

PERMANENT HOMES AND FIXED POPULATIONS AT THE CENTERS OF THE MANUFACTURING INDUSTRIES OF THE PACIFIC NORTHWEST.

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THE MATERIALS FOR MANUFACTURES.

It is plain that man must have materials to work upon as well as tools to work with. Iron workers must have iron, and furnaces must have the metallic ore beds not far off.

The *Scientific American* of March 13th, 1880, says:

"The confidence of dealers, based on the guarantees they have in hand of the ability of consumers to purchase liberally, may, without anything like enthusiasm, be relied upon to maintain the energy and give lengthened vitality to the period of business enterprise upon which we seem to have so auspiciously entered. And in no one of the general divisions of business activity does this renewed life seem to run so high or hold forth such large promise as in those connected with metal working. Iron and steel especially, in all the various forms through which they are made to serve the purposes of man, are now so eagerly sought for, notwithstanding prices have advanced 100 per cent., that our furnaces and foundries and machine shops can hardly begin to satisfy the demand."

This is good authority. It means the utmost use of machinery and manual labor in our present iron and steel manufactories and of the furnaces among the mines now open. It means, also, more extensive mining in the older States. It means new enterprises of the same sort, wherever the ores and the means of smelting them can be found near enough together to use them and freight the iron to market.

Three things must be had for the iron furnace; first, the metallic ore; second, the coal; third, the lime-bed. Charcoal brings out the best iron, but it is usually too costly in competition with the native coal beds of anthracite and coking coal. In one way this cost can perhaps be reduced to a minimum. The lumber mills of Puget Sound burn up thousands of cords of slabs and waste lumber every week to get rid of it. Let these slabs and refuse be stacked, covered and burned into charcoal and it can be transported to the furnaces more cheaply than coke can be furnished and it will produce as good or better iron. For example: The Puget Mill Company at Port Gamble can run their refuse slabs and

scantling on their elevated tramway to the bluff along the beach, make twenty or more coal pits in the hill side and keep them in constant operation. The charcoal can be conveyed to barges through chutes and towed to the furnaces and then elevated to high sheds by endless chain buckets, thence borne when needed into the top of the blast chimney. By this means the rehandling would be saved and the cost be merely a fraction of that by the usual method of chopping and piling cordwood to make charcoal. It would probably match anthracite coal in economy, even if such a vein were found in the vicinity. Grant, for the sake of argument, that good and abundant iron ore, lime and charcoal can be had at any point, or on any shore, or island of Puget's Sound, and you have the conditions of success in the production of iron and of its manufacture for all the demands of trade at home and commerce abroad.

Iron ore is said to be a product of the bog or swamp vegetation of the carboniferous period which produced the coal measures. Its beds, like those of coal, usually show marks of fire, probably volcanic. Its beds may be expected to appear in the vicinity of coal beds. Such are the facts in Pennsylvania and Ohio. Such are the facts coming to light among the islands and along the shores of Puget's Sound. The more recent bog ores are spread out over the flats, like the Puyallup valley, and those near Port Townsend. The more compact veins are said to be found on Texada Island north of the line 49 deg. and on Guemas, south of it. They will no doubt be found in the hills near the Carbon river coal beds in Pierce county, and in the hills beyond Cedar valley in King or Snohomish county and on Vancouver's Island. The older and stronger coals are already found in these localities. The beds of ore are already signaled by outcroppings.—Choice lime abounds on San Juan and Orcas Islands. The signs point to an early and large increase of these productive industries.

Lumber abounds on every side.—Grand forests press to the water's edge. Schools of fish swarm in bays, straits and open seas. Valleys and plains and bench lands and hills produce vegetables, fruits and cereals in luxuriant abundance. These woodlands of ma-

jestic firs, spruce, cedar, pine, maple, cotton-wood and ash along river, lake and Sound, and far up the mountains to the snow line, reveal a strength of soil and an evenness of climate favorable to the growth of materials and of food for the needs of a large variety of industries and a dense population.

The signs are that the Puget's Sound basin will be in a measure the Pennsylvania of the Pacific Northwest.—Hundreds of thousands of tons of coal are now annually exported through De Fuca Straits to the south coast markets for domestic and steam purposes. Hundreds of millions of feet of lumber and spars are annually exported thence for markets on the Pacific, southward to Chili, southwestward throughout Australasia, and westward to the ports of China and Japan. Let a tithe of the value of these yearly exports from the forests, and soils, and mineral beds be spent in developing other resources in that region, and the future will show thriving industries, and prosperous communities.

The same classes of facts hold along the lower basin of the Columbia river and its affluents. Lumber abounds. Iron ores prove rich. Coal veins have been found which promise well. The home industries have begun vigorously in many of the towns along the Willamette river. The materials are easily obtained and transported and sent abroad in all directions to quick markets. Manufacturers of wood and iron, of brass and tin, of brick and stone, of crocks and earthen ware, of woolen and leather goods, and of flour for shipment as well as for home use, have already won a name and place among dealers. Every year the communities of Oregon and Washington are becoming more independent of imports.—Dairies are established and worked by improved methods and with profit.—Farm products are in greater variety and quantity. Flax of choice fibre is raised in all parts of Oregon and Washington, and flax-seed is raised in large quantities for oil. A few farmers are about to test the problem of beet sugar. Mines of gold and silver have become a specialty of experts and capitalists. The production of wheat has been stimulated by our choice climate and soil and unfailing harvests, and by quick and profitable markets abroad. The methods of prompt and cheap trans-