

EUREKA!

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EUREKA!



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

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Cover: An early vertical flame lamp. Photographed at the W. M. Keck Earth Science and Engineering Museum, Mackay School of Earth Sciences and Engineering, University of Nevada, Reno.



Changing Times — *editorial*

Having just returned from the Western Collectors' Show at Sutter Creek, I reflected once again on the overall trend that our hobby is taking.

Some years back, the Internet emerged as a tool that began to alter the way we go about our business. The first big change (for me) was the realization that the hard-copy magazine was dead in the water. Though every subscriber relates that they couldn't wait for their quarterly magazine to arrive, they also admitted that the first page they turned to was the Trade/Sale section. Sadly, this section became obsolete overnight. Deals and sales found a much faster and preferred medium in email. Resubscribing every year became a pretty low priority for most, with many forgetting their subscription had lapsed six months before they started asking questions. The sheer amount of time it took to take subscriptions randomly throughout the year made this non-profit venture untenable.

The next casualty was the antique shop. In days gone by, one could organize a whole week's vacation over a string of antique shops, and have an occasional great find. On-line auctions, in particular eBay, killed the antique shop as a place where decent artifacts could be found.

And now, it is our semi-annual shows that are beginning to take the brunt of the internet's ruthless efficiency. Historically, the Friday night room crawl has been perhaps the most exciting aspect of the show. It was not unusual to have 20 rooms open for early deals. No

more. There was just one room with artifacts on display this time. Only two parties came from the east coast, and one from Illinois. The whole event had become regional. Can we 'blame' this on the internet as well? Indeed, when faced with a cost of over a thousand dollars to make the trip, versus free instantaneous digital photographic communication that is 'almost' lifelike, decisions have to be made. Where were the big players? Al Winters, Bob Guthrie, Al Quamen, Larry Click, Dave Des Marais, Dave Johnson, Chuck Tesch, Bill Goldman — all had to make priority decisions.

The show itself did attract quite a number of people, and generally everyone had fun...but there was something missing: commerce. Yes, there were many items, and some of these changed hands, but not nearly on the scale of what went on ten years ago. Had all the deals been done weeks before in cyberspace?

Before you think I am complaining, I will say that I am truly enjoying the internet. The Eureka website is now more interactive, with its own forum. The number of rare lamps that can be acquired now, could never have been accomplished in even one lifetime.

I do believe, that with some effort, we can have the best of both worlds. I haven't given up on the collector shows quite yet, but I'm closer than ever to joining those who have to weigh just how much fun they are having, versus how much fun they could have doing something else. Let's hope we can keep the spirit alive.

Watch That Flame!

by Bob Guthrie

Introduction: While my wife and I were watching our table at the Eastern Mining Artifacts Collector's Meeting last September, an older man came up and was looking at the oil wick lamps I had out on the table. He asked, "Hey young fella (I liked him right away), you ever fire one of these up?" Somewhat chagrined, I replied that I had not done that, but took the opportunity to ask him what it was like. He told us that he used to wear one when he worked in one of the local mines. He vividly described that "they would burn with a flame about the size of your hand sitting up there on your head attached to your hat." He held his somewhat arthritic and knarled hand up to his forehead and wiggled his fingers. "You learned pretty quick to keep your head up," he said. "That oil would run out and there would be balls of fire dripping down on your clothes and the floor." We talked for a while longer and that was the impetus for me to do this bit of research on modifications of miners' oil wick lamps that might help with this serious disadvantage. I began by searching the known patents for oil wick lamps from the list that Dave Johnson published in EUREKA!, Issue 14, January 1995, and Henry Pohs' "The Miner's Flame LightBook," Appendix 14, pp.695-700.

The Problem: I tried to analyze the points at which such lamps could leak. I ignored those that might have been damaged by melting of the solder or punctured at the base of the spout by trying to advance the wick or whatever. It appears to me that these could leak: (1) from the lid, (2) from the vent tube in the lid or (3) from the spout. Here are some of the patents that I found which tried to address the problem. If I had access to one of the lamps from the patents, I have included a photograph in the appropriate section. I am sure there are some of these lamps out there in collections that may not have surfaced yet on Ebay or MiningCollect. In all, I reviewed approximately 120 patents for oil wick lamps or modifications for oil wick lamps. With the help of a model that I borrowed from my hairdresser, I have shown an ordinary lamp in the upright position and subsequently with the head bent down. Note the angle of the spout, and that it would not take much more to make a fluid pour from the spout (FIGURE 1). As I describe the modifications in the lamps, I will use the same model to illustrate the improvements. I hope this is not too simplistic, but as the saying goes, "one picture is worth a thousand words."



Figure 1: Standard oil wick face lamp. Note the angle of the spout in the upright and then the flexed figure. It would not take much more of a bend to allow the oil to pour from the spout.

The Solutions: Starting at the top, the cap or lid received one of the early patents by Jacob Vogele. Many of you are familiar with this lamp, Patent 229929, July 13, 1880. Vogele made the top of the lid into a dome shape and placed a vent hole in the top of the dome. In the slightly concave bottom of the lid he placed another vent hole. Since the lid bottom was concave, the oil tended not to flow out the top, and any oil that escaped into the lid could drain back into the font (FIGURE 2). A number of similar patents followed. On May 30, 1882, Henry Pearce was issued Patent 258802 in which he used a domed lid with an insert that had holes around the periphery to allow ventilation and allow escaped oil to flow back into the font (Pearce Patent and FIGURE 3). Probably the most familiar lamp to follow this pattern is the O'Keefe Patent issued July 21 1896. Most of you will associate this with the familiar disc-shaped boot kick, but in the same patent he described his modification of the dome-shaped lid by using a double-walled bottom of the lid with appropriate holes for vent and drainage.

A secondary benefit claimed by each of these inventors was that this would help in preventing clogging of the vent. We are all familiar with the small vent tubes in the Trethaway lamps, and I have often wondered whether they clogged easily or not.



*Figure 2:
Jacob Vogele
miner's face
lamp. Note the
domed lid with
vent hole and
the recessed
bottom that
would collect
oil and return
it to the font.*



(Model.)

H. P. PEARCE.
CAP FOR MINERS' LAMPS.

No. 258,802.

Patented May 30, 1882.

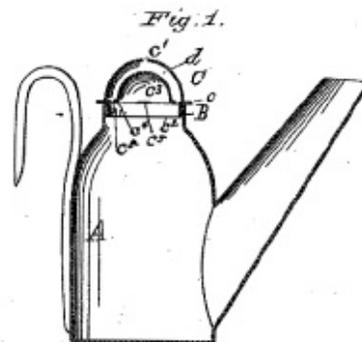


Figure 3: Henry Pearce lamp and patent. Note the domed lid. Pearce placed the drainage holes around the periphery to return the oil to the font.

One of the earliest patents that resulted in a modification of the spout was issued to John H. Gable on July 22, 1879, No. 217791. I stumbled across the patent model of this lamp on a visit to the Smithsonian in 1991 and included it in an article for Eureka!, Issue 2, April, 1992. In rereading Gable's patent application, he claimed that the flattened spout allowed for a better control of the flow of the fuel in the spout and resulted in a better light because it was oriented in the transverse plane. He makes an interesting statement in that the round spout is better suited to the production of heat than light!! His flattened spout would certainly have limited the oil flow and probably lessened the chances of spillage (FIGURE 4).



Additional modifications of the spout were patented later than most of the lid modifications. The first and only patent that I found changing the angle of the junction of the spout and the font was issued to C. D. Felix on July 31, 1894. Many of Felix's lamps are around today. Compare the photos of the model with the standard lamp to those of the Felix lamp affixed to the same hat. It is plainly seen that the head of the model can be flexed (bent forward) much farther without spilling of the oil from the spout in the Felix model (FIGURE 5).

Figure 4: John Gable lamp with flattened spout. Claimed in patent that this controlled the flow of fuel.



Figure 5: Felix lamp. Note the steeper spout angle in the flexed position.

The P. & A. Good lamp has been identified and reported by Paul and Nancy Hyatt, EUREKA!, Issue 32, October 1999. The patent date that is stamped on that lamp is May 30, 1893. The design patent of that date is for an oil can, and no mention is made of a miner's lamp. My lamp has only the patent date on the font. I suppose they took some manufacturing freedom and decided to use the same patent date. This lamp has the most vertical spout of any of the leanback lamps. Several makers including Trethaway copied the leanback design. These modifications must have proved modestly successful, because a number of them have survived the test of time (FIGURE 6).

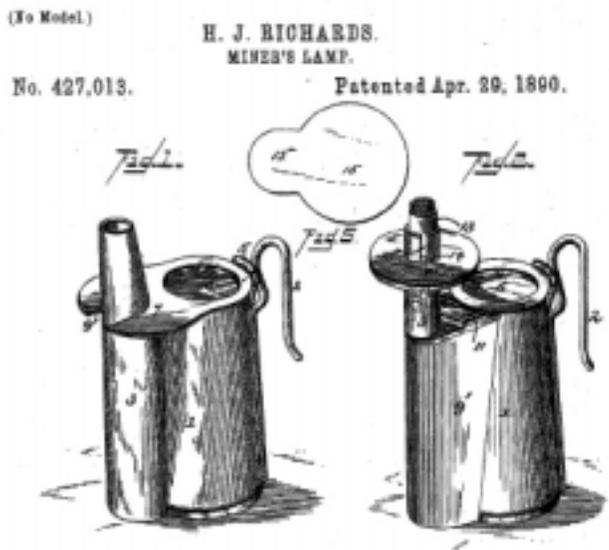


Figure 6: Three models of leanback lamps. The Felix, the P & A Good, and the Trethaway. Note the almost vertical angle of the spout of the Good lamp. Also note the bottoms of these lamps are oval, not round.

Another modification of the spout became known as the highspout. By placing the opening of the spout on the shoulder of the lamp, a much greater angle could be allowed before the fuel could spill (FIGURE 7). I found no patent for this lamp. This is indeed odd, because it seems that these guys patented every minor modification of which they could conceive. These lamps must have been somewhat successful as a number of companies made them and quite a few have survived.



Two patented lamps used a combination of modifying the spout and its attachment to the front or body of the lamp. Henry J. Richards was issued patent No 427013 on April 29, 1890 (Richards and Gardner Patent). This is an earlier date than the Felix Patent, but Richards clearly states that a more perpendicular position of the spout is superior because it avoids the spilling of the fuel from the spout when bending over (FIGURE 9). He created this type of spout by modifying the base and how the spout is attached. In the patent he states that the angle of the spout cannot be satisfactorily changed in an ordinary lamp and still have a round base. He claims the round base is necessary for the best burning. The patent describes three modifications, all of which use the same type of bottom attachment. FIGURE 8 is an example of one of the patent modifications. Note that one-half of this patent was assigned to Charles Gardner. The illustrated lamp has only the patent date of April 29, 1890. The modification described in Fig 1 in the patent surfaced a few years ago at one of the collectors' events, but I don't know its present whereabouts.



