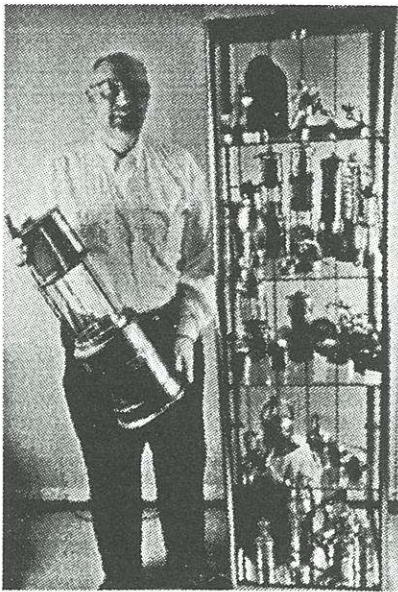


# 3000 Years of Mine Lighting in 20 Years of Collecting

by Werner Horning

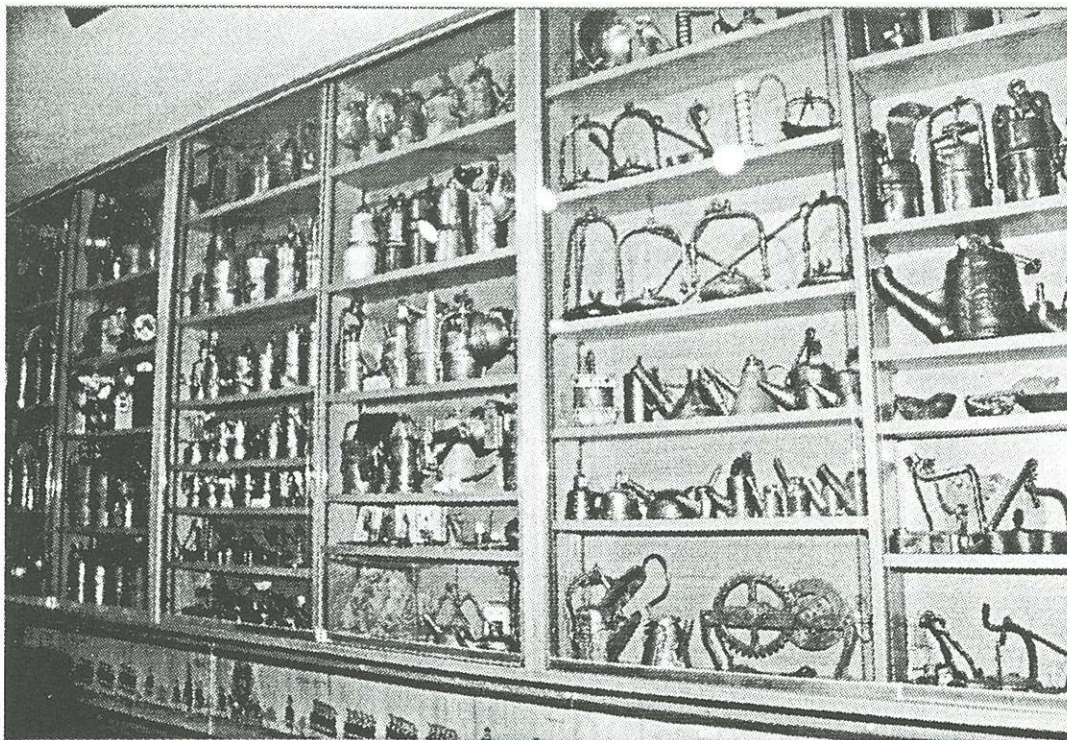


*The author.*

In early times, the personal attachment and responsibility a miner felt for his lamp is well-known. A frog lamp cost the equivalent of about two shifts, and the fuel alone cost the miner 8 percent of his earnings! You can imagine the significance of the miners lamp. This faded somewhat with the industrialization period, when the miner simply picked up a company lamp from the storage room and did not have to buy or to maintain it. Likewise for me as a collector: the earliest of lamps carry the most meaning.

I did my first shift in 1955 in a German coal mine and worked there for 4 years as a miner, before studying mining engineering. At that time I never thought in my dreams I would become a collector of miners lamps. But then, 20 years later, I got my first

lamp, a carbide lamp, as a present, and it was the cornerstone of my collection. I also started to collect literature on that subject, but that was not easy in those days. Now I have about 360 different lamps from all over the world and a lot of literature too. (Fig. 1, 2)



*A small section of the author's trophy room.*

## Diversity of Mining Lamps

My intention is to document the diversity of mining lamps over the centuries. My oldest piece originates from 950 B.C. (Hallstatt/Austria). These are the remains of pine wood torches that the ancient miners used and today were found in the marble of an old salt mine. Fig.3a.

