

eight per cent. limestone, and most of them still more than that. When Peter Kirk was here two years ago looking into the matter of establishing a great iron industry at some point on Puget sound, he secretly secured a sample of the rock and sent it to England to be analyzed, for the purpose of ascertaining its value for fluxing purposes. He subsequently gave Mr. McMillin, the president, the following certificate:

ANALYSIS OF ROCHE HARBOR LIMESTONE.

February 29, 1888.

Silica.....	0.44
Iron and Alumina.....	1.13
Phosphorus.....	0.11
Carbonate of Lime.....	98.21

The above analysis has been made by the Moss Bay Hematite Iron & Steel Co., Ltd., Workington, England.

Yours truly,

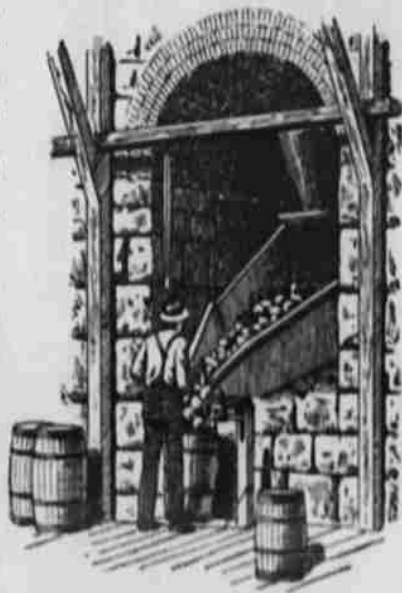
PETER KIRK.

Repeated assays by the Puget Sound Iron Co., the Weathered & Dewey Iron Manufacturing Co., of Wheeling, W. Va., and by chemists in Portland, San Francisco and other places, all give practically the same result. When it is known that the rock from which the famous "Marblehead" lime of Ohio is made has only eighty-two per cent. of carbonate of lime in it, the purity of this marble is more fully realized. The stone contains no sulphur, and for flux is unsurpassed, as it acts as a pure limestone and requires the addition of nothing to counteract deleterious ingredients, as is often the case in fluxes used in smelting. This ledge is very important to the smelting interests of this section, and will no doubt supply the greater portion of stone to be used by the smelters to be built to work up the iron, gold, silver and copper ore of the northwest. Heretofore the spawls—the technical name for the small chips broken off in quarrying and dressing stone—have been dumped to one side, but in the improvements now being made are included storage bunkers and a system of tracks by which vessels can be loaded from cars direct from the old dumps, as well as from the bunkers. Already much flux is being supplied to the smelters at Irondale, Washington, and Oswego, Oregon, and arrangements are being made to supply a San Francisco company with fifty tons per day.

When the new company took possession of the works, two years ago, there were but two kilns, of the large stone pattern, which were turning out about eight thousand barrels a year, a small lime shed, a

manager's residence, three or four small buildings, and three log cabins for men. A systematic development of the property was at once begun. A dock four hundred and fifty feet long, with a front of sixty-six feet, was constructed, the steel rails were laid on a trestle leading from the quarry to the kilns, so that loaded cars could be sent from the quarry by the operation of gravity, being pushed back by hand when their contents had been dumped into the bins above the kilns. The quarry was opened more extensively and the construction of new kilns begun. President McMillin made some radical improvements at once. Previously the lime had not been weighed in barreling, and builders complained that they never could tell how much lime they were getting in a barrel. He at once set a platform scale into the floor near each kiln, and from that time every barrel of Roche harbor lime has contained just two hundred pounds of first quality of lime, no more and no less. Another

improvement is the cooling receptacle. In the old kilns the lime is drawn direct from the bottom of the kiln into an iron car, dumped upon a stone floor and spread out with shovels, where it must lie for an hour or more to cool, and is then shoveled up again into barrels. He attached an iron receptacle to the bottom of the new kilns, somewhat in the shape of an inverted cone, into which the lime settles and cools slowly, and from which it is drawn into a sheet-iron car, which runs down a short incline to an iron chute. Under the chute is fixed the scale, upon which the barrel is set, and the lime is thus run direct from the car into



DRAWING AND BARRELING.

the barrel and weighed without any handling whatever. An improvement upon this has been made in the latest kilns constructed, as the iron chute is extended clear up to the cooler, and the iron car is dispensed with, the cooler being opened and closed by means of a lever operated from the lower end of the chute by the man who fills the barrels. Let us follow a piece of marble from its long sleep in the heart of the mountain to the hold of the vessel which carries it away as a piece of prime Roche harbor lime.

The face of the quarry from which rock is now being taken is one hundred and twenty-five feet high, and the bottom is fully one hundred feet above the water. By means of several diamond drills, operated by compressed air conducted in pipes from a steam compressor located at the northern end of the row of kilns, deep holes are drilled in the rock, men often