RICHARDS AND GARDNER PATENT: The full patent shows four different modifications of this lamp. My lamp, shown right one of the examples not shown.

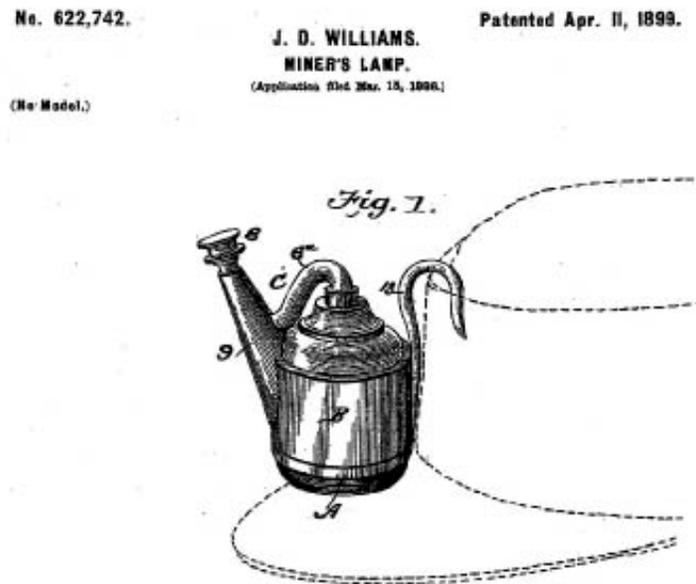


Figure 9: Richards and Gardner lamp stamped with the patent date only. Note the unique shape of the bottom and spout attachment.



Figure 9: Richards and Gardner lamp. Note the nearly vertical inclination of the spout in the flexed position.

J.D. Williams was issued Patent 622742 on April 11, 1899 (Williams Patent). In reviewing this, I was struck that this might well have worked to keep the fuel from spilling from the font, but the Williams lamp was designed to use a volatile fuel and not the standard oils or Sunshine that the other lamps used. Nonetheless, I have included the lamp here for thought.



J. D. WILLIAMS PATENT: Uniquely configured lamp, which was designed for volatile fuels but could have been adapted to others as well.

The Antons, not to be left out, patented the drip ring on March 29, 1904, No 756151. This same patent also included the reinforcement at the base of the spout. John Anton claimed that the ring helped to spread the flame and would "retain any drippings of oil from the wick, thereby preventing the oil from igniting when flowing down the side of the spout" (FIGURE 10). These drip rings were used by a number of different companies on many models.



Figure 10: Anton lamp with drip ring.

Three very innovative lamps addressed the problem by modifying the font of the lamp to control the flow and quantity of oil supplied to the main wick of each lamp. Two of the three also employed modification of the angle of the wick tube. On June 4, 1878, Patent No. 204628 was issued to J. C. Smythe of Plymouth, PA. This was a two-chambered lamp with the lower chamber housing the main fuel supply and a smaller wick conveying the oil to the upper chamber that housed the main wick (Smythe Patent). This allowed the use of lighter fuels such as kerosene without the risk of spilling out of the spout. These lamps are quite rare but can be found in several collections. They were manufactured by J. W. Patten Co. of Wilkes Barre, PA. My example has been used and the wick tube is shortened (FIGURE 11).



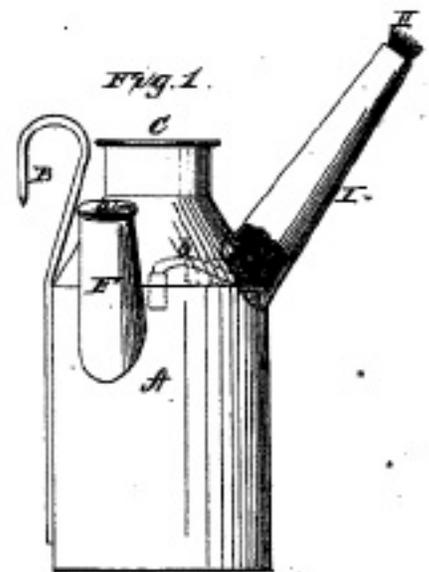
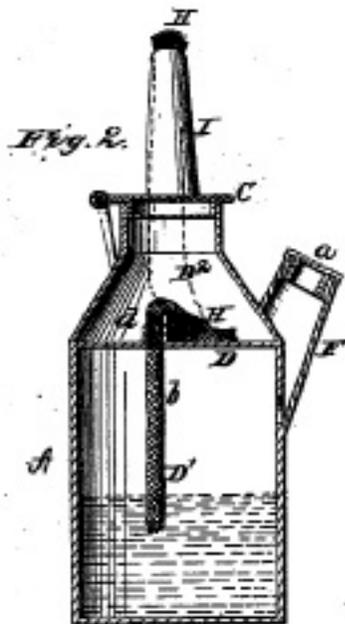
Figure 11: The Smythe lamp. Note the separate filler tube attached to the lower chamber and the hole for the smaller wick leading from the lower chamber to the upper main wick chamber.

J. C. SMYTHE PATENT:
 Note lower chamber houses the fuel, which must be wicked up to the wick chamber.

J. C. SMYTHE.
 Miner's Lamp.

No. 204,628.

Patented June 4, 1878.



The second of these patents was No. 220582, October 14, 1879, issued to J. O. Davies, J. O. Jones, and T. Thomas with Thomas assigning his portion to H. C. Magee also of Plymouth, PA (Davies Patent). I find it very interesting that both Smythe and Davies were from Plymouth PA. Their lamp is also a two-chambered lamp using the upper chamber as the main fuel reservoir and a smaller wick conveying the fuel to the lower chamber that housed the wick leading to the spout (FIGURES 12 & 13). They also used a screw cap to prevent leaking from the lid. Several of these lamps exist in collections and some are labeled with Davis (sic) and Magee, Patented October 10, 1879, on one side, and F. W. Watson, Maker, Scranton, PA, on the other side of the font. The illustrated lamp has only the patent date.

J. O. DAVIES, J. O. JONES & T. THOMAS.
Miners' Lamp.
No. 220,582. Patented Oct. 14, 1879.



J. O. DAVIES, et. al.: Note that in this lamp the main fuel chamber is the upper chamber. This would appear to be more efficient.

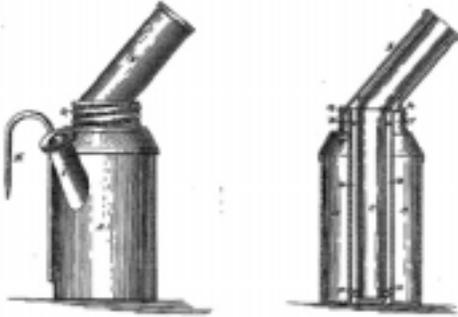
Figure 12: The Davis (sic) and Magee lamp assembled. The patent is issued to Davies et. al.

Figure 13: The lamp disassembled showing the separate fuel chamber with small wick leading to the bottom housing with the main wick.



The third of this type of lamp is the most unusual and innovative. This Patent No. 320287 was issued to H. J. Richards of Wilkes Barre, PA, on June 16, 1885 (Richards Patent). This is the same Richards noted above. This two-chambered lamp houses the main fuel supply in an outer chamber surrounding the inner chamber where the wick is housed. Small channels connect the two chambers as shown in FIGURE 14. The angle of the wick tube would also help in the spilling problem. This lamp is clearly marked with the Richards name and the patent date (FIGURE 15).

(No Model.)
H. J. RICHARDS.
 MINER'S LAMP.
 No. 320,287. Patented June 16, 1885.



H. J. RICHARDS: The illustrated lamp follows the patent exactly.

Conclusion: After speaking with that miner at the Johnstown meeting, I took a closer look at the ways in which the oil wick lamp has been modified to minimize the oil spillage/fire problem. I doubt that any of them eliminated this problem completely. In reviewing the patents, there were some bizarre looking lamps that have may yet be "rediscovered," to use one of Henry Pohns' favorite phrases. Another factor that is mentioned in several of the patents is that these modifications would conserve oil. Since the miner often had to supply his own fuel, this could have been an important consideration. I still have not fired up any of these lamps, and my wife warns me that any such attempt must be done outdoors. All of the lamps in the illustrations are from my own collection.



Figure 15: The distinctive shape of the Richards lamp.



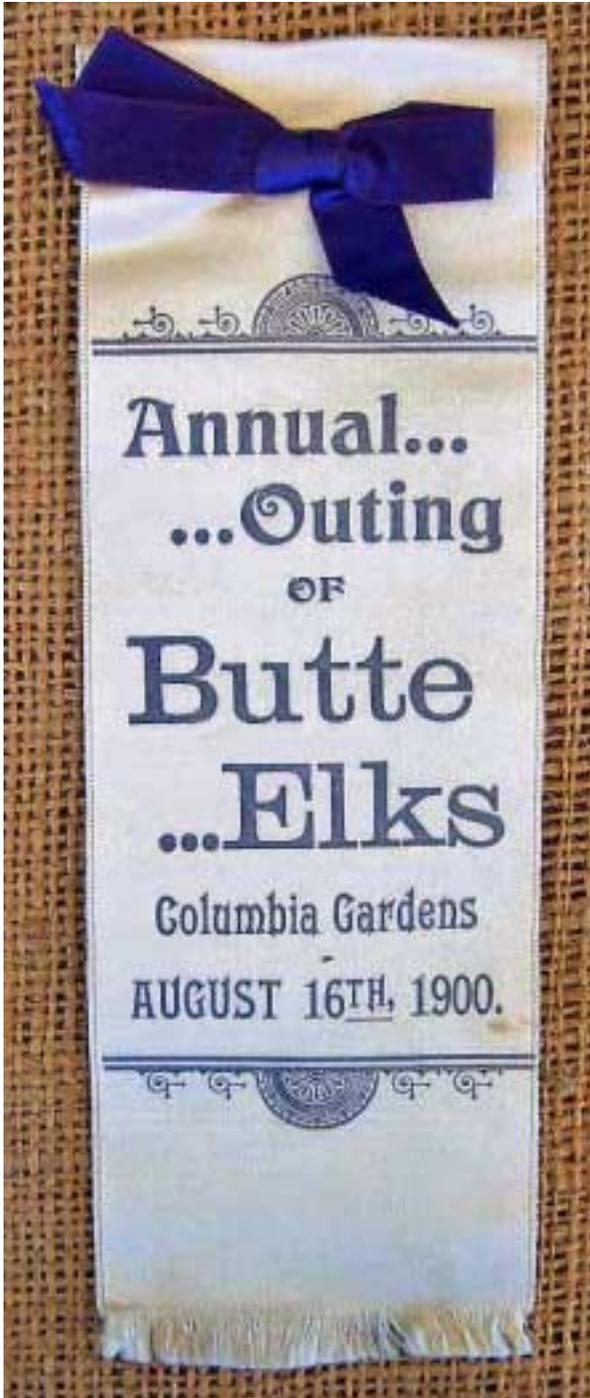
*Figure 14: H. J. Richards lamp.
Note the fuel chamber surrounds the wick chamber and the fuel flows through small connecting channels.*



Elk's Activity Ribbon and Badges

Bill Collins, Santee, CA

Fraternal badges can present an interesting addition to any mining artifact collection. In the October 1996 EUREKA! Bob Guthrie presented an insightful look at Elks badges issued for their Grand Lodge Reunions. Most of the badges were constructed of brass, copper, or pot metal, with silver, steel, and zinc being used on occasion. In some cases the badges were embellished with cloisonné enamelwork. Some had ribbons of either cloth or leather attached.