With candle lights and oil lamps you cannot make a strong distinction as to whether they

were used as household lamps or mining lamps as there often was a mixing in mine regions. Fig. 3, 4, 5. It changes with the invention of the first safety lamps by Clanny, Davy and Stephenson for gaseous mines. Their principle of operation is still used today.

## Treasures of my private museum

### Pine wood torches (Fig. 3a).

They are flat and were worn in a bundle, soaking in resin. They are now found by archeologists in the marble of the ancient pits. Oldest found is from 950 BC.

### Lamps of Clay and Open Frog Lamps (Fig. 3, 5d)

The open frog lamp is developed from the clay lamp. In the middle age the lamp of clay got a thumb hole sometimes. This thumb hole you find by some of the iron or brass open frog lamps too. It is than used to fix the bail in it. In these lamps most tallow was burned.

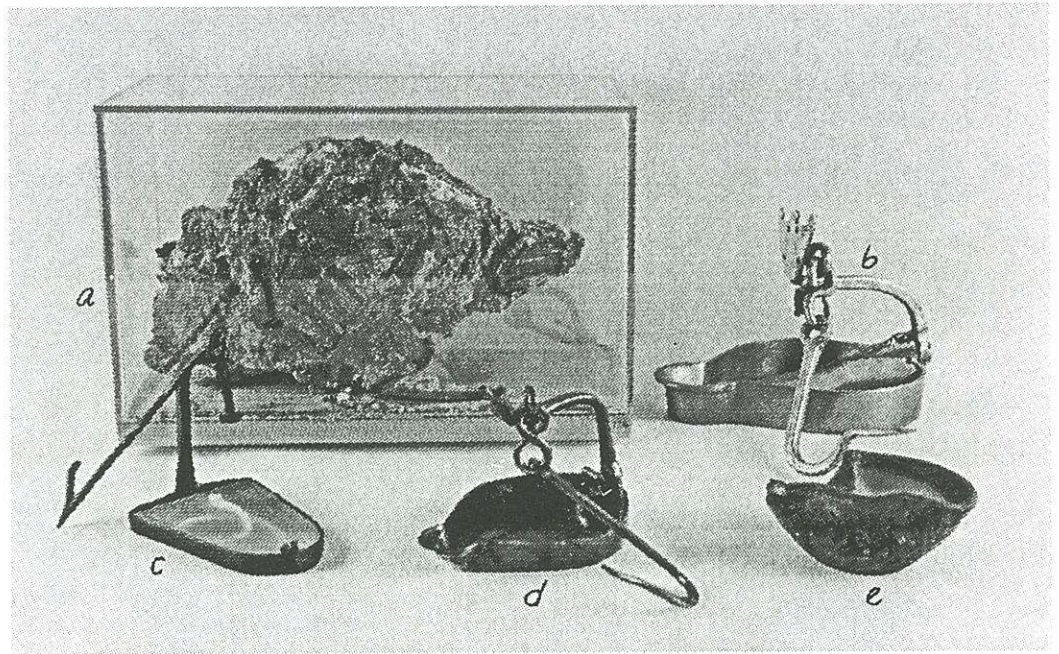


Fig. 3

a) Torches of Pine Wood, Hallstatt, Austria, - 950 B.C. by Open Frog Lamp, Harz mountains, Germany, - 1880 c) Open Frog Lamp, Austria - 1870. d) Open Frog Lamp of copper, Harz mountains, - 1850. e) Lamp of Clay, Turkey, - 1600.

### Frog Lamps (Fig. 4a, c, d, e, h).

The first frog lamps were manufactured by black smiths, later on they were produced in factories. Frog lamps with a cover plate of brass or all brass have been for officials only

### Tunnel Lamps (Fig. 4b).

This style of tunnel lamps (also called lenticular lamps) are in its origin from the mediterranean region and were used by tunnel workers or miners. They brought it to other mine regions and the miners became familiar with this type of lamp. So you find this lamp in some German mine regions too.

### Cast Oil Wick Lamp with Clapable Bail (Fig. 4f).

These types of lamps were made about 1900. In Germany these lamps are called "Giesser" (to cast = giessen). In the W. Seippel Catalogue from 1908, Bochum, Germany, you will find it under No. 34/3. Kerosene were used as fuel.

