

west, forming the greater part of the extensive forests of the Sierra and Rocky Mountains. When fully developed the yellow-pine reaches a height of from 150 ft. to 200 ft., with a stem-diameter of from 6 ft. to 10 ft.; in rare cases it has been found nearly 300 ft. high, with a diameter of 20 ft. It is a three-needle pine: the branches are comparatively few, disposed in regular whorls, horizontal, but drooping when old. It is one of the hardest pines planted in this plantation, and appears to be quite suited to the locality. Yellow-pine is a light-demander, and in this respect is about equal to Corsican pine, but in rate of growth it is slightly faster than the latter. The timber is heavy, hard, and close-grained, and is used in general building-construction, for railway-ties, fencing, fuel, and mining-timbers.

*Pinus ponderosa*, var. *Benthiana* (*Bentham's Pine*).—Found in the same region as the yellow-pine, but is a smaller tree of from 100 ft. to 150 ft. in height, with a diameter of from 2 ft. to 5 ft. A small number planted have proved quite as hardy as and about equal in rate of growth to yellow-pine. The timber of both varieties is similar, and is used for the same purposes. A small number of the varieties *Jeffreyi* (Jeffrey's pine) and *scopulorum* (rock-pine) were planted during the past season for experimental purposes, and from present appearances will no doubt prove quite successful.

*Pinus radiata*, syn. *insignis* (*Remarkable Pine*).—A well-known tree, native of California; height, 100 ft. It generally has three needles in a sheath, but is frequently found with four or five or even more: the branches are strong and irregularly disposed. In rate of growth it easily exceeds any of the other conifers planted here, having increased in height at the rate of 5 ft. per annum. Owing to its rapid growth it makes an excellent shelter-tree, for which purpose it has been used to a great extent throughout the country. It is found useful here for planting on land where the fern-growth is particularly heavy, as in about two years it is generally able to hold its own with anything. In the seedling stage it is often somewhat tender, but soon becomes quite hardy. *Pinus radiata* will produce a fair second-class timber, suitable for rough building, packing-cases, &c.; and as it has been proved quite suitable for butter-boxes it will no doubt become more valuable as the kahikatea becomes scarcer.

*Pinus taeda* (*Loblolly Pine*).—The loblolly pine is a native of Florida, Carolina, and Virginia, and is said to attain a height of 120 ft. It also is a three-needle pine, with irregular and not very numerous branches, which soon die off under a close canopy, the species being very light-demanding. Planted experimentally here, it has grown exceptionally well, and is second amongst the pines in rate of growth to *Pinus radiata*, having made 3 ft. 5 in. per year. It is perfectly hardy, and is easily transplanted. The tree yields large quantities of turpentine, which is, however, of rather inferior quality. The timber is heavy, strong, coarse-grained, and fairly durable, and is used in building-construction, chiefly for rafters, joists, &c.

*Pinus densiflora* (*Japanese Red-pine*).—The Akamatsou pine of Japan, of which country it is a native. It has two needles in a sheath, and numerous ascending branches. Planted experimentally here, it has proved quite hardy, but of slow growth, averaging only 17 in. per year. The timber of *Pinus densiflora* is said to be excellent for building purposes, but being a slow-growing small-sized tree it could not be called a suitable one for growing extensively.

*Pinus Thunbergii* (*Japanese Black-pine*).—A native of Japan, where it forms, along with *P. densiflora*, extensive forests. It also is a two-needle pine, but darker-green in colour, and not nearly so branchy as the former. The most common of all trees in Japan, where it grows to a height of 100 ft., with a stem-diameter of 6 ft. It is hardy in this locality, but too slow in growth for afforestation purposes. The timber is resinous, tough, and durable; used for building and furniture, but suitable only for indoor work. The roots are used in the production of Chinese lampblack.

*Pinus Murrayana* (*Lodgepole Pine*).—Native of the western States of North America, finding its greatest development in the high wet valleys of the Sierra Mountains. Grows to a height of from 80 ft. to 150 ft., with a diameter of from 2 ft. to 5 ft. A two-needle pine, with strong not very numerous side branches, which are easily pruned naturally by close planting. It is planted pure here, is hardy, and grows fairly fast, averaging about 2 ft. 8 in. per annum. The wood is soft, tough, and close-grained, and is used for dams, wharf-piles, fencing-material, railway-sleepers, and fuel.

*Pinus muricata* (*Bishop Pine*).—A native of California. A small bushy tree, rarely exceeding 40 ft. in height; is a good shelter-tree, for which purpose only it has been planted here. Timber of no commercial value.

*Pinus Sabiniana* (*Nut or Grey Pine*), and *Pinus Torreyana* (*Torrey's Pine*), are both natives of California. A few of each species have been planted experimentally, but it is not intended to plant more, as they are slow-growing, and of no value excepting as specimens of their species.

Trial plantings of *Pinus Lambertiana* (*Sugar-pine*), *P. resinosa* (*American Red-pine*), and *Pinus Coulterii* (*Coulter's Pine*) were made during the past season, but, although at present the plants are quite strong and healthy, some time must elapse before anything definite can be said as to their suitability for planting in this district. In the Sierra Mountains *P. Lambertiana*, or sugar-pine, as it is commonly called, is a magnificent tree, exceeding the yellow-pine both in height and circumference. It yields a very valuable timber, and, should it prove suitable, would undoubtedly be a useful species for planting in this country.

*Pinus canariensis* (*Canary Island Pine*) has been a total failure; and *Pinus teocote* (*Mexican Torch-pine*) is not sufficiently hardy to withstand the severe frost experienced here.

*Pseudo-tsuga Douglasii* (*Douglas Fir*, or *Oregon Pine of North America*).—The Douglas fir is a native of the western part of North America, and reaches its greatest perfection on the slopes and in the moist valleys of the Cascade Mountains in Oregon and Washington, and in the coast districts of British Columbia, where under favourable circumstances it grows to a height of 300 ft. and over, with a diameter up to 14 ft. The stem is straight and undivided, the branches are fairly numerous and irregularly disposed, generally spreading horizontally. As the Douglas fir is a moderate shade-bearer, a close canopy is required to kill off the side branches. In its natural state it is frequently found with its stem clear of branches for a length of 200 ft. It is hardy as regards winter frosts, but is liable to be damaged by