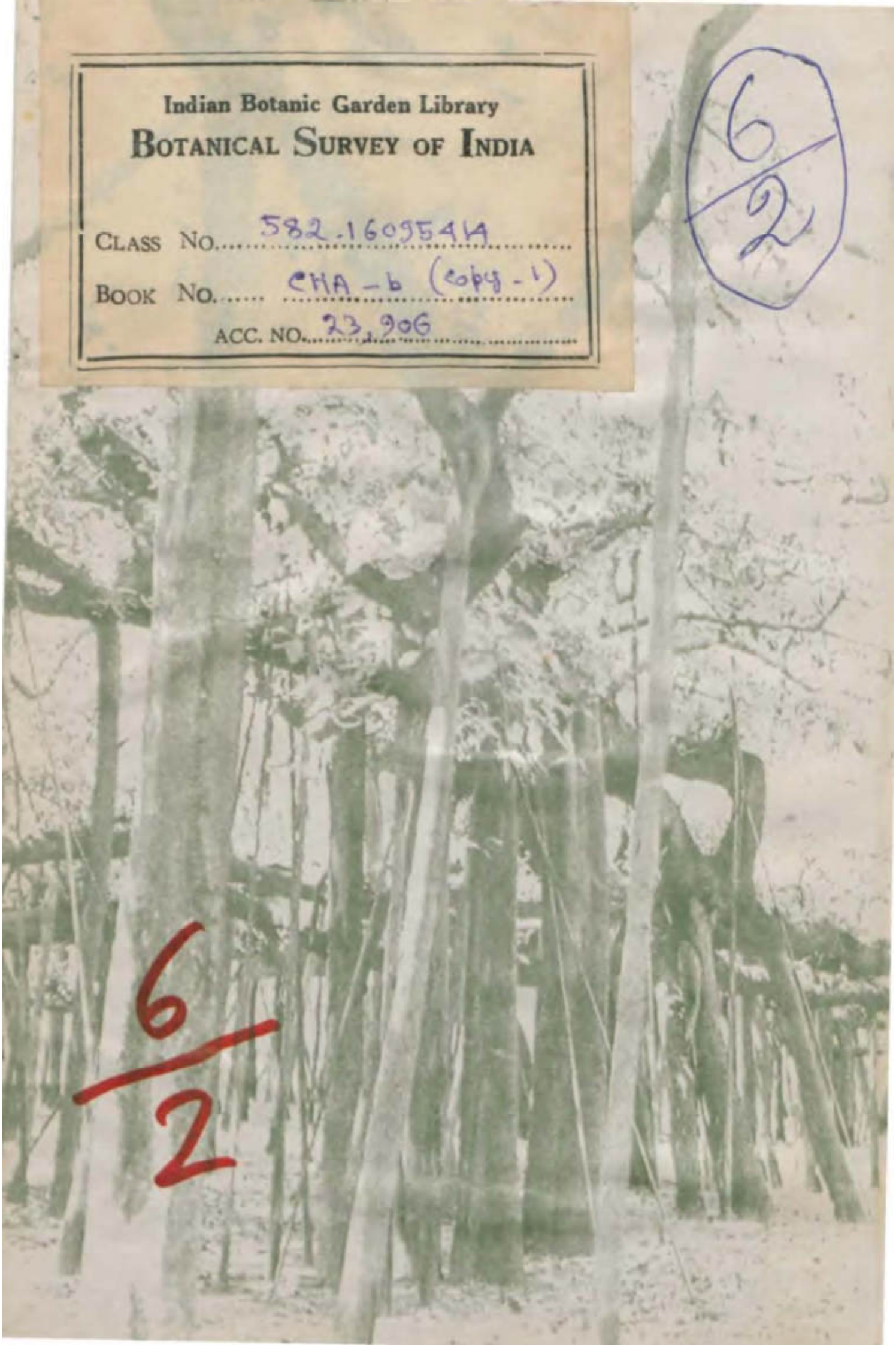
BEAUTIFUL TREES AND SHRUBS
OF
CALCUTTA

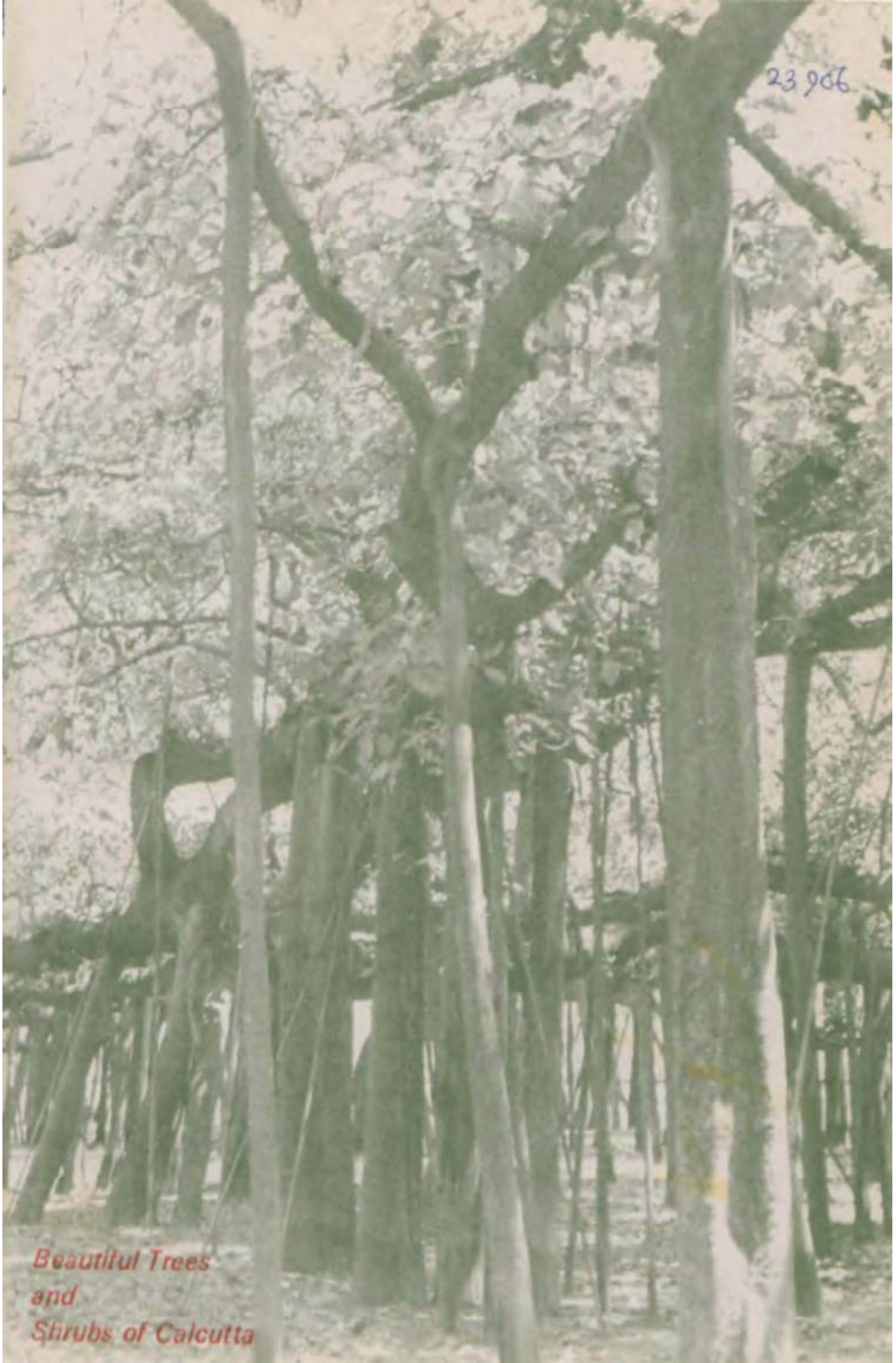
R. K. CHAKRAVERTY & S. K. JAIN

Botanical Survey of India
Department of Environment

6/2



6/2



Beautiful Trees and Shrubs of Calcutta

First published : 1984

Cover photos :

Front : Victoria Memorial Hall and Gardens
Delonix regia (Boj. ex Hook.) Raf. (bottom)

Back : *Bombax ceiba* L. (top)
Couroupita guianensis Aubl. (bottom)

Price : Rs. 86.00

Published by : The Director, Botanical Survey of India, Indian Botanic Garden, Howrah 711 103 and printed by Dipti Printing & Binding Works, 13M, Ariff Road, Calcutta 700067.

Foreword

The metropolis of Calcutta has passed through different phases of its growth since the advent of East India Company. It had once been the Capital of India, and now the Capital of West Bengal. For obvious reasons, plants from various parts of the world have been introduced in the city, mostly through the initial efforts of East India Company, which coupled with its indigenous flora provide with a remarkable mixture of Western and Eastern elements. In view of the humidity, rainfall and temperature of Calcutta, the variety and wealth of its vegetation need no occasion for surprise. The cosmopolitan nature of the city is also reflected in its vegetational wealth.

Ornamental plants not only add to the aesthetics of the city but provide with a remarkable input to the beautification and purification of the environment. Heavy industrialization, urbanization and growth of skyscrapers, have undoubtedly caused serious environmental problems but there are still avenues and promenades in Calcutta, the relics of the past, which are full of beautiful trees and shrubs. Their blooming at different seasons makes the city remarkably colourful.

There are almost one hundred species included in this book with profuse illustrations and colour photographs. The most commendable feature is the history of introduction, rationale, uses and distribution. The phasic development of the vegetation of Calcutta concomitant with other phases of growth has also been neatly outlined by the authors. Most of the species, however, are common to different parts of India and as such will be of interest to a vast section of readers.

such names are marked with an asterisk (*). We have tried to make this name as relevant to the features of the plant as possible, and have added a few sentences to explain the etymology.

Local names are given in upper and small capitals as far as possible. For each plant, information is provided on its native country, significant horticultural features, plantations (or occurrence) in Calcutta, origin of its scientific name, brief description, flowering period or behaviour, important medicinal or other uses and on propagation or future potential.

Usually, the main species of a genus is treated ; in some cases a brief reference is made to related species or varieties of ornamental value. Similarly in a few cases, the lesser important genera of a family are briefly mentioned at the end of last species of that family. The reason for omission of roses is due to the profusion of existing literature on this vast and beautiful group having hundreds of cultivars.

Though the title of this work says Calcutta, we are sure, the book should help in identification of most of the ornamental trees and shrubs in almost all cities and towns in plains of the Indian subcontinent.

We shall consider our effort duly rewarded if the book will prompt the reader to have a closer look at the trees around him, try to match with one of the color pictures and search for a sapling or packet of seeds to plant.

We express our sincere gratitude to Dr. T. N. Khoshoo, Secretary, Government of India, Department of Environment, New Delhi for his interest and encouragement, and to Professor (Mrs.) Archana Sharma, Professor of Botany, University of Calcutta for her constant encouragement and valuable suggestions particularly in the activities of the Indian Botanic Garden.

For writing this book we had to visit and study many of the parks and gardens of the Government and private

institutions, public sector organisations as well as individual private gardens. We must record our special thanks to Sri R. K. Samanta of Calcutta Municipal Corporation, Dr. D. Mukherjee of Agri-Horticultural Society of India, Sri D. G. Jana of Raj Bhavan Gardens, Sri S. Bose of Assembly House Gardens, Dr. S. Bose of National Library and the authorities of the Victoria Memorial, CMDA, Bidhan Sishu Udyan, Eden Gardens, to the owners and gardeners of many private gardens in the city.

We are thankful to many of our colleagues in the Botanical Survey of India, specially to Dr. D. B. Deb, Sri R. K. Basak, Dr. N. C. Majumdar, Dr. D. P. Mukhopadhyay, Sri R. L. Mitra, Sri H. S. Pandey, Sri H. J. Basu, Sri S. K. Das and Sri R. N. Das.

Most of the photographs are taken by the authors. But for allowing us to publish the photographs of *Anthocephalus chinensis*, *Dillenia burbridgii* (fruits), *Gustavia augusta*, *Kigelia pinnata*, *Magnolia pterocarpa*, *Pachira aquatica*, *Pandanus odoratissimus* (fruits) and *Wrightia tomentosa* in this book, we are most thankful to Sri A. P. Bhattacharyya of the Indian Botanic Garden.

Botanical Survey of India
Indian Botanic Garden (Calcutta)
Howrah 711 103
May 4, 1984

R. K. CHAKRAVERTY
S. K. JAIN

"I should like our children
especially to know more
about indigenous flora
and fauna"

—Indira Gandhi

Contents

"Some of our own wild life has been wiped out,
miles of forests with beautiful old trees
mute witness of history,
have been destroyed"

— Indira Gandhi

Introduction

Calcutta, the dreamland of Job Charnock with its long history and heritage, exquisite beauty, varied culture and its own diverse drawbacks, is a unique city. If on one hand it is among the pioneer centres of education, culture and trade in India, on the other, it is also the city of unusual garbage, traffic jams, frequent load-sheddings and of hazardous pollution. With all these, Calcutta was, is, and will always flourish as Calcutta.

The trees and shrubs in a town, whether natural or planted not only adorn and beautify it, but produce a salubrious effect on the daily life of its residents.

The species of trees and shrubs seen in Calcutta today have come through a succession of eliminations, additions, and successes and failures of individuals or institutions.

It is pertinent to give a concise account of the foundations of the town of Calcutta before describing the ornamental plant wealth of the city. Job Charnock, the British Agent for business in India landed and formed a settlement on August 24, 1690 in three small villages —Suttanuttee, Govindpore and Kalikata (Calcutta) on the bank of the Holy river Hooghly. These small villages, along with other contiguous marshy areas, were often inundated by tidal bores ; they sheltered a host of mangrove species like HARKUCHKANTA *(Acanthus ilicifolius)*, HULSI *(Aegiceras corniculatum)*, BINA *(Avicennia alba)*, KANKRA *(Bruguiera gymnorrhiza)*, GORAN *(Ceriops decandra)*, SONDUREE *(Heritiera fomes)*, GORIA *(Kandelia candel)*, GOOLGA (*Nypa fruticans*), HENTAL *(Phoenix paludosa)*,

KHAMO *(Rhizophora mucronata)*, KHEORA *(Sonneratia apetala)*, etc. together with some estuarine sedges and grasses.

The process of English 'establishment' advanced a step further when Azim-ush-Shan, the then Nawab of Bengal, gave permission for the settlement. Subsequently the three villages, Suttanutee, Govindpore and Dihi Kalikata were purchased at a pittance of Rs. 1300 only. After a few years, a fort was constructed at the spot adjacent to where presently the Binoy-Badal-Dinesh Bag stands. This area along with the Lenin Sarani (Dharmatala Street) and Jawaharlal Nehru Road (Chowringhee), were made into residential blocks for the English settlers. Big buildings, roads, sewerage system, supply of water and other amenities were made available.

The Calcutta Corporation came into existence in 1727. Perhaps the tree planting on the roadsides was initiated at that time with certain areas kept aside for parks and gardens. The settlement made gradual expansion in all directions ; it was firmly strengthened with the victory of Lord Clive in the historic battle of Plassey in 1757. As a part of compensation, Nawab Mir Jaffar donated a huge sum of money together with the control of the vast area of 24 Perghunnas (24-Parganas) Calcutta and its neighbourhood. In this way Calcutta underwent another stage of development and finally became the capital of British India in 1773. The capital was shifted to Delhi in 1911.

In the course of more than a century and a quarter there was tremendous boost to the construction, development and management of buildings, churches, parks, gardens and office premises, etc.

The management and functions of Calcutta Corporation were reoriented in several stages in the years 1794, 1847, 1852, 1863, 1876 and 1888. During this period the entire central Calcutta and portions of the north and south were developed including the Loudon Street (Dr. U. N. Brahmachari Sarani), Amherst Street (Raja Rammohan

Sarani). Free School Street (Mirza Galib Street), Elliot Road, Harrison Road (Mahatma Gandhi Road), etc. where some of the existing important avenues of the city were laid out.

A new civic body under the name of Calcutta Improvement Trust (CIT) came into existence in 1911. This organisation built the Chittaranjan Avenue, C. I. T Roads and V. I. P. Road (Kazi Nazrul Islam Sarani), widened many other existing roads and connected the areas of Manicktala, Kidderpore Dock, Garden Reach, Cossipore, Chitpur, etc. with Calcutta proper. All these development programmes were undertaken by the CIT in collaboration with Calcutta Corporation. These slow but steady programmes were continued and the major gardens and parks in the city were established with mass plantations of trees on the roadsides.

The population of the city also continued to increase mainly due to better means of livelihood. Calcutta became the seat of the Central and State Government offices and main centre of business and trade for whole of eastern India. With increasing trade in jute, paper and other enterprises, it became the centre of mass employment for a variety of people, the professional, trader, skilled, unskilled and the self employed.

In 1947 when the country achieved independence, Calcutta was confronted with sudden and peculiar difficulty. The city was flooded with unprecedented migratory populations from East Bengal (East Pakistan), which created a tremendous impact on the socio-economic life of the city. However, the situation was tackled on an emergency footing and programmes for settlement of the new immigrants were envisaged by expanding the township towards the south and the north.

Calcutta, thus became the world's second-most thickly populated city with a population density of 32,276 per sq. km. (on 1971 basis). The existing public facilities and amenities of life were highly insufficient to meet their demands and it resulted in occasional epidemics.

For attempting solution of this near chaotic situation, a civic body under the name of Calcutta Metropolitan Planning Organisation (CMPO) was established in 1961. After five years of painstaking survey, scrutiny and studies, the 'Master Plan of Calcutta' was prepared which included broadly the following four aspects :

(i) Water supply

(ii) Water and sewerage disposal

(iii) Roads and transport

(iv) Development of slum areas and housing

For implementing the blue-prints of the 'Master Plan of Calcutta', the Calcutta Metropolitan Development Authority (CMDA) came into existence in 1970. Thanks are due to the CMDA for incorporating in its programmes another aspect of profound importance and public interest, the development and establishment of parks and playgrounds and beautification of the metropolis. In the process of development of the city with ingenious schemes, the policy of protection and conservation of the existing plant life was also attempted. But the greatest hinderance towards the realisation of this policy has been the dislocation caused by the operations of Metro Railway from one end of the city to the other and the work connected with the tram line in the Manicktala–Bidhan Nagar areas. These have extirpated many of the mature and grown up trees, which till recently adorned the town. If the existing process of plant decimation and extermination is not handled cautiously, Calcutta will lose much of its green beauty.

The Department of Forests and the newly created (1982) Department of Environment of the Government of West Bengal are trying to take due care of the plant wealth of the city. Inspite of this, it is not a subject to be dealt with only by the Government. Non official agencies and committed individuals have an important role to play. Calcutta belongs to everybody, and it ought to be the endeavour of each and every citizen to make Calcutta beautiful and more beautiful. It is heartening that Friends of Trees, Conservation Forum and such other NGO's have

These green patches need to be preserved

Brick and concrete replacing the greenery

come into existence during fast few years. The role of Lions Club and Rotary Club Internationals are also significant.

In a city crowded with buildings (with many skyscrapers erected during the last three decades) and increasing population and pollution, the available open spaces must receive due care and attention. The lung of the city, the Esplanade Maidan covers an area of nearly 304 hectares or three sq. Km., the other important green belts around Manicktala and Tollygunge Lakes together constitute an area of over 182 hectares. In addition, there are more than 200 parks, gardens, children's play grounds, squares, garden plots and roadside gardens : of these the following parks and gardens have an area of more than 1.20 hectares :

Azad Hind Bag, Bengal Gymkhana Ground, College Square, Deshapriya Park, Deshbandhu Park, Hagi Md. Mohassin Square, Jatindra Mohan Park (Tala Park), Marcus Square, Northern Park, National Congress Park (Park Circus Maidan), Rabindra Kanan, Raja Subodh Mallick Square, Shaheed Bhagat Singh Udyan (Minto Square), Watgunj Square and Woodburn Park.

