

APPENDICES.

APPENDIX B.

NOTES ON FORESTS AND PLANTATIONS IN THE OAMARU DISTRICT, BY T. KIRK, F.L.S.

OAMARU is the port of a district having an area variously estimated at from 12,000 to 15,000 square miles, devoid of extensive forests. With the exception of some limited patches of mixed forest at Otepopo, south of Oamaru, and at the Waitaki River on the northern boundary of Otago, Oamaru is entirely dependent upon imported timber for building and general purposes, even for firewood. On the north there is no really good forest nearer than Banks Peninsula, the produce of which goes entirely into local consumption and will soon be exhausted.

Timber, however, is less costly in Oamaru than might be expected from the above statement. The district exports vast quantities of cereal produce, especially to Auckland and Dunedin. Auckland vessels engaged in the traffic find it more advantageous to load with timber for the Southern trip at Auckland wharf or one of the adjacent saw-mills, at extremely low freights, than to take in extra ballast, which would have to be thrown out at Oamaru without the slightest return. In like manner Dunedin vessels loading for Oamaru take in a cargo of red or white pine at Catlin's River, so that during a large portion of the year the import of boards and scantling is rather in excess of the demand. I was informed that kauri ranged from 24s. to 28s. per 100 feet superficial; red pine, 16s. to 22s.; white pine, 12s. to 16s. Firewood, however, which is seldom imported by grain vessels, frequently sells at 60s. per cord, or higher. (At the time of my visit coals were selling at 70s. per ton.) The supply of fencing stuff is limited and uncertain, so that a large quantity of inferior material has been used in the district.

The soil in the vicinity of Oamaru is chiefly of a calcareous character and well drained; it is favourable to the rapid growth of many kinds of valuable timber. No trustworthy statistics as to the amount of rainfall could be obtained, but it is certainly much less than the average for the colony, in all probability not exceeding 22 inches per annum. * In seasons when late autumnal rains prevail, the eucalypti do not ripen their young wood, and consequently suffer slightly from frost.

Large numbers of trees have been planted in the district, chiefly as single specimens, along fence lines, or in small clumps, although but few plantations have been formed at present. The most extensive plantations are those formed at Awamoa, by the Hon. Mathew Holmes, whose efforts have been attended with the best results. In nearly all cases in the district the trees exhibited a remarkably vigorous and robust habit. The trees selected by Mr. Holmes are chiefly eucalypti, conifers, and English oaks. Of the first he has fully twenty forms growing, either singly or in plantations. Of conifers he has fully 120 kinds (including *Cupressinae*, &c.) The plantations, including the ornamental ground about the house, cover nearly 120 acres, the greater portion of which was ploughed and subsoiled to a depth of from 18 to 20 inches.

The eucalypti most extensively planted by Mr. Holmes are termed "blue-gum," "red-gum," "peppermint," "cider-gum," and "stringy-bark." The common names of timber trees, as a rule, are applied with such a want of precision that no reliance can be placed upon them, and it is greatly to be feared that in so large a genus as eucalyptus, containing fully 140 forms, many of which are at present but little known and difficult of discrimination, even by good botanists, the evil will be felt to a greater extent than has been the case with our native trees. The majority of the eucalypti at Awamoa were not in a fit state for discrimination at the date of my visit, but Mr. Kidd, curator of the public gardens at Oamaru, has kindly promised to dry specimens in flower and fruit, and forward them with the common names attached for identification, when I hope to report at greater length. At present, I may remark, the blue-gum, *E. globulus* (Labill.), is rightly named; it may always be recognized by the large solitary, sessile, axillary flowers, and woody capsules. Both the Tasmanian and Victorian forms have been introduced by Mr. Holmes, and alike flourish with remarkable vigour, although the rate of growth is not quite so rapid as in the northern part of the colony. The Tasmanian form is distinguished by larger flowers and fruit. Trees nine years old are 33 feet high, with trunks 7 to 9 inches diameter. At least ten species are known by the name of "red-gum;" the Awamoa tree appears to be one of the many forms of *E. amygdalina* (Lab.), but could not be positively identified in the absence of flowers. Young trees six years planted are 23 feet high, with a trunk 6 inches in diameter at 3 feet from the ground. Whatever may be the correct name of this plant it is certainly one of the most valuable forms. The stringy-bark is probably *E. capitellata* (Lin.), and does not grow so rapidly as the preceding. Two or three different forms are termed "peppermint-gum;" one of them is *E. viminalis* (Lab.), sometimes called "weeping-gum." The cider-gum is probably identical with *E. Gunnii* (Hook.) of Tasmania and Victoria, where it is tapped for its juice, which is fermented and drunk as cider. It is one of the hardiest species, although of small size. The white-gum and many other forms I was unable to identify, even approximately, and it is not unlikely that good flowering and fruited specimens of the kinds already named may show that errors have been made in the attempted identifications.

Nothing could exceed the clean-grown vigorous appearance of the great majority of the trees. In a few instances, I noticed that the leading shoots of eucalypti had been killed by frost, but the injury done was slight, and in nearly every case a new leader was rapidly replacing the old one. I have already stated that injury from frost is reduced to a minimum by dry autumns, which cause a more complete maturation of the summer growth: injury from frosts is less frequent in the low hills than in the valleys. At the same time it is abundantly clear that *E. globulus*, the true "blue-gum," apparently the most valuable species for the greater part of this colony, is not sufficiently hardy to warrant its being planted in the interior of the South Island. I saw no instance in which the "cider" or "peppermint" gums had been touched by frost.

* Observations taken at Oamaru, 1871 and 1872, show a rainfall of 16·23 inches and 19·93 inches respectively.