### Oil Lamp of Sheet Iron (Fig. 4g).

As this lamp, made by Friemann & Wolf, Zwickau, Saxony, deviates from the Frog lamp design, it could not carry through itself. So this lamp is rare today.

### Midgie (Fig. 5a).

The Midgie was most used in North England. They were made by local tin smiths which you can see in the different dimensions. The Midgies have either an oil container or were used with a candle.

### Blende Lamp, Lugau-Oelsnik (Fig. 5b).

The Blende lamp is made of wood which is inlaid with either brass or iron shee. The oldest known Blende lamp is from 1820 and is find in the mining museum of Freiberg, Saxony. The small ball lamp in it was called by a "Kuckuck" by miners (it derives from the old German word "kiken" = to see). Often the Blende lamps were used with a candle. There are two types of Blende lamps. Some are open the others are closed by a sash window. The latter were more expensive.

**Oil Wick Lamps** (Fig. 5c, e, f, 9). There are lots of different types around the world. The greatest variety are found in the U.S. The German types always have a drip catcher, because the fuel was so precious in those times.

### Ball Lamp (Coo-Coo), Chanarillo, Chile (Fig. 5h).

This lamp looks like the "Kuckuck" from the German Blende Lamp and the name sounds similar. It was used in South American mining regions.

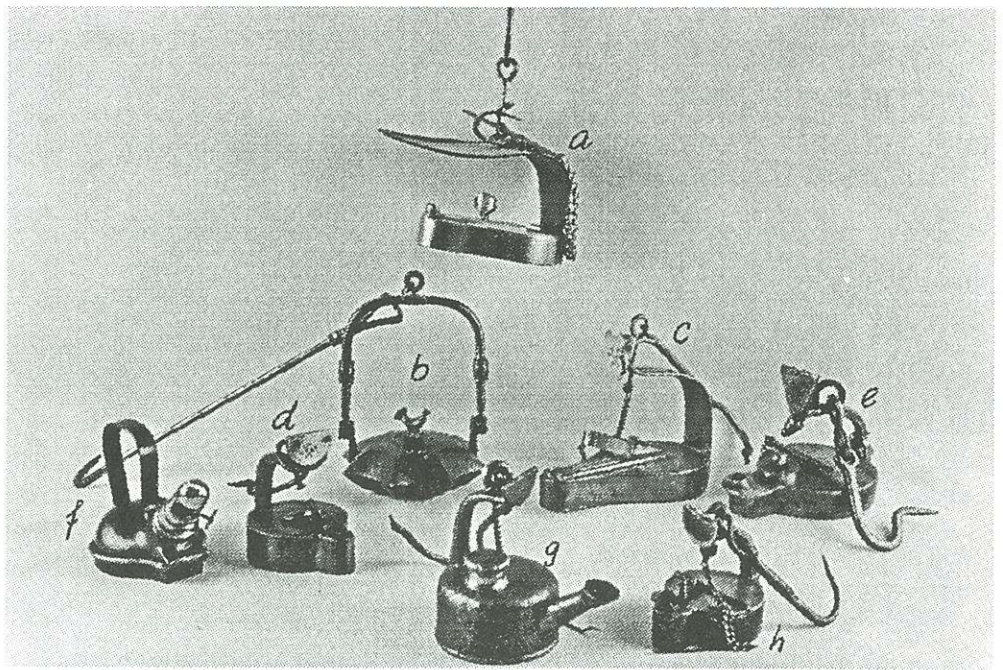


Fig. 4 a) Frog Lamp, Rumania, -1900. b) Tunnel Lamp, Roetelmann brothers, Werdohl/Westphalia, Germany, - 1900. c) Frog Lamp, Hungary, 1894. d) Frog Lamp, W. Selppel, Bochum/Westphalia, Germany, - 1890. e) Frog Lamp, Harz mountain, Germany, - 1890. f) Unbreakable Oil Wick Lamp with swing-out handle, W. Selppel, Bochum/Westphalia, Germany, - 1910. g) Oil wick Lamp, No. 845, Frlmann & Wolf, Zwickau/Sa., Germany, - 1895. h) Frog Lamp, Hessen, Germany, - 1860.