Because the purpose of the Benevolent and Protective Order of Elks (B.P.O.E.) organization was for enhancing the social life of its members and not for providing aid to any particular group (such as miners) a large variety of professions were represented in lodges formed all over the U.S. Sometime after the Elks origination an effort was made to provide homes for its indigent members. Just because a lodge formed in a mining, milling, or smelting community there was no guarantee that a similar theme would be selected for a ribbon or badge and the 1905 Salida, Colorado badge is a good example of this although most certainly many of the members were WFM smelter workers.

The only ribbon I have been able to obtain is for an annual outing of the Butte, Montana Elks at Columbia Gardens in 1900 (figure 1). This was most likely a picnic affair at one of the largest amusement parks in the western U.S. At the time of the outing Columbia Gardens was owned by copper king William Andrews Clark. Columbia Gardens was established by Clark in 1899. The Clark estate sold the Gardens to Anaconda Copper Mining Co. in 1928. The Gardens lasted until around 1955. In 1955 open pit mining started on the Berkeley Pit and the Gardens disappeared.

Figure 1: Annual Outing, Butte, MT, 1900.

The Central City, Colorado Elks of Lodge 557 staged a fair and bazaar in 1901 (figure 2). The badge features a detachable steel mini-candlestick which can be used as a lapel pin. The same basic badge was used again in 1905 by Lodge 808 in Salida, Colorado for the State Convention but this time there was no candlestick adornment (figure 3).



Figure 2: Fair & Bazaar, Central City, CO, 1901, Lodge 557.



Figure 3: State Convention, Salida, CO, 1905, Lodge 808.

In 1905 the Third Annual Meeting of the Montana State Association was held at Anaconda. Featured on this badge is a panoramic photo of the Washoe copper smelter (figure 4).



Figure 4: State Convention, Anaconda, MT, 1905.

In 1906, Reno, Nevada Lodge 597 commissioned a badge featuring a gold pan and crossed pick and shovel (figure 5). The large pendant shows the Elks home in Reno. This badge was produced for those members attending the Grand Lodge Reunion in Denver, Colorado.



Figure 5: Grand Lodge Reunion, Denver, 1906, Reno, NV, Lodge 597.

Visiting Elks to the 2nd Pennsylvania state reunion in 1908 could expect to wear a 3-piece metal badge featuring a Scranton coal breaker (figure 6).



Figure 6: State Reunion, Scranton, PA, 1908.

At the 1909 Grand Lodge Reunion held in Los Angeles, California, at least two lodges chose to promote locally mined products. Lodge 533, in McAlester, Oklahoma, advertised the "Best Bituminous Coal in the United States," with a large pile of coal covering the mid-continent (figure 7). Lodge 453, in Hutchinson, Kansas, chose to use a representation of a large sack of salt (figure 8). Carey Salt Company, once a sponsor of The Shadow radio program, operated a large underground salt mine in Hutchinson for many decades.



Figure 7: Grand Lodge Reunion, Los Angeles, 1909, McAlester, OK, Lodge 533.

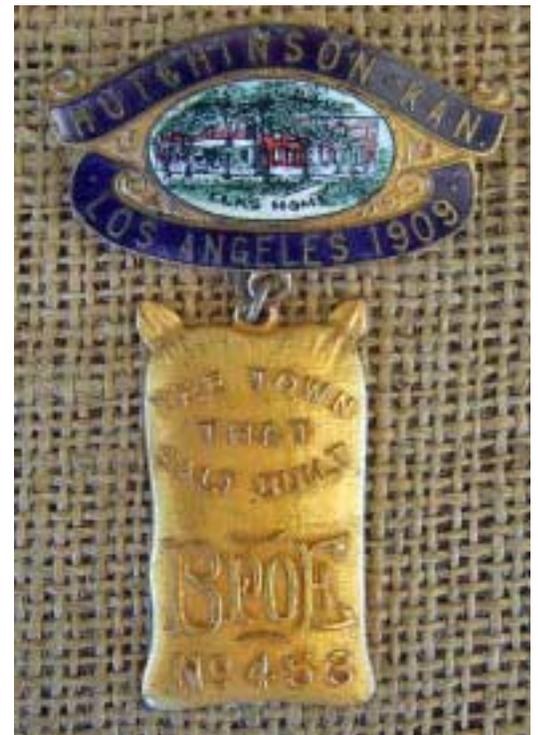


Figure 8: Grand Lodge Reunion, Los Angeles, 1909, Hutchinson, KS, Lodge 453.

The Minnesota State Elks Association held its 1923 meeting in Hibbing. The ribbon's pendant features a large power shovel typical of those used in the state's many open pit iron mines (figure 9).



Figure 9: State Reunion, Hibbing, MN, 1923.

Unfortunately not every Elks badge can be attributed to particular gathering. This may have just been an oversight of the badge committee or individual designer or not included because it's purpose was obvious to

the lodge. Lodge 861 in Webb City, Missouri ordered a dateless badge highlighting locally mined zinc common to the Missouri-Kansas-Oklahoma "Tri-state" ore body (figure 10). The badge features a sphalerite (zinc sulfide) crystal held in the Elk's antlers and a large heart-shaped zinc pendant. Zinc turned out to be a poor choice of metals for the pendant because it is easily erodible and the raised letters have nearly disappeared on my badge. The message on the pendant is "Webb City, Mo., Heart of World's Zinc-Lead District."



Figure 10: Webb City, MO, Lodge 861.

In Utah, the Elk's produced a dateless, no location, and state-wide badge featuring a beehive coke oven with various mined products identified on or around the oven (figure 11). Gold, silver, copper, iron, salt, and lead are listed. Someone forgot to mention coal.

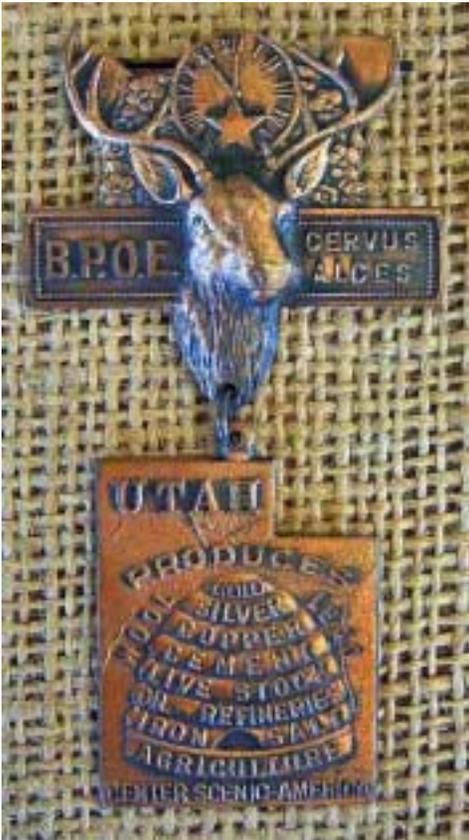


Figure 11: Utah.



Figure 13: San Juan Elks.



Figure 12: Victor, CO.

Two other mining related badges remain a mystery as to when and where the gathering took place. A Victor, Colorado badge is incomplete, missing the ribbon (figure 12). The pin bar features three separate, early 1900s, Victor mining scenes; a two-compartment shaft with man cages, a panorama of Victor, and men working in a drift. The San Juan Elks medal is missing its ribbon (figure 13). The silver pendant features a smelter. Several smelters were in operation in the San Juan Mountains between 1880 and 1910. It's possible that this badge was intended to represent all the small lodges in this part of the state at a larger state or national meeting. Considering the workmanship of the Victor, and San Juan badges, it is likely that they too were created for Grand Lodge reunions.

Thanks to Bob Guthrie for reviewing the text and making beneficial suggestions. These badges are all in my collection.

The Oldham Cap Lamp

by Stephen J. McCabe

As a caver and an electrician from the Commonwealth of Australia the English mining lamp company Oldham & Son Ltd is well known to the author. Their electric cap lamps were the main stay for both mining and caving for many years only to be replaced in caving by the lighter and perhaps brighter LED lights. The average caver has no idea that Oldham produced an amazing number of different mining and engineering lamps. The lamp, which is the subject of this article the author believes, is their first attempt at a production model electric cap lamp.