The Bidhan Sishu Udyan (Bidhan Children's Park) at Bidhan Nagar (Salt Lake City) needs a special mention. On an area of nearly 9.0 hectares donated by the C.I.T., its foundation was laid on November 14, 1968. The park was inaugurated on February 1, 1976, and contains many interesting ornamental trees and shrubs, play grounds for children, gymnasium, swimming pool and maintains a good children's library. Another children's park called Jhilmil has recently been established in the same locality.

An analysis of the plantation of trees and shrubs in Calcutta, particularly on roadsides and avenues, reveals that different species of plants found favour with planners and planters at different periods ; some species no doubt continued to be favourite at all times

Plantations can be grouped under three rather distinct periods :

Bidhan Sishu Udyan

Allen Garden (Children's Corner) at Park Street

A. Early plantations Starting from the initial establishment or settlement of township up to the end of the nineteenth century or first decade of the present century. The plants most patronised were :

BABLA *(Acacia nilotica)*
CHATTIM *(Alstonia scholaris)*
NEEM *(Azadirachta indica)*
TAL *(Borassus flabellifer)*
PALASH *(Butea monosperma)*
SONALI *(Cassia fistula)*
SIMUL *(Ceiba pentandra)*
JHAU *(Casuarina equisetifolia)*
NARIKEL *(Cocos nucifera)*
EUCALYPTUS *(Eucalyptus citriodora)*
BAT *(Ficus benghalensis)*
JAGYA DUMUR *(Ficus glomerata)*
AWASTHA *(Ficus religiosa)*
PHALSA *(Grewia subinaequalis)*
BOLA *(Kleinhovia hospita)*
MAHUA *(Madhuca indica)*
AAM *(Mangifera indica)*
AKASHNIM *(Millingtonia hortensis)*
BAKUL *(Mimusops elengi)*
KHEJUR *(Phoenix dactylifera)*
DEBDARU *(Polyalthia longifolia)*
MUCHUKUNDA *(Pterospermum acerifolium)*
JIAPUTA *(Putranjiva roxburghii)*
BAKPHUL *(Sesbania grandiflora)*
MAHOGINI *(Swietenia macrophylla, S. mahagoni)*
JAM *(Syzygium cumini)*
TETUL *(Tamarindus indica)*
SEGUN *(Tectona grandis)*
ARJUN *(Terminalia arjuna)*
BAHERA *(Terminalia bellirica)*
BUDAM *(Terminalia catappa)*, etc.

B. Middle period plantations : From early part of the twentieth century to the third quarter of the present century. The species included mainly were :

SIRIS *(Albizia lebbek)*
KADAM *(Anthocephalus chinensis)*
SIMUL *(Bombax ceiba)*
GOLMOHOR *(Delonix regia)*
PALTEMADAR *(Erythrina variegata)*
BAT *(Ficus benghalensis)*
AWASTHA *(Ficus religiosa)*
SPOTTED GLIRICIDIA *(Gliricidia sepium)*
KURCHI *(Holarrhena antidysenterica)*
NIL GOLMOHOR *(Jacaranda mimosifolia)*
JARUL *(Lagerstroemia speciosa)*
MOULMEIN ROSEWOOD *(Milletia peguensis)*
YELLOW FLAME TREE *(Peltophorum pterocarpum)*
BILITI SIRIS *(Samanea saman)*
AFRICAN TULIP TREE *(Spathodea campanulata)*
ARJUN *(Terminalia arjuna)*
BUDAM *(Terminalia catappa)*
DUMBLA *(Thespesia populnea)*, etc.

C. Recent plantations : From the last quarter of the present century till now. In addition to those planted in middle period, the plantations included :

BARUN *(Crataeva nurvala)*
SILVER OAK *(Grevillea robusta)*
SAUSAGE TREE *(Kigelia pinnata)*
SUBABUL *(Leucaena leucocephala)*
CHAMPA *(Michelia champaca)*
GULANCHA *(Plumeria alba)*
LAL GULANCHA *(Plumeria rubra)*
ASOKA *(Saraca asoca)*
PITH ASOKA *(Saraca declinata)*
TABEBUIA *(Tabebuia chrysantha, T. pallida)*, etc.

The parks and gardens serve as the most frequented spot by the aged and infirm for walk and rest, and a common place of play and pastime for the children. They are mostly visited by housewives for relaxation after the days toil. Their cool, beautiful surroundings refresh the minds and generate natural aesthetic sense amongst the public.

While selecting the species for plantation in parks and gardens care should be taken so that the park remains in bloom in various seasons of the year and the plants are not too tall or spreading. Preference should be given for shrubs or small tree with fragrant flowers. The following species are recommended for parks and gardens :

ACALYPHA *(Acalypha hispida, A. wilkesiana)*
CHATTIM *(Alstonia scholaris)*
BREAD FRUIT TREE *(Artocarpus altilis)*
KANCHAN *(Bauhinia variegata)*
RAKTAKANCHAN *(Bauhinia purpurea, B. blackeii)*
BAGANBILAS *(Bougainvilhea* sp.*)*
KRISHNACHURA *(Caesalpinia pulcherrima)*
POWDER PUFF *(Calliandra* sp.*)*
BOTOL BRUSH *(Callistemon citrinus)*
PRICKLY APPLE *(Catesbaea spinosa)*
HASNA HANA *(Cestrum nocturnum)*
GOLGOL *(Cochlospermum religiosum)*
KAMLA BUHAL *(Cordia sebestina)*
GOLMOHOR *(Delonix regia)*
CHALTA *(Dillenia indica,* and ornamental, *D. burbridgii)*
ROSE MOUND *(Dombeya* sp.*)*
CORAL TREE *(Erythrina crista-galli)*
PALTEMADAR *(Erythrina variegata)*
EUPHORBIA *(Euphorbia leucocephala)*
KERUI *(Euphorbia pulcherrima)*
GANDHARAJ *(Gardenia jasminoides)*
BADHARA *(Gmelina philippensis)*
SCARLET BUSH *(Hamelia patens)*
JABA *(Hibiscus rosa sinensis)*
KURCHI *(Holarrhena antidysenterica)*
RANGAN *(Ixora* sp.*)*
BELPHUL *(Jasminum sambac)*
KUNDA *(Jasminum arborescens)*
DAKUR *(Kopsia fruticosa)*
HIM CHAMPA *(Magnolia grandiflora)*
DULI CHAMPA *(Magnolia pterocarpa)*
MEMECYLON *(Memecylon edule)*
LANKA JABA *(Malvaviscus arboreus)*

CHAMPA *(Michelia champaca)*
BAKUL *(Mimusops elengi)*
KAMINI *(Murraya paniculata)*
MUSAANDA *(Mussaenda* sp.*)*
KARABI *(Nerium oleander)*
SHEULI *(Nyctanthus arbor-tristis)*
RAMDHAN CHAMPA *(Ochna jabotapita)*
GULANCHA *(Plumeria* sp.*)*
DALIM *(Punica granatum)*
BITTERWOOD *(Quassia amra)*
ASOKA *(Saraca asoca)*
TABEBUIA *(Tabebuia* sp.*)*
YELLOW ELDER *(Tecoma stans)*, etc.

In many of these species, the flowers are fragrant and if planted in parks and gardens, the entire surroundings become pleasant. Some plants like TREE OF HEAVEN (*Amherstia nobilis*), MOUNTAIN ROSE *(Brownea coccinea, B. hybrida)*, STINKWOOD *(Gustavia augusta, G. insignis)*, NAGKESAR *(Mesua ferrea)* are not common in Calcutta gardens. All these species bear very attractive flowers. Efforts should be made to popularise these plants in more parks and gardens.

The plantation of trees on roadsides is as important as growing them in parks and gardens. Both have their distinct usefulness and utility. Viewed from these considerations the species can conveniently be grouped into the following three main categories :

I. Utilitarian :

(A) Shade and shelter : In our country the seasonal behaviour is so varied that many places are subjected to the scorching heat of the sun for nearly eight months in a year. In such places, roadside trees provide shade and shelter not only to the pedestrians but also to travellers in vehicles. Besides, shady sides of the streets provide safe refuge to the grazing herd of cattle and stray animals from storms, rain and midday sun.

(B) Protection from erosion by wind and rain : The roadside trees protect the road and its sides from erosion in two ways. Firstly, the roots of the trees firmly bind the soil along the roadside preventing it from being blown away by wind or washed away with the rush of rain water. Secondly, the presence of roots of trees mechanically breaks the force of wind and rain and conserves the soil. They also divert the run off water along the level of the road.

(C) Protection of road surface : The crown of the roadside trees greatly protects the road surface from damage by obstructing the mechanical force of heavy downpour of rains, and hailstorms, or from cracking during hot weather. Semi-molten tar or bitumen is a common sight in summer on Calcutta roads with few or no trees.

(D) Road safety : The presence of trees along roadsides makes their edges and curves conspicuous, thus giving caution to the fast moving vehicles. Trees with distinctive color bands painted around their bole, make a natural guide for safe driving, chiefly in dim light and darkness.

(E) Fruit and fodder : By judicious selection, such species can be planted on roadsides, which provide seasonal fruits. The product can either be commercially exploited or can conveniently be left for the use of the passerby or children. Trees like *Emblica officinalis*, *Cicca acidus* or *Malpighia glabra* have high content of vitamins and ascorbic acid. In the midst of their play, children eating such ripe or unripe fruits automatically get nutrition. Many of the roadside trees supply fodder for cattle, particularly in the outskirts of the city.

(F) Educative value : The roadside trees also impart education to the people, when travellers and local people see the trees, they often develop a desire to know the uses of such trees. People living in larger towns

usually confine their interest to the cultivation of garden flowers or kitchen products. But through the road journeys they can have a glimpse of the grandeur of the trees and can acquaint themselves with their names and uses. If the roads are named after the trees grown on their sides, the work of making the trees familiar to the people becomes easier. There are such instances in Calcutta where roads or areas carry their names after the trees, e.g Casuarina Avenue, Nimtala Lane, Palm Avenue or Bademtala, Bakul Bagan, Beltala, Dalimtala, Gabtala, Keoratala, Keyatala, Narkeldanga, Taltala, etc..

II. Bioaesthetic value :

The roadside trees are a source of beauty not only to the road but to the length and breadth of the areas through which the road runs.

(**A**) A well planned avenue of suitable species gives a charming and admirable view. The road looks like a long stretched beautiful green tunnel, sometimes illuminated with sparkling sun-shine peeping through the foliage, sometimes mellowed with the soft dimness of an approaching twilight. Some portions of Clyde Road, Kazi Nazrul Islam Sarani, Kidderpore Road, Napier Road, Red Road, etc. provide such scenic view.

(**B**) When the avenue trees like SIMUL (*Bombax ceiba*), SONALI (*Cassia fistula*), GOLMOHOR (*Delonix regia*), NIL GOLMOHOR (*Jacaranda mimusifolia*) YELLOW FLAME TREE (*Peltophorum pterocarpum*), etc. are in full bloom the appearance of the landscape is changed, and one enjoys this delightful sight even from a distance or from raised point.

III. A natural reserve and asset :

Apart from their aesthetic value and immediate utility, the roadside trees are a valuable national asset. They are a reserve of timber and fuel. In the past there were ins-

tances when the roadside trees did come to the rescue of the state, in case of emergency or shortage of timber and fuel.

Species for roadside plantations should be selected carefully and several factors are to be considered before recommending for a certain road or avenue. The chief factors are :

(a) The trees should have a clear bole for at least 3.0 to 4.0 metres so that their first branches do not obstruct high loaded vehicles, particularly on narrow roads.

(b) The trees should have a good dense crown so that they can provide good shade and protection from rain, sun and hail. On very wide roads, even two to three rows deep trees at a spacing of 5.0 to 6.0 metres on either side will be very good.

The species for boulevards or road medians should be dwarf trees or medium to large sized shrubs and preferably ever blooming in nature.

(c) The trees should be chosen with regard to the soil and rainfall of the area concerned.

(d) The trees should also not have very spreading crown which may obstruct the growth of the opposite row of trees.

(e) The root system of the trees should be neither very shallow nor very spreading. Trees with deep root system are the best. Trees with shallow roots e.g. AKASHNIM *(Millingtonia hortensis)* topple down in storms and obstruct traffic. Trees with very robust and spreading root system damage the masonary work of the road and foot paths and even adjacent buildings.

(f) Fuel species should not be chosen for roadsides, because they will invariably tempt the neighbouring inhabitants to lop or even fell the trees. Such damage will give a very shabby appearance to the avenue. This also applies to the fodder species.

(g) The trees should not have hanging aerial roots such as BAT *(Ficus benghalensis)*. These aerial roots will need to be constantly removed to avoid obstructions to traffic and to pedestrians.

(h) The trees which shed their leaves during summer and rains should not be planted, because it is during these seasons that shade and protection from sun and rain are most needed. Moreover the fallen leaves in rainy season may block the drainage system and even make roads slippery.

(i) Too many species should not be mixed within short distances particularly on the roads away from the cities and towns because their time of planting, watering, manuring, weeding, pruning, etc. may vary and the cost of their maintenance will be high. In towns and cities two or three ornamental species having flowers of different colors may be selected for mixed plantations (e.g.

A view of the Kazi Nazrul Islam Sarani

Delonix-Peltophorum combination, *Lagerstroemia-Cassia* combination, *Alstonia-Kleinhovia* combination, *Crataeva-Pongamia* combination, etc.).

(j) The trees should not be very soft wooded and brittle such as JAGYA DUMUR *(Ficus glomerata)*, AKASHNIM (*Millingtonia hortensis*), JAM (*Sygyzium cumini*), etc. They break in storms and block the traffic.

(k) The trees should not be thorny because fallen thorns on the roads damage the tyres of motor vehicles and cycles and also trouble the pedestrians. *Acacia* and *Ziziphus* species should be avoided.

(l) Trees on the two sides of the road should alternate with each other and not be opposite.

Trees are planted on the sides of roads and avenues of cities and towns, chiefly for ornamental purposes and for shade. These trees should not be very tall *(e.g. Millingtonia hortensis, Tamarindus indica)* or very spreading but should as far as possible be evergreen with profuse flowering.

The following trees are recommended for roadside and boulevard plantation in the city and its outskirts :

CHATTIM *(Alstonia scholaris)*
KADAM *(Anthocephalus chinensis)*
SIMUL *(Bombax ceiba)*
SONALI *(Cassia fistula)*
CASSIA *(Cassia grandis, C. javanica, C. nodosa, C. renigera, C. siamea)*
GOLGOL *(Cochlospermum religiosum)*
NAGLINGAM *(Couroupita guianensis)*
BARUN *(Crataeva nurvala)*
GOLMOHOR *(Delonix regia)*
PALTEMADAR *(Erythrina variegata)*
BAT *(Ficus benghalensis)*
RABAR *(Ficus elastica)*
AWASTHA *(Ficus religiosa)*

SPOTTED GLIRICIDIA *(Gliricidia sepium)*
SILVER OAK *(Grevillea robusta)*
NIL GOLMOHOR *(Jacaranda mimusifolia)*
SAUSAGE TREE *(Kigelia pinnata)*
JARUL *(Lagerstroemia speciosa, L. thorelii)*
NAGKESAR *(Mesua ferrea)*
CHAMPA *(Michelia champaca)*
MOULMEIN ROSEWOOD *(Milletia peguensis)*
YELLOW FLAME TREE *(Peltophorum pterocarpum)*
GULANCHA *(Plumeria acuminata, P. alba, P. rubra)*
PONGAM *(Pongamia pinnata)*
MUCHUKUNDA *(Pterospermum acerifolium, P. canescens)*
DALIM *(Punica granatum)*
BILITI SIRIS *(Samanea saman)*
ASOKA *(Saraca asoca)*
PITH ASOKA *(Saraca declinata)*
AFRICAN TULIP TREE *(Spathodea campanulata)*

A view of the Red Road

TABEBUIA *(Tabebuia chrysantha, T. donnell-smithii, T. pallida, T. rosea)*
TAGAR *(Tabernaemontana divaricata)*
YELLOW ELDER *(Tecoma stans)*
ARJUN *(Terminalia arjuna)*
BUDAM *(Terminalia catappa)*
HARITAKI *(Terminalia chebula)*
DUMBLA *(Thespesia populnea)*
KOLKEPHUL *(Thevetia peruviana)*
DUDHI *(Wrightia tomentosa)*, etc.

Most of the saplings that are planted on roadsides or gardens every year are obtained from the Indian Botanic Garden, Howrah, Department of Forests, Government of West Bengal, the nurseries under the control of the Calcutta Municipal Corporation, Agri-Horticultural Society of India, some local nurseries, from Rathajatra fairs and weekly sale of plants at Hathibagan market and elsewhere.

As already mentioned, Calcutta is a city with high degree of pollution ; in a way every resident here has become a 'chain smoker' of pollutants. According to a recent survey of the air over Calcutta by the CMDA and National Environmental Engineering Research Institute (NEERI), a non-smoker resident in Calcutta is subjected to daily physical and bronchial injuries equivalent to a person consuming about twenty cigarettes a day. In the twin city of Calcutta—Howrah, the air contains 5.57 tons of dust, 122 tons of sulphur dioxide, 440 tons of carbon monoxide, 70 tons of nitrogen oxide and 102 tons of hydrocarbons which amount to 1299 metric tons of pollution of air per day.

It is well known that plants are the best natural purifiers of environmental pollution and perform some important functions relevant to the equilibrium in the environment. On the one hand, they balance the supply of oxygen, reduce oxides of carbon in the air, fix nitrogen and disintegrate wastes, and on the other they are the natural

sinks of pollutants. Many species have the capacity to absorb and metabolize toxic gases and heavy metals and are effectively serving as pollutant scavengers. Thus planting of trees suited to the climate prevailing in the city is to be adopted as a continuing programme for an healthy environment, better surroundings and love for trees and their conservation.

".....centuries ago, Emperor Ashoka defined
a King's duty as not merely to protect citizens
and punish wrong doers
but also to preserve
animal life and forest trees"

—Indira Gandhi

Albizia lebbek (L.) Benth.

Family : Mimosaceae
Bengali : SIRIS
English : FRY WOOD TREE, PARROT TREE, WOMAN'S TONGUE, SIZZLING TREE, KOKKO, LEBBECK TREE
Hindi : SIRSA, SIRIN, SIRAI, SIRIS, LASRIN
Synonyms : *Acacia lebbeck* Willd., *Mimosa lebbeck* L.

A very widespread species in tropical Asia, also growing gregariously in forests or under cultivation in the country. Plantations of this species as an avenue tree are common in and around Esplanade Maidan and on many other roads. It is rarely found in parks and gardens excepting the Deshbandhu Park, Jatindra Mohan Park, National Congress Park and some other parks where this tree is growing very well.

The genus is named after the famous Italian naturalist, F. del Albizii and the specific name is derived from an Arabic name.

A large, deciduous tree with spreading branches and attractive foliage, generally 10.0 to 20.0 metres high with brownish-grey, rough and irregularly cracked bark. Leaves alternate, bipinnate with 4 to 8 pinnae, each with 10 to 16 or more, small, obliquely-oblong, obtuse leaflets, pale green with velvety surface. Flowers in axillary globose heads, white or greenish-white with innumerable long, white stamens, sweetly scented. The flowers are not very attractive, yet when a tree is in full bloom it gives a pleasing appearance and at night their fragrance travels to considerable distance. Fruits thin, flattened pods, straw-colored when ripe, dehiscent and rattling in wind.

Flowering of the tree begins from late spring and continues up to late summer (April-June).

The tree is mostly grown for shade on the roadside and also in tea and coffee plantations. A very fast growing

tree. The leaves and twigs are used as good fodders for domestic cattle, while the fallen leaves enrich the soil by making good manure.

The wood obtained from this species is fairly durable ; it seasons and polishes well. It is used for furniture, structural work, interior fittings bridge construction and railway carriages.

The tree is also reputed in medicine. The stem, leaves and flowers are used as an antidote to snake bite and scorpion sting. The bark and seeds are astringent, and are applied in piles, diarrhoea and skin diseases. The leaves are prescribed in night blindness. The root bark in powder form strengthens the gums.

