permissible test "H" conducted in 1915.*



*Atlas Powder Co. permissibles, c. 1913-1923. Each letter designation represents a permissible test that particular formula passed. Coalite was a brand-name once belonging to the Potts Powder Co., which Atlas bought in 1913.*

### References:

- Atlas Powder Co., *Explosives and Other Products 1923*, Atlas Powder Co., Wilmington, DE.  
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# World's Fair Lamp

*Phillip Zink*

In 1904, St. Louis took its turn at hosting the World's Fair. Enormous buildings were erected to house specific topical displays as had been done in the past. The Palace of Mines and Metallurgy building covered an area of 9 acres, with exhibits covering a wide range of topics. Displays of the latest in mining and processing equipment were shown, with daily demonstrations of gold and silver refining.

Next to this building was Mining Gulch, about 13 acres with operating exhibits such as a gold mill, copper smelter and an underground coal mine.

The wick lamp shown was probably a souvenir purchased at the coal mine exhibit. The lamp is 2" tall and is one piece hollow cast of pot metal, probably pewter. The hook was attached at the time of casting and the lettering is raised.

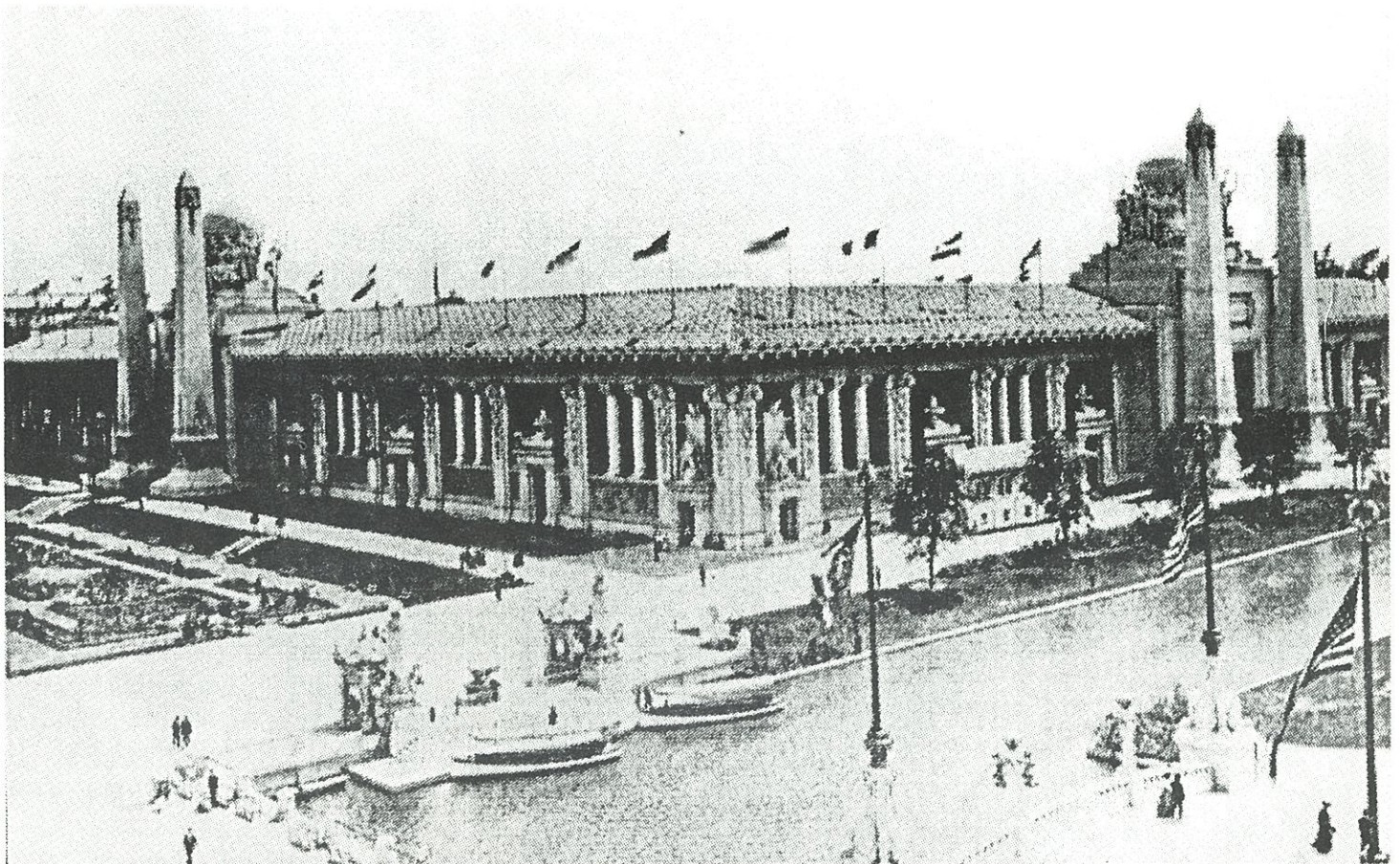
## Sources

1. Souvenir Book of the Louisiana Purchase Exposition, 1904, Rober Reid.
