

The derricks used are the ordinary spar derricks, with a wooden mast and wooden boom with wire guy-ropes and worked with wire ropes. The hoisting is done by horse power, but mostly by steam. The other kind of derrick used is called a cable derrick; it is preferred by most of the quarrymen. A heavy iron or steel rope passes over a frame down into the quarry at an angle. The frame is made of three pieces of timber, twenty feet long by 10" x 10", and a piece 16 feet 10" x 16". The three pieces 20 feet long are framed together in the shape of a triangle, with the 16 feet piece framed into the apex of the triangle. In the sixteen feet piece two slots are cut, in which are placed wheels to carry the cables. The upper wheel is placed so that its top just clears the top of the frame. The other wheel is put two or three feet lower down. The frame is then set up at a convenient place on the dump, some ten or fifteen feet from the edge of the quarry, so as to allow room for a track between it and the quarry. A wire cable from an inch and half to two inches in diameter is then passed over the upper pulley, taken over to the opposite side of the quarry and fastened to an iron rod set in a drill hole on the side. The cable should be fastened low enough to make an angle of at least 10°. The other end of the cable is passed around a log, held in place by posts sunk into the ground. The cable is then stretched tightly over the pulley and fastened. Over this fixed cable a traveler passes. The traveler is made of an iron frame carrying four pulley wheels: the two upper wheels work on the fixed cable. The hoisting rope passes from the winding drum, through a block at the foot of the frame, up through the sheave at the top, then through the first pulley on the traveler, down around a loose pulley, back around the second pulley and is fastened on to the loose pulley. This loose pulley has a hook on its lower side to which can be fastened the waste-box or chains for hoisting blocks of slate.

The hoisting is done by an engine of from thirty to forty horse-power. Those with double cylinders, working the

drum by friction clutches, seem to be preferred. The descent of the cable into the quarry is controlled by an iron strap brake around the drum, the engine being disconnected. The following terms being peculiar to the slate district, an explanation of them is given:

Cable-derrick. A derrick composed of a fixed wire rope descending into the quarry at an angle from a post near the edge of the quarry. Over this fixed rope a traveler passes composed of an iron frame with three to four wheels, the hoisting rope passing through the lower wheels, while the upper wheels travel over the fixed rope.

Curl. A slate rock in which the cleavage is curved and twisted irregularly is said to have a curl in it.

Ribbon. A thin bed of slate.

Ribbon slate. Slates that are made up of a number of small beds.

Sculp. To break a block of slate at an angle to the cleavage, (approximately at right angles.)

Split. Same as cleavage.

Square of slate. The number of slate necessary to cover 100 square feet on a roof

After the slate block is loosened from its bed, if it is not too large, it is hoisted to the surface by the derrick, put on a truck, and run to a slate-maker's shanty, and dumped on to the ground. One of the splitter's assistants then with a chisel and hammer cuts it into blocks of suitable size for splitting into slates. These blocks are about two inches thick and of sufficient surface to be capable of being dressed into finished slate of the various sizes. Supposing the block to come out of the quarry one foot thick, eight feet long and four feet broad—the bank-man takes a chisel and hammer and cuts a notch some three to six inches deep into the middle of the end of the block; then with a large wooden mallet he drives a chisel into the end of this notch, watching carefully the direction the crack takes. If it goes parallel with one of the sides he continues; if not, by using the mallet on one or the other sides of the notch he brings it back towards the proper direction. After he breaks the rock lengthwise into two, he then cross cuts it in the same manner into four pieces. Then with a flat chisel he splits each one of the foot-thick blocks through the middle, splits them again, until he has them reduced to a thickness of about two inches, and then these blocks are piled up beside the splitter.

The splitter takes a block and with a wooden mallet and a broad, thin chisel (he generally has two or more chisels of different lengths) he splits the block through the middle, and continues dividing the blocks into equal halves until they are reduced to the thinness of a roofing slate.

These thin pieces of slate with irregular edges are then taken by an assistant, generally a boy, and squared off into the regular sizes by means of a dressing machine.

There are two kinds of dressing machines in general use. They are made of an iron frame work some two and a half feet high, having a horizontal knife edge on its upper side. Working against this knife edge is a curved knife, working in a hinge moved by a treddle. The upward motion is obtained by a spring. At right angles to the knife edge, and on one side of the machine, an iron arm projects towards the workman. This arm has notches cut into it for the different lengths and breadths of the slates. The other machine is built in the same manner, except that the cutter revolves on an axle something in the manner of an ordinary straw cutting machine.