The tree is propagated either by seeds or stem cuttings. Softening of the seeds is necessary before sowing.

The other species of the genus growing in the locality are *A. lucida* Benth., *A. procera* (Roxb.) Benth. and *A. richardiana* King & Prain.

***Albizia lebbek* (L.) Benth.**

Alstonia scholaris (L.) R. Br.

Family : Apocynaceae
Bengali : CHATTIM
English : DEVIL'S TREE, DITA BARK TREE, SCHOLAR TREE
Hindi : CHATIUN, SATWIN
Synonym : *Echites scholaris* L.

A native of Indo-Malayan region, the species is well admired in the country for its spectacular branching pattern and polished dark green leaves. It is perhaps one of the best avenue trees which were chosen from the early chronicles on town planning and beautification. The species is seen from one end of the city to the other, representing specimens of all the periods of tree plantation activity in greater Calcutta.

The genus is named in memory of the famous botanist of Edinburgh, Prof. C. Alston (1685-1760). The name of species has its origin in its use for making the wooden black boards, once used by school students in East for lessons in writing.

A tall, evergreen tree, 15.0 to 30.0 metres or sometimes more high, with branches arranged in whorls or tiers at distinct intervals. Leaves in whorls of 4 to 7, obovate or elliptic-oblong, smooth, shining, deep green above, whitish-green beneath. Flowers small, in clusters on narrow stalks, terminal, white or pale green. Fruits often in pendulous pairs and dense bunches, long, slender follicles containing numerous narrow, flat, hairy seeds. The long, green, slender fruits hanging from the branches of trees in innumerable numbers make a picturesque sight from distance, resembling tresses of hairs of a maiden.

The flowers appear mostly from October to January and sometimes continue to late March.

The wood is soft, white and used in the preparation of drawing boards, packing boxes, black boards, coffins, pencils, slate frames, etc.

Alstonia scholaris (L.) R. Br.

The bark which is known as DITA BARK of commerce is used in medicine as bitter, febrifuge and astringent, in the treatment of malarial fever, heart diseases, asthma, chronic dysentery and diarrhoea, ulcers and leprosy. The milky juice cures pyorrhea and ulcerative wounds.

The tree is propagated mostly by seeds.

The other species of the genus growing in the area is *A. macrophylla* Wall. ex Hook. f.

Amherstia nobilis Wall.

Family : Caesalpiniaceae
Bengali : URBASI*
English : QUEEN OF FLOWERING TREES, TREE OF HEAVEN, SPLENDID, AMHERSTIA, FLAME AMHERSTIA

A native of Burma, the species is perhaps the most lovely and marvellous amongst all the flowering trees. This was introduced in the Royal Botanic Garden, Howrah (presently Indian Botanic Garden) by Nathaniel Wallich (then Superintendent of the Royal Botanic Garden) where a number of trees are growing luxuriantly. It was distributed by Wallich to other countries also, yet the species is not found in many Calcutta gardens. Only a few specimens are growing in the gardens of Assembly House and Agri-Horticultural Society of India and in a very few private gardens.

The genus was established by Wallich in honour of Countess Amherst and her daughter, Lady Sarah Amherst who helped the cause of botany in India and were themselves good artists. The word *nobilis* in Latin means noble or stately.

A small graceful tree, 4.0 to 8.0 metres high and its spreading branches overlaid with dense foliage. The drooping pinkish or pinkish-brown young leaves add additional beauty to the plant. Leaves stipulate, compound, paripinnate, composed of 6 to 8 pairs of opposite leaflets, which are oblong with almost parallel sides, narrowing slightly to the base and tapering abruptly at the apex, dark green above, pale below, smooth, slightly hirsute. Flowers large, arranged in long, pendant candelabra-like racemes arising from the axils of leaves, upper flowers having longer stalks than the lower ones giving an inverted conical shape to the inflorescence ; flowers ORCHID-like in appearance and assuming resemblance to dancing girls in a series. Each flower has five petals of which three are large and

two small, vermilion-red or salmon-pink with golden-yellow spots ; stamens 10, prominent. Fruits flat, smooth, beaked pods.

The tree flowers profusely in spring (March-April). A second flush of few racemes also appears in autumn (October-November).

Cultivated for its very decorative flowers. It can also serve as good avenue tree, suitable for narrow roads.

Propagated by seeds. stem cuttings, air layering or inarching. Seed setting in pods is occasional.

The flowers of *A. nobilis* are extremely beautiful, they resemble little dancing dolls and the tree is associated with Heaven. Hence the name URBASI is given after the legendary graceful dancer of Heaven.

***Amherstia nobilis* Wall.**

Anthocephalus chinensis
(Lamk.) A. Rich. ex Walp.

Family : Rubiaceae
Bengali : KADAM
English : KADAMBA
Hindi : KADAM, KADAMBA, KARAM

Synonym : *A. indicus* A. Rich.,

A native of India, China and S. E. Asia, the species is one of the very sacred Indian trees, as it is connected closely with the life and deeds of Lord Krishna. Today, only the remnants of the famous KADAMBA forest which is reported to have existed at Vrindaban during Krishna's time, is seen. But the tree is flourishing and increasing rapidly in Calcutta as new roadside plantations of this species are being done by several Government and Public Sector organisations.

The name of the genus is coined from two Greek words, ANTHOS and KEPHALOS which collectively allude to the ball-shaped flowering heads and name of the species refers to its place of origin.

A tall, deciduous tree, 10.0 to 20.0 metres or more high forming a wide canopy with dense crown of foliage and more or less drooping branches. Leaves deep green, simple, stipulate, elliptic-oblong or ovate, acute or acuminate, shining and glabrous above, pubescent below. Flowers small, clustered in compact spherical heads, yellowish-white, changing to light orange. Fruits pseudocarps containing many winged seeds.

The species flowers with the onset of rainy season (June-July) and continues to flower up to the end of the rains (September-October).

The fruits are edible and the leaves are eaten by cattle. The wood is soft and brittle and is used as fuel or for making ceiling boards, packing boxes, match boxes and shoe-heels.

Anthocephalus chinensis (Lamk.) A. Rich. ex Wapl.

Medicinally the tree is important as the decoction of the leaves is used as gargle in cases of aphthae and as a stomachic. The bark is prescribed as a febrifuge and tonic.

The species is easily propagated by seeds. During the first two or three years it grows very fast but after ten or twelve years the rate of growth becomes very slow.

Bauhinia variegata L.

Family : Caesalpiniaceae
Bengali : RAKTAKANCHAN, LALKANCHAN, BIDUL, KOVIDARA
English : MOUNTAIN EBONY, VARIEGATA BAUHINIA
Hindi : KACHNAR, GURIAL, BARIAL, KURAL, KANDAN
Synonym : *B. candida* Roxb.

A native of India, it is one of the most beautiful flowering trees of the country. Its deeply 2-lobed leaves and variegated flowers with different shades of color are really appealing. It is planted in many parks and gardens and presently occupies a secure position in the boulevards of the newly developed areas of Calcutta.

The genus is very appropriately named after two sixteenth century herbalists and twin brothers, John and Caspar Bauhin. The name of the species refers to its variegated flowers.

A small, deciduous tree, 5.0 to 9.0 metres high with dense or spreading crown. Leaves alternate with strong nerves radiating from the top of the stalk, with a median cleft reaching down dividing the leaf into two leaflets, light green. Flowers appear in leafless condition, in racemes at the ends of the branches or in the axils of the leaves; petals obovate, with broad claws, variously colored, pink, white or mauve. Fruits long, hard, slightly curved pods having 10 to 15 seeds.

The tree starts flowering from late winter and continues throughout the spring (February-April).

B. variegata var. *candida* Roxb. bears white flowers.

The species is sacred to Buddhist's as the tree is often depicted in Buddhist sculptures. It has considerable economic and medicinal importance. The tender leaves and flower buds are eaten as vegetable; the flower buds are pickled. The bark is used for dyeing and tanning purposes. Agricultural implements and other minor domes-

tic appliances are made from its wood. The tree yields a gum having the properties of CHERRY GUM.

The decoction of the root is useful in dyspepsia and said to possess principles of antidote to snake poison. The bark is alterative, tonic and astringent, and cures skin diseases and ulcers.

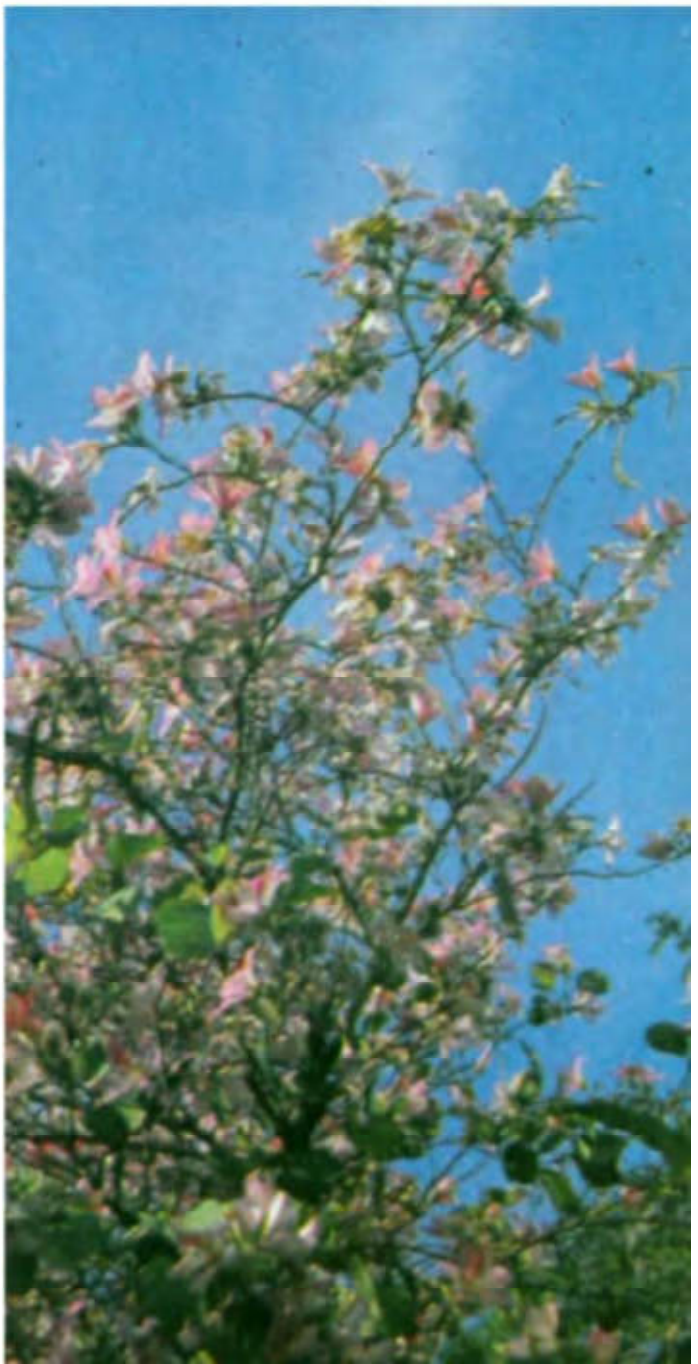
The species is multiplied mostly by seeds. Propagation by cuttings is desirable when it is necessary to retain the parental color of the flowers.

The other species of *Bauhinia* growing in the city for their colorful flowers are *B. galpinii* N. E. Br., *B. malabarica* Roxb., *B. purpurea* L. and *B. racemosa* Lamk.

***Bauhinia variegata* L.**

***Bauhinia variegata var. candida* Roxb.**

***Bauhinia variegata* L.**



Bombax ceiba L.

Family : Bombacaceae
Bengali : SIMUL
English : RED SILK COTTON, RED KAPOK
Hindi : SIMUL, SEMUR
Synonyms : *B. malabaricum* DC., *Salmalia malabarica* (DC.) Schott & Endl.

A native of India, the species gained immense recognition in ancient Sanskrit literature and had been the subject of vivid poetical descriptions. According to the mythological beliefs in India, the Creator took rest under the shade of this tree, after the creation of the Universe. Another legend says that Lord Buddha was born under the SIMUL tree. In Calcutta the species is common as an ornamental tree on roadsides and in parks and gardens, for beautification along the sides of the circular canal, banks of river Hooghly and in the courtyards of some historic buildings.

The name of the genus is a Greek name for raw silk, while *ceiba* is an aboriginal name.

A tall, deciduous, straight, 8.0 to 25.0 metres high tree with cylindrical, spiny trunks. It does not have conspicuous buttresses. Branches develop from the trunk in whorls and grow horizontally forming more or less distinct tiers. Leaves digitately compound, composed of 4 to 7, lance-shaped, leathery leaflets, light green. Flowers axillary or in clusters, very showy with fleshy crimson corolla ; stamens numerous, long with dark purple anthers. Before the onset of flowering all the leaves are shed, and when in bloom the tree looks marvellous.

Flowering occurs in early spring (February-March). Variations in flower color from orange-red, through red to crimson are observed.

The tree is medicinally important. The silky floss of the inner epidermis of the fruit makes fibre of great

commercial value. It is used for stuffing pillows, mattresses and cushions.

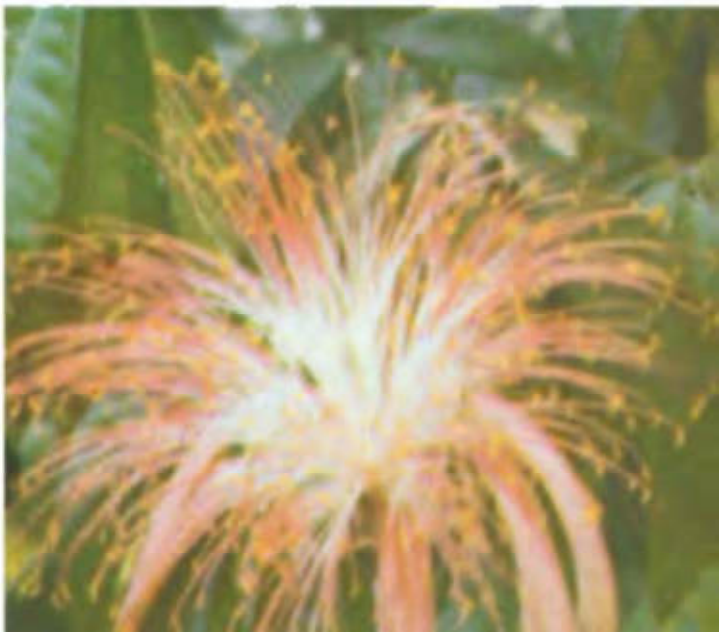
The plants are propagated easily by seeds.

The other silk cotton tree, *Ceiba pentandra* (L.) Gaertn., of the same family bears creamy-white flowers. Another very interesting and curious tree of this family growing in a few places is *Adansonia digitata* L., the BAOBAB TREE. *Pachira aquatica* Aubl., *P. cyathophora* Casar., *P. insignis* Sav. and *P. spruceana* Decne. bear very attractive blossoms.

Bombax ceiba L.

Bombax ceiba L.

Pachira aquatica Aubl.



Bougainvillea sp.

Family : Nyctaginaceae
Bengali : BAGANBILAS
English : BOUGAINVILLEA
Hindi : BAGANVILAS

BOUGAINVILLEAS perhaps rank next only to ORCHIDS in the flowering kingdom in providing us with a large assemblage of form, texture and color variations. The marvels of nature are represented in this one of the loveliest groups of shrubby plants. The large variations broadly come from four species of *Bougainvillea* namely *B. buttiana* Holttum & Standley, *B. glabra* Chois., *B. peruviana* Humb. Bonp. and *B. spectabilis* Willd. All these are native of South America.

The genus is named after De Bougainville (1729—1811), a French navigator.

The BOUGAINVILLEAS are in general shrubs or stout climbers ; some are small and bushy, others vigorous and climb up to a height of 20.0 metres or more on trees ; branches spreading or upright, with or without spines. Leaves simple, alternate, petioled, ovate, broadly ovate or ovate-oblong, glabrous or coriaceous, sometimes hirsute ; green to deep green. Flowers small, inconspicuous, tubular with lobed margins, enclosed in large and showy bracts which provide beauty to the plant ; flowers with single, double or even multiple bracts in a very broad spectrum of colors and color combinations.

The flowering period of different species and varieties varies ; in general profuse flowering occurs in spring (February—March) which continues up to late spring (April).

BOUGAINVILLEAS have been subjected to breeding, mutations and irradiation treatments, as a result of which there has been an explosion in the number of varieties or cultivars. These are grown as ornamentals in gardens, trained to cover the gate arches, in enclosed cages with spreading tops, as hedges and in pots to decorate corridors.

Bougainvillea 'Mary Palmer'

Bougainvillea 'Philips No. 2'
Bougainvillea 'Shubra'

Bougainvillea 'Mahara'

staircases, porticoes, balconies, etc. Some varieties are also attractive for their variegated leaves with creamy, pale yellow, pinkish or reddish shades and patches.

The plants are propagated by stem cuttings or air layerings. Budding is recommended in varieties which are difficult to root. Treatment of cuttings with indoleacetic acid (IAA), indolebutyric acid (IBA), naphthaleneacetic acid (NAA), Toxoplant and Seradix have been found to be effective in inducing rooting. All the varieties require pruning to keep the plants in shape and size.

Bougainvillea 'Magenta Queen'

Brownea coccinea Jacq.

Family : Caesalpiniaceae
Bengali : SUPTI*
English : WEST INDIAN MOUNTAIN ROSE. SCARLET FLAME-BEAN

A native of Venezuela, the species has gained prominence in Indian gardens for its small, compact habit and dazzling flower coloration. It is grown in some old courtyards, churchyards, but is rarely seen in public gardens. Fine specimens are growing in Assembly House Garden, Eden Gardens, Jatindra Mohan Park, National Congress Park, etc.

The genus is named after Patrick Browne, the author of the history of Jamaica, while *coccinea* is a Latin word meaning scarlet.

A small, evergreen tree about 4.5 to 8.5 metres high, quite allied to *Amherstia nobilis* in general appearance. Leaves alternate, pinnate, divided into several narrow painted leaflets arranged in opposite pairs on a central mid-rib, Young leaves remain enclosed in a whitish-brown appendage, which on falling, exposes the soft, pinkish, mottled leaflets. They quickly acquire a glossy dark green coloration and become stiff from the mid-rib. Under bright sunshine the leaves tend to droop. Flowers appear in dense clustered heads, 40 to 50 or more in a head ; they open during night and droop in day, are showy, scarlet stamens protruding from the corolla, with golden or deep brown anthers. Fruits compressed, flat and curvec pods.

Flowering generally starts in early spring (February-March), and can be seen sporadically in autumn (September-October).

The species is propagated by stem cuttings or air layerings.

The flowers open in night, droop during day as if they are sleeping. Hence the vernacular name SUPTI is given.

Brownea coccinea **Jacq.**

The other species found growing in some of the gardens of the city are *B. ariza* Benth., *B. grandiceps* Jacq. and *B. hybrida* Hort. ex Back.

Brunfelsia hopeana Benth.

Family : Solanaceae

Bengali : TRIBARNAK*

English : YESTERDAY-TODAY AND TOMORROW

A native of Brazil, this is an astonishing species, because, with advancing hours of the day the flowers change their color from deep blue or violet to purple and lastly fading to white, yet, all the flowers remaining quite fresh and turgid. As the name (YESTERDAY-TODAY and TOMORROW) signifies, the plant is seen with flowers of three distinct colors.

The genus is dedicated to Otto Brunfels, a physician and botanist of the sixteenth century. The species is named after one Mrs. Thomas Hope of Deepden, Surrey who was instrumental in introducing the plant to Kew, England.

A small, partly deciduous shrub, 1.0 to 2.5 metres high with slender branches. Leaves simple, alternate, small, elliptic-lanceolate or lanceolate-oblong, glabrous, dark green above, pale below. Flowers solitary or in pairs, along the tiny leafy growths ; corolla tube slender, expanding upwards, deep blue or violet, changing to light blue or purple to white, fragrant. Fruits berry-like.