2. The Book of the Fair - St. Louis 1904, Marshall Everett.



*Above: 1909 World's Fair souvenir lamp (Author's collection). Stamped COAL MINE, ST. LOUIS, 1904.*

*Below: Palace of Mines and Metallurgy: a nine acre exhibit at the 1909 World's Fair.*





# Cap Tin Update

*Andy Martin*

Before getting down to the “nitty gritty” on this update, we must pay homage to the New Mexico collectors John Kynor and Scott Altenbach. Together, this dynamic duo managed to turn up 6 of the 9 tins covered by this update. Come on guys, chill

out and give the rest of us a chance to find some stuff!

The two METALLIC CAP MFG. WORKS tins probably date from 1908 to around 1910. The “WORKS” name was used after the DuPont pur-

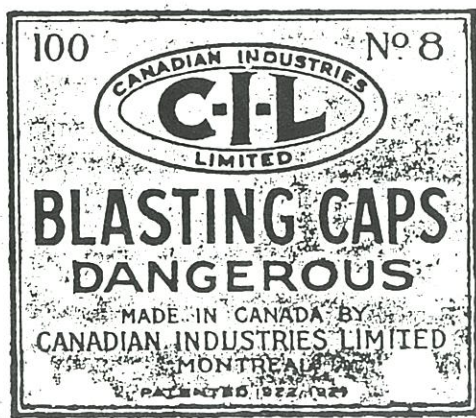
chase of Metallic Cap in 1908, and the cheap paper label was soon (?) upgraded to the classier painted construction seen in the Metallic No. 5, NEW YORK, square and round tins.



**REPAUNO, EXTRA TRIPLE, round**  
Embossed lid  
Reported by Phillip Zink



**METALLIC CAP, QUINTUPLE, round**  
Blue letters on white paper  
Reported by Scott Altenbach



**CIL, No. 8, MADE IN CANADA**  
Painted yellow with black letters  
Reported by John Kynor



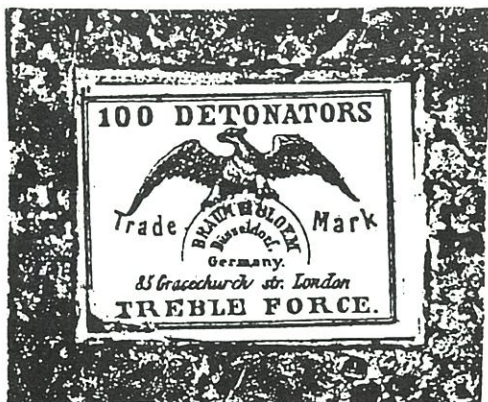
**METALLIC CAP, QUINTUPLE, square**  
Blue letters on white paper  
Reported by Scott Altenbach



