

done so as to meet the demand for such timber. It is fairly certain that no crops can be profitably grown—except possibly *Eucalypti* and *Pinus radiata*—and bear such a heavy expenditure on thinning at the twelfth year; and consequently the trees when planted should be spaced at such a distance as will obviate the necessity for thinning early in the rotation period. The quicker rate of growth in New Zealand will permit of the spacing being much wider than is generally considered advisable in Europe, and it is therefore proposed to increase the planting-distance somewhat according to the needs of each species, and bearing in mind the nature of the locality in each case.

Corsican pine, heavy pine, Weymouth pine, and Douglas fir will in future be planted 6 ft. apart; *Eucalypti*, *Pinus radiata*, and larch, 8 ft. apart; but these distances will be reduced in very exposed situations, or where the soil is poor or very dry. With regard to those areas of larch already planted, it is intended to make an early thinning by cutting out the trees and allowing them to lie where they are felled. If this is done before the trees have closed in too much the cost of such work will range from 7s. to £1 16s. an acre, according to the size of the trees, the nature of the undergrowth, and the aspect and gradient of the locality. Those areas of from ten to twelve years of age will require to be under-scrubbed before thinning commences, but it is not proposed to haul out the thinnings unless a sale for them is assured.

When the larch were planted it was intended that they were to be underplanted with sweet-chestnuts, but, as this would necessitate the removal of the poles and a large amount of the branches, the cost of underplanting is prohibitive. If underplanting becomes necessary it can more cheaply be done from two to three years hence, by which time much of the material now lying under the trees will have decayed.

It is recognized that the proposed treatment of the larch plantations violates some of the generally accepted principles of silviculture; and, while admitting that such is the case, it is claimed that the conditions here so far differ from those obtaining in Europe as to warrant the departure from generally recognized methods. In the past an effort has been made to proceed on lines generally found suitable in Europe, but even during the comparatively short period in which the afforestation-work has been in operation the conditions as regards the cost of the work have materially altered, and there is a need to adjust our methods to suit the altered conditions. A considerable period will require to elapse before sufficient data will have been collected to enable a definite reply to many questions being given, and it would be a safe policy to assume that labour and material will be as costly, if not more so, in twenty years' time as they are at present. On the other hand, the time is gradually coming when the indigenous forests will have become exhausted, and when the produce from the plantations will find a ready sale. When this time arrives thinning may be done with a comparatively small expenditure, and the demand for thinnings may be such as to warrant a return to closer planting-distances, but in the meantime the longer the thinning can be delayed the better will the chances be of disposing of the produce.

Owing to the light-demanding nature of the larch, and the expenses which would be incurred in giving it the proper treatment, it has been decided to discontinue planting it for a while. Larch is esteemed in Europe principally on account of the durable qualities of the timber, but in the North Island of New Zealand many species of eucalypts can be grown which will produce an equally useful, if not superior, timber.

EXPERIMENTAL TREES.

Several small lots of useful trees are now under trial, and, although it is too soon in many cases to look for definite results, it may be of interest to state briefly the results so far obtained.

Two lots of Scots fir—*Pinus sylvestris*—were sown, one lot being seed from Norway and the other from Finland. This pine has for years been more extensively planted in Europe than any other species, and by many authorities is still regarded as the most useful of the European conifers. It has generally been considered as a failure in this country, principally owing to the unhealthy appearance of specimen trees to be seen in several of the early settled districts. Very frequently it is badly infested with the pine aphid, the growth is slow, and a thrifty specimen is seldom seen. The reasons for the failure to acclimatize this tree seem never to have been determined, and, because it is a most valuable timber-producer, it is thought that an experiment on a small scale may probably be worth while. The principal sources from which seed may be obtained are Britain, Norway, Germany, and Finland; and, as the climatic differences are often the deciding factor in the success or non-success of a tree, the results from the two packets of seed sown this year will be closely watched. The seed in each case has germinated satisfactorily, the plants are healthy, and although the growth has been poor this may be the result of the abnormally dry weather. The Norway strain appears to be slightly the more vigorous of the two. When the seedlings reach a transplanting size it is proposed to give them a trial on the high country between Rotorua and Taupo, and also probably at Waimarino.

Two forms of *Pinus Laricio* are also under trial. They are *P. Laricio* var. *cebennensis*, and *P. Laricio* var. *taurica*. The former is the western or Pyrenees type of this species, and the latter the eastern or Taurian type. Both are reputed to be more drought-resisting than the Corsican pine. The seed of the Pyrenees form did not germinate very satisfactorily, but a good braird was obtained of the Taurian type. Both types have made vigorous growth.

TREES MOST SUITABLE FOR THE STATE TO PLANT.

Before answering this question, consideration must be given to the classes of timber required by the various industries and the proportions of each class used. It is a comparatively simple matter to state the general purposes for which timbers are required, but there appears to be no statistics bearing upon the proportions in which the various timbers are used. A reasonably accurate estimate of what the requirements of the Dominion are can, however, be made owing to the fact that some timbers can be adapted to a variety of purposes. No doubt some industries requiring a special timber may be overlooked in dealing with the question in such a broad fashion, but the necessity at present seems to be to thus decide the matter and give consideration to special cases when more definite information is acquired.