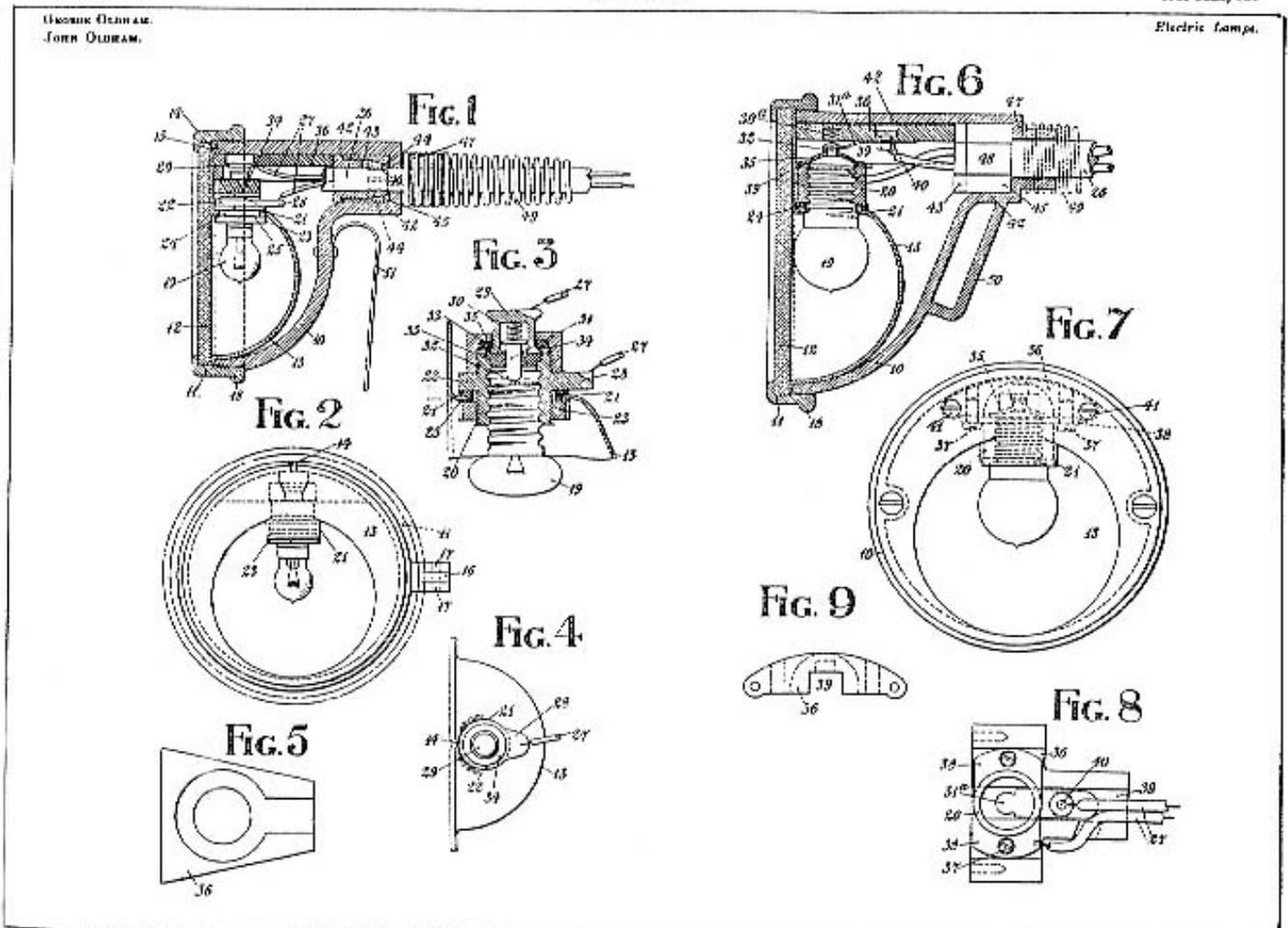
16 Apr., 1922.

AUSTRALIA

No. 6626/22.

GEORGE OLDHAM,
JOHN OLDHAM,

Electric Lamps.



© 3091

Each drawing from 1888 with drawing descriptions as follows.

One 11 1/2 in. sheet.

Figure 1 is a sectional side elevation of a suitable construction of the lamp.

Figure 2 is a front elevation of the lamp with the lens ring removed.

Figure 3 is an enlarged sectional elevation of the bulb holder and the contact members.

Figure 4 is a plan of the reflector and contact member removed from the lamp body.

Figure 5 is an enlarged inverted plan of the insulating block.

Figure 6 is a view similar to fig 1 and illustrating a modified construction of the lamp (Lapel).

Figure 7 is a view similar to fig 2.

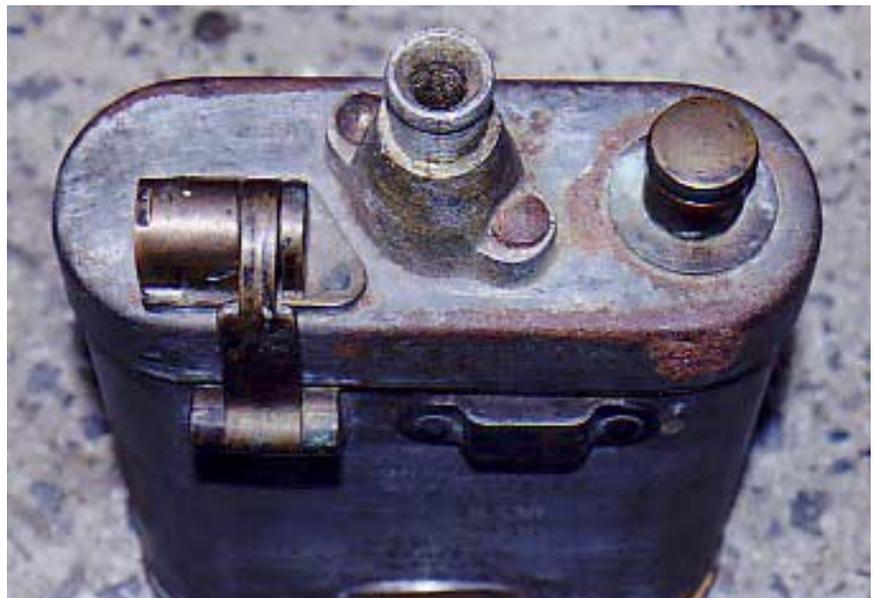
Figure 8 is an enlarged underneath plan of the insulating block, bulb holder and contact spring plate.

Figure 9 is a front-end view of the insulating block.

On 26th April 1922 (Anon 1922) George and John Oldham of 36 Hyde Road Denton, near Manchester, England lodged a patent application for "Improvements in or connected with electric lamps particularly adapted to be carried or supported on the person" at the Australian Patent Office. This application was granted on 22nd March 1923 and related to the headpiece of this lamp.



George and John Oldham both Engineers were interested in improving and simplifying the construction of the lamp so that the contacts and other parts can be easily and quickly repaired and maintained by unskilled workers without special tools making the lamp more economical and convenient.



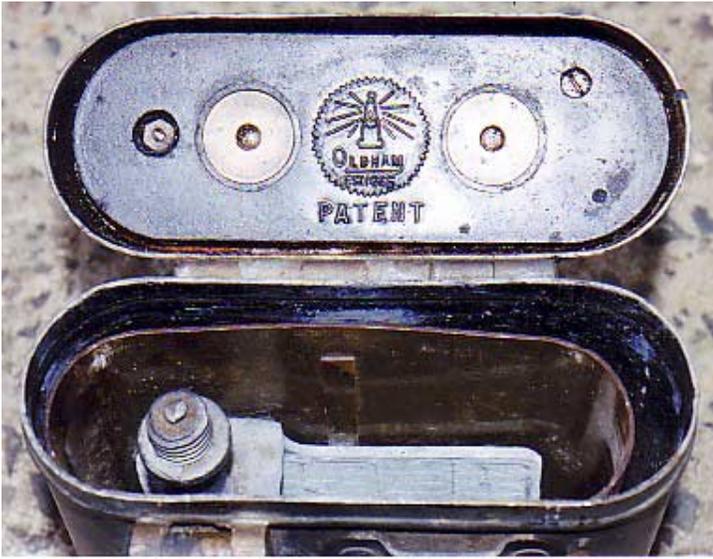
I have found very little documentation on this lamp with the exception of two paragraphs in a catalogue of Miners' Lighting Appliances (Spencer & Mech 1926). This description is very concise therefore it is rewritten below.

"This electric lamp, designed for wear on the head, has been approved for use in this country. The accumulator is of the rectangular type and is carried in a metal case strapped round the waist of the miner. The case, which weighs about 5lb., is most conveniently carried on the back or over the hip. The electrolyte used in the accumulator may be either solid or liquid, but the design of the accumulator obviates risk of spilling acid even when liquid electrolyte is used. The accumulator case is locked magnetically in the example shown, but lead plugs are also fitted. A rotary screw down switch is also mounted on the cell case by means of which the light may be controlled. The light bulb itself is carried in the front of a canvas cap and is connected to the cell by means of a very flexible, highly insulated, rubber-encased cable which is armoured at both ends, where the greatest bending stress is experienced, by steel springs wound round the outside. The lamp is rated to give an illumination of 3 c.p. for 10 hours continuous service with a considerable safety margin for exceptional circumstances. The glass in front of the light bulb is quite plain to give a diffuse illumination, but when a concentrated light is required the plate-glass front of the lamp can be replaced by a suitable lens."

The alloy headpiece appears to have been made in two versions, the standard hat mounted unit and a lapel or coat mounted version.

In 1992 the author attended the Aimex mining trade show where the Australian agent for Oldham had a stand and was manned by Mr. Geoff Purdy the then Product Sales Manager from Oldham who was out from England to help with the show. It was fortunate that the author had a photograph although rather poor of his early Oldham lamp. Geoff was very surprised with this lamp and stated that the only example known to the company was the one donated to a museum collection by the company (in 1925). The above reference must surely be a study of the lamp the Oldham representative was referring to. Unfortunately any further written history from Oldham was not forthcoming as correspondence from Mr. Purdy (Purdy 1992) indicated in a recent office move all old literature was disposed of.





In October 1999 the author visited another lamp collecting caver living in Canberra who to his surprise he had the accumulator section of this lamp which he only paid a few dollars for. This is the only other example although incomplete the author has seen. At the time the author didn't have a good camera therefore it wasn't until June 2003 that photographs and a comparison of the case with the complete lamp could be performed. The two accumulators marked The Oldham "Form C" are almost exactly the same with the only difference being that the complete lamp has a solid cast "T" cable connector, which

is not removable from the case whereas the other case has a socket arrangement enabling the headpiece and cable to be removed. Also of interest is the lock mechanism on the accumulator case is missing, whereas the complete lamp is locked, this allows the lid to be opened providing a view of the internal acid container and one set of lead plates. Another interesting surprise was the pillar less lamp Oldham logo with established 1865 pressed into the fibre insulation board.

The author considers this lamp as one of his favourite collection items and totally agrees with David Johnson (Johnson 1999) that early electric lamps have long been neglected and deserve more attention and respect. It is interesting to note that only two previous articles on electric lighting and both by the same author have appeared in the Eureka Magazine these being issues 31 & 33 (Johnson 1999 & 2000). Thank you to John Brush for allowing access to your collection and for enabling photographs to be taken.

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(Johnson 1999), Eureka, Issue 31, Electric Cap & Hand lamps For Miners, pages 26 to 39 by David Johnson.

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Pit Ponies

by Dave Johnson

Long before steam powered locomotives, horses and ponies were working at coal mines on the surface providing general haulage such as the transportation of coal for local use. Prior to the development of steam powered pumping, and winding gear, horses were used to power the gins or whims which worked the underground pumping and winding machinery.

