

of Oregon, and started a saw mill at Tumwater near Olympia. In 1851, Mr. J. S. McAllister built a saw mill at Nesqually, on what is known as McAllister's creek, and from this mill the first sawed lumber was shipped from Puget Sound in the fall of the same year. Piles and hewed timber were shipped the same year at various places on Puget Sound from Neah Bay to Olympia. The first steam saw mill was built at Seattle by Henry L. Yesler in 1853, which turned out from 10,000 to 15,000 feet per day.

From this small commencement a great industry has sprung up which, with the exception of coal, is the greatest and most important of all others that have been developed on Puget Sound. The primitive methods of logging and sawing the timber into merchantable products has been superseded by the most modern improvements of the eastern states, although it has been found that the fir is tougher and a more difficult wood to cut than the soft pine of the eastern states; and requires in some degree a different treatment. Fir is radically different from eastern pine and should never be confounded with it by being called pine. The fir of the Baltic is always spoken of commercially as fir, and more closely resembles the fir of Puget Sound than any other coniferæ.

The mills of Puget Sound at present have a capacity for turning out the following number of feet of lumber per diem:

Mill.	Feet.
Port Gamble.....	150,000
Port Ludlow.....	150,000
Utsalady.....	75,000
Port Madison.....	92,000
Port Blakely.....	150,000
Tacoma.....	150,000
Seabeck.....	65,000
Milton.....	30,000
Port Discovery.....	60,000
New Tacoma.....	15,000
Stetson & Post at Seattle.....	20,000
Colmans' at Seattle.....	30,000

*A small water mill has been started at Whatcom which cuts about 13,000 feet per day.

Most of these mills are run at their full capacity, a great demand for lumber having sprung up since the close of the Chillian war. This, and the great demand for railroad supplies, has made the lumber trade very prosperous during 1882, with a prospect of an increased business next year.

It is interesting to see the change which has taken place in the logging business which is the first commencement of the process of turning the forests into boards and other building materials. The first loggers found the timber trees growing quite to the water's edge, and parties of two or three men with a boat for transportation, and with only axes and handspikes, and perhaps a crosscut saw, for tools, would select such timber as suited their purpose contiguous to the water. These men were at first in search of piles, but as they found many of the trees large enough at the butt for mill logs they could generally secure a cut sufficiently long for a mill log, and make a suitable pile of the remainder of the tree. The piles were sold to vessels which conveyed them to the San Francisco market, and when they were loaded, the mill logs were made into booms, and, by the aid of the boat's sail, when the wind was fair, or by dint of hard labor with sweeps and set poles, slowly worked to the nearest mill. Very

little capital was then required to start a camp. Stout hearts and stalwart arms were often the only capital used, and always with success when economy and temperate living were added to the skilled labor of the sturdy woodman.

A few years after this pioneer commencement, a great improvement took place. Some of the more daring ones introduced cattle to haul their logs to the shores of the sound, and with these bovine adjuncts they penetrated the forests with skidded roads, and soon the wilderness became resonant with the loud cries of the "bull-punchers," as the ox drivers are termed, urging their slow-stepping teams to more activity. Hand logging still continued, but as the trees along the immediate shores became scarce, the method was abandoned, and from 1860, during the war, and to the present time, logging is done by camps consisting of six or eight men with two or three yokes of oxen, which have been increased to camps of twenty men with five or six yokes of cattle. In some places skidded roads run into the timber two or three miles. In other places, tramways of five or six miles have been built, and horses, mules or steam engines are used to haul the cars laden with huge logs and timber. At Tumwater logs are brought by the Tenino branch railroad any required distance, and at Tacoma by the steam cars from the Puyallup valley and on the line of the Northern Pacific Railroad. At Port Discovery, Ackerson, Moore & Co. are building a railroad eight miles long to extend southward to Quilcene bay, and on the Snohomish river, Blackman & Brothers have a railroad five miles long with a steam engine to haul their cars.

AN UNEXPLORED TIMBER REGION.

