

BEYOND THE PALMY BEACHES

by Executive member Professor John Morton

A Pacific Island begins with the line of wave-break where the reef-edge drops way into deep water, so very blue. Behind this rim are the shallows, sun-warmed and cloudy green. Further in, pressing down to white sand, is the coastal forest: free and lush, with waving palms to leeward, or low dense canopy on the trade wind side. Over the sand run purple *Ipomea*, of yellow cables of beach dodder (*Cassytha*).

This is the coast the islands have in common. It is Pacific-wide: fed and recruited from an ocean-mix of plankton, and of woody seeds. Of these the coconut is merely the largest, originating who knows where, in the vastness of ocean and time.

To find the special quality that gives each island its personality, makes it different, we must strike into its forest heart-land.

Into the forest depths

Fiji's Viti Levu is by Pacific standards a huge island. You can push into it from Suva's Laucala Bay up the Rewa River, with huge mangrove swamps as quiet and remote as the finest I know, in Papua New Guinea. Or you can drive west, passing at Serua a score of immense banyan figs, to Sigatoka. Here you can take the winding river road inland to the forest depths at the centre of the island.

But right near Suva there is a not too strenuous afternoon's climb, up the 600 m. of Mt Korombamba: by the logging track of bright red clay, up to the trig station where the breeze is cool and you can take in the whole expanse of Suva Barrier Reef and Laucala Bay.

On this wet side of Viti Levu island, the forest is well stratified. The climb brings us up to Fiji's podocarps that — unlike New Zealand's — are trees of high level.

No one has written a proper guide to this climb. After Parham's invaluable *Plants of the Fiji Islands*, my own debt is to the deep knowledge of Saula Vodanivulu, botanist of the Fiji Herbarium, who taught me anything I know about the island's flora.

Large trees logged

All this forest has been cruelly logged. Only a few of the old timber trees, up to 30m tall, break out above the second can-

opy to show what the high forest must once have been. They are kauvulu (*Endospermum macrophyllum*: Euphorbiaceae); bauvudi (*Palaquin stehlinii*: Sapotaceae); makita (*Parinari glaberrima*: Rosaceae); and — most notably — the Fiji kauri, dakua (*Agathis vitiensis*) now almost milled out save at the island's deep centre.

But the second storey is immensely rich. Diversely assembled are all those hardwood families marginally represented by one or two species in New Zealand. Here is to be found a host of *Myrsine*, and *Elaeocarpus* and *Geniostoma*. There are lots of Meliaceae, with *Dysoxylum gillespianum*, a timber tree planted in straight lines in the old loggings. Two huge families are Myrtaceae (notably with *Syzygium*, *Decaspermum* and *Cleistocalyx*); and Caesalpiniaceae with *Bauhinia* and *Cassia* species, mainly outside the forest. There are Sterculiaceae with bright flowers and open pods, an abundance of fan-leaved Araliaceae, including *Schefflera*. There is the Moraceae, with the glossy green bread fruit tree, (*Artocarpus*) on the forest edge. Of the early angiosperm families, there are Piperaceae (*Piper* and *Peperomia*); Annonaceae (custard apples and sour-sop, and Lauraceae with *Cinnamomum* and *Litsea*.)

At shrub level, Rubiaceae abound as in New Zealand; but with attractive scented flowers — *Dolicholobium*, *Canthium*, and *Ixora* and fragrant white *Gardenia*. A curiosity of this family is the swollen based ant-plant *Hydnophytum*. The tree ferns are *Dicksonia* and *Cyathea* like ours. But in Fiji they are overshadowed by palms: *Veitchia* and *Balaka*. There are as well pandans and *Cordyline*, big gingers with windmill sails like *Alpinia*, and handsome banana palms.

Vines and climbers

A host of families produce vines and tendrill climbers. The milky Apocynaceae have climbing *Alstonia* and *Carruthersia* recalling *Parsonsia* in New Zealand. There are climbing yellow *Dillenia*, *Smilax* climbers like our own supple-jack, and *Freydenetia* which are tough, scrambling pandans. There are climbing aroids *Epipremnum*; wild yams, *Dioscorea*, and thongleafed *Flagellaria*.

The Verbenaceae have a shrub *Feredaya* climbing over the highest forest. The Asclepiadaceae provide wild *Hoya*, common down to the mangrove swamps. Blanketing a whole canopy to the tree tops is often the white-flowered convolvulus *Merremia peltata*.

New Zealanders will recognise lots of *Lygodium* and filmy ferns; the two fern allies: *Lycopodium* and big *Selaginella*; and — for good measure — two *Psilotum* species.

The Korombamba climb has two botanic prizes. The offbeat gymnosperm *Gnetum gnemon* ('sikau') with its glossy oval leaves and red 'berries' and a magnolia ally, *Degeneria vitiensis* ('masiratu') unique to Fiji and discovered only in 1934. Saula at the herbarium generously pressed on me its spirit-preserved flowers and bean-like pods: a precious treasure I didn't think I should lightly carry away. Instead, I sketched them and brought back a sliver of wood to make histology slides.

At the top of Korombamba, the gymnosperms break through, and finally dominate. There is their hard-timbered 'yaka', (*Dacrydium nidulum*) up to 30m tall, but more like a spreading beech than our own rimu. 'Dakua salusalu' (*Decussocarpus vitiensis*) has glossy green pinnate leaves; and in 'gaugali' or 'baukiwaga' *Podocarpus nereifolius*, the leaflets are quite big and lanceolate.

Onto the Cooks

2,000 km. further east, with far fewer species than Fiji, the Cook Islands are nonetheless botanically exciting. Rarotonga is still as captivating as Cheeseman found it on his visit around 1900. Half a century earlier missionary John Williams, wrote of a coastal stretch which was intensively gardened to feed 30,000 inhabitants.

'The whole island was in a high state of cultivation and I do not recollect having witnessed anything more beautiful than the scene presented to me, when standing on the side of one of the hills, and looking towards the sea shore.'

Between rows of superb 'chestnut' trees (*Inocarpus*) stretching from the mountain base to the sea, were bright green irrigated taro beds.

The gardens lie between Rarotonga's two circular roads, the modern Ara Metua to seaward, and inland — still almost complete — the thousand-year-old Ara Tapu.

With the years of decline, in copra, banana and now citrus exports, much of the garden area is wild and reverted: a haven of fertile and picturesque neglect.

Today's food crops are chiefly cassava (*Maniote*), and the several sorts of taro, still to be seen laid out in neat rows. Round the villages, guava and bright *Hibiscus* and ill-scented *Lantana* are taking over. Back up the valleys are banana plantains gone wild. There are scrambling vines of passion fruit, and *Ipomea*, and the little bright orange gourd, *Momordica*. There is a host of reverted economic species: paw paw, mango, alligator pear, custard apple, orange, lime, guava,

The tree fern, *Cyathea decurrens*, is discovered in the lower valleys of Rarotonga. Photo: Ewen Cameron

Inset: A seedling of the ancient Fijian podocarp *Decussocarpus vitiensis* is not unlike our own miro. Photo: Guy Salmon