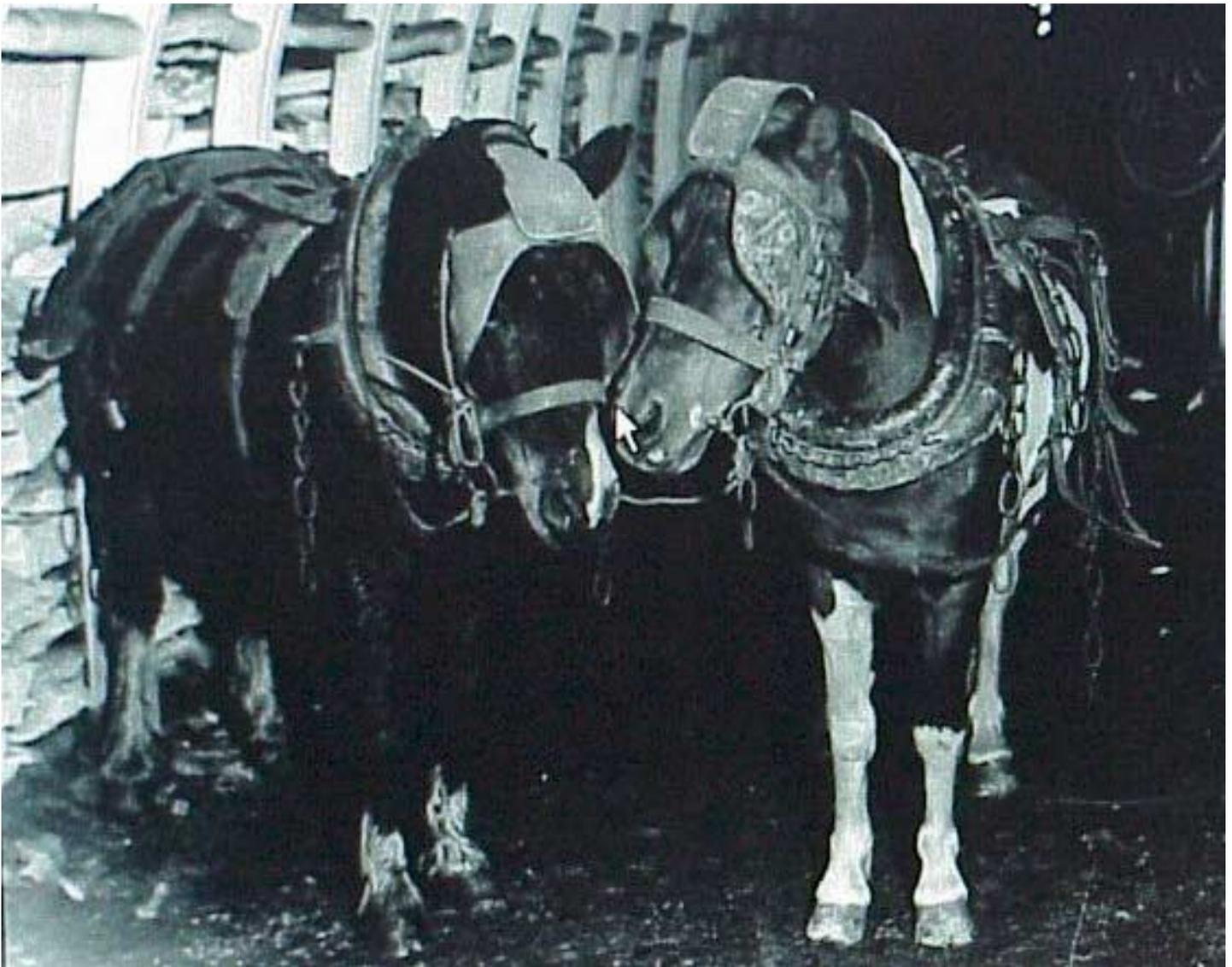
The first records of ponies and horses being used underground in coal mines in the UK appear in the mid-18th century when they are reported to have been used to drag a single corf (basket) on a sledge with iron covered runners. The introduction of wooden rails underground meant that a single horse could draw several wheeled tubs at once. By the 1790s, when cast iron rails were becoming more common, one horse could pull about ten-rail tubs, each holding around 300 kg of coal.



Pit ponies pulling ore car.

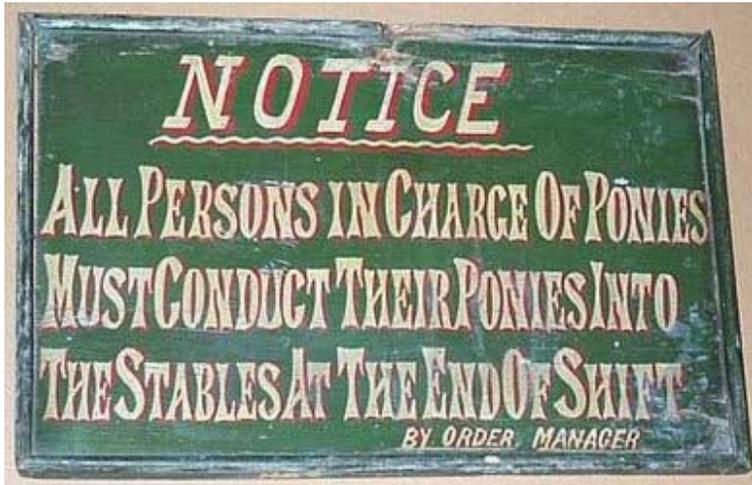
Records reveal that in thin-seam mines, where roadways were too low for ponies, women and children continued to be used to drag the coal to the bottom of the shaft. The Mines Act of 1842 prohibited all women, and children under the age of 10, from hauling coal or working underground in the mines, this accelerated the use of horses and ponies for underground haulage. At this point times were hard for miner and pony but the situation was to improve.

The first national legislation to protect horses underground was included in the Coal Mines Regulation Act of 1887. Under its limited provisions, the mine inspectors could investigate the treatment of horses and whether haulageway roofs were high enough to prevent injury to the horses' backs. Casualties were common, the ponies had to be put down due to broken legs and their feet getting stuck in "partings" or points in the tub rails. The ponies seemed to have a sixth sense for danger, they were known to stop dead and refuse to move, and suddenly the roof would collapse in front of them.



Pair of pit ponies in Harness.

Major protective legislation, in 1911, followed protests by groups such as the National Equine Defense League, the Scottish Society to Promote Kindness to Pit Ponies and a subsequent Royal Commission Report. This Pit Ponies' Charter governed the condition of stables, daily record keeping and the requirement for a competent horse-keeper for every fifteen horses. Ponies had to be at least four years' old before they could start work underground, and continued until they were no longer fit, often in to their twenties. There was a popular belief that pit ponies go blind underground which is untrue, and the use of blind ponies was prohibited by law. While some ponies did go blind from old age, and until effective leather headgear with eye guards was designed many ponies injured their eyes at work. Additional legislation in 1949 and 1956 regulated conditions for pit ponies even more closely. These amendments provided for their welfare in far greater detail.



Pit pony stable sign.

sent to the surface to be initialed by the Colliery Under--manager and Manager. While life in the coal mines has never been easy for men or horses, few working equines have received better care and respect than the pit pony. A pony in the mines received excellent care and attention throughout its working life.

Depending on the task to be done different breeds and sizes of ponies were selected. Horses of 1.7 m (16 hands and 3 inches) height could be used close to the shafts, where many tubs had to be kept moving and the roofs of the haulageways were higher. Small ponies of around 1.2 m (11 hands and 3 inches) height were generally used near the coal faces, with bigger animals up to 1.4 m (13 hands and 3 inches) being employed in the main haulageways with their higher roofs.. Generally geldings were preferred, though some stallions were used, but it was rather unusual to find mares underground.

Breeds varied considerably in different areas, but both Shetland and Welsh ponies were common, as well as sturdy Dale horses. During times of high production, particularly after a slump when stocks of ponies would be low, very high prices could be paid for good animals and in times of shortage, ponies were imported from as far away as the USA, Iceland and Russia.

The hours a pony could work were prescribed by law. A forty-eight hour work week was the maximum, except in special circumstances, but it could be less. A pony employed to carry supplies or on repair work, for instance, often worked only three or four hours in a shift. A pony did not work for more than two shifts in 24 hours or more than three shifts in 48 hours. A shift was set at 7 1/2 hours or less. Each pony had a driver who was responsible for it and might work with the same pony throughout its working life. Every pony taken from the stables was required to be recorded in a Mines & Quarries Act record book. Each day the book had to be signed by the Chief Horse-keeper and



Pit ponies at the hoist cage.

The selection of the pit pony was a matter of great importance and much care was taken in the process. Numerous characteristics of each horse were weighed before it was accepted for work in the mines. For instance, because of low roofs, steep grades and forced production, a pony had to be low set, heavily bodied, heavily limbed with plenty of bone and substance. They had to be low-headed and must be "sure-footed" and should be not under four to five, and generally not more than 14, years of age. The weight of the animal was important because often heavy loads had to be moved up and down steep grades which, in turn, necessitated sure-footedness because of road conditions. Another consideration was the temperament of the pony. Nervous or shy horses would be very expensive to break in and could cause a great deal of lost time. A good pit horse was one that was even-tempered and kind, a vicious horse was a danger to the drivers, liable to cause bodily injury and/or fatal accidents underground.

Before a pony started working underground, he received training lasting several weeks. During this period unsuitable ponies were weeded out. Once underground, ponies were used to pull empty tubs or carry materials such as pit props into the workings and to bring back tubs full of coal to the shaft.

Stable conditions were very important and as much as possible was done to tend to the comfort of these animals and lengthen their term of usefulness. In the stable, the height of the roof was to be seven feet when a five foot horse was in use. It should be able to raise its head and relax its muscles because it had to work all day carrying its head low. As little wood as possible was used in the stable to prevent underground fires.

Records in the UK show that the peak of employment for horses underground in the UK was in 1913, according to the Government Digest of Statistics, which coincided with Britain's maximum coal output, when around 70,000 horses were working. The use of pit ponies declined as mechanical coal cutting and haulage systems became more efficient .

The new coal cutting machines actually cut coal too quickly for horse transport to keep pace with increasing production and they began to be replaced by high-capacity systems, at first locomotives and then conveyors. By the end of the 1930s there were around 32,000 horses underground. When the National Coal Board was formed in 1947 it inherited 21,000 pit ponies and numbers continued to decline to around 15,500 in 1952, 6,400 in 1962, then to just 490 in 1973 and only 55 still working in major mines in the UK in 1984. By 1992, one deep mine, Ellington Colliery in Northumberland, England, still had 24 ponies which were used in salvage work. The last of these was retired in 1994 though this was not quite the end as a few remained in use in private drift mines in South Wales.

Today the National Coal Mining Museum for England keeps 4 retired pit ponies in their stable for visitors to see. Many other retired pit ponies have found good homes through the efforts of the Royal Society for the Prevention of Cruelty to Animals and the National Coal Board. These are the last of those intrepid ponies that hauled the coal that fuelled the British Industrial Revolution.



Scottish Society to Promote Kindness to Pit Ponies.

Local Union Banners

Bill Collins, Santee, CA

Banners have long been a way of announcing organizational affiliation. The earliest known examples of banners, at least if we believe Hollywood, were used in the days of the Roman Empire. In more recent times universities, public schools, fraternal organizations, police, firemen, and political parties have carried banners at parades, or hung them on the wall at meeting places to show solidarity. Unions were no different and the United Mine Workers of America (UMWA) and the International Union of Mine, Mill, and Smelter Workers (IUMMSW) used them.



