NOTES

CHUTES FOR PULPWOOD EXTRACTION

For some time the Whakatane Board Mills has been making use of standing dead timber for pulp and about a year ago it was decided to increase the intake of this raw material. Contracts were let for the extraction and delivery of wood, and following the experience of the company in previous experiments, the contractors found it best to cut the wood into its ultimate size—three foot billets—and man-handle it directly on to lorries which then carted direct to the mill. The lorries were taken right to the stump, thus avoiding any primary haulage by either tractor or horse.

This system worked well on the flat as the soil at Matahina Plantation is very porous and it was rare for trucks, even those coming out of the forest with three cords of wood, to get stuck. However, there is not much flat land in Matahina, and it was apparent that if any great quantity of wood was required it would be necessary to get it off the hills.

Previous experiments by the company had indicated that tractors were not the complete answer; the trees could not be pulled in long lengths because they were too brittle; sledges involved extra handling and the loads were small; trailers were better than sledges, but the country was too steep. Various other methods were considered, such as ropeways, haulers, tight wires, and chutes, and the last-named seemed to be the most likely to succeed.

Therefore in November 1954 some wooden chutes were made and 100 ft. handed over to each of the two contractors who were engaged on the salvage operation. The understanding was that if they were successful the contractors would provide replacements and such extra length as they required. We then sat back to watch.

It is interesting to note that they were an immediate success and now, almost a year after the initial trial, the idea is still in use with very little modification.

The original chutes were made of 8 in. x 1 in. radiata pine, but pine was only used because some was in stock. One of the contractors, who has made most use of the idea, soon replaced the original ones with 6 in. x 1 in. rewarewa, and most of these are still in use. Some have carried many hundreds of cords.

Length varies from about 8 feet to 16, and the construction will be apparent from Figure 1. The cross-bars are made from scrap 8 in. x 2 in. radiata pine and are cut to shape on the job with a chain saw. The planks are nailed on with 3 inch nails, but there is a certain amount of trouble with the nails pulling and it is usual for the men working them to carry a hammer and a few nails for repairs. Screws might be better.

Photo: Sparrow Industrial Pictures.

Plate 2—Harrison-Smith: Pulpwood Chutes.

General view of pulpwood chutes in use. Note how chutes overlap, and their simple construction.

It has been found by experiment that an angle of about 14° is required for the billets to be "self-starting" in the chutes, but this varies slightly according to the weather. Either very dry or very wet weather results in the billets sliding easier; when it is just damp

they take more starting. Once started they will keep going on a flatter angle, probably down to 12° or even 10°, but the chutes can be, and are, used even on flat ground, for it is much easier to push half a dozen billets in the chutes than to carry one at a time to the truck. They are frequently pushed up hill in loading the trucks.

If the slope from the felling ground is not too steep the billets may be chuted directly into the truck, but if the ground is steeper than about 18° or 20° the billets travel so fast as to be dangerous, and it is then more usual to chute them into a heap a few feet above truck level. Loading can then be done in safety.

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A NOTE ON BARK THICKNESS IN RADIATA PINE

During the course of a series of studies involving log measurements over the past three years, a record was made of bark thicknesses together with log diameters of radiata pine sawmill logs and felled trees.

These measurements have now been compiled to give average values for bark thickness as related to under bark diameter.

The measurements were taken on logs from trees planted at 8 ft. x 8 ft. spacing, and aged 26 to 29 years at time of felling.

Four hundred measurements were taken on the butts of trees felled in the course of thinning part of the David Henry Grove in 1953, and the balance were recorded in the course of mill recovery studies carried out at the Kinleith, Pinedale, and Maraetai sawmills during the years 1952, 1953, and 1954. Altogether, 11,163 measurements were used in the compilation.

Measurements from the sawmill recovery studies were taken on a representative range of end diameters of logs entering the mills. Log under bark diameters were recorded by half-inch classes, and represent the average of longest and shortest diameter where logs were elliptical. Bark thicknesses were taken only on logs showing normal bark in complete and uninjured form. Cases where the crosscut came through a knot whorl were excluded, as were all cases where the bark was abraded. Where the bark was fissured, the measurement aimed to record the typical thickness of the unfissured portions. That is, the bark thickness derived by the study is that which would be indicated by the difference between an over bark reading taken with a diameter tape, and the under bark diameter.

The chief value of the table as it stands is for the conversion of forest measurements taken over bark with diameter tape to the under bark equivalent.