

research on tropical plants, and research on special crops of interest to the development of Puerto Rican agriculture. One of the important projects of the station since its foundation has been the introduction of plants for testing from all over the tropical world.

The palms, which comprise ninety-one species, constitute a very important group in the station plant collection. These are found distributed mostly on the main station grounds. Some, like the majestic *Roystonea borinquena*, *Sabal causiarum*, and *Acrocomia media*, are native, but the majority are introductions from other tropical regions. Among the most interesting are *Arenga pinnata*, *Bactris Gasipaes* (*Guilielma*

*Gasipaes*), *Caryota urens*, *Chrysalidocarpus lutescens*, *Corypha umbraculifera*, *Cryosophila Warscewiczii*, *Elaeis guineensis*, *Raphia pedunculata*, and *Scheelea zonensis*.

Some species have been introduced because of their ornamental value, a good example of which is the talipot palm (*Corypha umbraculifera*), the national floral emblem of Ceylon. Others, such as the African oil palm (*Elaeis guineensis*), have been introduced because of their economic value.

Many of the palms are labelled and are easily accessible. Upon request, when available, seeds are distributed free of charge.

## Palms of the Brisbane Botanic Gardens, Australia

H. W. CAULFIELD

Brisbane, capital city of the Australian State of Queensland, is situated in the southeast coastal corner of the State midway between the 27th and 28th parallels of latitude South. Climatic conditions are a combination of both temperate and tropical. The months of winter bring forth a Mediterranean-type climate of pleasantly warm, sunny days with cool nights, whilst the summer or monsoon season of December to April produces hot humid weather with frequent fierce electrical storms accompanied by torrential downpours of rain. Annual rainfall is approximately 46 inches, the majority of which falls during the monsoon period.

The Botanic Gardens is situated along the banks of the Brisbane River less than half-a-mile from the centre of the city, and was first established in 1855, the then known area being about 9 acres. To-day it is in the vicinity of 48

acres. Apart from displaying a great array of tropical and sub-tropical trees and shrubs, the Gardens possess many fine specimens of palms—in all 450 plants of 58 different species. The majority are growing excellently, although it can be noted with some that the extreme dry winters experienced time and again have left their mark on the trunks, the size of which have been greatly reduced during the bad seasons.

The largest planting of any one palm is that of *Arecastrum Romanzoffianum* locally known as the "cocos" or "plume palm," of which about 200 plants are scattered throughout the Gardens. Next largest plantings are those of two Australian native palms namely *Archontophoenix Cunninghamiana* (the picabeen) and *Livistona australis* (the cabbage tree palm). The picabeen is a delightful plant, being quick-growing and a most graceful subject. It does not pre-



57. Brisbane Botanic Gardens. *Archontophoenix Cunninghamiana* (left) in clump formation thought to have developed from a pot of seedlings or from self-sown plants from an early fruiting; *Ptychosperma Macarthurii* (right) in the palm border. Photographs by H. W. Caulfield.

sent the feathery appearance of the *Arecastrum* but has a decided advantage over this rival in that it is self-cleaning, dead fronds being usually blown down during any slight wind disturbance. No praise as a garden plant is too great for this native species. The local fan palm, *Livistona australis*, is found growing wild in the mountain valley areas along most parts of the eastern coastline of Australia. Under cultivation it develops into a rather sturdy customer, much different from the many willow plants sometimes seen in nature.

The main groupings of palms are studded over an eight-acre sloping lawn area referred to as "Residence Hill," being below the Curator's Cottage, and along a small palm border close by. On

the lawn can be noted many excellent sizeable clumps of *Chrysalidocarpus lutescens*, greatly admired by botanists from near and far; a thick clump of *Arenga Engleri* with its dull green foliage; slender plants of *Dictyosperma album*; pleasing specimens of *Butia capitata* and its variety *odorata*; various species of *Livistona*, *Phoenix*, and *Sabal*. A lone *Elaeis guineensis* standing about 25 feet is quite a feature although it does show signs of its resentment of the cold nights of July and August when temperatures at grass level are often down to 32°F. or below. Situated prominently beside a pathway is a single specimen of *Latania Loddigesii*—this fan palm never fails to attract attention from the Gardens' visitors.

Possibly the most outstanding feature of all the palms growing in the Gardens is a large circular grouping of *Roystonea regia* situated near the main gateway. These specimens, at least 70 years old, are 40 feet in height with a circumference measurement near the base of almost eight feet. Near relation *Roystonea oleracea* does not thrive quite so well; the Gardens has three plants, all of which display definite evidence of the struggle for survival during extended drought periods.

Throughout the area *Phoenix rupicola*, *P. reclinata*, and *P. sylvestris* do much to enhance the beauty of the Gardens. *P. rupicola* could be said to be the most graceful of the species being a much more satisfactory grower under Brisbane conditions than the more popular *Phoenix Roebelenii*. Growing on a moisture-retentive flat in the center of the Gardens can be seen several excellent plants of *Livistona chinensis*.

Along the somewhat over-crowded border *Rhapis excelsa* has become naturalized. *Arecastrum*, *Archontophoenix*, and *Livistonia* have added to their numbers with self-sown specimens, whilst *Corypha umbraculifera* wages a battle for room against *Rhapis* and *Pandanus*. A massive specimen of *Jubaea chilensis* humbles all about it, and nearby *Ptychosperma Macarthurii* from New Guinea displays its slender canes.

Unfortunately two fine Australian palms *Licuala Muelleri* and *Linospadix monostachya* (*Bacularia*) have been wrongly sited in a hard dry section of the gardens and needless to say are growing poorly. Soon an attempt will be made to move them to the more congenial surroundings of the palm border. If native Australian palms are to win acclaim abroad, no better ambassadors could be chosen than these two. *Licuala* grows naturally in the high rainfall areas

in the north of the State and makes a most attractive pot plant. However, it is sad to relate that *Licuala Muelleri* is hardly known in its own country; also seed is most difficult to procure.

Palms are and always will be a notable feature of the Brisbane Botanic Gardens, for Brisbane is the center of a large tourist trade from the southern states whose tourists expect to see lush tropical foliage which is suggested more by palms than any other plant.

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## LETTERS

R. W. THOMAS  
C/O GENERAL DELIVERY  
CONCORD, CALIF.

"There are numerous points to the knack of successfully transplanting a large palm tree. For instance, it took me twenty years to find out that a large palm tree that has had many main roots severed must be set much lower in the ground than it was originally set."

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R. H. SCHNABEL  
1155 SUNNY DUNES RD.  
PALM SPRINGS, CALIF.

"We are spending ten days or so in southern Sonora just relaxing. I am also searching for palms, especially those tolerant of high temperature and low humidity extremes. This is such a tremendously open and unsettled country that to find anything in it is almost hopeless, and to most of the inhabitants a palm is a *palma!* Specifically, I am looking for *Sabal uresana*—this is its native area, but not a one has shown in any of the town squares as yet, only *Washingtonia* and *Phoenix*, and I think I shall have to beat my way into some canyons east of Alamos to find that elusive *palma blanca*. I will send photos if I find it.