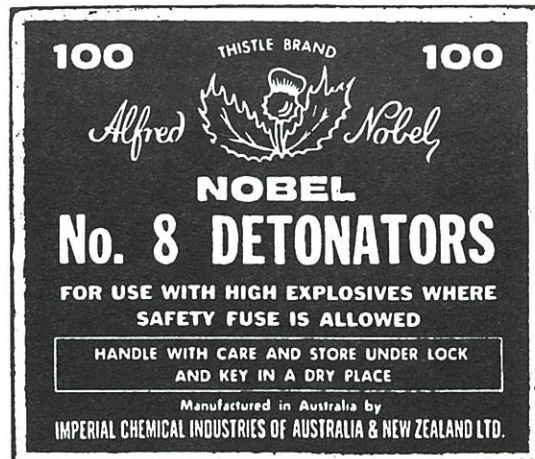
The Repaouno, EXTRA TRIPLE, round tin fits nicely into the TRIPLE (No. 3 strength), EXTRA TRIPLE (No. 4), and QUINTUPLE (No. 5) sequence of round and square Repauno tins. Only one item is now needed to complete the set of six variants, a Repauno QUINTUPLE square tin.

At long last a French tin has surfaced, namely the French Munitions Company No. 8. Collectors who were aware of the number of English and German detonator manufacturers have long wondered how the proud French met their need for caps. Surely they didn't just buy them from the

foreign nations. Some answers are provided by this tin which dates from November, 1949. The motto "De Chasse, De Tir Et De Guerre" loosely translates to "For Hunting, Shooting, and War."



**BRAUN & BLOEM, 85 Bracechurch str. London**  
 Blue gray letters on white paper  
 Reported by Ed Diekman



**IMPERIAL CHEMICAL, No. 8**  
 White letters on red paper  
 Reported by Michael Newnham



**FRENCH MUNITIONS, No. 8**  
 Black and red on white paper  
 Reported by Urs Hilfiker



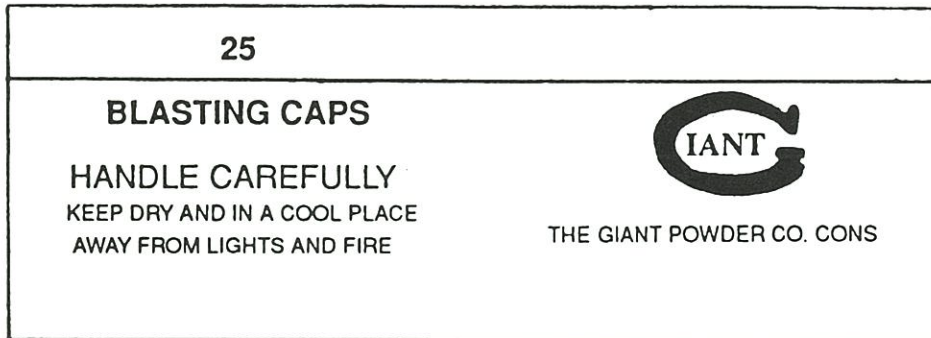
Perhaps the relative scarcity of French tins is due to limited domestic consumption (few hard rock mines), and lack of a good export market.

The COLUMBIA POWDER tin is the first tin known that relates to this company. Columbia Powder was based in Tacoma, Washington, and sold dynamite in the 1940 to 1950 period. Little else is known about

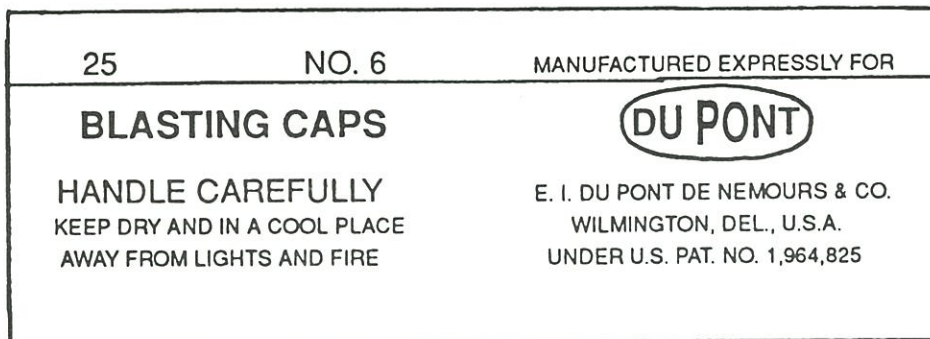
them, perhaps a reader can fill in some of the blanks.

