WELCOME TO ALDERLEY EDGE AND WEST MINE

From time to time, the Derbyshire Caving Club takes members of the general public to see for themselves the world of the copper mines below Alderley Edge.

For trips to West Mine, you are led by a member of the Club. West Mine is not as easy to visit as Wood Mine or Engine Vein. **There are five fixed ladders to climb down before you reach the main chamber.** You must be fit enough to climb these – both ways – and to descend to more than 30m below the entrance. Admission is not normally allowed for children less than 14 years of age. Dogs are not permitted.

FOR YOUR OWN SAFETY, PLEASE FOLLOW ALL INSTRUCTIONS CAREFULLY.

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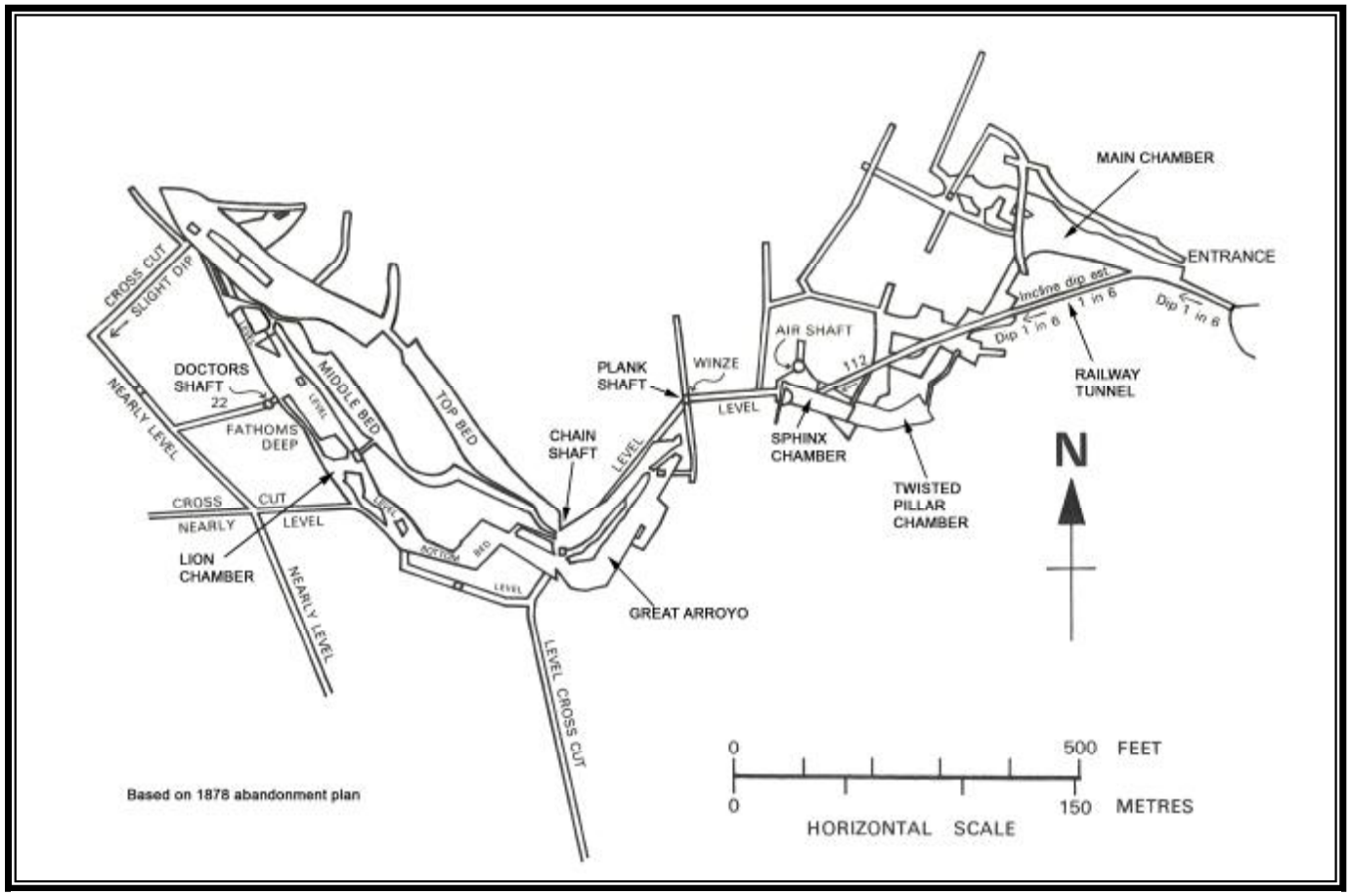
WEST MINE

HISTORY

Evidence suggests that West Mine was originally worked in a single shallow level tunnel with five air shafts closely-spaced, perhaps in the 1805-1815 period. However, the majority of the chambers were excavated in the period between 1857 and 1877 as West Mine was probably the first and major target of the miners of that period.

