

be borne in mind that, the climate in New South Wales being warmer than in Victoria and Tasmania, trees from the mother-colony are less likely to thrive in New Zealand. I have, therefore omitted from my list trees specially indigenous to New South Wales.

Successful plantation demands careful consideration of the natural habit of the trees dealt with, so that, as before stated, they shall have the advantages of conditions as nearly as possible similar to those which they affect in the forests naturally. During my inspection I noted extensive planting of the larch and other European trees, especially along the railways. I am not satisfied that it is advisable to plant these trees in such situations. The larch, for instance, rather affects naturally the hillsides than the plains. However, all of those I saw growing in New Zealand appeared to flourish amazingly, and it is certainly one of the trees best suited for planting on the foothills of the Southern Alps and in Otago. In the plantations of Canterbury I noticed growing pines, which have a fair reputation in the Old World, but which I have no hesitation in condemning utterly on my experience of them in Victoria, South Australia, and Tasmania. These are the *Pinus halepensis* (Aleppo pine) and *Pinus pinea* (stone pine). In comparison with other and better pines they do not grow timber of fair size, and though useful for shelter, and most effective as sand-breaks, are a failure in Australia as timber-trees.

The *Pinus insignis* is condemned by experts on account of its inferior timber, but, admitting the correctness of this verdict, I find it invaluable for shelter purposes on account of its rapid growth. It has a good appearance, and stands extremes of climate very well, though, as its branches are easily broken and will not bear weight like other pines, it is not a good "snow" tree. This pine thrives best in deep, dry sandy soil.

#### SPRUCE FIRS.

Undoubtedly the best trees for extensive plantation in New Zealand are the spruce firs, all of which, if I may judge by specimens I have seen, thrive amazingly in your colony. They are as follow:—

##### *Spruce Firs.*

- . *Abies smithiana* (Smith's fir), Himalaya.
- " *douglassi* (Oregon).
- " *menziesii* (spruce).
- " *excelsa* (Norway spruce).
- " *nigra* (black spruce), America.
- " *canadensis* (hemlock spruce), America.
- " *alba* (white spruce), America.
- " *rubra* (red spruce), Nova Scotia and Newfoundland.

##### *Silver Firs.*

- Picea balsamen* (small ornamental fir).
- " *amabilis* (silver fir).
- " *grandis* (California silver fir).
- " *nobilis* (noble silver fir).
- " *nordmaniana* (Nordman's silver pine).
- " *pinapo* (Spanish silver pine).
- " *wellbiana* (Indian spruce).

Such trees as these should thrive in New Zealand, and each of these varieties should be planted extensively both by the Government and by private individuals. I feel that I cannot but strongly recommend the spruce. It is a tree destined in the course of years entirely to supplant the native trees on account of its adaptability, freedom of growth, hardy character, and, above all, the superior quality of timber it yields.

The native timber-trees seem to have run their course, and, like inferior races of mankind, are predestined to extinction. Without doubt, the indigenous trees of New Zealand cannot stand intrusion on their ground, as do others. Once the shade is diminished by curtailment of their density these trees begin to fail, and the experience of the last forty years proves unmistakably that under such circumstances the growth naturally of young trees is too unsatisfactory both in number and in quality to maintain the forests as a source of timber supply. As has been previously mentioned, this special defect in New Zealand forests constitutes the most serious difficulty of the forest problem. The Government is face to face with the fact that wherever the forest is entered by the pioneer with axe and firestick they cease to reproduce, and that hence throughout New Zealand entire forests are gradually disappearing. It is thus simply a matter of time when, unless remedial measures are adopted, the forests will cease to exist. Nor does it need a mathematician of great ability to calculate the period, if destruction is allowed to continue as during the past forty years. Forestry, therefore, is one of the chief concerns of New Zealand, both financially and otherwise. It is, in point of fact, a question of natural life and progress.

The timber trade of New Zealand is carried on at enormous cost, and thousands of people are employed in the transit of forest produce and other branches of the industry. The revenue possibly benefits little as yet, but the people of the whole colony are deeply concerned, monetarily and otherwise, in the speedy adjustment of the forests question.

The pioneers of Canterbury have set an example to the Government, tens of thousands of pounds expended by private persons in experimental planting have provided object-lessons without end. These experiences, to the Province of Otago, should prove of enormous value in determining the most suitable trees for commercial and other purposes to plant in various localities, including the pumice plains of Tongariro, and the Waikato River district, in the North Island.

With reference to the lists given above, I may remark that the soils of Otago and Canterbury