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LAMPS AND CANDLES

by William S. Harvey

SYNOPSIS
Lighting, whether in the mines or the miners' cottages, was once something to be taken for granted and little contemporary record remains. The following draws on local MSS to provide a note on the use of candles and oil lamps at Leadhills and Wanlockhead.

CANDLES IN THE MINE

For centuries, tallow candles provided the miner with a "*funereal glimmering*".[1] Better light would have been needed when installing pumps or other machinery, and, if there was adequate ventilation, then pieces of resinous pine, or strips of wood soaked in oil, were used.[2] The writer can remember when the guide who took parties into the New Cave in Mitchelstown illuminated the caverns with a flambeau of peat soaked in paraffin.

The size of the candles seems to have varied throughout the country. In the 1830s, those used at Leadhills were rated at nine to the pound (50 gms each), compared with "*English candles of 10 or 11 per pound*".[3] In his "*Principals of Metal Mining*", Collins refers to Cornish candles as being 12 to 16 to the pound, and those used in the North of England as 20 to 30.[4] The latter can have been little more than tapers, and, elsewhere, Foster claims that the agents needed the light from "*eighters*" when visiting their men.[5]

In comparison, today's "*household*" candle, 190 mm x 19 mm diameter, weighs 56 gms and so rates at about eight to the pound. There is a reference to 5961 lbs (270 Kg.) of candles being used at Wanlockhead in 1851.[6] The number of miners employed at that time was probably about 100. If so, each used 60 lbs per annum, or just over a pound weight of candles, about eleven, a week. Duckham quotes figures which suggest the Scottish colliers used two to three lbs a week around 1800, and this can be compared with the annual consumption in other mines in the 1860s, as below.[7]

Devon Great Consols	89	Lbs/Miner
South Caradon	130	do.
Alston Moor	119	do.
Cononley	73	do.
Grassington	111	do.
Lisburne (Wales)	85	do.
Cleator (Ironstone)	70	do.

Keeping the candles lit whilst underground must have been a constant problem, and in the 1850s a partnership at Leadhills complained that the water falling in a waygate meant they "*could not carry fire*".[8] Flint and steel were at best an uncertain source of ignition, and when an overseer, alone in

the mine in 1843, lost his light, he found his "[tinder] *box was damp*" and had to retreat in darkness.[9]

Those involved in accidents could also be left without light. In 1739 the survivor of a roof-fall "*lost his candle and was obliged to come up the shaft*" to get aid for his colleagues.[10] He may not have had far to go, but a century later the survivor of another accident was "*in an exhausted state*" when eventually found.[11]

British miners turned to oil lamps in the late 19th century, and they were in use in Scottish lead mines, presumably Leadhills and Wanlockhead, by 1905. It was said that the light was "*not equal to a good candle*", but oil was cheaper.[12] Acetylene lamps were being used on the Continent by 1900 and they could give a beam with an intensity of 10 candles.[13] The first firm record of acetylene being used at Leadhills is in the 1920s, when a Bargain Slip, which can be dated to c1925, records that the partnership spent £47 8s 3d on explosives and carbide.[14] Light was also needed in the works. Electric power was available in the Glengonnar mine at Leadhills after 1903, but in 1922 the managers at Wanlockhead reported that oil lamps in the smelter had been replaced by acetylene flares.[15]

LAMPS IN THE COTTAGES

Until the 1950s, oil lamps and candles were the only lighting in the cottages at Leadhills. Little seems to have been published about domestic lighting in a pre-electrical age, but an old shopkeeper's ledger has now offered the opportunity to explore the use of oil lamps in the miners' households.[16]

The ledger comprises the years 1870 to 1872 and once belonged to Adam Stewart, who is listed in Slater's Directory for 1878 as "*Ironmonger and Stationery*". In the ledger Stewart recorded purchases made on credit. Buying on "*tick*" was common practice in an economy free from inflation, and credit was particularly relevant in the leadmining villages since the miners worked "*bargains*" and did not get a regular weekly wage.

The ledger entries show that accounts usually ran to five to seven shillings per quarter. Stewart could refuse further credit to those who failed to meet their bills, but a token payment of perhaps no more than one shilling would eventually recover the situation.

