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FORCE CRAG TODAY - OCTOBER 1976

V. Landless

Force Crag Mines, High and Low, are situated at the head of the Coledale Valley 4 miles W.S.W. of Keswick in Cumbria, and have worked intermittently since 1838 when they were opened for the extraction of lead ore.

Mining continued with only slight success for a number of years. The lead ore, which is contained in an east-west running vein, was widely spread and required a large amount of ground to be removed to obtain it, and the main reason for its continuance was that the ore ran as much as 35oz silver per ton of lead.

Some idea of the situation can be gained from reports made on a yearly basis for the Leconfield Estate from the years 1853 to 1876. In 1853 it was reported that the Deep Level, which would probably be the old No.1, had been driven 100 fms, taking 4 years, and it was hoped to cut the ore bearing vein in another 15 to 20 fms. This had been an expensive level, being 7ft x 7ft and was costing £9 per fathom. It was not until 1855 that the vein was cut at 140 fms from the portal. By 1857 a rise had been put up on the vein and a waterwheel driving four heads of stamps was erected. Allowing for the sale of 29½ tons of ore, at £516. 5. 0. the cost of the level was £1,200.

Things became a little better in the following years, for in 1860 88 tons of ore were sold for £1,450 and the level had been advanced to 200 fms.

The driving of this level had taken over 10 years, which meant a rate of progress of 20 fms a year, or 2½ ft a week, a tribute to the determination and optimism which kept mining going in an age of hand boring and black powder blasting through the hardest of rock.

It was thought worthwhile to construct a tramway 2 miles long down the valley to Braithwaite and this was completed in the years of 1873/74 at a cost of just over £1000. At this time a number of high levels were being worked, although mainly for barytes. In fact the lease taken in 1860 covered the mine for the extraction of lead, copper, tin, zinc, cobalt, antimony, iron, manganese and barytes.

Information from the latter years of the 1800's is sparse so it would appear that little was done; a number of letters dated around the mid 1880s were concerned with the filling in of 'large holes' left by the mining operations, but as to where these were, is not clear.

At the turn of the century the company working Thornthwaite Lead Mine took the lease for the extraction of lead, but closed again within 3 years. Subsequently several companies tried, with various degrees of success to run the mine profitably but it was not until 1929, when the High Force [18] Levels were begun that the mine started to make a consistent profit, and this was for the production of barytes rather than lead

or zinc. This continued under the leases of four different companies until its temporary closure in 1966.

Today Force Crag may once more be re-opened, for a Canadian company called Force Crag Mines UK hold the mining rights, and have made visible signs of their occupation, the first since they drove the new No.1 and extended the No.0 after McKechie's left in 1966. It is thought that sufficient zinc ore is present beneath the old lower workings to warrant reopening and the erection of a new mill.

When it does reopen it will be, together with Carrock Tungsten Mine (recently restarted) the sole survivor of 39 working mines once active in the Lake District.

A large number of surface remains, in various degrees of deterioration are evident. The largest being the mill, occupying an area of approx: 150ft x 100ft on four different elevations; amongst the new brick and corrugated iron can be seen the remains of the mill that was used until 1921, and in a shed attached there is an Ingosol Rand compressor in almost perfect working order.

The levels themselves, numbered 0, 1, 2, 3 are all accessible, except the No.2. These four comprise the lower workings, there being only one entrance to the High Force complex. The No.1 is to be found just behind and above the mill ref. 19952165, and on entering the first thing noticed is the very warm air inside (see table). This is due partly to the depth of nearly 700 ft vertically below the surface, and also, to a greater extent, on the spring situated in a branch level near the end of the main passage, which gives off warmish water and carbon dioxide, unfortunately contributing to a bad air situation past the rise from the No.0.

In the entrance to the No.1 can be seen a good example of forepoling, as the level was driven through the spoil from the higher workings for approx. 30 yds.

