

EUCALYPTUS NAUDINIANA.

(By C. C. Marr, H.D.A., Inspector and Instructor, Department of Agriculture.)

Commonly known as Kamarere, this species of eucalypt comes under the category of giant gum, and it is peculiar to the Territory insofar that it occurs only on the island of New Britain.

Several theories have been advanced as to its source of origin, the most likely of which being that it has been transported by some unknown means—probably by sea—south from the Philippines, as these are the only other islands in the Pacific upon which this species are to be found, but it certainly has not come from Australia.

Kamarere is a sclerophyllous species occurring only on certain types of soil, and under certain conditions, and is not a dry country tree. It is a fine riverside type of forest, and thrives best in pure stands, on the alluvium in a valley, which is flat enough to be subject to annual flooding in the rainy season, i.e., the north-west on the north coast, and the south-east on the south coast of New Britain. The land must be sufficiently well drained to clear itself of water between floods, otherwise the tree becomes stunted, gnarled and asymmetrical in the water-logged portions.

There are three other species of eucalypt found in Papua and New Guinea, namely, *E. Papuana*, *E. clavigera*, and *E. alba*. These are dry country eucalypts, and have not the same commercial value as Kamarere.

On the islands of New Britain, *Eucalyptus naudiniana* is to be found growing in narrow strips along the banks of many rivers, a fringing forest, itself fringed by the rain forest proper, and it is a large patch that carries 2,000 trees. But possibly the largest stand of all was on the Torio River, Baining district, which yielded timber for nearly twenty years.

The rivers along the north coast, upon the banks of which Kamarere is to be found, are Torio, Korindindi, and Apei, in the Kokopo sub-district; Tia and Gula-gula in East Nakenai (also an area at the base of Mount Likuranga); Makavo and Sulu in Central Nakenai, and Kapiura in West Nakenai. On the south coast of New Britain, Fulia and Ilak rivers, dividing Arawe and Rauto divisions; Navaru, in Rauto; Amgen, Ania and Pavalo, in Amio; Porlo and Tortu in Lorte; Wunung and Esis, in Waterfall Bay; Berg Berg, Tigul, and Tigien, in Mengen; Matpa, Yelut, Siplong, and Ipp, in Sulka; and Henry Reid, Powell, Mavilo, and Merai Rivers, in South Bainings.

In appearance, a forest of Kamarere resembles that of a mountain ash forest of Victoria, except of course that the surrounding undergrowth is more dense. The trees shed their bark in the same way, and the colouring of the trunks is also similar. The crowns carry more spreading foliage, whilst the leaves do not droop as is the case with the more sclerophyllous of the gum species, and are not so leathery in texture.

Kamarere is a fast grower, and in seven years will attain a diameter of 6 inches, and a height ranging from 25 to 30 feet, and, once established, no tropical vegetation can compete against it. The only species superior to it in growth—and then only on water-logged soils—is Erima (*Octomeles Sumatrana*), which casts such a dense shade that it is impossible for Kamarere to thrive under it.

Kamarere is similar in many respects to the *Octomeles* species, but is a much more valued timber. The latter, however, has a distinct advantage over Kamarere in that it is not so subject to damage by fire, and has also the additional advantage of being able to thrive equally well in less well-drained soils.

It is seldom that one is able to obtain an unrestricted view of the giant trees, as the lower story of purely rainfall species obscure the view of the gum trunks to a large extent, whilst the crowns of the Kamareres are entirely hidden from view. Often when navigating a river or stream upon the banks of which the species is growing, the giant trees are clearly seen towering over the few tall rain forest species that grow in social formation with them, and leaving the lower story quite dwarfed almost 200 feet below. When seen from a river, such a sight as this is very fine, as the delicately coloured trunks of a curious green and blue and mottled pink colour contrast vividly with the rich greens of the surrounding tropical undergrowth.