References to the purchase of "*oil lamps*", and of "*paraffin*" and "*lamp oil*" suggest this fuel must have been for lighting. Most villagers bought it in bottles, and entries in Stewart's ledger show there were three bottles to a half gallon, so a bottle held about ¾ litre. It is the amount held by a wine bottle, but there is nothing to suggest the sort of bottle used and some of the purchasers could have had metal flasks.

The oil usually cost 1s 10d a gallon, so a bottle full was worth $3^{2}/_{3}$ pence. However, Stewart always charged four pence. Two bottles were eight pence but three cost 11 pence, the same price as for a half gallon. Analyses of some of the accounts show the way the purchases of oil were distributed through the year and how consumption varied with the seasons.

Month	Aug.	Spt.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
No. of bottles	5	13	35	48	50	28	24	23	1	1	0	0

Comparing these totals with the accounts suggests that a miner's household used rather less than a bottle of oil, costing four pence, a week, in mid-winter. Wages in the 1860s were said by the mining company to be a "*liberal*" 15 shillings per week.[17] Research suggests such figures must be interpreted with caution. However, taking a figure no more than 12 shillings per week, the 4d spent on lighting oil is less than three per cent, a not unreasonable amount for part of the year.

How much light did four pence buy? Without knowing more about the lamps, it is difficult to estimate how much light they provided, but one might guess that only one lamp was used in each cottage, and its light was probably not much more than that from a candle. The latter does allow an assessment. Compared with electricity, a (wax) candle produces about 1/100th the light from a 100 Watt electric lamp.[18]

The absence of record in the ledger need not mean that no oil was bought during the summer months, but the evidence does suggest that lighting in the cottages was equated with the hours of darkness rather than the dark days of bad weather and low cloud. At best the rooms were dark, so how did the women and girls make the intricate embroidery, the "*flowering*", which was an important contribution to the domestic economy?[19] No doubt every opportunity was taken of working outside. Visiting Leadhills in June 1852 the feminist writer, Harriet Martineau, remarked on -

> "*a woman standing in her doorway, her child sitting against the house wall* [both] *sewing away*".[21]

Those painters who portrayed women busy at their cottage doors were probably depicting a reality, and not just taking an artistic licence.

Note. Old shillings and pennies are used throughout. Two shillings (or 24 pennies), equals 10 New Pence.

REFERENCES

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2. Foster, C.L'N. *Ore and Stone Mining* (1905), p.551.

3. NRA (Scotland) Bute MSS. Ref 212. Letter John Muir to Lord Bute. 17th May, 1833. (A copy is among the Bute Papers in The Wanlockhead Museum Archive).

4. Collins, J.H. *Principles of Metal Mining* (Sheffield: Mining Facsimiles, 1985. Reprint of 1875 edition) p.121.

5. Foster. op cit. p.550.

6. Wanlockhead Museum Archive. (WMA) Peter Wilson's Diary. (Copy) Sheet 3.

7. Duckham. op cit. p.71. Other figures are taken from tables in Kinnaird Commission, British Parliamentary Papers - Mining Accidents, Session 1864, Vol.8 pp.432-444. I am indebted to Mike Gill for details.

8. Allan Ramsay Library, Leadhills.(ARL) MSS. Mine Journals. Vol.18. Entry 7th January. 1851.

9. Ibid. Vol.16 Entry 2nd February, 1843.

10. Ibid. Vol.1A Entry 26th June, 1739.

11. Ibid. Vol.16 Entry 4th February, 1843.

12. Foster. op cit. p.552.

13. ibid. p.554 and Whitaker, J.W. Mine Lighting (1928), p.169.

14. ARL. Misc. papers. "John Adamson & Co."

15. WMA. Wanlockhead Lead Mining Company MSS. "Joint Manager's report". 21st November, 1922.

16 I am indebted to Mrs Greta Clark of Leadhills for the opportunity to examine this ledger.

17 Irving, G.V. and Murray, A. *The Upper Ward of Lanarkshire* (Glasgow, 1864), Vol.3, p.45.

18. A "standard" candle can provide 13 lumen, a 100 Watt lamp 1200.

19. For reference to the place of flowering in the Leadhills economy, see my "Miners or Crofters", NMRS *British Mining*, Vol.43, pp.85-86. Technical details can be found in Swain, M.H. *The Flowerers* (1935).

20. Martineau, H. "News of an Old Place" *Household Words*, 1852, p.541.

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