Near to the portal 25 yds to the west is the entrance to the old No.1 which runs parallel to the new level. This is in a state of almost total collapse, except for a few short stretches between falls. It is from one of these clear areas that a ladderway extends upwards, and although unexplored due to the state of the workings, it is likely that it leads to the inaccessible No.2.

The No.0 Level is nearly ¼ mile down the road to Braithwaite, ref. 20202180, and was the last level to be worked. A laddered rise, as mentioned, connects it with the No.1 under which it passes. About a year ago in a shed at the entrance was kept an Elmco 12B power shovel, but this has since gone, together with a train of ore trucks at the level entrance. The No.3, ref. 19752170, being the highest of the lower levels still open, is situated at the top left side of the spoil heaps behind and 400 ft above the mill. The entrance is not obvious as loose scree has covered the portal except for a small opening measuring approx. 12ins x 18 ins. When the wind is in the right direction it enters the portal of the High Force Levels and is funnelled down the incline and out of this opening with a velocity which is quite startling.

The condition of this level is the worst of the lower group, as many of the overhead stopes have collapsed, and the host rock itself is insecure and care is needed.

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Near the portal, 10 yds to the west after leaving the crosscut, all the water made by the level and also those above the incline, goes down and under via a short level and rise to where it disappears through a silted up level to a lower system, probably the No.2 although this is not confirmed.

The bottom of the incline is found after 75 yards, behind two corrugated iron sheets on the north side. A fall has partially blocked the incline near the bottom, but a short careful crawl can clear this, and from here the incline is clear and proceeds upwards at 33°. The first part clearly shows the amount of rock removed with every round of shots fired, as the floor of the level has a series of steps corresponding to the 4 to 5 foot advance in the heading.

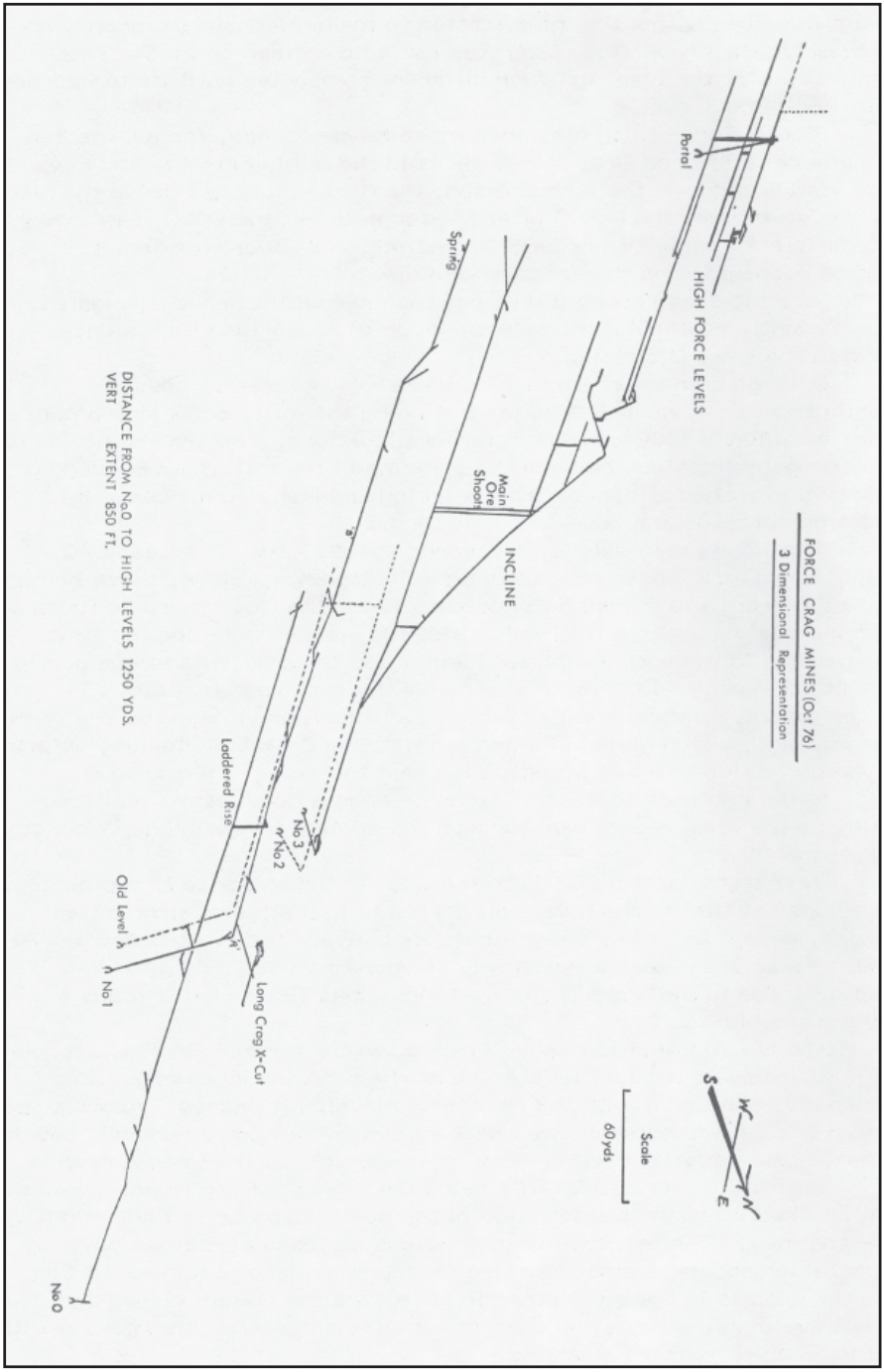
Half-way up the winding gear and controls are still in position next to the ore shoots down to the No.3. Ore from a number of side levels off the incline was trucked out and dumped on the incline, where it was scraped down to the ore chutes, sent down to the No.3 and then transported to the mill. On the floor can be seen numerous grooves cut by the cable as it pulled the scoop up and down the incline. This was done with the aid of a compressed air winch. Pulley blocks were set into the roof to take the return cable.

