PART II.—FOREST-UTILISATION.

CONTENTS.

(A.) SAWMILLING METHODS.

(1.) Kaipara District.

The White-pine Company of New Zealand (Limited), at Naumai, Kaipara, have a bush extending over some 4,000 acres. The timber is practically all kahikatea; some little rimu and kauri being found in isolated patches.

The small margin between the cost of production and the selling-price of kahikatea has made it essential that only the most economical methods of handling the log and timber can be used. In order that this handling may be done in an expeditious and cheap manner, machinery has been introduced to take the place of the bullocks and timber-jacks in the bush and much of the slow and laborious manual handling in the mill. From the time the trees are felled, machinery does practically the whole of the work. A 15-horse-power boiler, coupled to a winch with two 8 in. cylinders, the barrel carrying up to 20 chains of 2¾ in. wire hauling-rope, and a smaller barrel with double that length of 1⅜ in. return rope, is employed. A block is placed at the end of the hauling-track, through which the return rope runs, and is then brought back and hooked on to the hauling-rope on the main barrel. Starting the winch winding up the return rope, the hauling-rope is carried out far enough to reach the log to be hauled. The hauling-rope is made fast to the log by means of grips, and the signal is given to the winchman to go ahead. The log, in lengths varying from 30 ft. to 120 ft., averaging about 60 ft., is hauled in to the tram-line, where it is to be loaded on to trucks. The loading-winch now takes hold. The fall from this winch passes through a block slung immediately over the track, on a wire strained at a height of about 40 ft. from the ground between two trees, on either side of the tram. A wire strop is placed around the log at the balancing-point, and it is lifted into the air and lowered quietly on to the truck. The trucks, being loaded, are coupled to the locomotive and conveyed to the mill, some two and a half miles away. On arriving at the mill the logs are rolled or parbuckled by means of a steam-winch on to the unloading-skids adjoining the log-slip. A wire rope from the mill log-winch is brought down, and the log hauled up to the entrance of the mill, where, after being measured, the man in charge of the steam crosscut saw proceeds to cut it into suitable lengths for the mill. Each length is in turn hauled along until opposite the band-saw skids; a crank operated by friction-gear lifts the arms of the log-cant, and the log rolls down the skids until brought up by the steam log-stop. The log-stop is a shaft on which is fastened three arms standing about 16 in. above the skids. The end arm by means of a short crank and connecting-rod is operated by a steam piston which is worked by the band-sawyer from his position at the saw-levers. When the steam is opened the arms and shaft revolve, throwing the log over towards the band-saw carriage and within reach of the steam nigger. The nigger is a spear about 6 ft. long and 6 in. square, connected to two pistons working in oscillating cylinders 8 in. and 10 in. diameter. The steam of this is also controlled by the sawyer, and he can lift, lower, throw forward or backward, the spear by means of which the logs are put on the carriage and turned into position for cutting in as many seconds as the old laborious method with jacks took minutes. For heavy logs an overhead winch assists in turning the logs. As soon as the log is in position the carriage-man dogs down, and the carriage, operated by steam, is started forward towards the band-saw. As the slabs and boards are turned off, they fall on to live rolls worked by friction gear, and pass along to the drag and edger saws. When a flitch is cut it passes along the rolls until opposite the deal-frame skids. Here a cant-flip, operated by a belt, throws the flitch down the skids within reach of the man at the deal-frame. The bark-edged and shaky