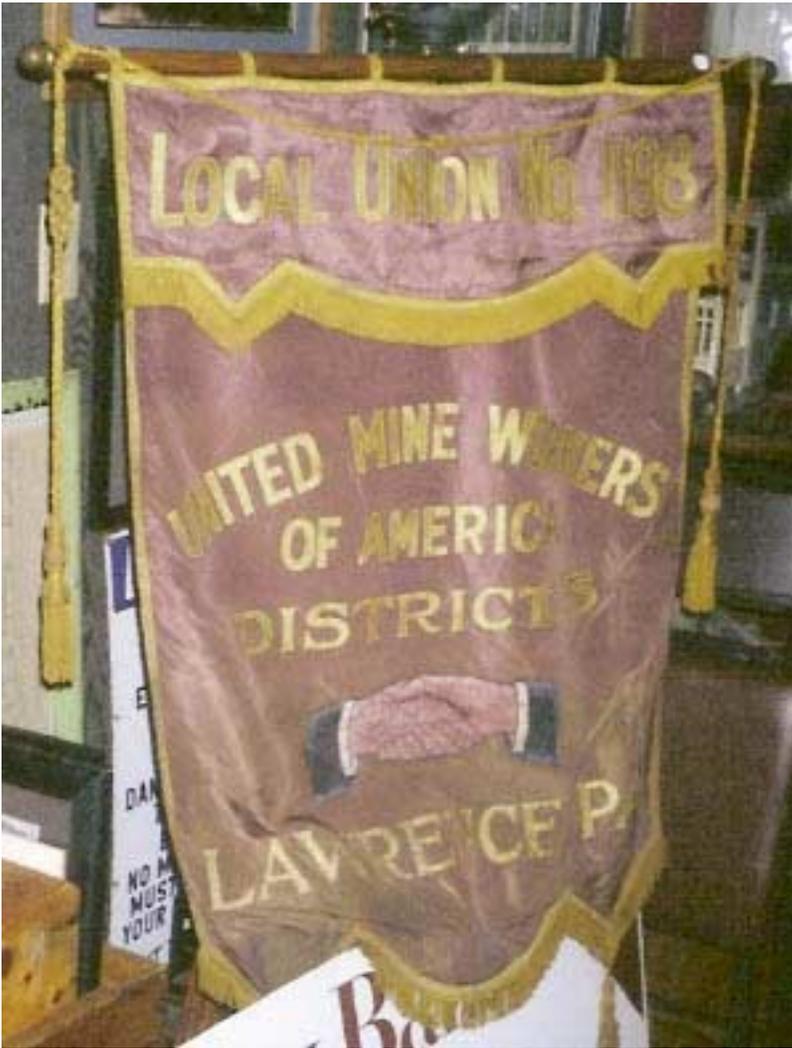
Figure 1: Local No.1098, Moss No. 2, Moss, WV

Collecting banners is somewhat difficult as most are located in private collections or museums. In 2003, at the Johnstown, PA show, I was able to purchase a banner for the UMWA Local No. 1098 at Moss, WV (figure 1). Moss is located in Gilmer County at the western edge of the West Virginia bituminous coal belt. By 1908 coal mining was becoming important in Gilmer County and by 1964 production peaked at just over 1_ million tons. Coal production has apparently fizzled since then. I was unable to find any information about mining at Moss on the internet and the town now appears to be nothing more than a ghost. The banner is 36 inches high by 32_ inches wide, regal purple satin with gold side tassels and trim. Unfortunately the banner had some sun damage, small holes and a missing number. The re-paired banner is shown here.

John Konat, a UMWA coal miner from Ruffs Dale, PA has provided me with photographs of four additional banners. The Apollo, PA banner is in his collection (figure 2). The Apollo Mine is located in Westmoreland County. Apollo, itself, is located just across the Kiskiminetas River in Armstrong County. The mine was owned from about 1878 to a time prior to 1892 by the Apollo Iron Company of Apollo, PA, and later (about 1892 to an unknown time by the Maher Coal & Coke Company of Freeport, PA. The Local Union No. 6986 banner is approximately 38 inches tall by 21 inches wide. It's blue, yellow and beige with yellow fringe.



Figure 2: Local No. 6986, Apollo, PA



The Lawrence, PA banner (figure 3) is in the collection of Brice Rush in Carmichaels, PA. The Provident Mine was located in Washington County at Lawrence and owned by the Provident Mining Company for an undetermined time beginning about 1898. The Local Union No. 1198 banner is approximately 48 inches tall by 36 inches wide. It's purple with white lettering and gold tassels and trim.

A wooden banner was used to tout UMWA Local Union No. 6305 in parades (figure 4). The Alicia banner can be viewed at the Brownsville Historical Society museum (Flat Iron Building) in Brownsville, PA. The Alicia No. 2 Mine was developed around 1916 and operated until sometime before 1920 by the W. Harry Brown Company. Two other companies owned and operated the mine beginning in 1920 (Pittsburgh Steel Company) and in 1936 (Monessen Coal and Coke Company). There is no record of when mining ceased. The banner is about 18 inches tall by 60 inches wide and was meant to be carried by two men.

Figure 3: Local Union No. 1198, District 5, Lawrence, PA



Figure 4: Local Union 6305, Alicia, PA

The Jacobs Creek, PA banner (figure 5) is in John Konat's collection. Jacobs Creek is located in Westmoreland County across the Youghiogheny River from Van Meter, PA. The Darr Mine, located on the west side of the river near Van Meter was owned and operated by the Pittsburgh Coal Company. Mining started around 1903 and continued until December 19, 1907. On that day the mine experienced a great gas and dust explosion killing 239 miners many of whom lived in Jacobs Creek. Only one man escaped the disaster. The first bodies to be recovered were near the point where the explosion was estimated to have occurred, at least 5,000 feet from the entrance to the mine. In fact no one was able to agree on where the explosion first occurred. Most of the miners, over 200, were found another half mile deeper into the mine. Rumors persist that not all the bodies were recovered. Interestingly enough this disaster occurred only two weeks after the Monongah, WV disaster which claimed 361 miners. Many more miners would have been at the mine but they had taken the day off without pay to be at St. Nicholas Day holy day services at the Russian Orthodox Church in Jacobs Creek.

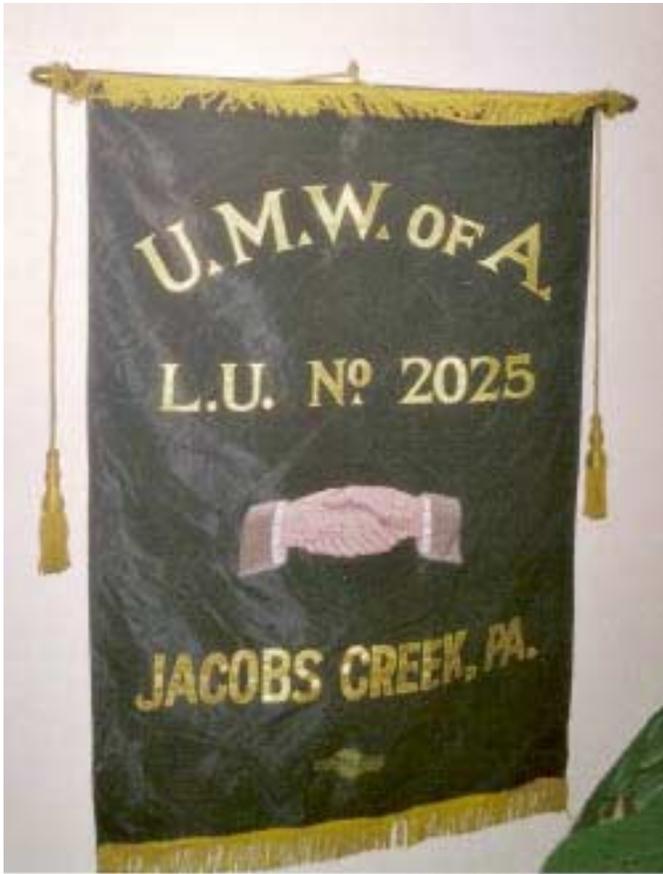


Figure 5: L. U. No. 2025, Jacobs Creek, PA

One of the Jacob's Creek victims was a mine foreman who had pestered the company about the gassy condition and poor ventilation in the Darr Mine. It was at his urging that a new ventilation shaft had been sunk. Just one day before the disaster the miners were nearing completion of a section of tunnel that would connect with the new ventilation shaft but had not finished the job with only 40 feet to go. True to bureaucratic nature the mine company was found not to be at fault. Findings of the investigation blamed the union miners for entering an area marked as unsafe by the fire boss. Of course the miners disagreed and blamed the company for using black powder and not controlling the coal dust. It was noted by the mine inspectors that company management still allowed the use of open flame lamps at the time of the explosion, a practice discontinued after the incident at the Darr Mine. The mine was repaired by the coal company and reopened in 1910 with no name. It was now identified as just another entrance to the Banning No. 3 Mine. By 1913 the mine employed 350 persons. In 1919, with only 227 employees working at the Banning No. 3 Mine, reduced operating time, and a production of only 30,000 tons, Pittsburg Coal Company decided to close the mine.

Shortly thereafter the company closed the Banning No. 3 Mine and the former Darr Mine entrance. The Local Union No. 2025 banner is 42 inches tall by 29 inches wide. It's black with gold lettering and trim and gold tassels.

Photographs of other local union banners have been published and if you have the time you may want to check them out: UMWA Local Union No. 4583, Clarksville, PA, Mining Artifact Collector, Summer 1993, pages 36-37. UMWA Local Union Nos. 7557, New Victoria, Nova Scotia, Canada, and 8078, Stansbury, WY (Eureka!, October 1993, pages 36-37); UMWA Local Union Nos. 5991, Glen White, WV, and 5770, Eccles, WV, (Stan Cohen, King Coal, page 86); and IUMMSW, Butte Miners' Union No. 1 (Don James, Butte's Memory Book, page 36).

I would like to thank John Konat for providing me with photos of his banners.

The Mines and Miners of Butte, Montana as Seen on Souvenir Spoons

Bill Collins, Santee, CA

Butte, Montana, once home to over 225 mines of all sizes and numerous mills and smelters, was one of foremost mining camps for memorialization on objects intended as souvenirs. As early as the 1850s the area around Butte was drawing the attention of prospectors, at first for gold and later silver. However, copper, was to be Butte's greatest resource. The souvenir industry took advantage of the romance of mining in the west and created thousands of items, e.g. china plates, copper-plated novelties, coins and medals, glassware, mirrors, stereophotos, and postcards for the tourist to purchase. One of the more prominent mementos was the souvenir spoon.