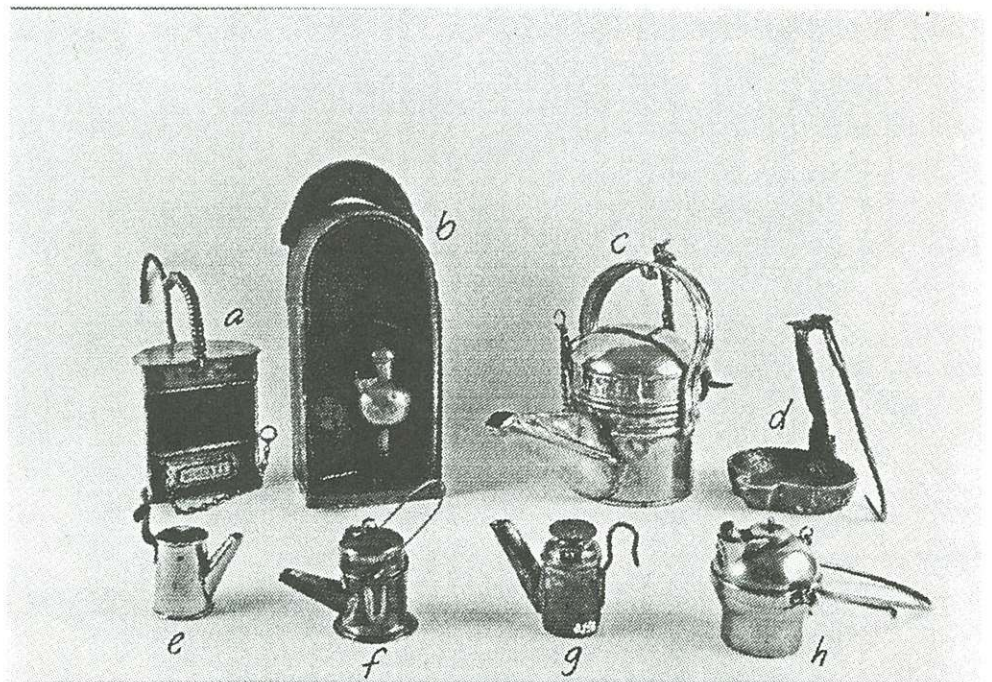


Fig. 5 a) Midgie, England, - 1900. b) Blende Lamp, Lugau-Oilsnitz/Sa., Germany, - 1870. c) Oil wick Lamp, Upper Silesia, Germany, - 1900. d) Open Frog Lamp, Bohemia, Slovakia, - 1860. e) Oil wick Cap Lamp, Dunn Lamb, Dalkeith, Scotland, U.K., - 1900. f) Oil wick cap lamp, Mansfeld, Germany, - 1870. g) Oil Wick Cap Lamp, Dunlap's, Pittsburg, U.S.A., - 1910. h) Spherical Oil Wick Lamp (Coo-Coo), Chanarillo, Chile, - 1900.

## Gas Testing Lamps (Fig. 6a, d, e)

*Design: Pieler, Fleissner, Chesneau.*

These lamps are only made for gas testing purpose and are rare. With the Pieler lamps you can make readings of 1/4 percent of methane gas. It is used with pure alcohol. Within the Fleissner lamp is a special system of tubes that produces a sound when methane passes into the lamp. Readings are possible by 1 percent of methane, as fuel alcohol is used. The Chesneau allows readings of 1/10 percent of methane. A mixture of methylalcohol, copper nitrate and acetylene chloride is used as fuel.

*Ashworth/Hepplewhite/Gray (Fig. 7e).*

The lamp has a lower air inlet by tube pillars. It is self-extinguishing when fire-damp explodes within the lamp.

*Carbide Safety Lamps (Fig.6b, c).*

They were used with Beagit cartridges (pressed carbide) and burned 5 to 6 times brighter than a normal safety lamp. When the lamp inclined the gauze becomes red hot, and the purpose was not fulfilled. The big lamp was used as a pit bottom lamp. The weight is 12 kg.

*Tin Case with Shielded Davy (Fig. 7a).*

The tin case serves as a protector against air current when walking the mine. The lamp itself has a protector shield of brass.