In an earlier article (Eureka, Summer 1992) the prediction was made that more variants of the 25 cap paper label tins made by California Cap Co. would turn up. John Kynor was lucky enough to find two of these, the Giant Powder No. 6 (?), and the DuPont No. 6. They both have flat,

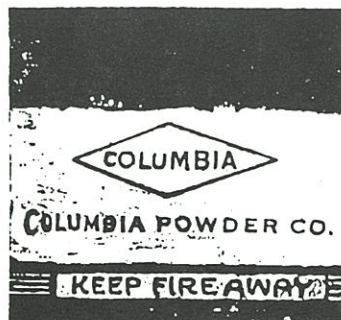
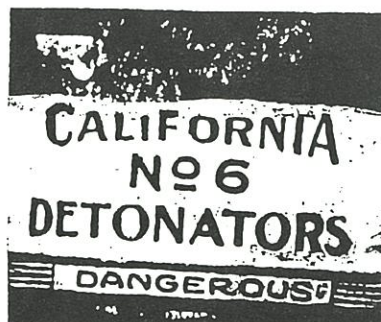
unembossed lids, and paper bottom labels perforated with code dates. The labels are usually in poor shape and hard to xerox, so John used his computer to print out representations of the labels. Of course I had to use my computer to "improve" the job (check out that nifty DUPONT), so it's hard to say how close the final illustrations are to the actual labels.



**GIANT POWDER**  
**No. 6 (?), 25 Caps**  
**Paper label, flat lid**  
 Red letters on cream paper.  
 Illustration is approximate representation.  
 Reported by John Kynor



**DUPONT**  
**No. 6, 25 Caps**  
**Paper label, flat lid**  
 White letters on red paper.  
 Illustration is approximate representation.  
 Reported by John Kynor



**CALIFORNIA CAP**  
**BLASTING CAPS DANGEROUS**  
**for COLUMBIA POWDER**  
 Embossed lid, blue and red letters on white paper label  
 Bottom label shown right  
 Reported by John Kynor



# John Hays Hammond

&

## The Bunker Hill Mine

(Stock Certificates)

by

Larry Radford  
223 N. Hollow Drive  
Elko, NV 89801

From 1890 to World War I, American mining engineers especially those from California, were in worldwide demand.

John Hays Hammond was one of these engineers. He was, perhaps, only second to Herbert Hoover in prominence. He was the son of a '49er and a graduate of Yale and Freiberg; his career would bring him to be offered numerous ambassadorships, meet kings, and know every president from Grant to Hoover - excepting Arthur. His salary in 1896 was \$75,000 a year; his salary from the Guggenheims in 1903 was reported to be a million dollars a year. He would consult in Russia, Mexico, China, South America, and Africa. He consulted for Cecil Rhodes in Africa, where he was instrumental in the deep development of the Witwatersrand; together, they would start a war against the Boer government of South Africa.

The stock certificate shown on the next page was issued to Hammond's son by the Bunker Hill Mining Co. I also have similar certificates issued

to Hammond himself and to his wife. Hammond was given twenty-five hundred shares for organizing the company. He purchased stock and owned 32,962 shares by September of 1892.



*John Hays Hammond: esteemed mining engineer (from John Hays Hammond's Autobiography).*

The certificates are signed by Frederick W. Bradley, another famous mining engineer. Bradley had first made his reputation in the gold quartz mines of California. It is evident that Hammond was instrumental in placing Bradley with the Bunker Hill Mine. In 1896, Hammond guaranteed Bradley ten thousand dollars a year to keep him at the mine. He was also instrumental in supporting Bradley as a manager. When Bradley felt threatened by a consulting engineer, Christopher Corning, Hammond backed Bradley. Bradley was apparently an able manager. He was managing the Bunker Hill during the mining wars of the Coeur d'Alene district. For his part, he may have been the victim of an



assassination attempt; his apartment blew up, either through a gas explosion or a bomb placed by Harry Orchard; Bradley survived.