The species flowers profusely in late spring to early monsoon (April-June).

The plants are propagated by stem cuttings or air layerings.

The same flowers show three different colors during the day, hence the name TRIBARNAK (*tri* : three ; *barna* : color).

The other species of the genus growing in the gardens are *B. americana* L. *B. latifolia* Benth., *B. grandiflora* Jacq. and *B. undulata* Sw.

Brunfelsia hopeana Benth.

Butea monosperma (Lamk.) Taub.

Family : Fabaceae
Bengali : PALAS, POLASHI, KINAKA, MUNI
English : FLAME OF THE FOREST, BASTARD TEAK
Hindi : PALASA, PARASA, TESU, DHAK, CHALCHA

A native of India, growing abundantly in dry regions of Bihar, Madhya Pradesh, Orissa, Uttar Pradesh and West Bengal, the species is also seen in some parks, gardens and on roadsides in Calcutta, including Dr. Meghnad Saha Road (Southern Avenue).

The name of the genus commemorates John Stuart (1713—1792), the Third Earl of Bute and a botanical author ; the name of species refers to its one-seeded pods.

A small or medium-sized, deciduous tree; 8.0—12.0 metres high with rough and crustaceous bark. Leaves compound ; leaflets 3, coriaceous, broadly ovate from a cuneate or deltoid base, upper surface deep green, lower pale whitish-green with conspicuous network of veins. Flowers appear in great profusion when leaves are shed, bright orange-red with dark brown, hirsute calyx. Fruits pendulous, silky-tomentose, pale green pods.

Flowering starts with the onset of spring (February-March) and lasts for a fortnight or hardly for a month.

The tree is highly admired by the forest dwellers and the tribals. When the flowers bloom after leaf-fall, the entire forest where this species is prevalent, exhibits marvellous color effect created by the profuse and exquisite orange-red flowers. From a distance these trees appear as if in flames ; this lent the name FLAME OF THE FOREST. Species with scarlet-red, yellow, white and even bluish flowers are reported

In Calcutta, mostly the orange-red or scarlet-red flowers are seen.

The leaves are often used in rural areas for the preparation of various devices to protect from sun and rain

(sort of umbrellas), dishes for serving food and drinks as well as utensils for storage. The ashes of the burnt flowers and pods are used for cleaning clothes and utensils. Flowers yield a dye used for coloring clothes.

The tree has gained much reputation in folk-lore medicine. The application of its juice in the treatment of leprosy was in vogue even before Charaka. Leaves are used in piles ; they lower irritation and discomfort during high fever. Juice of young leaves taken orally maintains good lustre of skin and improves digestion. In some districts of West Bengal, the leaf juice is prescribed to women for curing sterility. Seeds are said to possess anthelmintic properties and to relieve pain of scorpion sting. Flowers have cooling properties. The gum obtained by incision in the bark, commercially known as BENGAL-KINO, has good contraction properties and is used in the treatment of diarrhoea and persistent dysentery. The tree also serves as a host for lac.

The species is propagated easily by seeds. In fact, the seeds after dehiscence germinate liberally and give rise to many seedlings under the parent tree.

Butea monosperma (Lamk.) Taub.

Caesalpinia pulcherrima (L.) Sw.

Family : Caesalpiniaceae
Bengali : KRISHNACHURA, RADHACHURA
English : DWARF POINCIANA, PEACOCK FLOWER, PARADISE FLOWER, PRIDE OF BARBADOS
Hindi : GULMOHUR, GULETURA
Synonym : *Poinciana pulcherrima* L.

A native of West Indies, the species is extensively cultivated in gardens, parks, courtyards, traffic islands and road medians or boulevards.

The genus is named after Andreas Caesalpinus (1519-1603), an Italian botanist and the epithet *pulcherrima* means most beautiful referring to its flowers.

A very common shrub, bushy in nature, up to 3.0 metres high. Leaves bipinnate with 3 to 9 pairs of pinnae having 5 to 10 pairs of oblong leaflets, lacy looking. Flowers in racemes or panicles, red, rosy-red or yellow with long bright red stamens. Fruits ovate to lanceolate pods, often indehiscent.

Flowers profusely in spring (February-April) and autumn (September-November), occasionally in other seasons.

Two varieties, one red with yellow edges and the other with bright yellow flowers (*Flava*) are generally cultivated.

Leaves are used as purgative and stimulant. The bark possesses abortifacient properties, while the infusion of flowers is prescribed in bronchitis, asthma and malarial fevers. The fruits are rich source of tannin and the flowers yield a red dye.

The plants are propagated by seeds or cuttings of short young shoots inserted singly in small pots.

Other species of *Caesalpinia* growing in Calcutta are *C. bonduc* (L.) Roxb. and *C. cacalaco* H. & B.

Caesalpinia pulcherrima (L.) Sw. var. *rubra*

Caesalpinia pulcherrima (L.) Sw. var. *flava*

Calliandra haematocephala Hassk.

Family : Mimosaceae
Bengali : POWDER-PUFF, MANIKUNTALA
English : PINK POWDER-PUFF, MINIATURE POWDER-PUFF

A native of tropical America, it is a wonderful species as the bloom which looks like excellently colored little powder-puffs add beauty to the gardens. It is prominently growing in many gardens, parks and traffic islands in the city. Very attractive specimens can be seen in Victoria Memorial Garden, Bidhan Sishu Udayan, Jatindra Mohan Park and in the private gardens of the Golf Green Housing complex.

The name of the genus is derived from a Greek word meaning beautiful stamens, while the name of the species is after its red flower-heads.

A medium-sized shrub, 2.0 to 4.0 metres high with bushy habit and symmetrical branching. Leaves alternate, double compound, each pinnae bearing 8 to 10 pairs of leaflets leaflets small, coriaceous, obliquely-oblong, silky, dark green. Flowers axillary, in globose heads, becoming hemispherical in bloom, pedunculate ; stamens numerous, long, hairy, dark crimson. Fruits small, linear pods.

The species generally flowers from autumn to winter (November-February), continuing even up to late summer (May-June).

The plant may be propagated by seeds and stem cuttings.

The other species of the genus grown for ornamental purposes are *C. brevipes* Benth. & Hook., *C. houstonii* Benth. *C. portoricensis* Benth., *C. surinamensis* Benth. and *C. tweedii* Benth. Of these *C. surinamensis* is extremely attractive in appearance for its low spreading habit resembling an inverted umbrella, with pinnate leaves always in forked pairs and pretty pink brush-like flower-heads.

Calliandra haematocephala Hassk.

Calliandra surinamensis Benth.

Callistemon citrinus (Curtis) Skeels

Family : Myrtaceae
Bengali : BOTOL BRUSH
English : BOTTLE BRUSH, SCARLET BOTTLE BRUSH
Hindi : LAL BOTAL BRUSH
Synonym : *C. lanceolatus* DC.

A native of Australia, the species is well naturalised in the country and often adorns the corners of private gardens and public parks. Some recent plantations have been made in the city specially in boulevards and traffic islands. Well grown specimens can be seen in Rabindra Sarovar and Victoria Memorial Garden.

The name of the genus is coined from two Greek words, KALLOS and STEMON referring collectively to the beautiful stamens and the name of the species refers to the aroma of the leaves.

A large, evergreen shrub or small tree, 5.0to8.5 metres high with profuse drooping branches. Leaves simple, alternate, coriaceous, lanceolate, drooping, reddish when young. Flowers extremely showy, in cylindrical spikes, resembling bottle brushes with brilliant red stamens arranged like the bristles of a brush. Fruits dry pods.

The species generally flowers twice in a year, during spring (March – April) and autumn (October-November).

This is the commonly growing species and probably the best and most brilliantly flowered of all Australian BOTTLE BRUSHES. *C. citrinus splendens* is an improved form with more spectacular flowers.

The wood of the tree is very hard and heavy and can be used for preparing toys, shoe-heels and decorative carvings. The leaves and twigs contain an essential oil rich in cineol which is used as an expectorant and in inflammation of nose and throat ; also used in dentifrices.

The other species of *Callistemon* grown in the gardens are *C. paludosus* F. Muell., *C. phoeniceus* Lindl. and *C. viminalis* G. Don.

***Callistemon citrinus* (Curtis) Skeels**

Calotropis gigantea (L.) R.Br.

Family : Asclepiadaceae
Bengali : AKANDA
English : MADAR, CROWN PLANT, GIANT MILKWEED
Hindi : AK, AKOND, AKAN

A native of arid tropics, the species is growing wild or cultivated in gardens, common in templeyards.

The name of the genus is derived from the Greek words referring to the beauty of parts of its flower, the specific name is after its giant growth habit in comparison to other species of the genus.

An erect, spreading, perennial shrub or small tree, 3.0 to 4.5 metres high with pale greyish-brown bark and densely wooly shoots. All parts of the plant contain milky latex. Leaves appearing in decussate pairs, fleshy, obovate or wedge-shaped, sessile, lower surface with soft white hairs, upper surface waxy. Flowers in clusters, corolla lobes fleshy, campanulate, radiating from the thick staminal column, white, rosy-purple or purple of varying shades. Fruits a pair of follicles, whitish-green when young, turning to brown or dark brown at maturity. Seeds dark brown.

It flowers almost all the year round.

The plant is associated with Lord Shiva, and one who worships him with *Calotropis* flower gets all the blessings ; garlands prepared from the flowers are offered to Shiva on special festive days.

The plant is reputed for its medicinal properties in diseases of skin, stomach, respiratory system, etc. The latex is poisonous.

The floss from the seeds has a lustrous appearance, and is suitable for stuffing pillows, etc. Due to the small length of the fibre, spinning is difficult but mixed with cotton fibre it produces a good cloth with silky appearance which can stand washing and can even be dyed. Fibres obtained from stem bark are very strong and used

Calotropis gigantea (L.) R. Br.

for making fishing nets, particularly for catching marine fishes, as it seems to stand saline water.

The plant is propagated by seeds, it grows well under dry conditions and requires little care.

The other species commonly found in the city is *C. procera* (Willd.) Ait.

Cassia fistula L.

Family : Caesa piniaceae
Bengali : SONALI, BANDARLATHI, SONDALA
English : INDIAN LABURNUM, GOLDEN SHOWER, GOLDEN RAIN, PUDDING PIPE TREE, PURGING CASSIA
Hindi : AMALTAS, BANDARLAURI, GIRMALAH

A native of India, the tree is extensively planted in the gardens and as an ornamental avenue tree. Specimens of very old trees are found in gardens and parks in north Calcutta, while recent plantations have been made in almost all the newly developed roads and avenues.

The *generic name Cassia* comes from the ancient Greek name of a particular tree with aromatic bark, and *fistula* in Latin means a pipe, referring to the long pipe-shaped pods.

A small or medium-sized deciduous tree with open branching and smooth greenish-grey bark, changing to brown and rough in texture with maturity. Leaves alternate, smooth, long, consisting of 3 to 8 pairs of ovate leaflets. Flowers appear in large graceful hanging clusters : petals 5 of unequal size, with thread-like, curling stamens : fragrant, golden-yellow at bloom; turning to pale or lemon-yellow. Fruits cylindrical pods up to 1.0 metre long, full of shining brown seeds.

Flowering starts in late spring (April-May) and continues up to mid summer (June).

The tree is associated with some mythological belief in Karnataka, where stakes are fixed in the ground and worshipped. The flowers are offered to temples and images, while in Bihar these are consumed by Santals as a vegetable.

The wood is hard and durable, used in making decorative panelling, fine carvings, carts, rice pounders and agricultural implements. The stem yields a resinous red dye

and the bark is used for tanning and dyeing purposes.

The tree is reputed also for its various medicinal uses. The root bark, seeds, leaves and dark brown sweetish fruit pulp possess purgative properties, and constitute an ingredient in confections of SENNA which is a pleasant and useful laxative preparation. The juice of the leaves is applied on skin diseases.

The plant is propagated by seeds. The seed coat is extremely hard and delays germination. Boiling in water or treatments with sulphuric acid or thiourea soften the seed coat and may hasten germination rate.

The other species of *Cassia* growing in parks and gardens in Calcutta or as avenue trees and bearing colorful flowers are :

C. alata L., the RINGWORM CASSIA with graceful foliage and erect candle-like spikes of golden-yellow flowers.

C. javanica L., the JAVA CASSIA with splendid clusters of pink flowers intermingled with foliage.

***Cassia fistula* L.**

Cassia alata L.

Cassia renigera Wall. ex Benth.

Cassia nodosa Buch.-Ham. ex Roxb.

C. marginata Roxb., RED CASSIA with masses of axillary salmon-rose flowers.

C. nodosa Buch.-Ham. ex Roxb., the PINK MOHOR with lovely bunches of pink flowers arising prominently from the nodes.

C. renigera Wall. ex Benth., the PINK SHOWER TREE with small habit and rich coral-pink flowers in thick clusters.

C. siamea Lamk., the KASSOD TREE with bright yellow flowers in terminal panicles.

Catesbaea spinosa L.

Family : Rubiaceae
Bengali : KANTAK LILY*
English : PRICKLY APPLE. SPANISH GUAVA. LILY THORN

A native of West Indies, the species generally seen in public parks or private gardens, sometimes in hedges. Good specimens are seen in Rabindra Sarobar, Allen Garden at Park Street, Auckland Square at Sarojini Naidu Sarani, Greer Park (Ladies) at Acharya Prafulla Chandra Road, etc.

The genus is named after Mark Catesby (1679-1749), the author of natural histories of parts of North America, *spinosa* refers to spiny nature of the plant.

An evergreen, thorny shrub, 1.0 to 2.5 metres or more high, thorns sharp, upright. Leaves minute, leathery with shiny surface, ovate, appear in clusters, deep green. Flowers big, funnel-shaped with long tube, pendant, pale yellow or creamy-white. Fruits small, orange-yellow.

It blooms freely in summer and rainy season (April-September), occasionally in autumn and winter.

The species is propagated by cuttings or air layerings.

The vernacular name is given after its thorny nature and LILY-like showy flowers (from the English name LILY THORN).

Catesbaea spinosa L.

Cestrum nocturnum L.

Family : Solanaceae
Bengali : HASNA HANA
English : NIGHT JESSAMINE, QUEEN OF THE NIGHT, LADY OF NIGHT
Hindi : RAT-KI-RANI

A native of West Indies, the species bears small flowers which are not very pretty. It is mostly cultivated for the very pleasing fragrance which diffuses into the entire surroundings during night, when the flowers are in bloom. It is believed that the sweet perfume is so intense that the vipers are attracted by it and take shelter around the bush. It is frequently cultivated in public and private gardens.

The genus is named after an old Greek name and the name of the species refers to its night-blooming habit.

An evergreen, bushy shrub, 1.5 to 3.5 metres high with slender branches. Leaves alternate, entire, glabrous, ovate or elliptic, prominently acuminate, dark green. Flowers in large, terminal or axillary, umbelliform racemes ; corolla tube long, expanding into 5 erect lobes, creamy-white or greenish-yellow. Fruits small, globular berries, rarely formed.

The species flowers all the year round, but more profusely during rainy season (July-October).

An essential oil having some medicinal properties is extracted from the flowers.

The other species under the genus cultivated in the city or growing wild are C. *diurnum* L. and C. *parqui* L. Herit.

Cestrum nocturnum L.

Cochlospermum religiosum
(L.) Alston

Family : Cochlospermaceae (Bixaceae)
Bengali : GOLGOL, GABDI, SONALI SIMUL
English : YELLOW SILK COTTON TREE, TORCHWOOD TREE, BUTTERCUP TREE
Hindi : GABDI GALGAL, GANGAL, GANIAR, GEJRA

A native of India, the species in a literary sense is meteoric, when in bloom it enthrals people for a while. It is growing gregariously in the private gardens of newly developed townships and housing complexes of Bidhan Nagar, Golf Green, Lake Town, etc. It is planted in many boulevards on roads and avenues in the city.

The name of the genus comes from two Greek words KOCHLOS (shell or from snail) and SPERMA (seed), collectively referring to the characters of fruit. The epithet *religiosum* (referring to Gods) possibly denoted its plantation on precincts of temples in South India and Sri Lanka.

A small to medium-sized deciduous tree, 4.5 to 8.0 metres high with a heavy crown of branches. The trunk and the branches are very delicate and brittle. Leaves simple, large, borne on long stalks, scattered near the ends of branches, 3 to 6 lobed, dark green above, greyish-green below. Flowers borne in loose, terminal clusters ; petals 5, bright golden-yellow, broad, cupped in a calyx composed of 5 silky overlapping, deciduous sepals ; stamens free, 5-lobed, pendulous, pear-shaped capsules containing many kidney-shaped seeds embedded in white, soft, silky floss.

The species flowers in early spring (February-March) when tree is leafless, and the blooming lasts for a fortnight or so.

The floss from the seeds is used for stuffing pillows, cushions and life belts. The bark is made into useful cordage. The leaves are fed to cattles and used for

washing hairs. The wood is soft ; it contains an inflammable gum and serves as good torch. A transparent gum, known as LOG GUM is obtained from the bark which is used as a substitute for TRAGACANTH GUM in cosmetics, shoe making, book binding and for thickening ice-creams.

The dried leaves and flowers are used as stimulants. The gum is sweetish in taste and has cooling and sedative properties ; it is used as a mild demulcent in cough. The floss is also suitable for padding bandages, splints, etc.

The tree is propagated from seeds and prefers dry climate.

Cochlospermum religiosum (L.) Alston

Cochlospermum religiosum (L.) Alston

Cordia sebestina L.

Family : Ehretiaceae (Boraginaceae)
Bengali : KAMLA BUHAL, RAKTARAG
English : ALOE WOOD, GEIGER TREE, SCARLET CORDIA, SEBESTEN PLUM
Hindi : BOHARI, BHOKAR, LAL LASOORA

A native of Cuba, West Indies and Florida, the species is widely planted in our country. It is cultivated mostly in gardens and parks. Good specimens may be seen in Victoria Memorial Garden, Harish Park at Harish Mukherjee Road, National Library Garden, etc.

The genus is named after Valerius Cordus (1515-1544), a German botanist and herbalist of genius. The name of the species is derived from the Persian word SAPISTAN, a name for fruits of an allied species.

A small, evergreen tree, 4.0 to 7.0 metres high with brown bark and spreading branches. Leaves simple, in clusters, alternate, ovate with short stalk, coriaceous, wrinkled. Flowers open, wrinkled, borne in loose clusters at the ends of branches, funnel-shaped with part of the tube enclosed in a heavily ribbed, green calyx ; bright orange-red.

Flowers appear in flushes during spring and summer (March-June) also in small numbers during other seasons.

This is a very handsome tree and admired for its exceptionally brilliant colorful flowers.

The species is propagated either by seeds, hard wood cuttings or air layering.

C. dichotoma Forst. f. (*C. myxa* L.) is also planted in gardens for its edible and medicinally important fruits.

Cordia sebestina L.

Couroupita guianensis Aubl.

Family : Lecythidaceae
Bengali : NAGLINGAM, KAMAN GOLA*
English : CANNON BALL TREE
Hindi : NAGALINGAM, SHIVALINGAM, TOPE GOLA

A native of tropical South America, this curious plant is perhaps the only species growing in the city for which even a person in hurry will stop for a while in admiration and wonder. A very lovely specimen can be seen towards the eastern side of the Assembly House Garden facing the Raj Bhavan. A few mature trees are also growing in Eden Gardens, Academy of Fine Arts, National Congress Park, National Library Garden, some private gardens in South Calcutta, etc. Small saplings which are planted recently are found on many of the city avenues.

The name of the genus is derived from a vernacular name in Guiana, while *guianensis* means, of Guiana, i.e. the place of its origin.