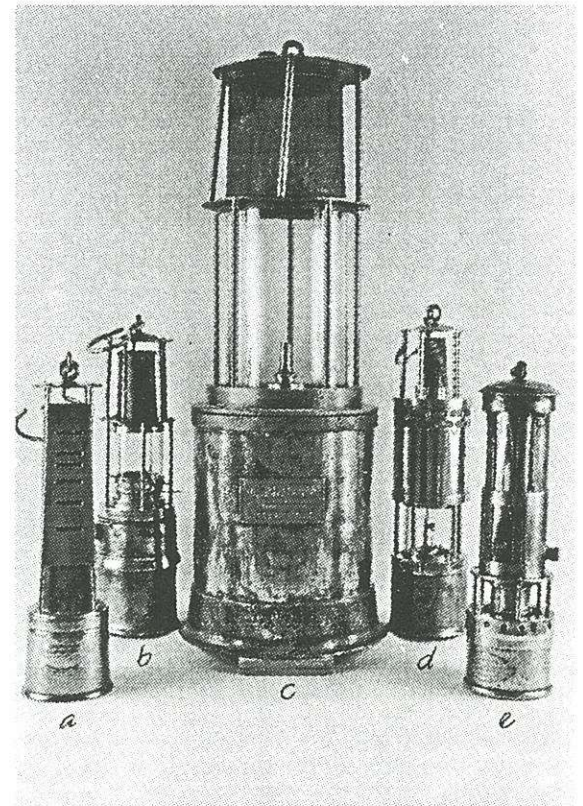


Fig. 6 a) Lamp for Gas Testing, Design: Pieler, Frlmann & Wolf, Zwickau/Sa., Germany, - 1885. b) Carbide Safety Lamp, W. Seppel, Bochum/Westphalia, Germany, - 1910. c) Cartide Safety Lamp, No.101, Size 2 (625 mm tall), W. Seippel, Bochum/Westphalia, Germany, - 1910. d) Lamp for Gas Testing, System: Fleissner, Frlmann & Wolf, Zwickau/Sa., Germany, - 1920., e) Lamp Or Gas Testing, Design: Chesneau, W. Seippel, Bochum Westphalia, Germany, - 1885.

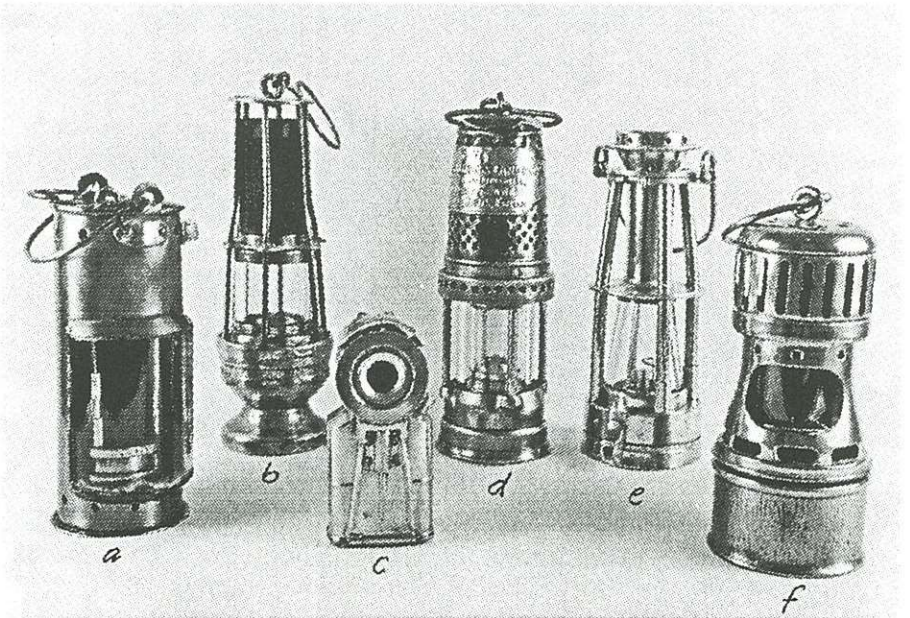


Fig. 7 a) Oil Safety Lamp (Tin Case with Shielded Davy), England, - 1870. b) Oil Safety Lamp, Cosset-Dubrulle-Fils, Lille, France, - 1880. c) Gas Tester, No. III, Society bar Nautical Instruments, Kiel, Germany, - 1935. d) Oil Safety Lamp, Bests Gauzeless Lamp Co. Ltd., Leeds, England, - 1925. e) Oil Safety Lamp for Gas Testing, Design: Ashwoth-Hepplewhite-Gray, Stanley, Derby, U.K., - 1890. f) Benzene Safety Lamp, Westphalian Davy, Friemann & Wolf, Zwickau/Sa., Germany, - 1895.