Hammond's and Bradley's relationship appears to have fallen apart in 1900. Hammond secured an option on placer ground on the Yuba river in California; Hammond was enthusiastic. Bradley's initial reports were

favorable; however, he eventually dropped the option. Bradley picked up options on adjoining ground. Hammond accused Bradley of unethical conduct and prepared to bring suit over the money Bradley gained on the adjoining ground. Hammond bought an interest in the original property from the person who picked up the option. The property was put into production and evidently made

money. Hammond was bitter, as evidenced by his scolding remarks about Bradley in his autobiography.

In addition to Hammond and Bradley, several other notable mining engineers worked at the Bunker Hill - Victor Clement, Albert Burch, and Stanley Easton among them. Victor Clement built his holdings in Bunker Hill stock to 36,301 shares.



*Bunker Hill Mine Stock Certificate issued to the son of John Hays Hammond (Harris). This and other certificates issued to John Hays Hammond and to his wife Natalie are from the author's collection. They were given to him by his father, Norman Radford, who was a geologist at the Bunker Hill Mine.*

**References**

Hammond, J.H., The Autobiography of John Hays Hammond, Farrar & Rinehart; 1935.

Magnuson, R.G., Coeur d' Alene Diary, Binford & Mort; 1968.

Nelson, P.H. and I., Mining Town, University of Washington Press; 1984.

Rickard, T.A., A History of American Mining, McGraw-Hill Book Company; 1932.

Spence, Clark C., Mining Engineers and the American West: The Lace-Boot Brigade, 1849-1933, Yale University Press; 1970.

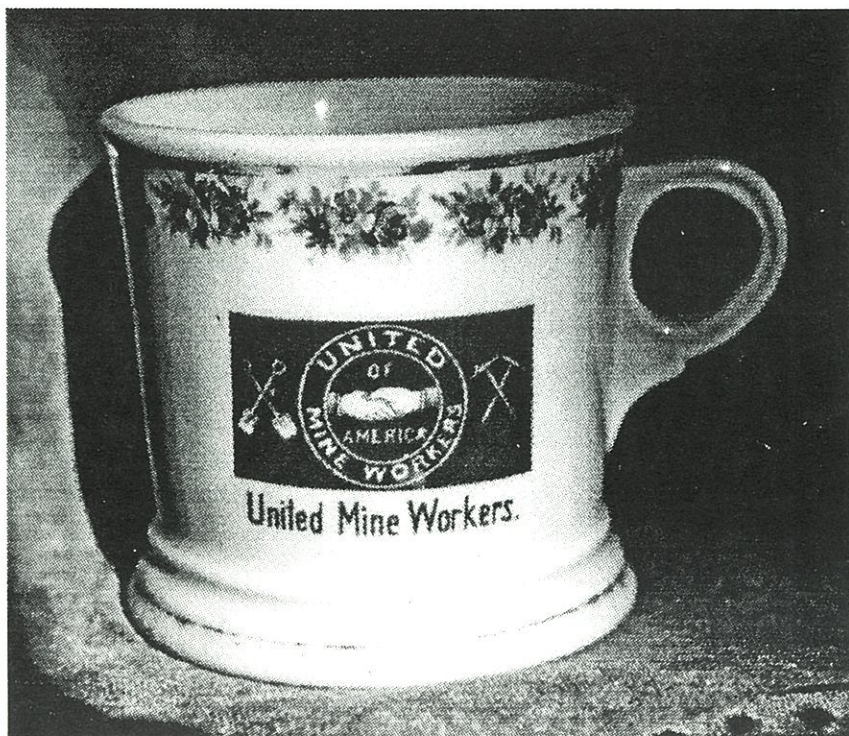
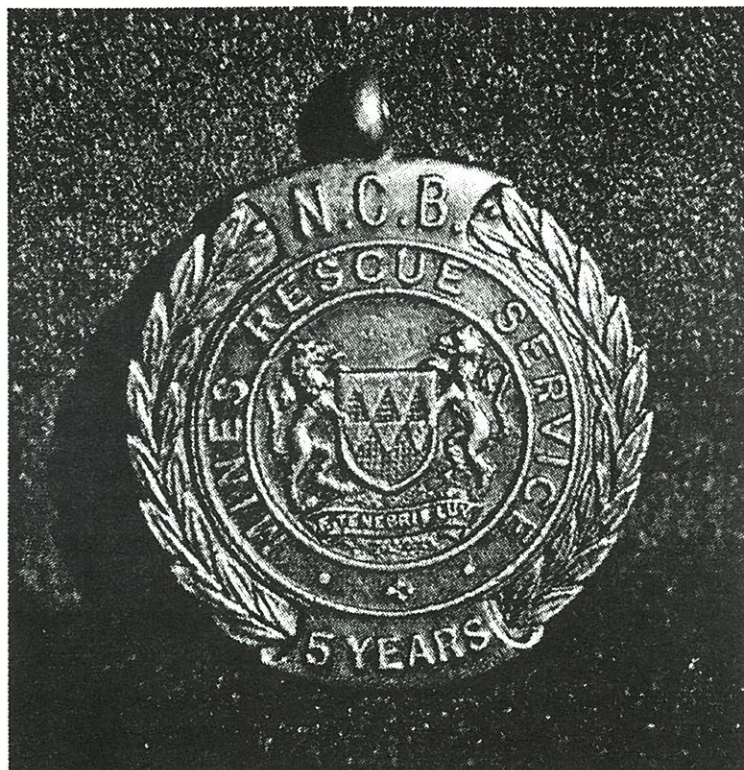




