In the lowland districts of this colony this species will not yield timber of the highest quality; but it will probably prove to be one of the most valuable kinds for mountain-planting, and especially for extending arboreal vegetation above the present limits, marked by the evergreen beech (*Fagus Cliffortioides*).

The leader of the deodar is pendulous, as in the Lebanon cedar, and continually varies its direction, making a complete circle every three years.

PICEA (*Link*). The Spruce Firs. (ABIES, *Don.*)

Until recently the Spruce Firs have been usually referred to *Abies* by British cultivators, *Picea* being reserved for the silver firs; in this respect following Linne, who inadvertently transposed the names as used by Pliny. Continental botanists, however, have generally reverted to the original application, which has been adopted by Bentham and Hooker in their "Genera Plantarum," and is followed here.

Picea nigra (*Link*). "Black Spruce." British North America, Eastern United States.—Height, 60ft. to 80ft. Timber stout, tough, elastic, adapted to inside work, flooring, rafters, coarse furniture, &c.; but not durable when exposed. This occurs in immense abundance in Canada, and is imported into England to a large extent under the name of "American spruce." Not adapted to lowland situations in the North Island, but of great value for mountain-forests. Excellent for shelter-belts for orchards, &c., and will bear clipping for hedges, &c.

P. orientalis (*Link*). "Eastern Spruce." Mount Taurus, Eastern Shore of the Black Sea.—Similar to the black spruce; but the timber is more durable, although of rather smaller dimensions.

P. obovata (*Link*). "Siberian Spruce." Ural Mountains, Altai Mountains.—Height, 60ft. to 100ft. A remarkably hardy species, affording useful timber of considerable durability, although of rather small dimensions. Adapted to sub-alpine situations.

P. excelsa (*Link*). "Norway Spruce." (Pinus Abies, *Linne;* Abies excelsa, *De Candolle.*) Scandinavia and Central Europe.—Ascends the Alps to fully 6,000ft. Height, 120ft. to 150ft. Timber much superior to the black spruce in all respects, and more easily worked. It is largely imported into England under the name of "Baltic white deal," and is specially valued for flooring-boards and all inside framing, also as a "white wood" for furniture. Although it rarely flourishes in lowland districts in this colony, it will prove of great value for sub-alpine and alpine forests.

P. Smithiana (*Link*). "Indian Spruce." (Abies Morinda, *Hut.*) Himalayan Mountains, Afghanistan.—A highly ornamental species, on account of its drooping branches. Timber white, soft, easily worked, suitable for all inside work, but not durable when exposed. Height, 120ft. Adapted to mountain-forests only.

P. polita (*Carriere*). "Tiger-tail Spruce." Japan.

P. Engelmanni (*Engelmann*). "Engelmann's Spruce." New Mexico, Rocky Mountains.—Height, 80ft. to 90ft. A hardy species, affording useful timber.

P. Alcoquiana (*Carriere*). "Alcock's Spruce." Japan.—Height, 80ft. to 120ft. Affording durable timber.

P. Menziesii (*Carriere*). "Blue Spruce." California, Oregon, British Columbia.—A noble species, affording excellent timber of large dimensions. Height, 100ft. to 150ft. Not adapted to dry situations, but of great value for mountain-forests.

TSUGA (*Carriere*). Hemlock Spruce.

Tsuga Sieboldii (*Carriere*). Japan.—A small tree, 25ft. to 30ft., producing ornamental wood, specially valued for furniture-making.

T. Canadensis (*Carriere*). "Hemlock Spruce." Canada, New England States.—Height, 60ft. Timber whitish, not durable when exposed, but much valued on account of its fissile properties; largely imported into England for lath-cleaving. Bark highly valued for tanning purposes, and affords the greater portion of the hemlock-bark extract largely exported from the United States to Europe. The cones are the most diminutive of any species in the order.

T. Mertensiana (*Carriere*). California, Oregon, British Columbia, Vancouver Island, &c.—Height, 100ft. to 120ft. Of more rapid growth than the preceding, affording timber of greater durability, but does not split freely. Bark valued for tanning.

T. Brunoniana (*Carriere*). "Indian Hemlock Fir." Nepaul, Sikkim.—Height, 100ft. to 120ft. Timber not durable when exposed.

T. Hookeriana (*Carriere*). California, British Columbia.—Height, 120ft. Of similar value to *T. Mertensiana.*

PSEUDOTSUGA (*Carriere*).

Pseudotsuga Douglasii (*Carriere*). "The Douglas Fir." (Abies Douglasii, *Lindley.*) California to British Columbia, Vancouver Island, Sitka.—Height, 150ft. to 250ft. and upwards. Timber red, of smooth, even grain, easily worked, and extremely durable. One of the most valuable conifers known, sometimes attaining fully 300ft. in height. This grand tree resembles most of the spruce and silver firs in one particular—its growth for the first two years after sowing is very slow; but after that period it becomes rapid in nearly all situations in the colony. It flourishes in nearly all localities, and, although it suffers from cutting winds on the Canterbury Plains, exhibits sufficient powers of resistance to make an average annual growth of from 3ft. to 4ft. On the mountains its growth will be less rapid, but the timber will prove of superior quality. It will be of great value for replacing native forests on the west coast of both Islands.

ABIES (*Link*). The Silver Firs. (PICEA, *Don.*)

Abies nobilis (*Lindley*). "The Douglas Silver Fir." Oregon, California.—Height, 150ft. to 300ft. Timber smooth and even in the grain, easily worked, durable. A valuable species for mountain districts.