A fairly tall, soft-wooded tree, up to 25.0 metres high with massive trunk and a crown of dark green foliage. Leaves entire, alternate, oblong-obovate or broad-lanceolate, subglabrous. Flowers borne in racemes from the trunk and branches, extremely showy with combination of white, yellow, pink, deep pink and crimson ; calyx-tube top-shaped ; petals 6, unequal, spreading and concave, borne on a disk ; stamens many, forming a ring or cup in the centre of the flower ; sweetly scented. The flowers assume the shape of the idol of Lord Shiva with a cobra hood protecting the God. Fruits large, globular berries, hanging in strings attached to the trunk, 15 to 20 cm. in diameter, brownish, resembling cannon balls.

The species starts flowering profusely from early spring (February) and continues up to late autumn (November).

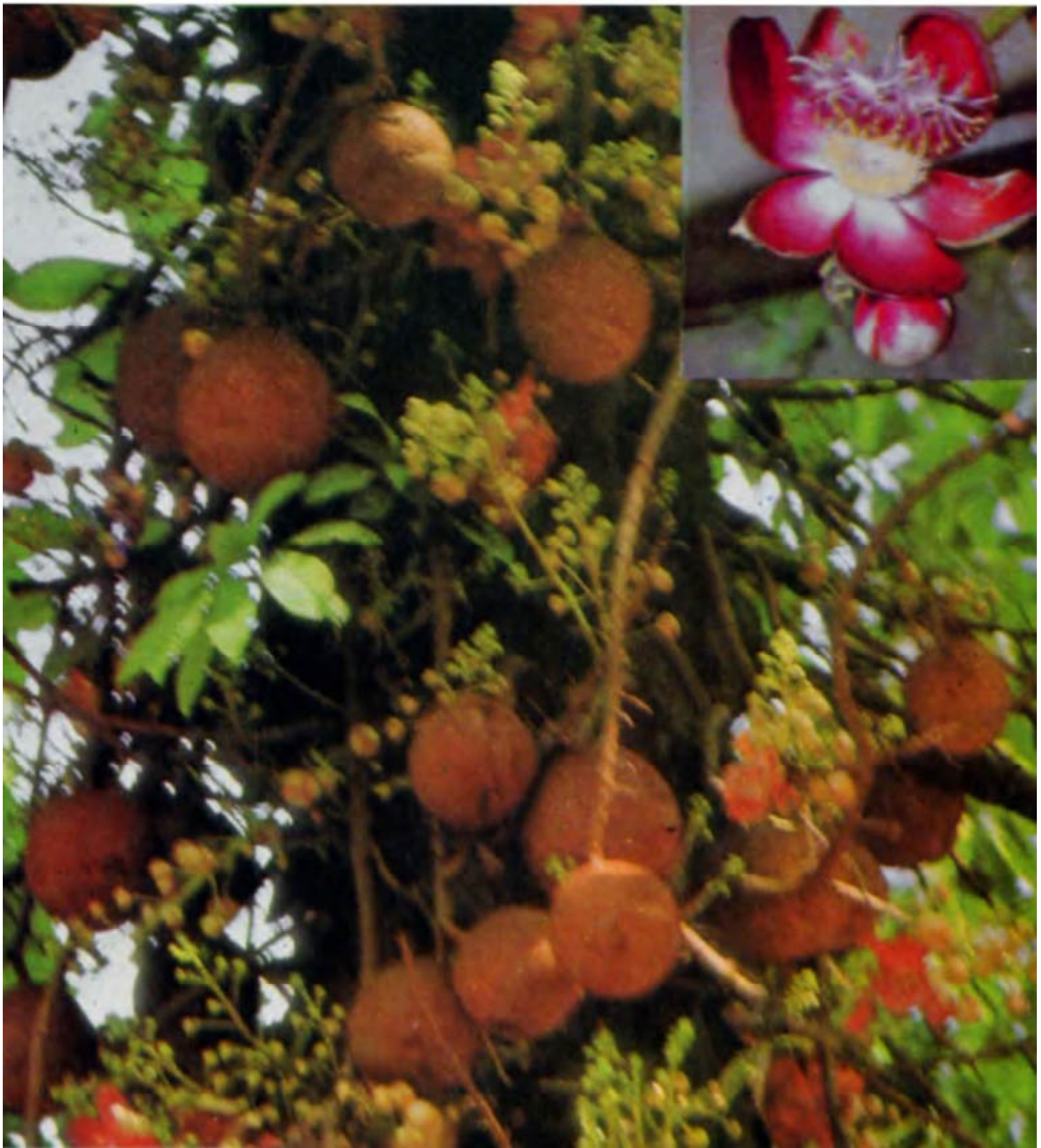
The hard fruit shells are made into utensils. The fleshy pulp of the fruit which is too odourous, is eaten and also used for making beverages by the natives of

South America. The wood is soft and not utilized for any purpose owing to its pungent smell, excepting for treatment of skin diseases of livestock.

The tree is easily propagated by seeds. It prefers humid conditions.

The Bengali name KAMAN GOLA is also given after its fruits as NAGLINGAM is often confused with NAGKESAR *(Mesua ferrea)*.

***Couroupita guianesis* Aubl.**



Crataeva nurvala Buch.-Ham.

Family : Capparidaceae
Bengali : BARUN, TIKTOSHAK
English : BENGAL QUINCE, CAPER TREE, SACRED BARNA
Hindi : BARNA, BILA, BILASI
Synonym : *C. religiosa* Hook. f. & Thoms. (non Forst.)

Probably a native of India, it is found growing wild in some places and sometimes planted in avenues. The plant can be seen in Rabindra Kanan and in some waste places on the eastern part. New plantations have been made in Rabindra Sarani, Acharya Prafulla Chandra Road and Jatindra Mohan Park.

The genus is named after Cratevas, the Greek writer on medicinal plants in the first century B.C. ; *nurvala* is a south Indian vernacular name.

A small to medium-sized deciduous tree, 3.0 to 7.0 metres high with profuse branching. Leaves trifoliate, growing on a long slender stalk, glossy, ovate-lanceolate pale green above, under surface whitish-green. Flowers, large, in dense corymbs ; sepals small ; petals conspicuous, white, turning to pale yellow or pinkish-yellow with numerous, long, thread-like, spreading, purple or lilac stamens. Fruits globose or oblong berries.

Flowering occurs in summer (March-May) when the tree is leafless or just after emergence of new leaves.

The plant is perhaps regarded sacred, as it is found planted near Muslim tombs or graveyards.

The leaves and bark are used in stomach troubles including vomitting and other gastric irritations. The bark is reported to have alterative, antipyretic, demulcent, sedative and tonic constituents. It is useful in diseases of urinary organs, fever, mild forms of skin troubles, for promoting apetite and also as an antidote to snake bite.

Crataeva nurvala Buch.-Ham.

The wood is moderately hard and utilized for the purposes of making combs, drums, models, match sticks, writing boards and in turnery. The fruits are edible. The rind of fruit is used as a mordant in dyeing and the pulp when mixed with motar makes a cement.

The plant may be propagated by seeds or root suckers.

Delonix regia
(Boj. ex Hook.) Raf.

Family : Caesalpiniaceae
Bengali : GOLMOHOR, KRISHNACHURA, RADHACHURA
English : FLAMBOYANT, GOLD MOHUR, ROYAL POINCIANA, FLAME TREE
Hindi : GULMOHOR
Synonym : *Poinciana regia* Boj. ex Hook.

A native of Madagascar, the species is planted extensively for its magnificent colorful flowers and delightful foliage forming an umbrella like top and providing adequate shade. Found everywhere in the city in gardens, parks and avenues.

The generic name is derived from the Greek words DELOS and ONUX meaning conspicuous claws, alluding to the claw-shaped petals and the species name *regia* in Latin means royal.

A fast growing, large, deciduous tree with spreading branches, 10.0 to 20.0 metres high, irregularly shaped and forming thick canopy at the top. Leaves alternate, pinnate ; pinnae up to 20 pairs with innumerable leaflets, feathery, light green. Flowers appear in large racemes at the ends of branches ; sepals fleshy, red with green linings ; petals crinkle edged, ORCHID-like, brilliant scarlet, 5, of which one is slightly longer in size and much variegated in color ; stamens protrude in a cluster of 10 red filaments surrounding a tender green style. Fruits hard, flat, black pods hanging on the branches for months.

Flowers in summer (April-June), a second and a third flush also appear in late summer or early monsoon (July-August).

Considerable variation in flower color through brilliant scarlet, scarlet-red to deep red, rosy-red, orange-yellow streaked with red, etc. are noted.

The wood is light, soft and white, takes a fine polish but is not durable.

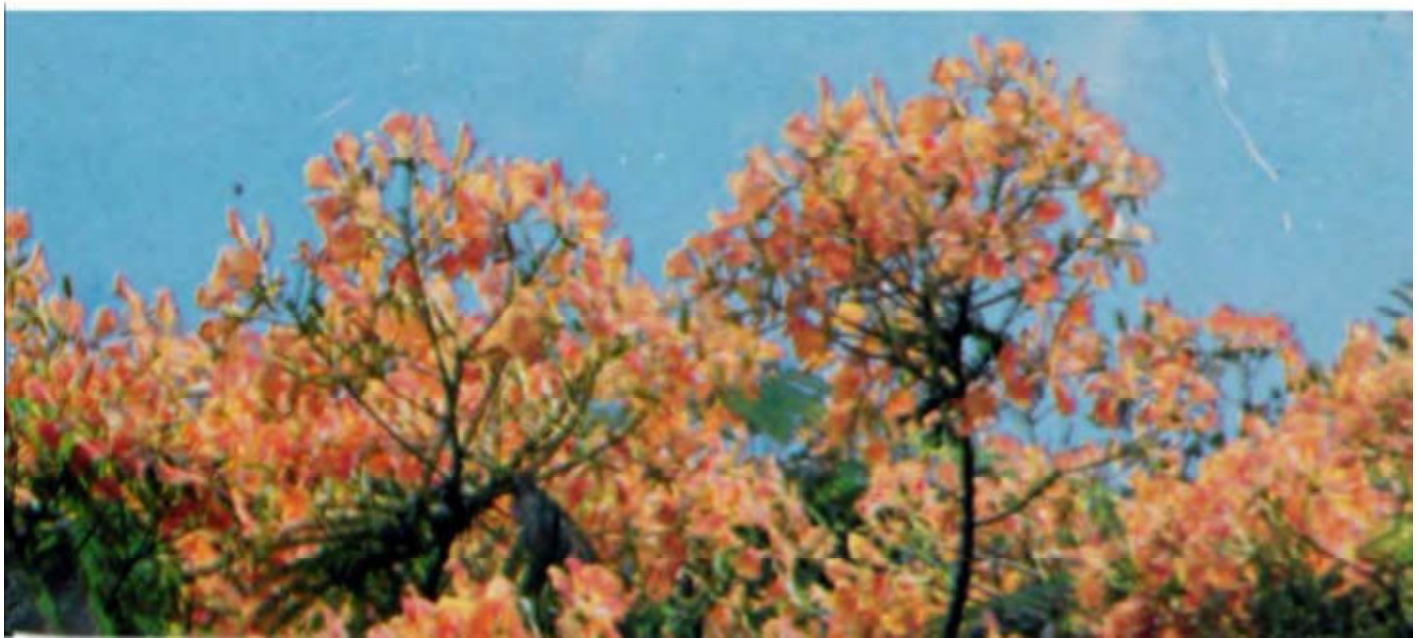
The tree is propagated by seeds.

The other species of the genus, *D. elata* (L.) Gamble *(Poinciana elata* L.*)* bearing whitish-yellow flowers is also grown in some places.

The vernacular names KRISHNACHURA and RADHA-CHURA generally refers to *Caesalpinia pulcherrima*.

Delonix regia **(Boj. ex Hook.) Raf.**

Delonix regia **(Boj. ex Hook.) Raf.**



Dillenia indica L.

Family : Dilleniaceae
Bengali : CHALTA, CHALITA, HARGESA
English : ELEPHANT APPLE
Hindi : CHALTA, GIRNAR
Synonym : *D. speciosa* Thunb.

A native of India, the species was once regarded as the status symbol of the rich, whose palatial buildings with large orchards must have an ELEPHANT APPLE TREE by the side of pond. It is still found in some private gardens who can afford to maintain the traditional luxury and majesty. Now also found in many other parks and gardens.

The genus is named after Professor J. J. Dillenius (1684-1747), a noted botanist at Oxford and author of important botanical works, the name of species refers to its country of origin.

A stout, evergreen tree of moderate height (5.0 to 8.0 metres) with graceful foliage and crowded with enormous big flowers. Leaves borne on short, channelled petioles and confined to the ends of branches, partially encircling the supporting branch, oblong lance-shaped, with finely pointed apex, sharply toothed margin and conspicuous parallel nerves ; leaf surface fluted, dark green, brightly polished. Flowers borne singly at the ends of branches, fleshy, white and fragrant with numerous stamens forming a large yellow globe at the centre. Fruits large, spherical, hard, encased in fleshy, persistent sepals.

The species mostly flowers during rainy season (June-August).

The fleshy sepals are edible but sour in taste. These are eaten both cooked and uncooked ; jellies, jams and soft drinks are also prepared from sepals. The wood is durable and used for gun-stocks, boat-building, packing cases, railway sleepers and plywood. Some species of

Dillenia indica L.

silkworms are reported to feed upon the leaves, while the bruised bark containing high percentage of tannin is used for tanning.

The medicinal properties of the plant are known since the time of Charaka and Sushruta. The leaves are astringent and used in case of fainting and hysteria. The juice of the fruit is useful in flatulence, weakness and for luxurient growth of hair. Mixed with sugar and water, the juice is used as a cooling beverage in fevers and as a cough mixture. The root bark is reported to minimise the food poisoning syndromes when its juice is given orally two or three times.

The other species of *Dillenia* growing in Calcutta are *D. aurea* Sm. and *D. burbridgii* Mart. The latter species bears large, showy, bright yellow, five-petalled flowers which bloom regularly.

Dillenia burbridgii Mart.

Dillenia burbridgii Mart. fruits

Dombeya wallichii Benth. & Hook. f.

Family : Sterculiaceae
Bengali : DOMRUPANI
English : ROSE MOUND, WEEDING FLOWER

A native of Madagascar, the species has gained great popularity for its beautiful clustered drooping flowers. Very frequently it is found in gardens of industrial and housing complexes in association with other species and hybrids of the same genus.

The genus is named in honour of Joseph Dombey (1742-1795) and species in honour of Nathaniel Wallich (1786-1854), both eminent botanists.

A tall shrub or small tree, 4.0 to 8.0 metres high with upright branches. Leaves simple, stipulate, large, velvety, cordate, densely hairy below, pale green. Flowers in drooping umbels, showy, bell-shaped, pink or salmon-rose. Fruits loculicidal capsules.

The species flowers during winter(December-February).

The plants are propagated by stem cuttings and layerings. The plant requires drastic pruning to maintain a bushy shape. In some gardens it is pruned into nice hedges and when in bloom it adds ornamentation to the garden.

A number of species of *Dombeya* are cultivated in the gardens. Of these *D. spectabilis* Boj., *D. mastersii* Hook. f., *D. acutangula* Cav. and *D. natalensis* Sond. are important. *D. cayeuxii* (*D. mastersii* x *D. wallichii*) with rosy-pink flowers holds good promise.

Dombeya wallichii Benth & Hook. f.

Erythrina variegata L.

Family : Fabaceae
Bengali : PALTEMADAR, PALITA MADAR, RAKTA MADAR
English : INDIAN CORAL TREE, CORAL TREE, BASTARD TEAK, MOCHI WOOD
Hindi : PANGRA, PANGARA, MANDARA, PANJIRA, DADAP, FERRUD, RAKTAMADAR

A native of India, the true Indian coral tree, *E. variegata* (L.) var. *orientalis* (L.) Merr. is believed to flower in AMARAVATI Garden of Lord Indra (the King of Heaven). The tree is still remembered for the legendary quarrels between Rukmini and Satyabhama (the two Queens) for possession of the flowers, cleverly stolen by Lord Krishna from the Garden. The trifoliate leaves are supposed to represent the Hindu TRIMURTI of Brahma, Vishnu and Shiva.

The word *Erythrina* in Greek means red, it refers to color of flowers; the specific names refer to variegated leaves and to the country of origin.

A soft-wooded, deciduous, medium to tall-sized tree, 8.0 to 16.0 metres high, with dense, upright branches. Leaves trifoliate; leaflets large, broad, dark green or variegated. Flowers in terminal clusters, the upper petal longer, boat-shaped; scarlet or deep red. Fruits large, constricted pods with 6 to 8 oblong, smooth seeds.

Flowering occurs in early spring (February-March), when the tree is almost totally leafless.

The stumps of this tree serve as good supports for betel, black pepper and sometimes grape vines. The flowers yield a red dye and the bark is used in tanning and dyeing. A fibre suitable for cordage is also extracted from the bark.

The bark is astringent, febrifuge and anthelmintic; used in liver troubles and as a collyrium in ophthalmia. It is applied as an antidote to snake bite. The leaves are said

to be diuretic ; they are also applied externally for relieving pain in joints.

The tree is propagated by seeds or stem cuttings. It is frequently used as a hedge plant.

Many species, varieties and forms of *Erythrina* are cultivated in gardens. Out of these *E. crista-galli* L. with scarlet-red showy flowers in dense racemes is one of the most remarkable trees in gardens. *E. blakei* Hort. ex Parker is a small tree grown for its beautiful scarlet flowers.

***Erythrina variegata* L.**

Erythrina variegata* L. *(alba)

***Erythrina crista-galli* L.**

Euphorbia leucocephala Lotsy

Family : Euphorbiaceae
Bengali : PHULJHURI*
English : WHITE LACE EUPHORBIA, PASCUITA

A native of Mexico, the species has gained popularity as a garden plant. It is found growing in many of the newly developed gardens in the city as well as in office premises where attempts are made to maintain good gardens. Specimens of this plant may be seen in the garden of the Agri-Horticultural Society of India, in many of the houses in newly developed township of Bidhan Nagar and in the graveyards near Park Street.

The genus represents a classical Greek name designated by Pliny (a naturalist of high repute) in honour of a physician of King Juba of Mauritiana and the name of species probably refers to its white foliage-like flowers.

A small shrub with slender pinkish branches, 1.5 to 3.5 metres high. Leaves mostly in whorls, small, narrow, oblong to elliptic, to oblong-lanceolate, soft and light green. Flowers small, yellowish in large crowded inflorescences, with obovate white bracts.

Flowering occurs from late autumn to early spring (November-February). The entire plant looks snowy white during flowering.

The milky sap may cause contact dermatitis.

Generally propagated by stem cuttings.

When in bloom the flowers appear like white sparks over green foliage. Hence the vernacular name PHULJHURI is being given to this species.

Euphorbia leucocephala Lotsy

"Flowers are the sweetest things
God ever made
And forgot to put
a soul into."

—Henry Ward Beecher

Euphorbia pulcherrima Willd. ex Klotz.

Family : Euphorbiaceae
Bengali : KERUI, PATRAMANJARI
English : POINSETTIA, CHRISTMAS POINSETTIA, EASTER FLOWER
Synonym : *Poinsettia pulcherrima* (Willd. ex Klotz.) R. Grah.

A native of Central America, the species has attained a stable position in gardens for its very brilliantly colored leaf-like bracts which attract attention from distance. The plant is grown extensively in private and public gardens and particularly in most of the Christian cemeteries. It is also grown as a potted plant to beautify the staircases, lawns and balconies.

The specific epithet is given after its beautiful bracts.

An erect 2.0 to 2.5 metres high or diffuse shrub with smooth, cylindrical, light green branches. All parts of the plant contain milky latex. Leaves large, ovate-elliptic to lanceolate, long-petiolate, glabrous, shiny green above, pale green below with distinct venation. Flowers terminal on branches, in cyathia, inconspicuous ; involucres bearing a large, yellow gland on one side ; bracteal leaves rayed, oblanceolate, bright vermilion, flaming-red or crimson-scarlet, single or in many rows.

The species flowers from late autumn to early spring (November-February), but more profusely in middle of December when the bracts take bright coloration and add great beauty to the plants.