## Service Medal

This brass medal, found by Dave Johnson, was awarded by Great Britain's National Coal Board for five years continuous service in the Mines Rescue Service. The back is engraved:

E. JOHNSON BENNWELL R.S.  
1950



## UMWA Mug

Occupational coffee mugs and shaving mugs are the target of collectors just like we collect mine lamps. This particular white procelain United Mine Workers coffee mug has a gold ring around the top and bottom. The flowers are red, purple and orange, and the logo and writing below it are green (Dave Johnson).



## Book Review: Hard-Rock Miners The Intermountain West 1860 - 1920

by Len Gaska

Without context, the mining relics we so avidly collect are..... well.... junk! Just pieces of scrap metal with little or no practical value in our daily lives. True, some items such as fancy candlesticks and a few carbide lamps have an artistic or design quality that goes beyond mere relic status. But for the most part, most mining antiques are not things of beauty and were only tools to their original owners.

But add the context of history and the “junk” we collect becomes a part of a story. And there are many facets of history to an item such as a carbide lamp. Who was the inventor? What was his life like? When, where, and how was the lamp manufactured? And finally, what type a person used this artifact and what was their lifestyle? Hard-Rock Miners, The Intermountain West, 1860-1920, by Ronald C. Brown is a history of the lifestyle of the miners of that region in the period in which mining flourished in the western United States. The area covered in the book includes the states of Wyoming, Colorado, New Mexico, Arizona, Utah, and Nevada. Instead of focusing on a particular individual, mining district, or mining camp, the book does an excellent job of covering the general lifestyle of the miners of that region and era. Some of the chapter titles are “The Miners’ Towns and Families,” “The Perils and Pleasures of the Miners’ World,” “Earning a Living by Mining,” and “The Need to Organize: The Miner and His Union.” If the reader has any doubts about how rough the life of a miner was, this book should dispel them. But despite the perils and hardships, there is compelling evidence that the miners were a hard-working, proud, and optimistic lot.

