

A mill with a capacity of two million feet employs four men felling, and these men will cut down thirty trees, equalling about 10,000 sup. ft. in eight hours. In one year a mill of about this capacity would cut out about 100 acres of milling-bush.

Before starting milling operations a large outlay of capital is required for the erection of buildings and machinery, construction of tramways, water-race, locomotive or horses, bush hauler or bullocks, wire ropes and blocks, stationary engine and boiler, saws, planing-machines, &c., men's cottages, railway-siding, clearing site for mill, and numerous other smaller items. There is also the purchase of the milling-bush or the right to cut timber. A mill with a two-million-feet capacity will require an outlay of from £7,000 to £8,000, exclusive of the purchase of the milling-bush or timber rights, which alone reach as high as £8 an acre for rimu and matai bush. The cost of some of the items in the expenditure are—stationary engine and boiler, £600; planing-machine, £170; saws, spindles, rollers, belting, and small interior machinery, £400 (breaking-down twin-saw costs £20, and breast-bench saws cost £6 each); a 12-horse-power log-hauler costs £450; wire ropes and blocks cost £70; and if a locomotive be used on tram-line it will cost £1,500; the tram-line will cost from £160 to £1,000 a mile, according as to whether steel or wooden rails are used and the kind of country it has to be constructed in; then, if horses or bullocks are used instead of a locomotive or steam hauler, there will be required of the former not less than eight at £45 each, and of the latter not less than forty at £10 apiece; the feed of the horses all the year round will not be less than £250, and of the bullocks £240. If a railway-siding be obtained it will cost some £700. In most mills, also, it is now usual to bring in water by a race to wash away shavings and sawdust, thus saving the labour of one man.

A mill with a capacity of about six million feet would employ about seventy hands at the bush and mill. A mill with a capacity of about two million feet would employ about twenty-one hands. Of these there would be thirteen at the mill itself, and eight on the outside work. Of those working inside the most important are the men looking after the boiler and engine, the two men at the breaking-down saw, the two men at the breast-bench saws, and the one at the planing-machine; the others are employed at the less responsible jobs of skidding, slabbing, truck-loading, &c.

At the outside work there are four men felling, two "bullockies" hauling logs to the bush skids, one man at the skids to help load trucks, and one man working the truck-horses between the bush skids and mill. The average wage earned is 12s. for a day of eight hours. A benchman gets as much as 14s. a day, a planer gets 12s. a day, axemen get 12s. a day, and at the less skilled jobs the wage is from 10s. to 11s. a day. In the larger mills a man is kept solely to keep the saws in order; he bears the serious title of "doctor," and gets as much as 15s. 6d. a day, which is perhaps more than some medical doctors clear.

From the tree to the saw-bench the timber costs 3s. 3d. per 100 sup. ft., and from the saw-bench to the railway-truck 1s. 3d. for labour only; royalties, insurance, interest on capital, depreciation, &c., add 1s. 3d.; and the freight by rail to Wellington would be about 3s. 9d., bringing the total cost to 9s. 6d. landed in Wellington.

The insurances are heavy items, that on the labourers amounting to 3 per cent. on the total wages paid, and that on the plant to 5 per cent. on the cost—in fact, it is only a few of the insurance companies that will insure bush mills. The forests are quite uninsurable, and may be destroyed any time.

The mill itself consists merely of one or more large sheds roofed with galvanised iron; under these are disposed the breaking-down saw, the breast-bench saws, and planing-machines, all in such positions that the timbers can be conveniently passed from one to the other.

Trees with as small a diameter as 12 in. are cut; so, as will be seen in the photograph opposite page 68, after a miller has finished with a bush, there is little left standing beyond saplings, useless-timber trees, and the usual undergrowth of shrubs and ferns, all shattered and torn by the trees that have fallen. Even this shattered remainder is probably doomed to destruction, as the worked-out bush, containing as it does all the boughs and leaves of the used timber, generally catches fire accidentally, or is purposely burned to insure the safety of other uncut timber, the mill-yard, and workmen's cottages. Even were this not the usual fate of the worked-out bush it would not be advisable to preserve it, as our marketable pines are of remarkably slow growth; so it would not pay to await their development to mature trees. Consequently, the only plan when dealing with Crown lands that have been milled seems to be to throw them open for settlement, if of good-enough quality and accessible; and where of poor quality and broken they might be left further untouched as protection to the hill-slopes; or they might in some instances be replanted with quick-growing foreign trees suitable to the climate.

Of the log-measurement there generally is lost from one-quarter to one-third as slabs and sawdust. The proportion of heart, ordinary building-timber, and seconds naturally differs with various timbers, localities, and mills. One of the most successful managers in the Waimarino district gets from every hundred superficial feet of sawn red-pine 22 per cent. of heart, 56 per cent. of O.B., and 22 per cent. of seconds. The manager of another prosperous mill in a locality where totara is the chief timber converted, from 181,000 sup. ft. of logs gets 31,300 ft. of best heart, 2,200 ft. of rough heart, 44,500 ft. of O.B., and 57,000 ft. of seconds, or a total of 135,000 ft. of sawn timber; which, again, is equal to 23 per cent. of best heart, 1½ per cent. of rough heart, 33 per cent. of O.B., and 42¼ per cent. of seconds. The difference in measurement between the log and sawn timber shows that about one-third has been lost in sawdust and slabs. Another mill with a large cutting-area of heavy rimu bush finds the trees so defective with "shakes" and bark-galls that, on an average, only one-fifth of the timber converted turns out heart, the balance being classed as O.B.

So far, nothing has been done in New Zealand to utilise what might be termed the by-products of milling operations. The leaves, bark, and branches are left in the bush either to rot or be burnt; the sawdust and slabs are conveyed a short distance from the mill, and left in huge heaps to rot. This all seems lamentable waste, as turpentine, wood-spirit (which is now in Europe being much used as a