*The Cosset-Dubrulle Safety Lamp (Fig. 7b).*

The lamp is secured by a spring catch which only gives free when the wick is totally twisted down and the flame is extinguished.

*Gas Tester (Wetterlicht) (Fig. 7c).*

In that Gas Tester the existence of methane is shown by a bent wire (filament) of platinum alloy which is electrically heated, and it has a cupola of salts from precious metals. Specialists can see the exact percentage of methane by its filament.

*Best's Gauzeless Lamp (Fig. 7d).*

In this lamp two perforated sheet baskets replace these gauzes.

*Westphalian Davy (Fig. 7f).*

So named because of its style.

*Oil and Benzene Safety Lamps (Fig. 8)*

The lamp in Fig. 8a is made for a special purpose. It serves for sump inspection. The swimmer pot sits on the water surface and the flame can be watched from above by a mirror and lens device.

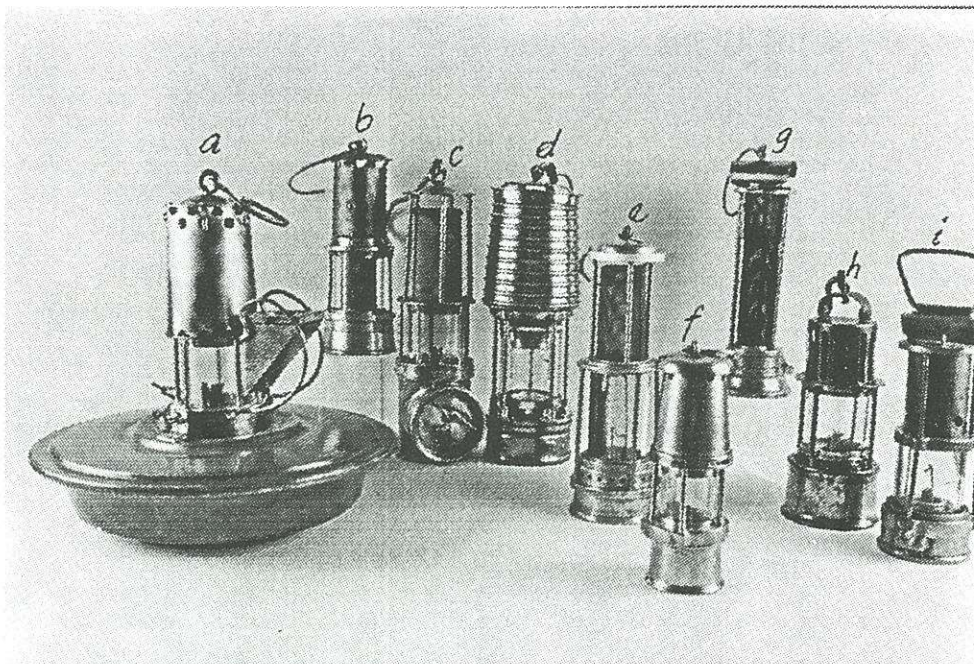


Fig. 8 a) Benzene Safety Lamp, Type 432/433, Test Lamp for the Sump, Friemann & Wolf, Zwickau/Sa., Germany, - 1905. b) Oil Safety Lamp, Jack Davy, probably John Mills, NewcasUe-upon-Tyne, U.K., - 1850. c) Benzene Safety Lamp, BL 10/111, Dominit, Hoppecke-Brilon/Westphalla, Germany, - 1955. d) Oil Safety Lamp, type HCP9, Patterson Lamps Ltd., Felling-on-Tyne, England, - 1905. e) Oil Safety Lamp, Supply Co., Scranton PA, U.S.A, - 1900. f) Benzene Safety Lamp, Baby Wolf, The Wolf Safety Lamp Co., Sheffield, England, - 1945. g) Oil Safety Lamp, American Safety Lamp & Mine Supply Co., Scranton, Pennsylvania, U.S.A - 1880. h) Benzene Safety Lamp, probably Friemann & Wolf, Zwickau/Sa., Germany, - 1908. i) Oil Safety Lamp, Clanny Type, England, - 1860.