The finest timber region in Western Washington, at present but little known, is the vast country lying west of the Willamette meridian which, commencing at Portland, runs due north past Port Townsend. Between this meridian and the Pacific ocean is an area nearly as large as the six New England states, composed of the mountains of the Olympic range, rich in mineral resources, and a vast rolling country densely covered with the most magnificent growth of stately firs that can be found on the American continent. A railroad along the west side of Hood's canal, commencing at some point on the Northern Pacific near Skookum Chuck and continuing on to Port Discovery and Port Townsend, will make the whole of the vast region of Western Washington available to commerce, by branch roads to the Chehalis valley, and from Quilcene bay by the north slope of the Olympic range between the foothills, which terminate their northern shores on Fuca Strait. This great timber tract is entirely distinct from the forests on the eastern side of Puget Sound, where many million feet of timber are annually taken from the dense growth of gigantic firs which line the banks of the Samish, Skagit, Snohomish, Snoqualmie, Duwamish White, Nesqually and Puyallup rivers, and extend eastward to the snow line of the Cascade mountains. All the rivers named are capable of floating millions of logs to the waters of Puget Sound, and loggers are actively at work on most of them at the present time. The product of their labors is towed in great booms of logs by powerful tug-boats to the various mills.

As the value of the logs is constantly increasing, and the demand for lumber is also on the increase and will continue to increase when rail

roads to the interior will add new markets to the great foreign demand of the present, the question naturally arises, "How long will it be, with this great and increasing demand upon the timber resources of Puget Sound, before the stock of merchantable timber will be exhausted?" We see that the vast pine forests of Maine have been shorn of their strength, and that whole districts of the finest pine lands of Michigan and other western states have been entirely cleared of their timber, and we also see the fact that in almost every instance where the pine has been cut off, the succeeding growth is of deciduous trees, such as birch, maple, beach, oak and other hard woods. In fact the great lumbermen of the states east of the Rocky mountains already have turned their attention to the forests of Western Washington and pronounce them to be the source from whence in the near future the world must derive its supply of fir timber as well as other coniferous woods. This question has already attracted the attention of careful observers, and it has been computed that perhaps a hundred years will elapse before the present growth shall have been cleared off by the woodman's axe, even allowing no new growth to occur. But it is very doubtful if the fir of Washington Territory will ever be exhausted. It possesses not only a wonderful vitality but is different from the pine growth in the east, in that it perpetuates its own species. While the pine of the eastern states, as has been stated, is succeeded by a growth of deciduous trees, the fir of Puget Sound is always succeeded by a growth of fir, and so rapid is this growth that instances are not rare where fields, cleared from the forest for cultivation, and afterward abandoned, are covered in a short time by a growth of young firs which spring up like weeds, and in two or three years produce an impenetrable thicket, which in twenty years will grow trees from twelve to fourteen inches in diameter.

THE WASTE OF LUMBER AND HOW IT CAN BE UTILIZED.

The waste of lumber at the saw mills is enormous. With the mill men the question is not how to utilize the saw dust, slabs and other refuse, but how to get rid of it. Some of the slabs are sawed into laths, some into firewood for the steam tugs, and the balance burned up in kilns of never ending fires. In all the mills the sawdust is utilized as fuel, and the surplus, of which there is much, is used for filling low places in the streets. Slabs and sawdust are used for building piers, and wherever the sawdust comes in contact with the salt water mud on the bottom of the bays, its decomposition generates sulphuretted hydrogen gas of most unsavory smell, and baleful influence to health. It is probable, however, that many years will not elapse before this waste will be remedied. The saw dust will be utilized by reducing it to a pulp for paper stock, a use for which its tough fibre is peculiarly adapted, and the slabs converted into a variety of small wares.

A few years ago it was announced in scientific journals that a French chemist had discovered that good brandy can be distilled from fir sawdust after it has been treated with a solution of sulphuric acid. It is not probable that at present there will be any distilleries on Puget Sound to put the Frenchman's discovery to a practical test, but it is an evidence that fir sawdust may be put to a profitable use other than as paper stock or for packing crockery ware, or making roads and piers.