

The term "sizing," which is used frequently in this article, refers to the grading of trees into various sizes, in order that each tree when planted out will have a suitable neighbour, and the struggle for existence consequent upon close planting evened up as much as possible. The fact of there being a proportion of small trees in a bed or seedlings is often due to them being too thick, thus causing the strong trees to suppress the weak ones. But even if seeds of some trees are sown ever so thinly there is always a smaller or greater proportion of very weak trees. This fact is more noticeable with European larch than any other tree grown in this nursery, and, as a rule, from 5 to 10 per cent. of a crop of this species are so stunted and weak that no amount of nursing would ever make decent specimens of them. From seeds saved off immature trees there would probably be a large percentage of such degenerates, but in practically every case there is a proportion of trees which it is undesirable to perpetuate. The saving of these "culls" has never been attended with success in this nursery, and it is considered better to destroy them as seedlings than spend money in transplanting and nursing them. Selection of trees by "sizing" has a direct influence upon the results obtained in the plantations, in that it helps towards uniformity of treatment, degenerate trees or trees prone to disease never find their way into the plantation, while the elimination of misshapen trees reduces the necessity for pruning.

LINING-OUT.

Amongst nurserymen this is a common term, expressing the planting of seedlings into rows in the nursery. The cost of this work is usually about 1s. 6d. per thousand trees, and the method is as follows: The nursery beds, which are 3 chains wide, are divided off into portions not exceeding 3 chains in length. At each end of one of these divisions a furrow is thrown up with a plough, and these are raked fairly level. Wire lines are then stretched across the bed, and the planters, who are furnished with a small bag of trees and a bricklayer's trowel, space themselves along the line, and plant out the trees at from 2 to 4 in. apart, according to the size. Immediately the whole row has been planted the plough throws up a furrow against it, and this is levelled off and the line shifted on to it in readiness for planting another row. The planters in the meantime walk across to the other end of the bed and plant a row of trees there, the plough following as before stated. The rows are thus kept going on both ends of the bed, and the distance between them is gradually decreasing until they meet in the centre. Lining-out adds, of course, to the cost of growing trees, and as far as possible it is avoided in this nursery. Trees which grow fairly fast as seedlings have to be lined out in order to check the growth, because if left in the seed-beds they would become overgrown and unsuitable for transplanting. In some cases it is possible to curtail the work of lining-out considerably by removing from the seed-beds and lining out only the largest of the trees, but the extent of the work is always uncertain, as so much depends upon the weather experienced during the first six months following the sowing of the seeds. As a rule, about 30 per cent. of the seedlings have to be lined out, the remainder being grown in the seed-beds until they are of a suitable size for sending to the plantations.

Owing to the difference in the rate of growth of the several species of trees dealt with, a uniform treatment of the trees after they are raised from seed is not possible. The principal kinds grown are larch, Corsican pine, heavy pine, remarkable pine, Weymouth pine, Douglas fir, and apple-scented gum. A brief description of these species is given hereunder:—

European Larch.—Seed of this varies considerably in quality, but it has been found that good results are generally obtained by sowing it at the rate of about 2 oz. per square yard. Sowing is usually done in October, and for the eight following months the beds are tended by way of weeding, &c. During that period probably 25 per cent. of the trees will have reached 6 in. in height, while the remainder are barely 1 in. high. In the month of July the large trees are carefully removed from the beds and transplanted into rows in the nursery, where they remain until the following May, when they are again lifted and despatched to the plantations. These trees are termed "one year" ones—i.e., one year in seed-beds and one year lined out. The small trees which were left in the seed-beds will, during the same period, have made somewhat stronger growth than the thinnings which were lined out, and, although they vary in size, as a rule 90 per cent. of them are of a suitable size for sending to the plantation. When these "two-year-old" seedlings are sized the small trees which are not large enough for permanent planting may be "lined out" in the nursery for another season, but generally it is not advisable to do so, as these are culls or inherently weak trees, and it is questionable if they would ever reach a profitable maturity.

Corsican Pine.—Next to European larch this pine predominates in the tree-planting operations. Good seed is generally procurable, and when sown at the rate of 1 oz. per square yard the space available for each seedling is usually found sufficient for its requirements. Unlike the larch, this pine makes very regular growth, so that the bulk of the seedlings are usually of an even size. This regularity of growth makes it possible to grow this species for a longer period in the seed-beds without thinning than is possible with the larch, and it is seldom necessary to transplant the seedlings as "one-year-olds" into the nursery rows. Corsican pine produces a strong tap-root with very few fibrous roots, and requires to be well "wrenched" in order to make the transplanting of them a success. "Wrenching" is performed in the spring, and the trees are sent out from the nursery for permanent planting, the second April after they are sown—i.e., as two-year-old seedlings. The cost of transplanting into nursery rows is therefore avoided in the case of this pine.

Pinus ponderosa (the heavy or bull pine).—The seed of this valuable American timber-tree is, as a general rule, easily procured, although last year was an exception in this respect. In regard to size, the seed is somewhat larger than that of the Corsican pine, and on this account it is sown at a somewhat heavier rate than that species; 1½ oz. to the square yard gives good results. This species makes an even quick growth in the seedling stage, and it is necessary to transplant the seedlings into nursery rows, as if they are left in the seed-beds for two years the growth is too rank. All trees of this species are sent from the nursery to the plantations as "two-year-olds."