There are several varieties under this species showing various colorations of the bracts with vermilion-red, crimson-scarlet, yellowish-white or shades of pink. The number of bracts also varies from a few in a single row to many arranged in multiple rows of different sizes, the smallest being arranged in the centre. In some varieties the leaves are variegated.

Euphorbia pulcherrima Willd. ex klotz.

The plants are generally propagated by stem cuttings, and for proper form and luxuriant growth of branches they require drastic pruning.

The other species of *Euphorbia* growing in the gardens and parks for ornament or hedge are *E. antiquorum* L., *E. milli* Ch. des Moulins, *E. nerifolia* auct. pl. non L. and *E. tirucalli* L.

Ficus benghalensis L.

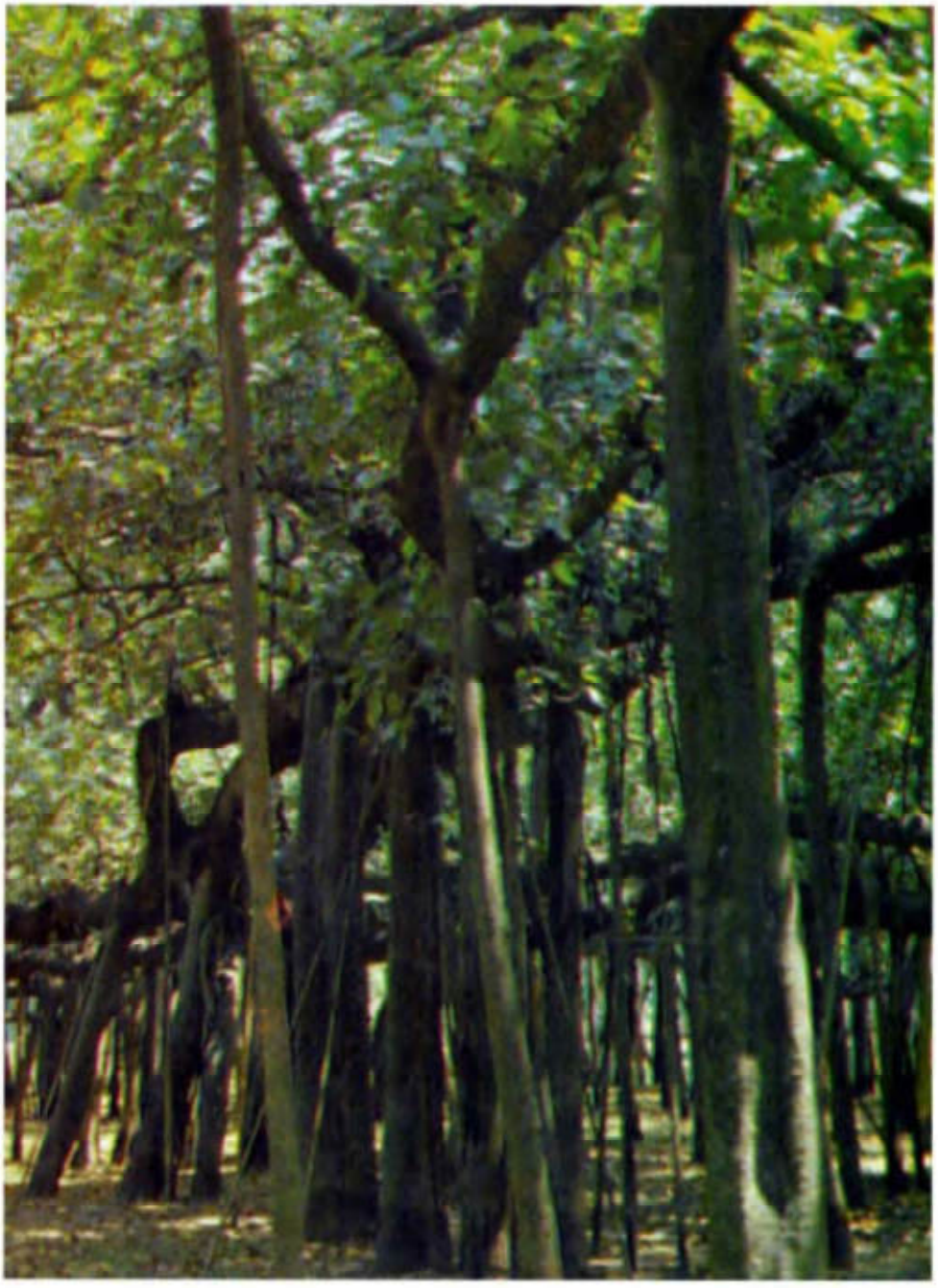
Family : Moraceae
Bengali : BAT, BATH, BOT
English : BANYAN TREE
Hindi : BARGAD, BARH, NYAGRODHA
Synonym : *F. indica* Roxb.

A native of India, the species is extremely popular everywhere in India including the city of Calcutta. It is growing

The Great Banyan Tree at the Indian Botanic Garden (Calcutta), Howrah

abundantly as a roadside tree on almost all the avenues, roads and streets in Calcutta ; some are in the public parks and gardens, some are very old and have attained gigantic sizes, while many others are introduced during last 20 or 25 years. The biggest and perhaps one of the trees of the world having greatest biomass is situated at the Indian Botanic Garden (Calcutta), Howrah. The tree is estimated to be more than 225 years old and bears nearly 1700 prop or supporting roots.

The generic name is an ancient Latin name for the figs and the species is named after the place of its origin, Bengal in India.



A very slow growing tree, attaining gigantic sizes of 15.0 to 30.0 metres or sometimes more in height, crowded with ovate to elliptic, leathery leaves. The aerial branches develop prop roots profusely which after striking the ground function as secondary trunks. Flowers enclosed in small spherical or elliptical hypanthodia which develop from the axils of leaves, and on maturity turn to deep red or scarlet-red giving an attractive look to the plant.

The species flowers in early spring (February–March) and continues up to autumn (October-November). But in Calcutta some of the trees are found in flower throughout the year.

The trees in the parks, maidans and on the roadsides give shelter to numerous pedestrians and visitors, hawkers and vendors. Raised platforms of soil or concrete are made round many trees; these become favourite places of meeting or even worship.

The tree is intimately related to Hindu mythology. Some of the early beliefs about this tree have existed to date. In ancient days, the tree was held in such high esteem that a certain king was advised to perfer milk (latex) of this tree to even the SOMARASA.

This is the legendary tree which, at the time of Deluge gave protection to Lord Krishna.

The curious way in which the aerial roots hanging from the tree strike the ground to serve as fresh trunks and the tree goes on growing indefinitely was noticed by the earliest man, who called it the TREE OF IMMORTALITY, or AKSHAYA-VAT.

Apart from these legendary tales, the tree is of immense utility and possesses medicinal properties. The wood is durable under water, the stems are used for tent poles. The bark of aerial roots is strong and is used for rope making. The tree contains tannins; it is also used as host for lac; leaves are good fodder. The fruits are edible.

The bark is tonic, astringent, cooling and diuretic; used in diarrhoea and dysentery. Seeds and fruits are cooling and tonic. Young buds and milky juice are astrin-

Ficus benghalensis L.

Ficus elastica Roxb.

gent, while root fibres are employed in gonorrhoea.

The other species of this genus growing in parks, gardens or as roadside trees are *F. auriculata* Lour., *F. benjamina* L., *F. elastica* Roxb., *F. glomerata* Roxb., *F. hispida* L., *F. lucescens* Blume, and *F. religiosa* L. Of these, several varieties of *F. elastica* are grown in gardens for their majestic growth pattern and charming leaves showing various degrees of coloration and variegations of leaves.

The other trees of Moraceae growing in the city, either in parks and gardens or on the roadsides are *Artocarpus altilis* (Park) Fosb., *A. heterophyllus* Lamk., *A lakoocha* Roxb., *Broussonetia papyrifera* Vent., *Morus alba* L., *M. australis* Poir, and *Streblus asper* Lour.

Gardenia jasminoides Ellis

Family : Rubiaceae
Bengali : GANDHARAJ
English : CAPE JASMINE, GARDENIA
Hindi : GUNDHRAJ
Synonym : *G. florida* L.

A native of China, the species is one of the most favoured and largely grown plants in Calcutta. It is unique for its lustrous leaves, magnificent for its blossoms and very welcome for its fragrance.

The genus is named after Dr. Alexander Garden (1730-1791), a medical doctor and a correspondant of Linnaeus. The species is named for its resemblence with the JASMINES.

A large, evergreen shrub or small tree with profuse spreading branches. Leaves large, simple, stipulate, mostly opposite, obovate or oblanceolate, acuminate, shining, deep green with distinct nerves. Flowers solitary, terminal, sometimes axillary, showy ; corolla expanding in irregular fashion, united to a stout tube, milky white, turning creamy to yellowish and light brown, highly fragrant. Fruits fleshy berries, distinctly ribbed, rarely formed under Calcutta conditions.

The flowers appear mainly during summer and rainy seasons (April-September), occasionally, also in other seasons.

The species bears both single and double flowers. Varieties with double flowers are generally cultivated in the gardens and lawns.

The flowers contain an essential oil which is used in perfumery while in domestic use these flowers serve in worship or for display in flower vases.

Gardenia jasminoides Ellis

The plant is reputed to possess antiseptic and anthelmintic properties. The root is used in dyspepsia, nervous diseases and hysteria ; while in some places a paste of its root is applied to the top of the head as remedy for headache.

The species can be propagated only by stem cuttings. Treatment of cuttings with indoleacetic acid (IAA) and naphthaleneacetic acid (NAA) is reported to induce early rooting.

Gliricidia sepium (Jacq.) Walp.

Family : Fabaceae
Bengali : SARANGA*
English : SPOTTED GLIRICIDIA. MADRE TREE. MADURA SHADE TREE. MOTHER OF COCOA, NICARAGUAN SHADE TREE.
Synonym : *G. maculata* (H. B. & K.) Steud.

A native of tropical South America, the species is quite promising for growing under moderate conditions of temperature and humidity. Grown in Calcutta avenues for shade and in gardens for its charming sprays of pink flowers.

The generic name *Gliricidia* means rodent poison ; the specific name is from the Latin word for hedges or fences.

A small, deciduous spreading tree, 3.0 to 8.0 metres high with greatly contorted trunk. Leaves long odd-pinnate, with 8 or more opposite pairs of acute or almost acute leaflets and with an odd terminal leaflet, deep shining green above, lighter beneath and often spotted with black. Flowers appear in dense clusters, in leafless or nearly leafless branches, in the axils of fallen leaves, pinkish-purple or pale pink, occasionally white. Fruits a long, flat, pendant pods narrowed at both ends, twisting on dehiscence.

Flowering starts in early spring (February-March) and lasts for about a month.

A fast growing tree cultivated for shade on the road-side and in coffee and tea plantations. The leaves are rich in nitrogen and serve as good manure. The fallen leaves and flowers enrich soil fertility of plantation crops. The reddish-brown hard and durable wood is used for posts and stakes. Powdered seeds, leaves and bark are mixed with rice to make pellets of rat poison. The flowers are edible.

The species is propagated either by seeds or stem cuttings. Long and thick stem cuttings planted direct on site can serve as living fence posts.

The vernacular name SARANGA is formed from two Bengali words which collectively refer to the use of leaves and flowers as manure.

Gliricidia sepium (Jacq.) Walp.

Gmelina philippensis Cham.

Family : Verbenaceae
Bengali : BADHARA
English : HEDGEHOG
Hindi : BADHARA
Synonym : *G. hystrix* Schult. ex Kurz

A native of Philippines, the species is cultivated in many gardens and parks along the fencings or arches to provide an appealing view of its beautiful drooping tassel-like inflorescences.

The genus is dedicated to a distinguished German botanist named J. Gottlieb Gmelin (1709-1755). The name of the species is after the country of its origin.

A large or medium-sized, straggling shrub, 5.0 to 8.5 metres high with spinous pendant branches. Leaves simple, opposite, elliptic, cuneate or rhomboid, upper surface glossy, lower slightly tomentose, dark green. Flowers in large, innumerable, pendulous cymes, often tomentose, large, showy, with curiously inflated corolla tube, 2-lipped, bell-shaped, yellow or whitish-yellow, protected by large, purplish bracts. Fruits pyriform drupes, rarely formed.

The species flowers from April to August, occasionally during other months.

The plants are propagated by stem cuttings or air layerings. Pruning is desirable to keep the plants in shape and for obtaining more flowering branches.

The other species of the genus growing in the city are *G. arborea* L. and *G. asiatica* L.

The other members of this family represented in the city are *Citharexylum spinosum* L., *C. subserratum* Sw., *Clerodendrum indicum* (L.) Kuntze, *C. inerme* (L.) Gaertn.,

Gmelina philippensis Cham.

Holmskioldia sanguinea **Retz.**

Lantana camara **L.**

C. serratum (L.) Spreng., *Duranta repens* L., *Lantana camara* L., *Tectona grandis* L. f., *Vitex agnus-castus* L. and *V. negundo* L. *Tectona grandis* is planted as roadside tree in many of the avenues. *Holmskioldia sanguinea* Retz. is a beautiful shrub remarkable for its inverted hat like orange-red flowers.

Grevillea robusta A. Cunn. ex R. Br.

Family : Proteaceae
Bengali : RUPASI*
English : SILVER OAK, SILKY OAK

A native of Queensland and New South Wales, the species thrives well in cold or extreme climates as well as in places of moderate climate throughout the country. It is not uncommon in Calcutta gardens and parks and is gradually gaining prominence for plantation as an avenue tree. Good specimens are found in Macpherson Square at Dr. U. N. Brahmachari Sarani, Allen Garden at Park Street, National Congress Park, Jatindra Mohan Park, Dr. Meghnad Saha Road, etc.

The genus is named in memory of Charles F. Greville (1749-1808), once Vice-President of the Royal Society of England and a patron of botany. The name of the species refers to robust habit of the plant.

A lofty, robust, tree, up to 45.0 metres or more high with hoary or rusty-tomentose young branches. Leaves fernlike, bipinnate or sometimes tripinnate with dark green upper surface, silvery white below, silky-haired. Flowers in one-sided, showy racemes, golden-yellow or orange-yellow. Fruits oblique, coriaceous follicles with winged seeds.

It flowers from late spring to early monsoon (April-July).

The species is cultivated in gardens as a dainty, lacy, ornamental plant when small, and also as a shade plant in tea and coffee plantations. The wood is handsome and after careful seasoning is used for making decorative panelling, floors, furniture, spinning mill bobbins, violin, and tennis and badminton rackets. The tree serves as a potential source of cellulosic raw material for pulp and paper industry. The bark is rich in lignin and lignin

compounds and has many industrial uses for binders, bark boards and soil stabilizers.

The species is cultivated by seeds, fairly resistant to drought and cold.

The vernacular name RUPASI (beautiful) is given for the silvery-white color of lower surface of the leaves and the showy golden-yellow flowers.

Grevillea robusta **A. Cunn. ex R. Br.**

Gustavia augusta L.

Family : Lecythidaceae
Bengali : SETAVA*, AVA*
English : STINKWOOD

A native of Brazil, this slender majestic tree is found only in a few gardens of Calcutta and generally not common in public gardens and parks. Good specimens are growing in Assembly House Garden, Agri-Horticultural Society of India and towards Rani Rashmani Road boundary of the Surendranath Park.

The genus is named in honour of King Gustavus III (1691-1759) of Sweden, a patron of Carolus Linnaeus and the specific name *augusta* in Latin means majestic.

A very handsome, bushy, tree, crowded with broad, evergreen leaves, 4.0 to 6.0 metres high, freely producing branches from near the base. Leaves large, alternate, elliptic or oblanceolate, almost sessile, serrate, smooth and shining ; they emit a bad odour. Flowers fragrant, magnificent, water lily-like ; scanty in number, they appear in small clusters, often hidden by leaves ; petals 6 to 8, nearly equal, white, turning to pale pink or creamy-white ; stamens numerous, in whorls with yellowish anthers. Fruits hard berries, narrowed to the base from an abruptly broad top.

The species starts flowering from early spring (February-March), but individual trees may be seen flowering at various times.

The tree is fairly easy to propagate from seeds and by layering.

The vernacular name SETAVA or AVA are given due to the splendid grandeur of its white flowers.

The other species of the genus, *G. insignis* Linden, which is rather rare in the city, bears large, pink or deep pink flowers arising from the trunk of branches of the tree.

***Gustavia augusta* L.**

***Gustavia insignis* Linden.**

Some other trees of the family (presently placed under the family Barringtoniaceae) such as *Barringtonia acutangula* (L.) Gaertn., *B. asiatica* (L.) Kurz, *B. racemosa* (L.) Spreng. and *Careya arborea* Roxb. are also growing in parks and gardens of the city.

Hamelia patens Jacq.

Family : Rubiaceae
Bengali : MUNA*
English : SCARLET BUSH, FIRE BUSH
Synonym : *H. erecta* Jacq.

A native of tropical America, the species with its elegant floral sprays is adding beauty to many gardens of Calcutta. It either grows in isolation or as a hedge. It is an ideal species for screens around the bungalows.

The genus is named after Henry Louis du Hamel du Monceau (1700-1782), an eminent French botanical author and the name of the species refers to its spreading branches.

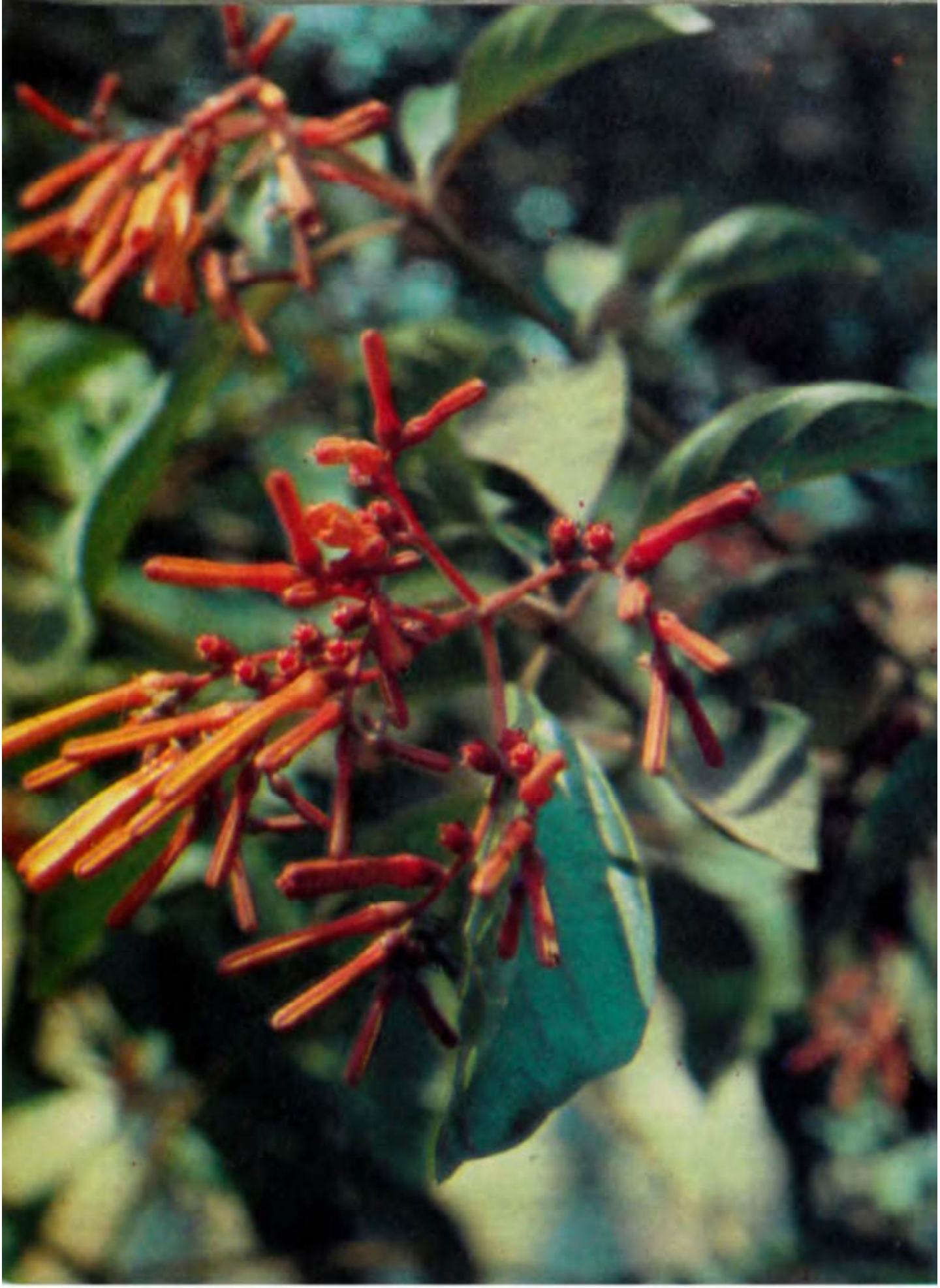
An evergreen, handsome, woody shrub, 2.0 to 4.0 metres high with dense branching and spreading habit. Leaves simple, in whorls, stipulate, elliptic-ovate to oblong, acute at both ends, lustrous, light green to shades of copper and bronze, becoming darker at maturity. Flowers borne on numerous, terminal, forking cymes ; sepals triangular, short ; corolla narrowly cylindric, orange-red or reddish-yellow. Fruits ovoid or globose, red berries.

