



# Journey through the Valley of Stone

... a living history



**You are here:** The Journey > Men and machines > Cranes

## Cranes

Handling heavy stones has always presented a problem for quarrymen. So it is not surprising that as quarries expanded in the late 19th and early 20th centuries cranes became one of their dominant features. Hardly a photograph exists of a working quarry that does not feature at least one crane. They were used to lift the stone and swing it into a new position. They were also used for removing waste. They were positioned at the edge of a quarry hole for lifting the stone out or elsewhere in a quarry to help the masons.

For lifting heavy blocks, '**sheer-legs**' have proved a valuable tool for centuries. This was a tripod of long timbers, tied at the top, from which the lifting tackle was suspended. It could be moved around a quarry with ease and positioned over a stone to lift it high enough to be loaded onto a wagon. The sheer-legs might have a simple winch.

Early cranes developed into the **derrick crane**. These had a jib fixed to an upright mast supported by two or three wooden stays. The stays were attached to heavy bases constructed from piles of stone, making the structure into a strong and rigid frame. The jib was suspended from the mast and the mast and jib could rotate together to swing the load from side to side. Often the cranes no longer remain, but evidence of their location is indicated by large piles of counterweight stones used to tie down the stays.



Remains of crane base in Lee Quarry

Derrick cranes were a feature of most quarries, where they were commonly used by the banker masons to help them handle large blocks of stone. In some quarries rows of these cranes were built by linking their wooden stays into a long single structure. This would save on the number of crane bases that had to be built.



# Journey through the Valley of Stone

... a living history



Multiple derrick cranes at Hutch Bank Quarry

At first the lifting hook was wound up and down by hand and this remained so for the masons' cranes. But from the later part of the 19th century **powered cranes** came into use in the larger quarries to lift stone from quarry pits. **Steam power** came first, followed by **compressed air** and then **electric power**. All these cranes were fixed on a platform or to stone or concrete foundations. They were often positioned above the quarry face and had to be shifted with some difficulty into a new position whenever the face advanced.



Good example of a crane at Mount Tabor, Halifax. Dismantled 2008.



# Journey through the Valley of Stone

... a living history



Travelling cranes at Facit Quarry, Whitworth

In later periods, large Rossendale quarries had **rail mounted steams cranes** aka 'travelling cranes' on 3m to 4m (10ft to 12 ft) wide tracks parallel to a major rock face. Steam cranes mounted on rails could lift a block of stone out of the quarry pit and then move it away. The remains of crane track beds can still be seen in Lee and Ab Top quarries.

A crane moving on rails had a number of advantages, but it had one big disadvantage. It was not feasible to put heavy stone bases on a moving crane: the only counterweight for the stone being lifted was the weight of the crane itself. When lifting large blocks of stone, the crane driver had to make a careful judgment that the weight of the stone would not cause the crane to topple into the pit. Peter Ratcliffe, who drove a crane in his father's quarry in the 1950s, describes how at times two wheels of the crane would lift from the rails as it lifted a weight near its limit.

## Accidents Using Cranes

The steam cranes lacked the machinery guards that would protect workers today and these cranes claimed lives. Reuben Whitworth was only 16 in 1905 when he became entangled in the cog wheels of a crane and was killed instantly. And in 1912 John William Parkinson was winding a block of stone with a steam crane when he applied the brake to change gearing. Rain caused the brake to slip and the stone fell, causing the cogs to smash. Parkinson was hit by broken machinery parts flying from the gearing and then engulfed in scalding steam from a broken pipe. He had terrible injuries to the lower part of his abdomen and died on his way to Rochdale Infirmary. In another incident in 1902 the boiler and water tank came loose from a crane and plummeted over 30m (90ft) down the quarry face at Ab Top Quarry, taking the unfortunate crane driver with it. He died instantly. The inquest revealed that the crane was 30 years old. We can only speculate about its condition, but today's sometimes irksome health and safety regulations would probably have saved the driver's life.

The Quarry Crane video below was produced by a group of young people as part of the **CAR Video Unit Project**.