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Cover Note to H.Q.M.D.C. Report No. 62

Wyssen, Cable Lasso and Forestry Commission

powered ropeways

It is interesting to compare this report with Report No. 45 covering the single strand gravity ropeway.

It will be seen that the actual extraction cost by gravity ropeway did not work out at very much less than the power operated types. In fact, the worst figure 13.3d per cubic foot was actually more than the calculated cost of the Forestry Commission power operated type (12.1d). This is not really a fair comparison, however, because they are intended for such very different conditions. Whereas the powered types are intended to work on sites yielding 6,000 cu.ft. (or substantially more) the single strand type is intended for small sites often yielding under 1,000 cu.ft.

All these costs appear to be extremely high, and they certainly are, but ropeways are only likely to be used to extract timber which can not be harvested by any other means.

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Report No. 62

A Summary of the results of trials of the Wyssen, Cable Lasso and Forestry Commission Ropeways

The extraction of timber by ropeway from inaccessible forest areas is not a new development but the increasing scope of the internal combustion engine has enabled power to be employed to increase the scope of these ropeways.

The power operated ropeways which have been tested take two forms:-

(a) Winch haulage of a timber carriage running on a stationary rope carried above the ground on supports.

(b) Power operation of a travelling rope which also carries the load.

Both provide an extraction system which is independent of the slope or nature of the ground over which it passes. Trials in British forests have been carried out on both types represented by the following:-

1. The Wyssen, made in Switzerland and using the stationary rope system.
2. The Cable Lasso also made in Switzerland using a moving rope carrying the load.
3. The Forestry Commission design which uses the stationary rope system but is very much lighter than the Wyssen.

The object of this report is to record the performances of these three ropeways. Though they were tested by different teams in different localities, the results have been used to calculate the likely performance of each of them on a typical British ropeway site yielding 6,000 cu. ft. of thinnings.

The success or failure of all methods of extraction must be judged largely on cost so any machinery employed must more than cover its operating cost. In this connection power operated ropeways have two heavy overhead charges to carry:-

(a) Depreciation on their capital cost.

(b) Labour employed on their erection and dismantling.

The incidence of depreciation per unit of output is governed not only by the initial cost of the ropeway but also by the output that the ropeway can handle in a year. Whilst all these ropeways can operate at a high rate when working, they lose many hours due to erecting and dismantling time and idle periods for various reasons such as bad weather, breakdowns and delays between sites.

Results have shown that, in early thinnings, the maximum convenient drag from the stump to the ropeway line is 75 yards so every 100 yards of ropeway serves 3 acres. Few ropeway extraction lines exceed 500 yards so each ropeway erection serves about 15 acres. Taking an average yield of 400 cu. ft. per acre each ropeway erection would extract 6,000 cu. ft.

Erection and dismantling time with operating time on such a site with 5 men using the three ropeways would approximately work out as follows:-

	Days to erect & dismantle	Days to extract 6000 cu.ft.	Total days per site
Wyssen	18	15	33
Cable Lasso	16	12	28
Forestry Commission	10	20	30

Although erection and working times vary widely the total working days per site do not appear to vary very much and it seems likely that each of these ropeways would be able to clear 8 sites per year or 48,000 cu. ft. Based on this annual output the depreciation rates would be:-

	Cost	20% Depreciation	Depreciation per cu. ft.
Wyssen	£3,336	£667	3.3
Cable Lasso	£2,265	£453	2.3
Forestry Commission	£800	£160	0.8

As it has already been shown that the total amount of labour used for erection, operating and dismantling on each site does not vary very much, the labour element in the costs for each ropeway would also be very similar. Taking a team of 5 men in each case and a rate of 27/- per man day the labour costs per cu. ft. adding 40% for indirect overheads, would be:-

Wyssen	8.9 + 40% = 12. 5d.
Cable Lasso	7.6 + " = 10. 6d.
Forestry Commission	8.1 + " = 11. 3d.

Adding together the depreciation and labour costs the totals per cu. ft. for the three ropeways would be:-

Wyssen	15. 8d.
Cable Lasso	12. 9d.
Forestry Commission	12. 1d.

There would of course, in each case be a further charge of about 4d. per cu. ft. for bringing the timber from the stump to the ropeway line.

The lessons learned from these trials have been:-

1. Ropeways taking over 5 days to erect and dismantle by 5 men are unlikely to be an economic proposition for the extraction of early thinnings.
2. Mechanical breakdowns, when they occur, cause an immense loss of time.
3. Practised teams work many times as fast as novices. Constant team changes have proved disastrous.
4. Organisation plays a vital part in the integration of the felling and extraction operations by preventing the fellers being overtaken and by avoiding time losses between one site and the next.

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May, 1957

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