In farmer-operated mills some of the equipment is used at intervals for nonsawmill jobs and a fair apportionment of depreciation and interest costs against the sawmill operation is to proportion them on the basis of the fraction of the year they are available to this operation.

The accompanying tabulation (Table 15) from an Appalachian hardwood operation cutting about 1,000,000 board feet per year shows the nature and extent of costs that are frequently ignored.

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SAWMILLS Pay More for Logs That Are Correctly Bucked

Sawmills large and small are depending increasingly upon logs from farmers and small timberland owners. A few facts on how to buck felled trees, or cut them into logs, so that they will bring the most money may therefore be helpful. Before making any cuts, the felled tree should be sized up and laid off tentatively to determine where the cuts should be made in order to get as much of the stem as possible into upper grades.

Trees should be bucked so that the clear lumber is kept within the same log as far as possible. Sixteen feet is the most desirable length from the milling standpoint. Oftentimes, however, a 16-foot butt log is clear for 14 feet and has 2 feet of knotty material on the end. It will be better to cut it to 14 feet and leave the knotty material in the next log.

Much waste also results if long logs are cut regardless of the crookedness of a tree. (Fig. 150, A.) Most grading rules allow a 4-inch deflection from a straight line in a 16-foot log. Sharp crooks should be cut out entirely. (Fig. 150, B.)

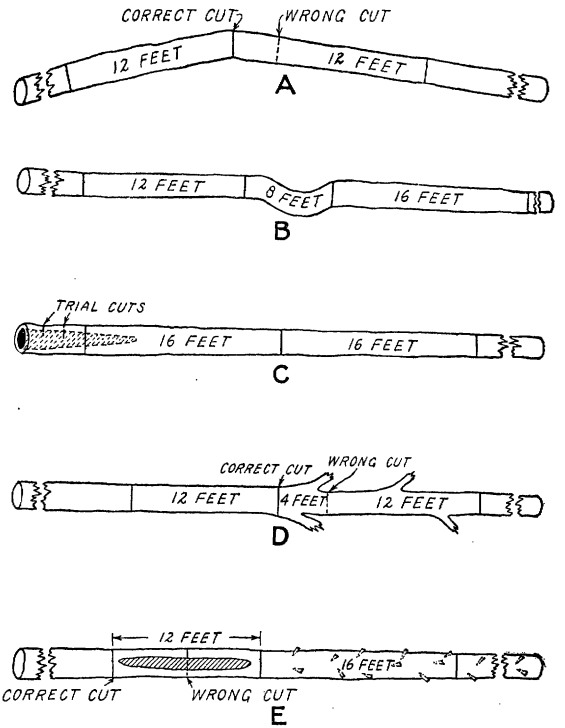

FIGURE 150.—A, Tree trunks with sweep should be cut where the sweep is greatest, even though some short logs may result; B, crooks should be eliminated; C, trial cuts should be made on rotten butts until enough sound material occurs to pay its way, the first log should be a long one; D, confine the clear material to the same log, in hardwoods the diameter below large branches is much larger than above them and the scale is consequently higher; E, rotten material, long cat faces, or other similar defects in softwoods should be confined to the same log

Making frequent trial cuts in defective butts or other sections where the extent of the defect is concealed, minimizes the chances of cutting out excessive sound material. (Fig. 150, C.) Most buyers, especially

in the larger mills, encourage the butting of logs clear of all rot, which means better logs but more waste.

The value of the lumber from top, top knotty, and middle knotty logs is practically the same in logs 8 inches in diameter as in logs 20 inches in diameter. A large coarse-knotted log, however, costs considerably more to trim than one with small knots. Rotten material, long cat faces (fig. 150, D and E), or other similar defects in softwoods should be confined to the same log.

Freshly cut logs always bring a better price than weathered, stained, and dirty logs. Logs should be transported from the woods to the market as promptly as possible. When felling a tree, a low stump is important because high-quality material occurs in the lower part of the tree. Split logs, logs with splinters pulled from them, or logs with splinters hanging on the ends are never so desirable as logs without these defects.

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SAWMILLS Profit by Closely Controlling Thickness of Boards

Farmer-operated sawmills often lose money by producing inaccurately cut lumber. The product brings less per thousand board feet and encounters stiffer sales resistance than that from the more accurate band mills. A less obvious loss is the excessive manufacturing waste that results from inaccurate cutting.

Recent studies by the Forest Products Laboratory indicate that the portable-mill operator, in sawing for thickness, cuts only about 20 per cent of the boards within one thirty-second of an inch of the thickness he sets for. The remaining 80 per cent vary in thickness from as much as eight thirty-seconds of an inch too thin to five thirty-seconds of an inch too thick. (Fig. 151, upper pile.) To counteract this tendency to cut too thin, the operator must set to cut most boards too thick. (Fig. 151, middle pile.) But in so doing each one thirty-second of an inch added reduces the possible total cut exactly as if the saw kerf were increased one thirty-second of an inch. A far better expedient is to minimize waste by keeping the equipment in good condition.

Causes of Inaccurate Cutting

The main causes for inaccurately cut lumber are: (1) Faulty condition of the saw, such as uneven filing of saw teeth, excessive or uneven swage, dull teeth on one side, unequal tension; (2) worn bearings in mandril, carriage wheels, and particularly in the setworks; (3) poor installation of carriage and saw, chips between log and headblock or on track; (4) careless setting, inadequate manipulation of dogs, miscalculation resulting in the last board cut from each log being either undersized or oversized; and (5) frozen timber, or other unusual stresses in wood.

After adjusting the saw, carriage, and track for the most accurate work possible, the output can be marketed as accurately cut lumber. In addition, waste in manufacture can now be reduced and yield increased by setting to cut all boards thinner. The number of thin rejects will not be increased thereby, because the effect of truing up