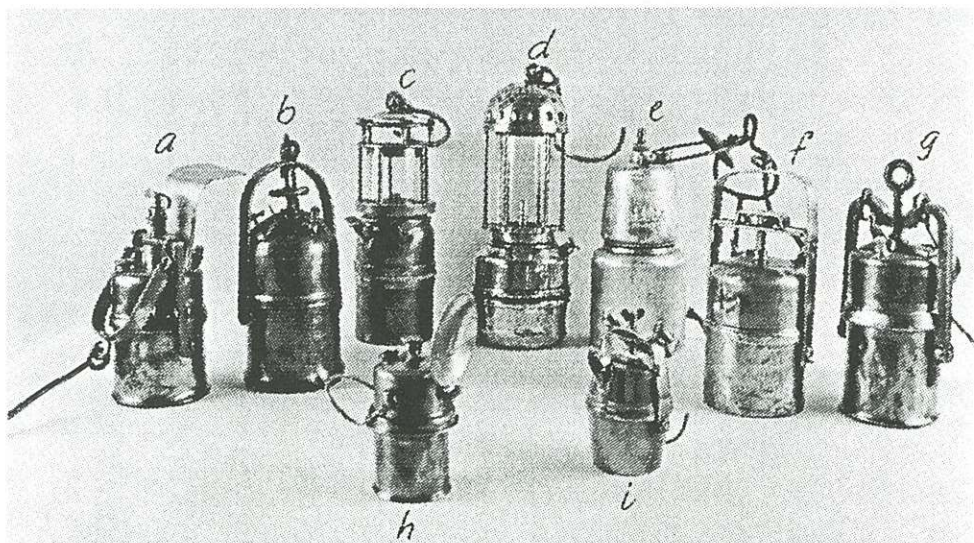


Fig. 9 a) Carbide Hand Lamp, Type 851, Friemann & Wolf, Zwickau/Sa., Germany, - 1910. b) Carbide Hand Lamp, Design: Dax, J. Brumberg, Sundem, Germany, - 1910. c) Carbide Hand Lamp (for train end), No. 9080, Friemann & Wolf, Zwickau/Sa., Germany, - 1915. d) Carbide Hand Lamp (Carmaux Lamp), Arras, France, - 1915. e) Carbide Hand Lamp, L. Ellgass SA, Lausanne, Switzerland, - 1940. f) Carbide Hand Lamp, Roetelmann, Werdohl, Germany, - 1920. g) Carbide Hand Lamp, F. Schweisfurth, Herdorf a.d. Sieg, Germany, - 1925. h) Carbide Cap Lamp, No. 135, Hesse, Nuernberg, Germany, - 1920. i) Carbide Cap Lamp / little barrel, Type 911, Friemann & Wolf, Zwickau/Sa., Germany, - 1910.

## Carbide Hand and Cap Lamps (Fig. 9).

The specialities are in design and style of the locking device.

## Electric Lighting (Fig. 10).

About 1900 the first electric lights were used by miners. First only officials were allowed to carry it because people thought it was too complicated for the normal mine workers. Since the early twenties the first accumulator (battery) cap lamps were in use. First they only used lead accumulators, today you only find nickel-cadmium accumulators.

## Composite Accumulator Safety Lamps.

Only the fig. 11b and c shows composite accumulator safety lamps. In front of the lamp in fig. 11b are seen a normal accumulator hand lamp and at the rear you have a safety lamp which is, when not in use, protected by two protecting covers.

The composite lamp shown in fig. 11c came too late on the market. Numerous gas testers were already available. Therefore, very few of these lamps were manufactured and they are very rare.