Most often the spoon was sterling silver with a designed engraving, generally hand cut into the silver at a jewelers shop, or a design that was machine-stamped at the factory. Copper alloy spoons were also produced. Many of the spoons feature a prominent miner on the handle. Both the silver and copper spoons are found with enameled designs but this is not a common occurrence. Many of the factory-produced spoons are available in demitasse and teaspoon sizes and are found in silver or copper.

The Anaconda Mine was the most popular mine or at least the most commonly used theme on the spoons and over 20 different designs were available for the tourist by buy. The Montana School of Mines was not left off the list when it came to the souvenir spoon and many designs were produced.



Fig. 1: Alice Mine.

The photos will illustrate some of the various spoons that are available to the patient collector. Figure 1 shows an engraving of the Alice Mine. The Alice, a silver mine, was once owned by Marcus Daly. He sold his shares in the Alice so that he could buy into the Anaconda, a promising silver mine.



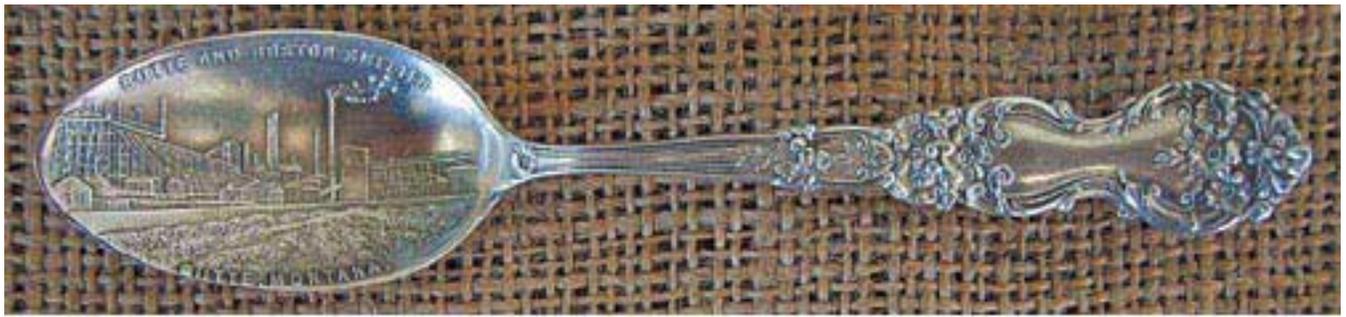
Figures 2-7 all feature the Anaconda Mine. This property was located in 1882 by Michael Hickey, an ex-Union army soldier. The mine, which began as a serious silver operation by Hickey, and continued, by Daly, took a strange twist of fate when copper was discovered. After the October 1893 repeal of the Sherman Silver Purchase Act, ending the use of silver in the country's monetary policy, copper became an even more important metal. Figures 2 and 3, using a stamped design, present the same view of the Anaconda but feature different miners on the handles. Figure 7 features a multicolored enameled bowl over an engraved design. Figure 4 shows yet another engraving of the Anaconda and sports another miner on the handle; this time he is wearing a candle.

Figure 5 shows the second most common view of the Anaconda and also features the School of Mines on the handle. Figure 6, an engraving, features a desirable windlass on the handle. Often the windlass crank, wire rope, or both are missing but these are relatively easy fixes.

(Left to right) Figs. 2-4, Anaconda Mine.



Top to bottom: Figs. 5-7, Anaconda Mine.

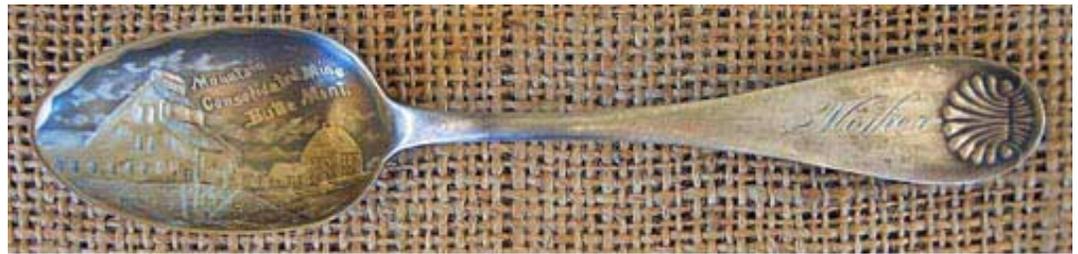


Top to bottom: Fig. 8: Butte and Boston Smelter; Fig. 9: Gagnon Mine, Butte, MT; Fig. 10: Lexington Mine; Fig. 11: Minney Healey Mine; Fig. 12: Mountain View Mine.

The Butte and Boston Smelter is featured on Figure 8. The Butte and Boston Consolidated Mining Company was organized in 1888 and became part of the Boston and Montana Consolidated Copper and Silver Mining Company in 1895. In 1899 it was merged with many other companies, including the Anaconda Mining Company into the Amalgamated Copper Company, a large holding company.

The Gagnon Mine, Figure 9, was owned by the Colorado Mining and Smelting Co. and became one of the Amalgamated holdings in 1910. The Gagnon was rich in silver and gold.

The Lexington Mine, Figure 10, was a prominent silver producer in the 1870s. After a successful labor strike in 1878, the miners formed the Butte Workingman's Union. In 1889 the Lexington's 1400-foot shaft was the deepest in Montana. The mine later became a major producer of zinc under Anaconda Copper Mining Co. ownership.



Top to bottom, Fig. 13: Mountain Consolidated Mine; Fig. 14: Never Sweat Mine; Fig. 15: Parrot Mine; Fig. 16: Silver Bow Mine; Fig. 17: Speculator Mine.

The Minnie Healey Mine, Figure 11, was owned by the famous F. Augustus Heinze. This mine was later tied up in legal battles with the Amagamated's Leonard Mine (owned by the Boston and Montana Co.).

The Mountain View Mine, Figure 12, was owned by the Boston and Montana Mining Co. prior to its merger with Anaconda (via the Amalgamated Copper Co.) in 1910.

The Mountain Consolidated Mine, Figure 13, was owned by the Anaconda Copper Mining Co. First located in 1881 and operated in 1886, it was the deepest of all the Butte mines by 1964. Total depth reached was 5,293 feet. This mine was one of the last underground copper mines in Butte and operated until 1973 when all underground mining ceased.

The Never Sweat Mine, Figure 14, located on the Anaconda copper vein, was bought by Daly in 1882. In 1920, the Metal Mine Workers Union, No.800, struck and picketed the mineyard. A shot was fired at the mineyard from an apartment house across the street and soon after a squad of mine guards returned fire wounding 15 persons. The strike was not supported by the other Metal's Trade Unions and it collapsed within one week.

The Parrot Mine, Figure 15, was discovered in 1864. The Parrot was Butte's first copper mine. Owned by the Parrot Silver & Copper Mining Company it was acquired by the Amalgamated in 1899 and later by the Anaconda Copper Mining Company in 1910. It was rich in silver and was one of Butte's top copper producers.

The Silver Bow Mine, Figure 16, was another prominent silver producer in the 1870s. It was owned by the Butte & Boston Copper Mining Company and eventually by the Anaconda Copper Mining Co. in 1910.

The Speculator Mine, Figure 17, was owned by the North Butte Mining Company. In 1917 a great fire broke out at the mine killing over 160 miners.



Fig. 18 (left): Original Mine; Fig. 19 (top center): Richest Hill in the World; Fig. 20 (second center): School of Mines; Fig. 21 (third center): Copper souvenir spoon and box; Fig. 22 (right): Butte Miner.

The Original Mine, Figure 18, was originally owned by W. A. Clark. In the 1880s it was principally a silver mine. In 1910 it was sold to the Amalgamated and later incorporated into the Anaconda Copper Mining Company.

The Richest Hill in the World, shown in Figure 19, is an attempt to show the magnitude of the development of mines, mills, and smelters in Butte.

The School of Mines, shown in the engraving in Figure 20, was built in 1896-98 and opened for instruction in 1900. The school first offered degrees in mining and electrical engineering.

A Butte miner, shown in Figure 21, is typical of the romance that mining provided. What could be more typical of the outsider's view of western mining than a miner with a large and presumably rich ore sample in hand?

Figure 22 is an example of a copper souvenir spoon sold in Butte by Right & Fairfield Co., one of its prominent jewelers and self-proclaimed "Headquarters for Souvenirs of Butte." The spoon shows two miners underground in the mine (in the bowl) hard at work with light provided only by candles, while a third man waits above ground (on the handle) ready to lift the recovered ore by windlass.

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A Sulfur Paperweight

Bill Collins, Santee, CA

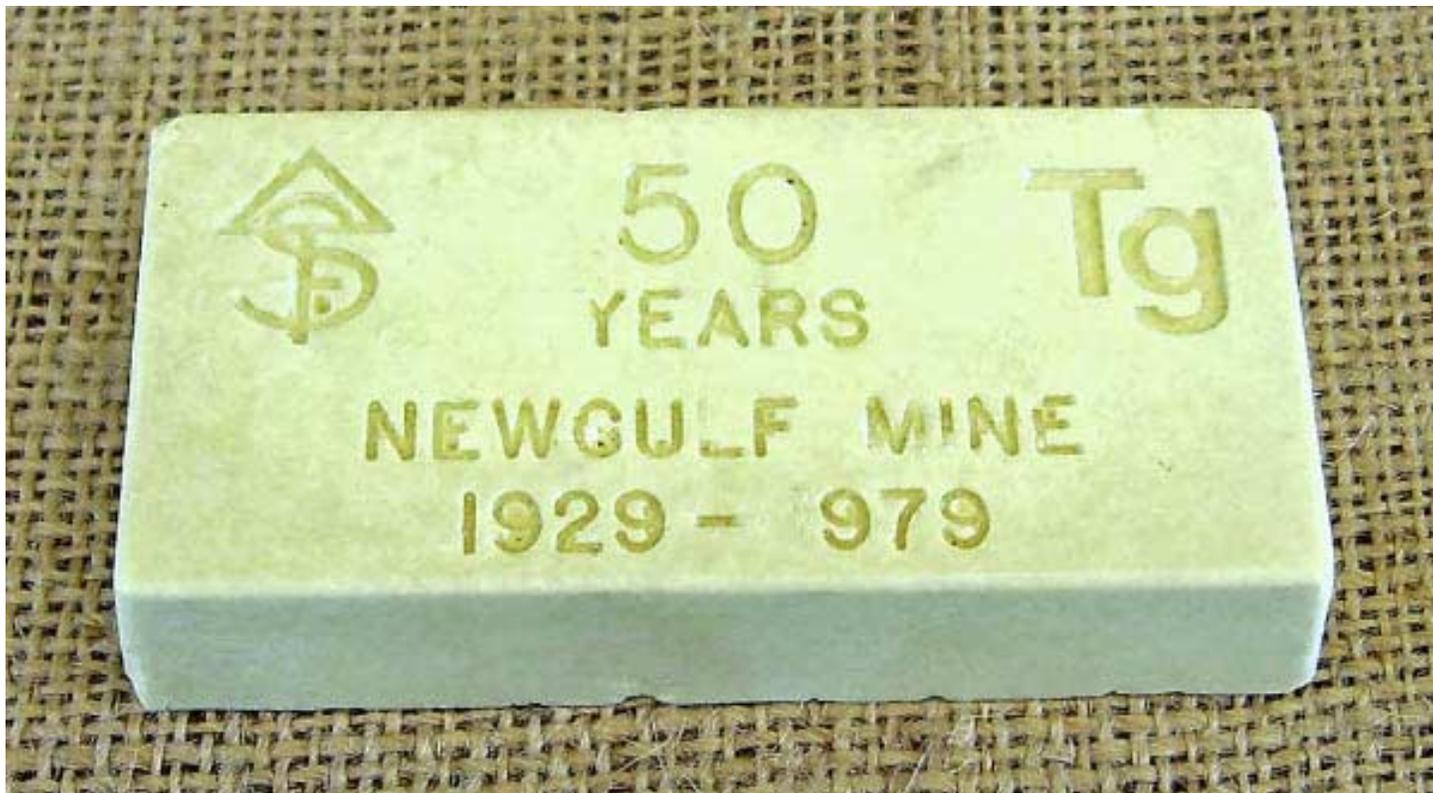
Several years ago I came across a sulfur paperweight in a southern California antique shop. I had never heard of the Newgulf Mine but figured it must be fairly important if they took the time to produce a paperweight touting 50 years of operation.