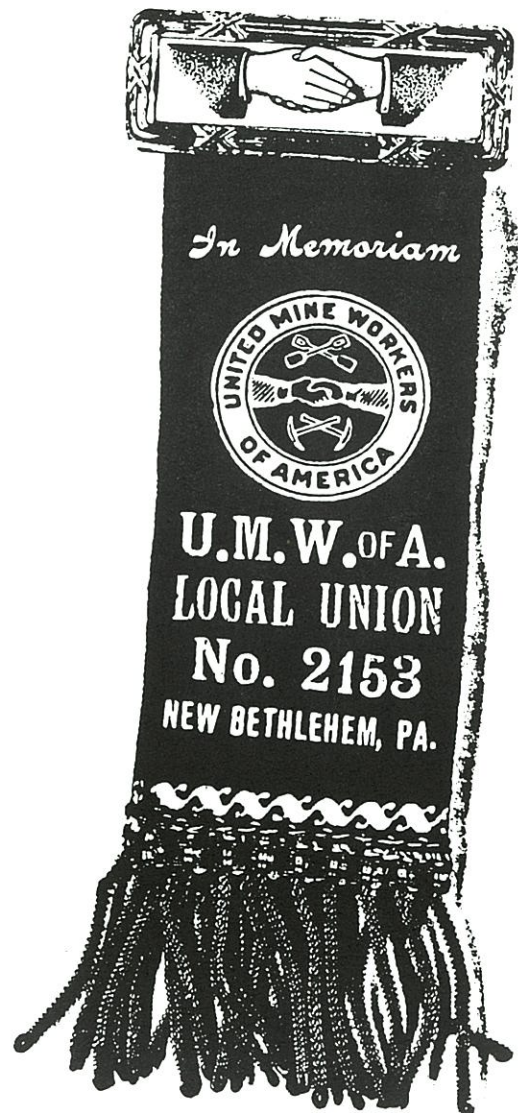
The author is clearly sympathetic to the miners of that era, yet gives a balanced history of the labor troubles that led to the formation of the Western Federation of Miners (WFM) union in 1893 in Butte, Montana. The portion of the book dealing with labor troubles and the history of the WFM are probably the most interesting parts as that topic alone could fill many volumes.

This book is extensively footnoted and although many of the sources are in archival collections or otherwise difficult to obtain, some of them are readily available. Frank Crampton’s Deep Enough (See review in Eureka!, No 2, p 35) is extensively quoted and is currently in print. The bibliography is also excellent and should prove an invaluable resource to anyone wishing to pursue further reading.

Hard-Rock Miners is available from Robert Fox, Mining History Books, 1235 N. Westfield St., Oshkosh, WI 54901. Write for current price.

## U.M.W.A. Ribbon

Deric English sent us a copy of a hard-to-find ribbon.







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**Catalog:** Send for catalog of mining history books and photos. (Postage appreciated.) If you have any books for sale relating to Michigan iron and copper mining please write. Robert Fox, 1235 N. Westfield St., Oshkosh, WI 54901.



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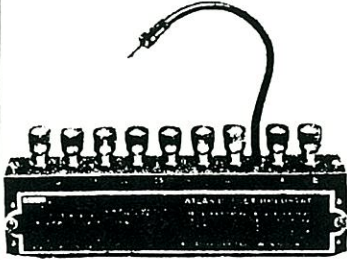
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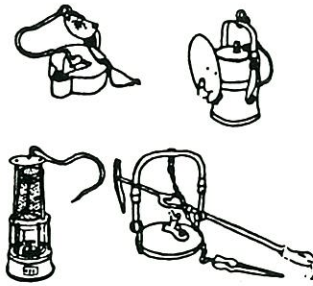
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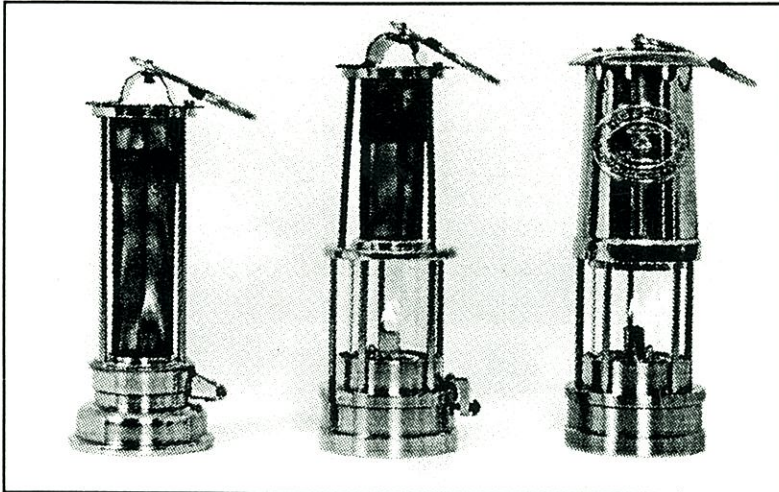
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