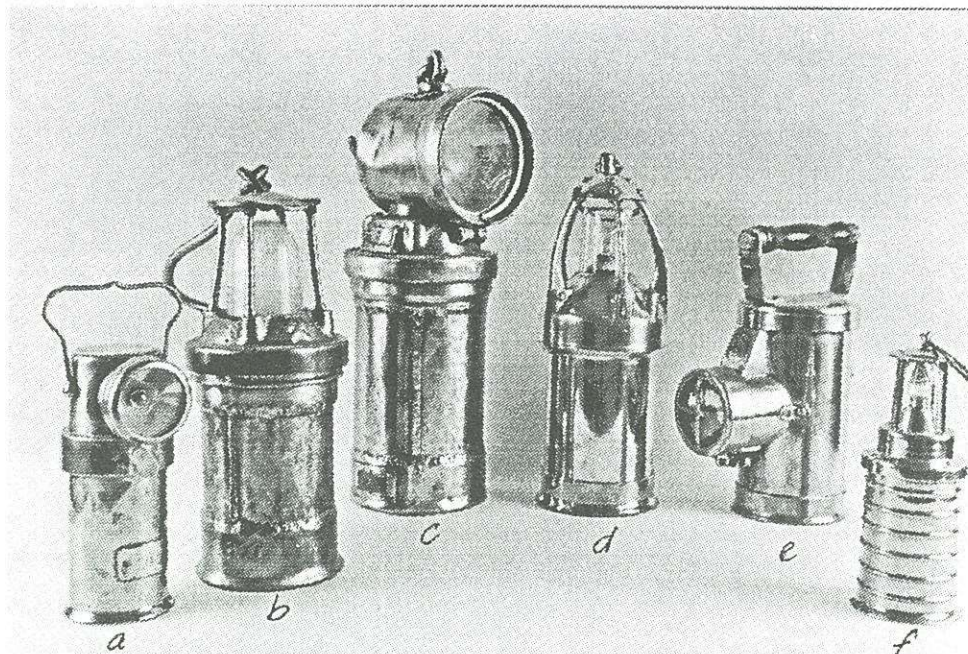


Fig. 10 a) Accumulator Hand Lamp, BE3, The CEAG Miners Supply Co. Ltd., Bamsley, Leeds, England, -1912. b) Accumulator Hand Lamp, CEAG, Slowakla, 1938. c) Accumulator Hand Lamp, No. 950a, Frlmann & Wolf, Zwickau/Sa., Germany, - 1935. d) Accumulator Hand Lamp, Compagnie Auxilaire des Mines, Bruxelles, Belgique, - 1950. e) Accumulator Hand Lamp, BE34, The CEAG Lamp Co., Barnsley/Yorkshire, England, - 1930. f) Accumulator Hand Lamp (for officials only, CEAG, Dortmund:Westphalia, Germany, - 1910.

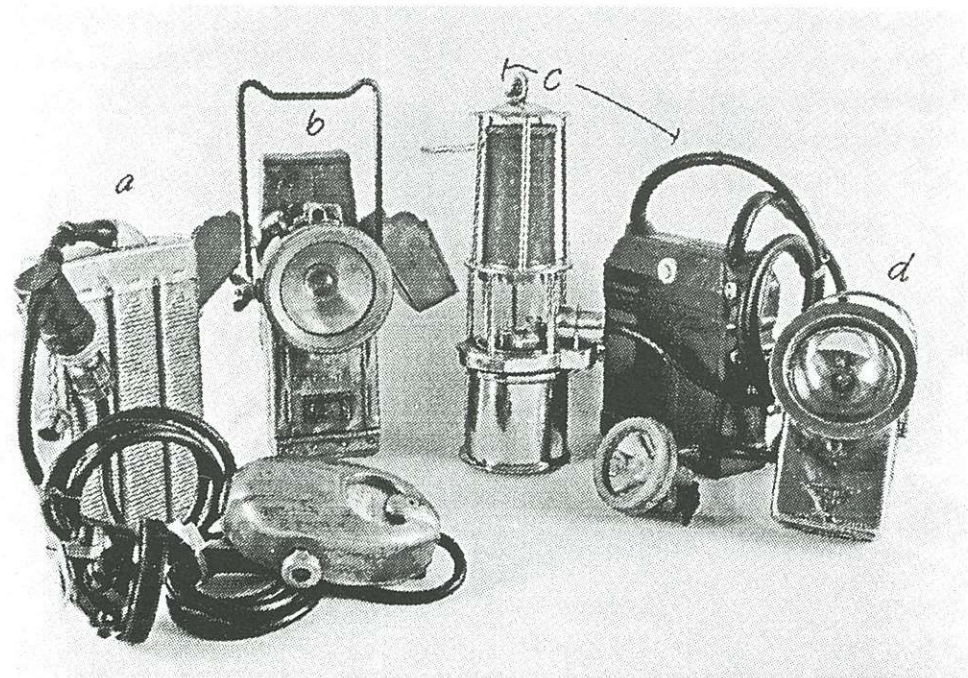


Fig. 11 a) Accumulator Cap Lamp, Model P. Thomas Edison Inc., West Orange/New Jersey, U.S.A, - 1955. b) Composite Safety Lamp, SA W10, Dominit, Hoppecke-Brilon/Westphalia, Germany, - 1955. c) Composite Safety Lamp, Type 20601, Friemann & Wolf, Duisburg, Germany, - 1955. d) Accumulator Hand Lamp (for officials only, Frlmann & Wolf, Zwickau/Sa., Germany, - 1935.