Some idea as to the size of the individual trees will be gathered from the following measurements of a felled tree, which was cross-cut into eight mill lengths, ready to remove to Korindahl mill:—

1.	Log 20	feet in girth, and	8	feet in length.
2.	„ 18½	„	16	„
3.	„ 15	„	18½	„
4.	„ 14	„	19½	„
5.	„ 13	„	18½	„
6.	„ 12½	„	20½	„
7.	„ 11½	„	18½	„
8.	„ 11.	„	17	„

The total length of the log was therefore 136½ feet. The total solid cubic contents worked out at 2,120 feet, or 25,440 super. feet, and the form, factor, or taper of the log is practically 0.5. This example is not an exception, for many trees have yielded a larger milling log than 140 feet.

In the above case, about the top cross-cut came 45 feet of crown log, which is usually too knotted for milling purposes, and at 181 feet sprang the main bifurcation of the crown, which spread into innumerable branches to a height of another 50 feet, making the original height of the tree 231½ feet.

The number of Kamarere trees to the acre vary from one to twelve, but the average, both on the north and south coasts of New Britain, approaches eight in first quality forest.

For the above figures, I am indebted to the Inspector-General of Forests for the Commonwealth of Australia, Mr. C. E. Lane-Poole, who, during his visit to this Territory in 1924, had occasion to visit the Open and Wide Bay districts, in which two mills were operating. Both plants have since been dismantled and re-erected elsewhere. The Vunapope Catholic Mission have transferred their operations to the slopes of Mount Likurangua (Father), in East Nakenai division of the Talasea sub-district, and have erected the old Korindahl mill, with extensive modern additions, on the beach at Ulamoia, and this factory is in constant use preparing sufficient timber to meet their own requirements throughout the Territory.

The Wide Bay mill, previously situated in Henry Reid Bay, has also been dismantled, and is now in the course of erection on the banks of the Wunung River, Jacquinot Bay, sub-district Gasmata.

In Mr. Lane Poole's Preface on the *Forest Resources of the Territories of Papua and New Guinea*, he writes:—

"The possibility of commercial forests on the smaller islands seemed less than on the main island, but on New Britain there are still small areas of profitable forests of *E. naudiniana*, the tree that for many years has yielded the best general building timber for Rabaul and outlying stations, otherwise the islands were disappointing.

"Australia's tropical dependencies, while offering no prospect of immediate gain to large saw-milling interests, possess forest potentialities of a high order. The range of forest regions extends from the mangrove swamp at sea level, through the main forests of the low lands, on to the oak of the hills and the pine forests of the mountains.

"It is nature's very abundance that has made the forests of these Territories unprofitable.

"Less species, and some pure stands, are what are wanted, and here is where the forester can assist nature. In this splendid growing climate there is no reason why Australia should not establish forests to supply a large part of her timber requirements."

[Article for publication by C. C. Marr, H.D.A., Inspector and Instructor of the Department of Agriculture, Territory of New Guinea—

EDITORIAL NOTE.—In discussing the value of this timber with Mr. E. Knox, Director of Public Works Department, he informed me that it was of comparatively little value for bridging, decking, or other places where fully exposed to the weather. It is, however, well suited for indoor work in houses, and for furniture.—G.H.M.]

METEOROLOGY.

Meteorology, the science of the atmosphere, the term usually being used with reference to the study of all influences affecting the weather conditions and climate, begins with observations, taken over a long series of years, of all kinds of natural atmospheric properties, such as temperature, pressure, wind direction and velocity, state of the sky, humidity, atmospheric electricity and ionization, and so on.

These observations are taken at as many stations as possible.

The meteorologist reduces this enormous mass of data to manageable dimensions by taking *averages* or *means*; the mean may be taken over the whole year, or over parts of it, such as halves or single months. Meteorology is largely a science of such averages.

The results derived from meteorological records are constantly being consulted for information regarding climatic conditions by persons in practically every walk of life. The enumeration of the avenues of social and industrial activity in which climatological data are of importance would consume much space, and could never be complete, as fresh ones are continually being found. Among the more important, however, are agricultural, aviation, pastoral industries, public health, and scientific research. In the case of the introduction