At the top of the incline a crosscut leads to a laddered rise which connects with another incline, this one much shorter but at an angle of 45°. This ends at the High Force Level, after a climb of nearly 300 feet.

The upper series consists of five levels in a vertical plane off an internal shaft. The uppermost is connected to the surface via a crosscut; there is also a laddered rise extending almost 200 ft to surface workings. Unfortunately progress is now barred just before this rise by a large run of shale.

Equipment left in the higher levels includes two rock drills, (one on a stand) three end emptying ore trucks and a winch for use in the internal shaft. A ropeway was constructed in 1939 to carry ore down to the mill, before the incline was driven. It extended 1500 yards in a two part descent, but little other than various pieces of rusting cable and the concrete bases for the pylons are left of this.

With reference to the plan of the mines, a large area above, between and below the levels, particularly those of the higher complex, has been stoped away, although this is not shown on the plan. Also a number of the levels extend considerably further than marked, but are blocked by roof falls: the solid lines therefore represent the extent of the accessible workings at the time of exploration, Oct. 76.


FORCE CRAG MINES (Oct 76)
3 Dimensional Representation
HIGH FORCE LEVELS
Portal
Spring
Main Ore Shoot
INCLINE
Laddered Rise
No 3
No 2
Old Level
No 1
Long Crag X-Cut
No 0
DISTANCE FROM No.0 TO HIGH LEVELS 1250 YDS.
VERT EXTENT 850 FT.
Scale
60 yds
W
E
S

Temperatures in No.1 Level:-

Surface Temp.	4° C (snowing)	Air Temp. @ 'A' -	13°C
Level Entrance	10° C	Water Temp.@ Rise -	14°C
Water Temp.	13° C	Air Temp.@ Rise -	13½°C
	Spring Water -	15° C	

Water from a small inflow at 'B' measured 8° C.

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Plan Survey for N.M.R.S. by V. Landless & P. Fetters