The first stage in the mid-19th century appears to have been the digging of an opencast mine, like a quarry. At the end of this quarry, the main entrance for most of the working period was a massive (16m x 3m) cave-like hole guarded by a wooden fence and door. Through this entrance went the men to their workplaces and the ore-trucks empty and full on a mine railway. After mining ended, a map known as an abandonment plan was left in 1878 at the Mine Records Office showing West Mine more or less as we know it today. The mine was however reworked in the early 20th century and there are signs of the use of high explosives rather than the black powder of the 1857-77 mining period in workings near the old entrance and at the end of the main chamber.



DEVELOPMENT OF THE MINE

The first stage of mining was to drive a level (tunnel) along the top of the ore-body. This tunnel was then widened and deepened to follow the ore. Another level was driven along the base of the ore-body and connections made between the two so that ore could be thrown down into chutes and then into trucks below. The loaded trucks were hauled out of the mine by a wire rope connected to a steam engine on the surface. As the mine progressed, some ore-bodies were found to be separated from others by horizontal or vertical divisions of barren rock. In these cases, further shafts (winzes) or short levels (cross-cuts) were dug to get the ore back to the main railway.

In about 1862, the mine appears to have reached a point where the productive bed of ore was interrupted by a near-vertical fault. To get through the fault, a tunnel was driven at a steep upwards slope until the miners regained the working beds of sandstone. They then followed these beds down-dip and met with more copper ore. To get the ore from this further section of the mine, a horizontal tunnel was later driven through the fault until it met the new workings.

Most of West Mine was developed in what the miners referred to as the top, middle and bottom beds (although all three were worked together in the Main Chamber). From the far end where the mine reached the boundary of the Stanley property to the entrance is approximately half a mile.

GEOLOGY AND MINERAL ORIGINS

West Mine was developed in 'aeolian' sandstone – sandstone that was laid down by wind action rather than by water. This stone is more porous resulting in copper being dispersed further from the faults in the rock; consequently, large chambers are left after the ore has been removed.

The origin of the mineral at West Mine lies deep in the earth. At some time between the Triassic period when the sandstone was laid down in semi-desert conditions – some 250 million years ago – and the present, the mineral crystallised out in faults in the earth's crust. The 'primary' minerals in the faults are galena (lead sulphide), chalcocite (copper sulphide) and barite (barium sulphate). At a later time, rainwater seeped down the faults and dissolved the minerals, washing them into the sandstone on each side of the vein. It is now hard to find the primary ores *in situ* in the faults in West Mine because the sandstone is so porous. The secondary deposits are malachite and azurite (both hydrous copper carbonate) and cerussite (lead carbonate). Workers in the 19th and 20th centuries have exploited the minerals of West Mine to obtain both lead and copper metals.

THE VISIT TO THE MINE

The main entrance to the mine was blocked in the 1960s: first with a brick wall and then with the quarry outside being filled with rubbish. The Caving Club opened a new entrance above this in 1975 and in 2002 created a third entrance a short distance away leading into some near-surface workings. This is the way most people enter the mine today. The route leads to a series of ladders down into the end of the Main Chamber. From there, two routes lead down the dip of the rock towards Sphinx Chamber where there is one of two shafts used in the 19th century for ventilation.

Beyond Sphinx Chamber, there is a short steep climb up to Plank Shaft, now bridged but site of a number of serious accidents in the 1940s and 1950s. After Plank Shaft, the passage slopes gradually downhill and south-westwards past another large chamber on the left (the Great Arroyo) to Chain Shaft where the direction of the mine changes.

From Chain Shaft to the end, the mine is on three and sometimes four levels on a line south-east to north-west. Near the end is the second air shaft (Doctor's Shaft) and off to the west there is a series of 19th century exploratory levels. These are much smaller and more regularly shaped. One of these levels after Doctor's Shaft also acted as a ventilation route. Trips in the further sections of West Mine often involve criss-crossing one's route so as to see the top, middle and bottom beds. During the trip, a stop is usually made in Lion Chamber where Alan Garner based part of the story in his children's book *The Weirdstone of Brisingamen.*

The return trip to the surface may take up to an hour from the far end if a direct route is taken. However, much of this is uphill and the total climb – ups and downs – is probably about 65m (200ft).

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For further information, including how to see the other mines, visit the Caving Club website at www.DerbysCC.org.uk which has sections on history, geology, exploration and other topics. There is also information about joining in with the caving and mining activities of the Club. You can also purchase copies of The Alderley Edge Mines*, which was published in 2012.*

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West Mine is privately owned but the DCC enter it with permission through an entrance on land owned by the National Trust and under the DCC lease.

Derbyshire Caving Club – September 2014

OD/01

THE WEST MINE

Alderley Edge, Cheshire

SJ 8505 7765

How the minerals were formed

How the mine was worked

How the ore was removed

West Mine is the largest single mine at Alderley Edge worked mainly in the late 19th century. It is estimated to contain about 6 miles of tunnels.

DERBYSHIRE CAVING CLUB