The species flowers from late spring to end of monsoon (April-September).

The berries are edible and a syrup prepared from these is useful in dysentery. The plant is reported to be poisonous.

The species can be liberally propagated from seeds or stem cuttings and needs little care. Pruning is desirable for maintaining shape and bushy nature.

The flowers are orange-red in color like *Butea monosperma* (MUNI), they appear like smoulder and never open fully ; hence the vernacular name MUNA (meaning drowsy or shy) is given to this species.



Hamelia patens Jacq.

Hibiscus rosa-sinensis L.

Family : Malvaceae
Bengali : JABA, JOBA
English : CHINA ROSE, ROSE OF CHINA SHOE FLOWER, CHINESE HIBISCUS
Hindi : GULHAR, JASUM

A native of China, the species is prized for its superb variations in flower coloration and religious value for temple offerings. There are few gardens, parks and bungalows in Calcutta where a species of *Hibiscus* is not seen, either on the ground or in pots. In all the temples having even a small strip of land for growing anything, a JOBA is certainly seen.

The generic name is an old Latin name, and the species refers to its common English name, CHINA ROSE or ROSE OF CHINA.

A small to medium-sized shrub, ranging from 2 0 to 4.5 metres in height, depending on cultural practices. Leaves alternate, smooth, ovate, serrate, narrow at tip, deep green. Flowers solitary, on long peduncles, axillary, bell-shaped ; corolla twisted, connate below in a central column supporting stamens and stigma. The flowers are variously colored with different shades of white, yellow, pink, orange, red, violet, etc. Fruits 5-valved capsules ; fruit setting is rare under cultivation.

It is an everblooming species remaining in flower throughout the year.

There are numerous varieties of *H. rosa-sinensis* obtained either by hybridization or mutation breeding. Different varieties are characterised by variations in color, size, shape and number of petals and even in vegetative characters, particularly variegation of leaves.

Deep red varieties yield dark-purplish dye, which is used in making shoe polish (basis of common name : SHOE FLOWER)

Hibiscus rosa-sinensis 'Scarlet'

Hibiscus rosa-sinensis 'Rubroplenus'

The plant also has many medicinal properties. The green leaves are used as emollient, anodyne and laxative. Flowers are emollient, demulcent, aphrodisiac and aid digestion. Decoction of flowers is used in bronchial catarrh. The root bark is prescribed in cough, fever and veneral diseases.

Due to failure of fruit formation and seed setting in cultivated plants, and for maintaining the parental characters, it is always advisable to raise plants from cuttings. Treatment of hardwood and semi hardwood stem cuttings with indoleacetic acid (IAA), indolebutyric acid (IBA) and naphthaleneacetic acid (NAA), enhances early rooting and survival of cuttings

The other species of *Hibiscus* growing in the city are : *H. mutabilis* L., the common CHANGEABLE ROSE with large white flowers changing through pink to deep pink, it is extensively cultivated in parks and gardens.

H. schizopetalus (Mast.) Hook. f., the JAPANESE LANTERN or CORAL HIBISCUS has deeply cut, orange-red, pink-streaked petals. The drooping flowers of this species are an interesting novelty. Common in parks and gardens.

H. tiliaceus L., the YELLOW MALLOW TREE with lemon-yellow flowers having brown-red centre, sometimes cultivated in parks and gardens.

Hibiscus rosa-sinensis 'Golden times'

Hibiscus rosa-sinensis 'Chitralekha'

Hibiscus schizopetalus (Mast.) Hook.

Hibiscus tiliaceus L.

Holarrhena antidysenterica
(Roth.) A. DC.

Family : Apocynaceae
Bengali : KURCHI
English : EASTER TREE, IVORY TREE
Hindi : KURCHI, KUTAJA, KARVAINDARJAU

A native of India, the species originally reputed for its unique medicinal properties, has now also occupied a permanent abode in the gardens and parks for its charming tubular and fragrant flowers. Excellent specimens can be seen in the small roadside gardens around Outram Ghat.

The name of the genus is derived from the Greek words HOLOS (the whole) and ARRHEN (man) ; while the specific name indicates its chief medicinal use.

A large deciduous shrub or small tree, 3.5 to 10.0 metres tall with pale brown bark. Leaves long, ovate, thin with conspicuous nerves below, pale green. Flowers in large terminal bunches, corolla spreading, white. Fruits a pair of slender, cylindric follicles, blackish with white specks all over ; seeds having a tuft of long brown hairs at top.

The species flowers from early summer (April-May) to early monsoon (July). A second flush of flowers often appears in early autumn (September-October).

The wood is used for shoe-heels, pen-holders, combs, engravings, toys, spoons, forks and small furniture. The flowers are used in temple offerings and for decoration of idols. The leaves are eaten by cattle. The seed floss is sometimes used for stuffing purposes.

The plant is well reputed for its medicinal properties since ancient times. The dried bark constitutes KURCHI, the trade name of the drug. The chief use of the drug is in amoebic dysentery and diarrhoea. Either an extract of the bark is used singly or several other preparations in

combination with chemical compounds are used. The bark is tonic and febrifuge ; it is rubbed over the body in dropsy. Seeds are astringent and febrifuge, they are used in dysentery and diarrhoea and for killing intestinal worms.

The species is propagated by seeds. Hard and semi-hard stem cuttings easily strike roots when planted in rainy season.

Holarrhena antidysenterica **(Roth.) A. DC.**

Ixora Sp.

Family : Rubiaceae
Bengali : RANGAN, GANDHAL RANGAN
English : TORCH TREE
Hindi : MAKRICHIJHAR, GANDHAL LOHA JANGIA

The IXORAS are a large group of horticultural shrubs or small trees cultivated in the gardens for their attractive and variously colored flowers arranged in dense or large clusters. A large number of species and varieties are grown which are evolved either by cross-breeding, mutation breeding or natural hybridization, thus contributing to the horticultural forms so diversified that the specific or varietal status of many of these are in a state of confusion. Moreover, the nomenclature and descriptions of the IXORAS available in horticultural literature are based on the plants grown in glass houses or conservatories which on release for cultivation in open change in both vegetative growth and flower specifications adding further complications in identification.

IXORAS are widely grown in parks and gardens either singly or in beds or as hedges. A good collection can be seen in Hrishikesh Park at Raja Rammohan Sarani, Jatindra Mohan Park at Raja Manindra Road and Bidhan Sishu Udyan at Bidhan Nagar.

The name *Ixora* is derived from the word IKVARA a Malabar deity to which the flowers of some species are offered.

The genus is represented by evergreen, small, medium or large shrubs or small trees, ranging from less than a metre *(I. chinensis* Lamk.*)* to 6.0 or more metres *(I. arborea* Roxb. ex Sm.*)*. Leaves simple, stipulate, entire, small to large, generally obovate; obovate-oblong or broadly lanceolate, mostly glabrous, green or dark green. Flowers in terminal or axillary corymbs, on bracteate pedicels; corolla tube long, slender, spreading generally into 4 lobes,

Ixora singaporensis Hort.

variously colored. Fruits hard or fleshy berries, usually with two oblong seeds.

The species flower profusely in summer and monsoon (April-September), occasionally in other seasons. Some species and varieties bloom throughout the year. Some of the horticultural species and varieties of *Ixora* growing in Calcutta gardens are listed below according to the color of the flowers :

(i) **White-flowered :** *I. acuminata alba, I. barbata, I. colei, I. odorata, I. parviflora, I. undulata.*

(ii) **Pink-flowered :** *I. acuminata, I. chinensis rosea, I. pinkie, I. ragoosula, I. westii.*

(iii) **Scarlet-flowered :** *I. chinensis, I. coccinea, I. coccinea bandhuca, I. coccinea minor, I. coccinea nana, I. coccinea superba (magnifica), I. macrothyrsa, I sanguinea.*

(iv) **Yellow-flowered :** *I. alipurensis, I. armenica, I. coccinea lancasteri, I. coccinea lutea, I. venusta.*

(v) **Orange-scarlet flowered :** *I. amabilis, I. coccinea dixiana, I. floribunda, I. fraseri, I. fulgens, I. javanica, I. lobbi, I. profusa, I. prince of orange, I. shawii, I. singaporensis.*

The wood of some species is hard and used in making small household articles and sometimes for engraving. The branches of *I. arborea* Roxb. ex Sm. are made into torches. The leaves are sometimes given as subsistence fodder for domestic cattle. The ripe fruits of *I. parviflora* Vahl. are eaten by some tribals.

The roots of *I. coccinea* L. are sedative, stomachic, and used in diarrhoea and dysentery. Flowers of the same species are used for treating dysentery, leucorrhoea and catarrhal bronchitis.

Most of the species of *Ixora* are multiplied by stem cuttings. Treatments of cuttings with indoleacetic acid (IAA) and naphthaleneacetic acid (NAA) are reported to be beneficial for artificial rooting.

"The flowers have been woven and the garland is ready for the bridegroom. After the wedding the bride shall leave her home and meet her lord alone in the solitude of night."

—Rabindranath Tagore

Ixora chinensis 'Rosea'

Ixora coccinea L.

Jacaranda mimosifolia D. Don

Family : Bignoniaceae
Bengali : NIL GULMOHOR, NILKANTHA
English : GREEN EBONY, FERN TREE
Hindi : NILI GULMOHUR
Synonym : *J. ovalifolia* R. Br.

A plant of Argentina and Brazil (Benthall mentioned it as a native of Bengal), it was formerly planted in Calcutta only occasionally. At present extensive plantations have been made as roadside tree on newly developed avenues. It is one of the best flowering avenue trees. Good specimens of this tree are found in Ideal Garden, Auckland square, Kazi Nazrul Islam Sarani, etc.

The name of the genus is derived from a Brazilian vernacular name ; the species after its *Mimosa*-like foliage.

A medium-sized, deciduous tree with graceful foliage and handsome flowers, about 6.0 to 10.0 metres high. Leaves opposite, bipinnate with many finely cut leaflets, symmetrical and elegant. Flowers bluish-mauve in loose pyramidal panicles, axillary or terminal, funnel-shaped, pendant wider at mouth with 5 reflexed lobes and fine hairs inside throat. Fruits rounded woody dehiscent capsules containing numerous papery winged seeds.

Flowering occurs from late spring to early summer (April-May).

The leaf and stem bark are reported to have medicinal properties, given orally for the treatment of syphilis. An infusion of the bark is used as a lotion to wash ulcers.

The tree may be propagated by seeds or by semi-hard wood stem cuttings. Treatments with indoleacetic acid (IAA) may increase the percentage of survival of cuttings.

The other species of the genus growing in the city is *J. rhombifolia* G. F. W. Mey. (*J. filicifolia* D. Don).

Jacaranda mimusifolia D. Don

Jasminum sambac (L.) Ait.

Family : Oleaceae
Bengali : BEL PHUL
English : ARABIAN JASMINE, TUSCAN JASMINE
Hindi : BELA, MOGRA, MOTIA, CHAMELA, SAMBAC
Synonym : *Nyctanthes sambac* L.

A native of Arabia, the species is cultivated more in private gardens than in public parks or roundout islands on roads. In summers, when everyone is fatigued and wearied, the blossoms of this species provide refreshing and cooling effect by their snowy white color and exquisitely sweet fragrance. The flowers are very dear to women and it is perhaps the most important cut flower sold in the markets of Calcutta.

The name of the genus is derived from an Arabic name and the name of species is after its native Indian name.

An erect or subscandent shrub, 0.75 to 1.25 metres high, densely branched and bushy in nature. Leaves elliptic or broadly ovate, sometimes 3 in a twig, glabrous, shining, green. Flowers in few or many-flowered clusters; sepals linear, green; petals oblong or orbicular, in single or double rows, white turning to pinkish-violet. Fruits small berries, rarely formed.

The species flowers profusely from late spring to late summer (April-June), and continues up to middle of rainy season (August).

Several varieties of this species are under cultivation in the gardens. These varieties generally differ in the number and arrangements of the petals and their fragrance. The multi-petalled, rose-like and sweetly fragrant *Motia* variety is at present widely cultivated.

The species is vividly mentioned in Sanskrit literature, in romantic poems or in descriptions concerning medicinal importance of plants.

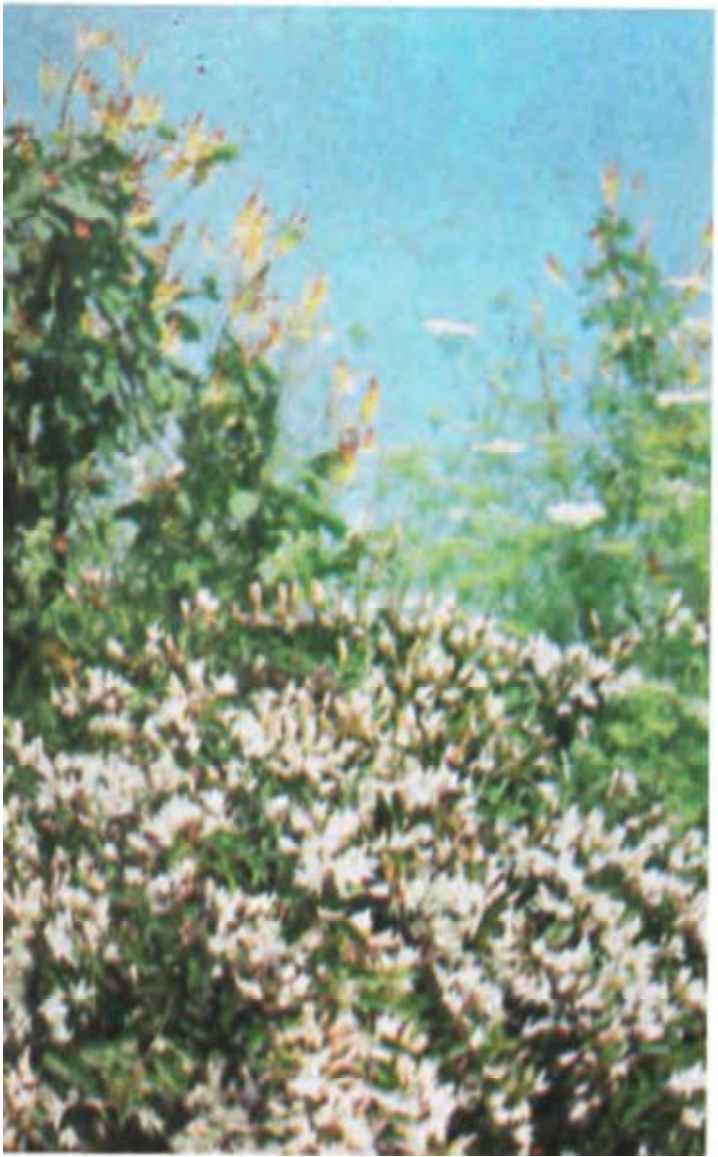
The flowers are made into garlands which are very commonly used in religious and social ceremonies, as worship offerings and floral ornaments worn by women. An essential oil extracted from the flowers is used in perfumery.

The plant has considerable cooling properties ; it is also used in cases of insanity, weakness of sight and affections of mouth.

The species is raised by hard or softwood stem cuttings. Treatments of cuttings with indoleacetic acid (IAA) and naphthaleneacetic acid (NAA) or Seradix have been reported to enhance rooting.

The other species of *Jasminum* cultivated in the gardens are *J. arborescens* Roxb., *J. auriculatum* Vahl, *J. grandiflorum* L. and *J. multiflorum* (Burm. f.) Andr. *(J. pubescens* Willd.*)*.

Jasminum multiflorum (Burm. f.) Andr.



Jasminum sambac (L.) Ait.

Jatropha integerrima Jacq.

Family : Euphorbiaceae
Bengali : JAYATI
English : FIDDLE-LEAVED JATROPHA
Synonym : *J. pandurifolia* Andr.

A native of Cuba, the species is very gracefully growing in the gardens and parks and presently gaining more importance after being planted in road medians and traffic islands. In most of the circular or triangular islands on important roads in the city, where marble or bronze statues of persons have been installed, *J. integerrima* is planted perhaps as a living floral offering.

The name of the genus is derived from two Greek words JATROS and TROPHE which collectively means medicinal use. The specific name is after its peculiar and characteristic shape of leaves.

An erect, pretty, evergreen, medium-sized shrub, 1.5 to 3.0 metres high with milky latex exuding from all the parts of the plant on incision. Leaves simple, ovate to oblong or panduriform, distantly dentate below, abruptly acuminate, shining dark green. Flowers in long peduncled, corymbose cyme, bright crimson or scarlet-red. Fruits globular, 3-angled yellow capsules.

The plant flowers uniformly all the year round.

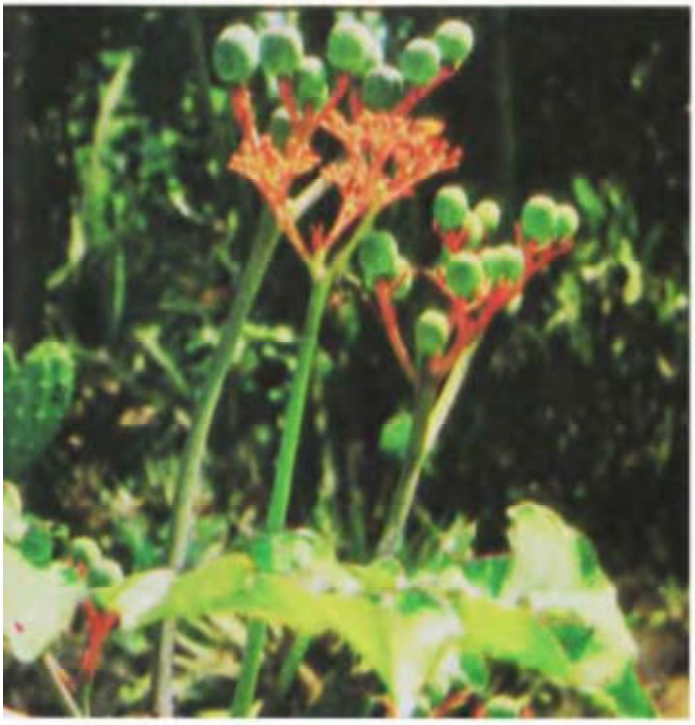
The species exhibits distinct forms or varieties, depending on its flower color. Although the most common forms are with bright crimson or scarlet-red flowers, yet flowers of pink *(Rosea)*, pale pink or pinkish-white color are also found.

The plants are easily propagated by stem cuttings.

The other species, *J. podagrica* Hook. (GOUTY STEMMED JATROPHA, GUATEMALA RHUBARB) with curious succulent, swollen gouty bases of each branch is also cultivated widely in gardens, parks and under pot culture. *J. curcas* L., whose seed oil has commercial applications is also seen.