The Newgulf Mine was located in Newgulf, Texas. The mine was situated on top of the Boling Dome, reportedly the world's largest inland sulfur deposit, in Wharton County. Locating the sulfur deposit came about indirectly because of all the activity in Texas looking for oil. Drilling for oil frequently showed good indications of sulfur. The Boling Dome, the largest Gulf Coastal salt dome, turned out to be an excellent source of sulfur.

Prior to 1919, the primary sources of sulfur in the United States were the numerous open pit pyrite mines in Wisconsin and Missouri. Sulfur was also recovered as a by-product in the production of petroleum. The sulfur was used to produce sulfuric acid and black powder, and to vulcanize natural rubber.

In 1923, while drilling for oil, the Boling Dome was discovered by Gulf Production Company. Boling Dome turned out to be the largest sulfur deposit ever found. Texas Gulf Sulfur Company acquired mineral fee on the dome and in 1927 bought the sulfur lease rights from Gulf Production Company, Texas Company, and others. Sulfur production at the Newgulf Mine started in 1929 and continued until 1993. The mine is now closed.

The paperweight is about 4 by 2 inches. It is completely composed of recrystallized molten sulfur.



Newgulf Mine paperweight.

Encounter in Globe, Arizona

Dave Thorpe

It was 4:45 PM when Todd heard the two loud knocks on his front door. He muttered a quiet, "What the...?" and strained forward out of the Lazy-Boy. His two German Shorthair pointers sprung to all fours, taut with energy and ready to barge headlong into the intruder. Against their inbred desire to investigate, they were shooed into the back yard, their barks becoming muffled when the dual-pane glass door closed behind them.

He was a stranger. In Globe, Arizona, a man is sized up by girth of his biceps and the fire in his eye. A sideways glance through the front window revealed that this one posed no threat. Todd opened the door and shot a look directly into the man's eyes. It wasn't a hostile look, and it wasn't a welcoming one either. Without a sound, the message was as clear and matter-of-fact as the computerized greeting of a speaker-box at a loading dock: "What is your business here?"

He was in his late sixties, with sun-darkened skin. Deep lines and hollow cheeks bespoke a life-time smoking habit. He stood in unfamiliar territory, but his unbent posture projected a bravado that Todd imagined had been learned the hard way in the local taverns. "I hear you buy old mine lights," the man said. The lethargy and reluctance Todd felt, instantly disappeared - yet he tried not to reveal his new enthusiasm. Their encounter had very suddenly become a poker match of bluff and strategy. Each man had something that the other one wanted, and at this point, neither had an inkling as to the game's outcome.

"It all depends on what you have, I guess," Todd said, and then beckoned him inside. The man paused briefly when he crossed the threshold, looking left, and then right, before he continued further. He was taking in the details of the domicile in order to estimate the depth of the pockets he was dealing with. His pride would never let on that the highest creature comfort he was accustomed to was an aging single-wide in Claypool. He noted that the house had central air and a Kenmore refrigerator, items that he considered unnecessary show. He placed a box on the kitchen table, one he had prepared just minutes earlier to emphasize that his offering was no junkyard relic. The container was cardboard with an Adidas logo and a Walmart sku tag.



He opened the lid slowly and lifted out the artifact. It was wrapped in pages of the Penny-Saver. The man's hands had a coarse tremor, partly nervous, and partly physical. His knuckles were enlarged and his fingers were permanently stiffened in a semi-flexed state. He undid the layers of newspaper as if removing the velvet wraps of the Hope Diamond. "Is that what your're looking for?"

It was a miner's candleholder, and on first glance, appeared to be a Lindahl brand with a tubular brass handle. But this model was different: it had no maker's mark, and was a hand-made one-of-a-kind. The steel shank and thimble were oxidized deep black from nearly a century's aging. Todd handled the stick, he undid the screw cap on the handle and peered inside as if this act was part of a time-honored inspection procedure. Nodding with a sign of approval, he replied, "What do you want for it?"



It took all the acting the old man could muster to maintain a deadpan look and declare, "I got to have two hundred for it." Well-practiced in the art of rural negotiation, Todd stroked his chin, and mentally counted out twelve seconds before reflexively coming back with a counter offer of \$170. "One ninety two is as low as I can go," the old man said, "I got nearly that much into it." Chico Gonzales of Superior had in fact given him the stick a week ago in gratitude for being allowed to mow the weeds around the trailer for minimum wage. To what degree it had been ill-gotten by Chico, was none of the man's concern.

Todd retrieved a cigar box from the pantry. The same box had been in continuous use for twenty-five years as the household petty cash drawer. He counted out loud the full amount and handed it to the man, who folded the wad in two and placed it in a chrome money clip. He wanted to light a Pall Mall. Todd let the dogs in to help escort the old man out of the house. While one raked his shirt, the other used his head to batter the lower body. The man could barely hang onto his Bic lighter as he backed out the front door, one arm extended to block further contact. Done deal.

The Pioche Powder Magazine

by Bob Werner

Pioche, located along US-93 at the southern end of the Great Basin, is situated in a narrow canyon at 6,000 feet elevation. It is about 190 miles north of Las Vegas and 113 miles south of Ely and was one of Nevada's richest and most lawless silver camps. Discovered during the winter of 1863/64, Pioche boasted over 10,000 residents by the early 1870's when it became the county seat of Lincoln County. Mining lasted over 100 years with the last mine being closed by Bunker Hill in 1972 and today about 700 residents remain. Pioche primarily produced silver, lead and zinc with lesser amounts of copper, manganese and gold. Total production for the district amounted to about \$170 million.

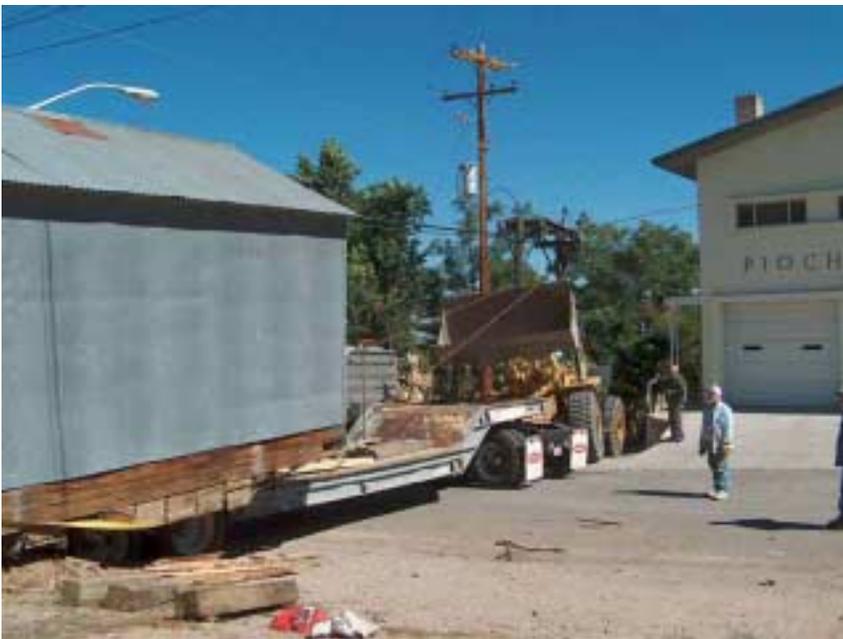


Bob Werner stands in front of the powder magazine in its original location.

There have been a number of powder magazines in and around Pioche over the years. One, located in downtown, caught fire in 1871 and the 300 or so powder kegs essentially leveled the business district. The present powder magazine, built around 1920, was originally located at the lower east end of town near the Union Pacific RR depot. During WW-II it was moved uptown to a lot on Meadow Valley Street. Explosives were dispensed from the magazine until the early 1950's when it fell into disuse. Several owners of the lot have come and gone, but when the last owner recently sold the lot the new owners planned to tear the magazine down. Being a fairly well preserved historical building it seemed well worth the trouble to try to preserve it.



The large flat-bed is backed into position.



The cab of the flat-bed is turned sideways and the powder magazine is dragged aboard with a loader.

Saturday morning, the day of the big move, came and my able-bodied crew assembled uptown at the powdermag. A local dirt moving contractor loaned us the truck and loader and Lee, my "main man" graciously agreed to operate the equipment. With some difficulty we got it onto the truck and slowly moved our precarious load onto Main Street. We didn't get very far before we ran into overhead phone and power lines, but a quick trip to the home of one of our local utility folks to borrow the hotstick was going to resolve that problem. We had traffic blocked on Main Street for a little over an hour, but no one seemed to mind and it was an unusual photo opportunity for the tourists in town.



It was a tipsy ride out of town.

The structure came through the move in good shape with minimal restoration required to the floor joists and a little body work on the metal sheathing. I had acquired the original Hercules "Magazine Rules For Dynamite and Powder Magazine" sign several years ago from the then current owner of the magazine and it has since been returned to the inside of the door where it was originally.

The building is unloaded to its final resting place at the Werner home.





The building is unloaded to its final resting place at the Werner home.



What may be a surprise to some is that the move was made without any permits or anyone getting concerned and calling the Sheriff - one of the benefits of living in a rural Great Basin mining camp. While MSHA or OSHA might have had some concerns, it was just another Saturday in Pioche!

This sign hangs inside the powder magazine.