

undertake to speak with certainty. Nor has one not connected with the business of making, using or handling lime, any idea of the enormous quantity of that material annually consumed. There was used in Portland and vicinity, in 1884, nearly twenty-nine thousand barrels of lime; the following year the consumption increased five thousand barrels; and during the year just closed, it required forty thousand to supply the market.

Of late years, the great source of our lime supply has been the San Juan group of islands, in Puget sound, that small portion of our national domain which once nearly involved us in a war with Great Britain. A number of companies are extensively engaged in the production of lime on the islands, where the many favorable circumstances conspire to reduce the cost of production and shipment to a minimum. The beds of limestone are very large, and some of them are so situated that ships may be loaded direct from the ledges, without the use of other machinery than derricks. Fuel is as cheap as it possibly could be, and the facilities for shipment to the sound ports, this city, or San Francisco are of the best. Until recently, the San Juan lime has had almost a monopoly of the home market, and has sold at \$1.75 per barrel. Under competition, which has sprung up during the past year, the price has been forced down to \$1.25 per barrel, the difference representing a great saving in the cost of erecting buildings.

The new factor in the lime industry is the Portland Lime and Cement Company, of which S. R. Irwin is manager, and which will soon be incorporated with a capital stock of \$25,000.00. The works of this company are located in East Portland, near the terminus of the Jefferson street ferry. The works, as shown on page 87, occupy a most advantageous site, embracing several acres of land. On one

side passes the track of the Oregon & California railroad, and on the other flows the Willamette river, thus providing most excellent conveniences for the reception of material and the shipment of the product. The works began operation on the first of May, 1886, and have turned out fifteen thousand barrels of lime, nearly all of which has been consumed in the home market. The works have a capacity of one hundred and fifty barrels, containing two hundred and twenty pounds each, per day, equivalent to a total of forty-seven thousand barrels per year, which is sufficient to supply the present entire demand of this market. Previous to the unfortunate destruction by fire of the large paper mill at La Camas, W. T., an average of ten barrels of this lime was used daily in that institution.

To one not familiar with this industry, these works present a peculiar appearance. The two large, black, cylindrical structures shown in the engraving, are the stacks of the lime kiln. They are of an improved pattern, and quite new in the lime manufacture of this region. Their peculiar feature is that the lime burning, which takes place within them, is continuous. The charging of the kiln at the top, effected by means of a self-dumping car, drawn by machinery up the inclined railway, takes place by equal steps with the drawing out of the finished product at the base of the kiln. The operation, perhaps the most simple known in applied chemistry, will be made intelligible by a few words of explanation.

Lime, the material which forms the basis of all mortars and cement, is the oxide of the metal known as calcium. Combined with carbonic acid, it forms limestone, and by heating this substance the acid is driven off, leaving the oxide of calcium, which forms, if the limestone be pure, the white, brittle and flaky