Jatropha integerrima rosea
Jatropha podagrica Hook.

Jatropha integerrima Jacq.
Acalypha hispida Burm. f.



The other members of the family growing in the city, either in cultivation or wild are *Acalypha hispida* Burm. f., *A. godseffiana* Mast., *A. marginata* (Poir.) spreng., *A. wilkesiana* Muell.-Arg., *Aleurites moluccana* (L.) Willd., *Cicca acida* (L.) Merr., *Codiaeum variegatum* (L.) Blume, *Croton oblongifolius* Roxb., *C. tiglium* L., *Emblica officinalis* Gaertn., *Manihot esculenta* Grantz, *Putranjiva roxburghii* Wall., *Ricinus communis* L., *Sapium sebiferum* (L.) Roxb., *Suregada multiflora* (Juss.) Baill., *Trewia nudiflora* L., etc. Of these the edible fruits of *Cicca acida* and *Emblica officinalis* are rich sources of vitamins and ascorbic acid. Seeds of *Ricinus communis* are the source of castor oil.

Kigelia pinnata DC.

Family : *Bignoniaceae*
Bengali : JHAR FANOOS
English : SAUSAGE TREE, CUCUMBER TREE, FETISH TREE
Hindi : JHAR FANOOS

A native of tropical West Africa, the species surprises the pedestrians in wonder when one finds fruits, like pumpkins, hanging from the roadside trees. Although it is a very common avenue tree in some big cities in India, yet this tree is not common in Calcutta. However, it has recently been enlisted for roadside plantations and some young saplings can be seen on Calcutta streets including typical specimens growing in the garden of the National Library, Old Mint House at Strand Road and National Congress Park.

The generic name is taken from the native name of the tree and the name of species refers to the pinnate leaves.

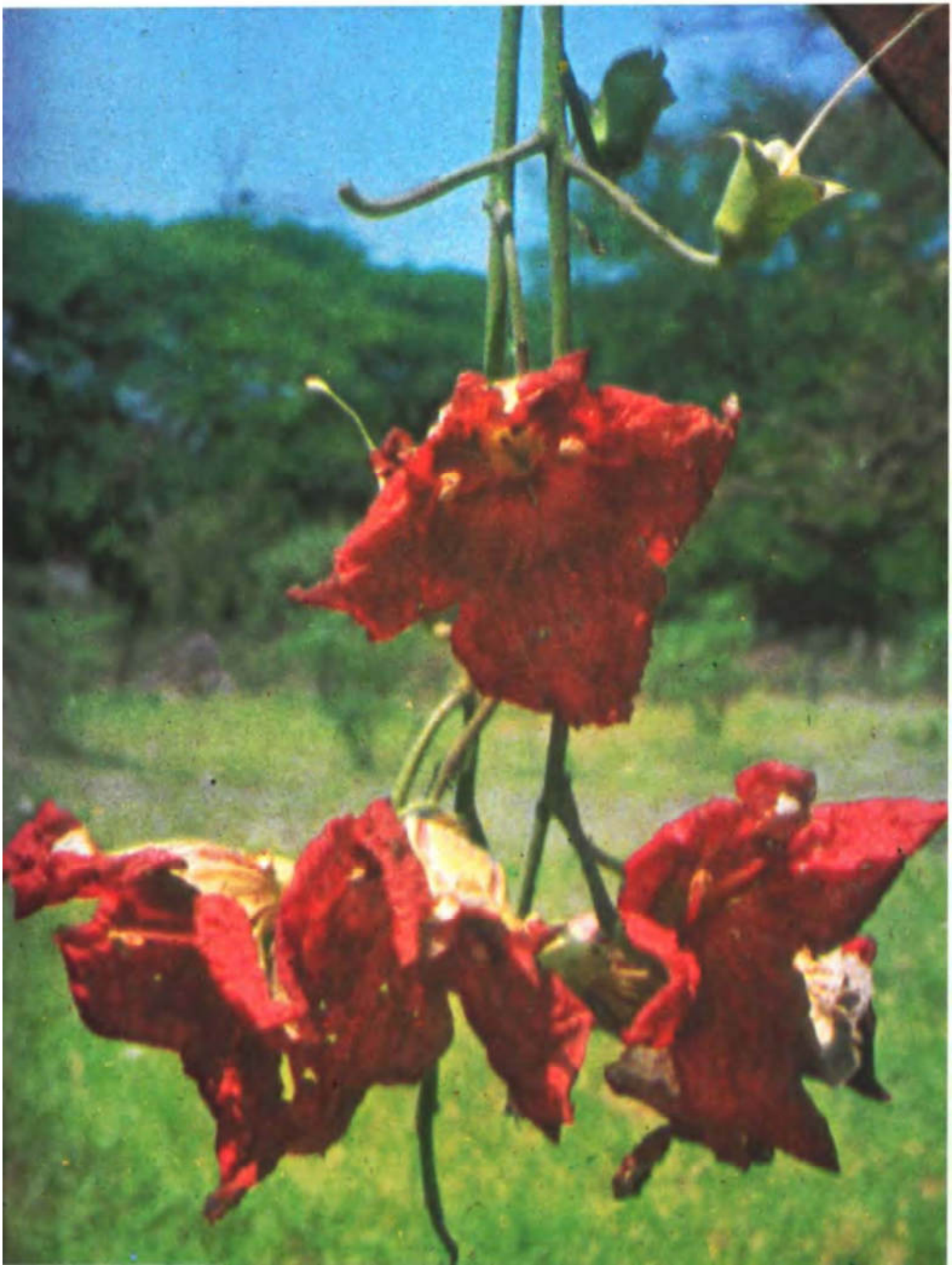
An evergreen, small to medium-sized tree, 8.0 to 16.0 metres high with light, flaking bark and spreading branches. Leaves ternate, imparipinnate ; leaflets oblong or ovate, coriaceous, dark green. Flowers in hanging racemes, campanulate, dark reddish-purple or scarlet colored, pollinated by bats. Fruits large, gourd-like with many seeds, swinging on long cord-like stalks.

The species flowers in mid spring (March-April) and the curious fruits are found hanging almost up to December-January.

The wood is hard and of good quality, used in making small furniture and toys. The unripe fruits are poisonous, used externally in cases of rheumatism. The bark is reported to be used in dysentery, rheumatism and venereal diseases.

The tree can be multiplied from seeds.

Kigelia pinnata DC.



Kleinhovia hospita L.

Family : Sterculiaceae
Bengali : BOLA
English : TREE ANTIGONON
Hindi : BHOLA
Synonym : *Grewia meyeniana* Walp.

A native of tropical Africa and Malaya, the species is regarded as one of the best avenue trees for its dense crown of foliage and long panicles bearing innumerable small pinkish flowers. Many old and new plantations of this species are seen on the roadsides, particularly in Bidhan Sarani, Vivekananda Road, Park Street, Dr. Meghnad Saha Road, etc.

The genus is dedicated to Dr. C. Kleeinhoff, a Dutch botanist, formerly Director of the Botanic Garden in Batavia, Java. The species *hospita* in Latin means hospitable, possibly in relation to the fact that the tree harbours parasites, insects, birds, etc.

A medium to large-sized, evergreen tree, 20.0 to 35.0 metres high with knotty trunk and spreading branches. Leaves simple, ovate or suborbicular, cordate, glabrous, acuminate at the base, dark green. Flowers borne in long terminal panicles, small ; petals 5, unequal, zygomorphic, pink. Fruits loculicidal, membranous capsules with generally five black seeds.

The species flowers intermittently from early summer to late autumn (May-November), profusely in early monsoon (July-August).

The wood is soft and white and is used in the preparation of handles for tools, knives, etc. The bark yields a strong fibre used for rope making.

The bark and leaves are used as hair wash to destroy lice. The decoction of the leaves is externally used in skin eruptions and scabies.

The tree is propagated by seeds, cuttings or air layering.

Kleinhovia hospita L.

Kopsia fruticosa (Ker.) A. DC.

Family : Apocynaceae
Bengali : DAKUR
English : SHRUB VINCA, PINK KOPSIA
Synonym : *Cerbera fruticosa* Roxb.

The species is native of Burma and Malaya growing in a few gardens and old compounds. Fine specimens of this plant may be seen in Victoria Memorial Garden and in South Park Street Cemetry.

The genus is named after Professor Jan Kops (1765-1849), professor of botany at Utrecht (Netherlands) and author of a botanical dictionary. The name of the species is after its shrubby nature.

An evergreen shrub, 2.0 to 5.0 metres high with spreading branches. Leaves simple, large, elliptic or, elliptic-lanceolate, glabrous, shining green above, yellowish beneath with distinct venations. Flowers in terminal cymes, showy, petals at right angles to corolla tubes, pinkish with crimson centre, glossy. Fruits a pair of slender follicles,

The species flowers in late spring (March-April) occasionally during other seasons

It contains a poisonous latex reported to be a source of arrow poison.

The species can be propagated by seeds or air layerings.

"The survival of man
is dependent on the survival of
animal and plant life"

—Indira Gandhi

Kopsia fruticosa (Ker) A. DC.

"God Almighty first planted
a garden.
And, indeed, it is the
purest of human pleasures."

— Francis Bacon

Lagerstroemia speciosa (L.) Pers.

Family : Lythraceae
Bengali : JARUL, AJAR
English : QUEEN OF FLOWERS, PRIDE OF INDIA, QUEEN'S CRAPE-MYRTLE, GIANT CRAPE MYRTLE
Hindi : JARUL, ARJUNA
Synonyms : *L. fros-reginae* Retz., *L. reginae* Roxb.

A native of India, the species is honoured as the 'QUEEN OF FLOWERS'—a well deserved name indeed. The spectacular and elegant look it provides to the avenues, when the roadside plantations of this tree are in full bloom can hardly be missed. *L. speciosa* population in Calcutta includes specimens as young as one-year old and some as many as 50 years or more in age. For its beautiful, attractive flowers which clothe the entire trees in purple, lilac or pinkish-violet bloom, fresh plantings are being regularly done in the city.

The genus commemorates Magnus Lagerstroem (1691-1759), a Swedish merchant and patron of science who received specimens from the east and passed them on to Carolus Linnaeus (1707–1771). The name of the species means goodlooking

A handsome, deciduous tree, 4.5 to 15.0 metres high with greyish bark which peels off in irregular flakes. Leaves large, simple, oblong lance-shaped, bluntly pointed at the tip and green in color with conspicuous veins. Flowers in long, racemes which stand upright distinctly exposing the flowers ; sepals green, persistent ; petals 6 or 7, heavily crinkled and wavy, rounded at the apex and clawed below ; stamens yellow. The flowers exhibit various shades of violet, lilac, purple or mauve which change quickly. Fruits woody, spherical capsules containing a number of winged seeds.

The species flowers in early summer (April-May) with a second flush in early monsoon (July-August).

The tree is highly prized for its valuable timber which occupies a position near to teak. The wood is used for boat-building, house construction, railway sleepers, flooring, interior fittings, tool handles, etc.

Medicinally, the old leaves and ripe fruits are regarded as good hypoglycemic agents. The fruits are used in local application for aphthae of the mouth. The seeds possess narcotic principles, the bark and leaves have purgative properties, while the root is astringent and stimulant.

The species is propagated by seeds. Pruning of side branches is necessary to keep the tree in proper shape.

The other common species in Calcutta are *L. indica* L. *L. thorelii* Gagnep. and *L. hypoleuca* Kurz.

***Lagerstroemia speciosa* (L.) Pers.**

Leucaena leucocephala
(Lamk.) de Wit

Family : Mimosaceae
Bengali : SUBABUL
English : HORSE TAMARIND, WHITE BABOOL, SEA BLUE, WHITE POPINAC
Hindi : SUBABUL, VILAITIBAVAL
Synonym : *L. glauca* Benth.

A native of tropical America, the species growing usually on roadsides easily attracts the attention for its small bushy growth, spherical white or yellowish flower heads and the thin, slender pods hanging in clusters. The trees are now planted in enormous numbers by the roadsides, and are quite soothing and pleasing.

The name of the genus is derived probably from the Greek word LEUKOS meaning white, referring to the flowers. The epithet for species refers to the white globular flowering heads.

A large shrub or small tree, up to 6.0 metres high with slender branches and smooth, brownish grey bark. Leaves compound, delicately divided into large number of linear, pointed leaflets, pale green. Flowers appear in a dense, globular head springing from the stem near the axils of leaves. Fruits linear, flat shining pods, clustered in umbels ; seeds polished, brown, oval.

The species flowers from late spring to end of rainy season (March September).

The trees are sometimes grown for shade and cover in coffee plantations. The young pods and seeds are edible. Leaves are used as good fodder for cattle. In some places the bark is eaten to relieve internal pains.

The tree is propagated by seeds only : favours dry conditions.

Leucaena leucocephala (Lamk.) de Wit

Magnolia grandiflora L.

Family : Magnoliaceae
Bengali : BILITI CHAMPA, MAGNOLIA, HIM CHAMPA
English : GREAT LAUREL MAGNOLIA, BULL BAG, LILI TREE
Hindi : ANDA CHAMPA, HIM CHAMPA

A native of North America, the species is strikingly handsome cherished for its pyramidal shape, dark brownish-green foliage and large attractive flowers. It is only sparingly planted in Calcutta gardens; it produces few flowers, is much susceptible to pests and has stunted growth under Calcutta conditions. However, some good specimens are growing in private gardens, and public gardens like Macpherson Square, National Library Garden, etc.

The genus is named in honour of Pierre Magnol (1638-1715), a professor of medicine and director of the Botanic Garden at Montpellier (France) and the name of species refers to large grand flowers.

An evergreen, small to medium-sized tree; 6.0 to 10.0 metres high with smooth grey bark and erect branches. Leaves simple, alternate, thick and coriaceous, oblong to obovate, shining glossy above, rusty-brown below; leaf-buds enclosed in rusty, pubescent sheaths which dehisce on unfolding of leaves. Flowers solitary, terminal on branchlets; sepals large, petaloid; petals obovate, expanded with a compact cluster of purple stamens at the centre, glossy white, changing to cream, sweetly fragrant. Fruits more or less egg-shaped cones with many hanging seeds; fruit setting rare.

The species generally flowers from late spring to summer (April-June) but also in autumn (September-October).

There are several cultivated varieties under this species which differ from each other mostly in the shape, size and coloration of leaves and flowers.

Magnolia grandiflora L.

Magnolia pterocarpa Roxb.

The leaves and flowers are extensively used in flower arrangements and bouquets. The bark is said to be stimulant, aromatic and tonic, used in malaria and rheumatism. The wood may be transformed into unbleached pulp for making toys, masks, etc.

The species is propagated by air layerings and stem cuttings. Treatment with indolebutyric acid (IBA) and naphthaleneacetic acid (NAA) is reported to be effective in formation of root.

The other species growing occasionally in Calcutta gardens is *M. pterocarpa* Roxb., it is a much larger tree with heavy rounded crown but comparatively small white flowers.

Malvaviscus arboreus Cav.

Family : Malvaceae
Bengali : LANKA JABA
English : SLEEPING MALLOW, GIANT FIRE DART, WAX MALLOW

A native of Mexico, the species has dense foliage and flowers of beautiful color ; it finds a place in most of the gardens in the city. It is one of the prominent flowers used in worship and hence is cultivated in most of the temple and domestic gardens.

The name of the genus is derived from a Greek word referring to STICKY MALLOW, while the specific name refers to its arboreal habit.

A small to medium-sized shrub, attains a height of 2.5 metres or more, quite spreading, much branched. Leaves simple, alternate, stipulate, lanceolate to ovate, variable in size, tending to be three-lobed with toothed edges, light green turning to dark green with age. Flowers long lasting, solitary or in small groups in leaf axils, funnel-shaped, narrowed at the mouth like a loosely furled umbrella, never wide open, brilliant red or rich crimson-red, with protruding staminal column.

Varieties with pink or pinkish-white flowers are also cultivated.

Blooms all round the year, particularly during summer and rainy seasons (April-September).

The species is cultivated either solitary or as hedge plant. Also grown in pots.

Easily propagated by cuttings during rainy season. Drastic pruning in winter induces vigorous branching and flowering.

Malvaviscus arboreus Cav.

Mesua ferrea L.

Family : Clusiaceae (Guttiferae)
Bengali : NAGKESAR, NAGSURA
English : IRONWOOD TREE
Hindi : NAGKESAR, NAGCHAMPA, NAGESWAR CHAMPA

A native of Indo-Malayan region, the species is one of the most beautiful flowering trees, due to its charming foliage and exquisite flowers with delicate fragrance. Unfortunately it had always been a rare tree in Calcutta growing lonely in some gardens and most of them have also in the meantime dwindled with the passage of time. Only a few specimens are surviving as relics of the past.

The genus is named after Arabian physician Johannes Mesue (777-857) of Damascus ; the species takes its name from rusty colored young leaves.

A cone shaped, medium-sized, evergreen tree up to 15.0 metres high with smooth, dark grey bark. Leaves long, narrow, in opposite pairs, upper surface dark green, lower pale and waxy ; young leaves intensely red, pass through delicate shades of pink to dark green. Flowers in dense clusters with 4 white petals as a Malthese-Cross ; stamens numerous, thread-like, forming a golden ball within. Fruits egg-shaped,small drupes.

The species flowers in late winter to early spring (February-March).

This sacred tree is often mentioned in ancient Sanskrit literature.

The dried flowers are sold in Indian markets as they contain some essential oils and are used in cosmetics and perfumery. The fruits are edible and possess some medicinal properties. The seed oil is used as lubricant, illuminant and in making soap. The wood is very hard and reddish-brown in color, used for poles, posts, railway sleepers and heavy machinery.

Mesua ferrea L.

The species is usually propagated by seeds, which soon loose viability in storage ; they should be sown immediately after harvest. It is a highly decorative plant and attempts should be made to increase its numbers in Calcutta and suburbs.

The other trees of Clusiaceae growing in the city are *Calophyllum inophyllum* L., *Cratoxylon cochinchinensis* (Lour.) BL., *Garcinia cowa* Roxb. ex DC. and *Mammea americana* L.

Mesua ferrea L.

Michelia champaca L.

Family : Magnoliaceae
Bengali : CHAMPA, CHAMPAKA, SWARNA CHAMPA
English : GOLDEN CHAMPA, YELLOW CHAMPA, ORANGE CHAMPAK, FRAGRANT CHAMPACA
Hindi : CHAMPA, CHAMP

A native of India (foot hills of Himalayas), the species was once a favourite subject in Indian poetry. For its beauty and fragrance it was grown in abundance in the TAPABANS (Gardens for meditation) of the great Indian saints and in the precincts of temples. The tree is not very popular now, yet one can occasionally see a CHAMPA flower in ladies hairdos.

The genus is named in honour of Pietro Antonio Micheli (1679-1737), a Florentine botanist and the specific name is after the Sanskrit name of the tree.

An evergreen small to medium-sized, 6.0 to 12.0 but in wild up to 20.0 metres high tree with pubescent branchlets. Leaves simple, ovate-lanceolate, tapering to a long point, glabrous and shining above, sometimes with wavy margins, pale green. Flowers solitary, borne in axils of leaves : buds encased in hood-like stipules : petals fleshy, linear, pale yellow or brownish-yellow, strongly scented. Fruits long clusters of capsules with scarlet or brown seeds.

The species starts blooming from late spring (April) and continues intermittently throughout the year.

Trees with comparatively small flowers and pure white petals (var. *alba*) are also found growing in some gardens.

Hindu women have special reverence for this species, and a devotee considers herself blessed if an offering of this flower can be made to Lord Vishnu. It is also regarded as a very sacred tree by some communities in south India.

Michelia champaca alba

Michelia champaca **L.**

The fruits are said to be edible. An essential oil is extracted from the flowers which is highly esteemed in perfumery. The wood is soft and durable, seasons and polishes well, and is sometimes used for making statues, images and idols.

The tree is also considered medicinally important. The bark is stimulant, expectorant and astringent. The root and root bark have purgative and healing properties. Flowers and fruits are stimulant, antiseptic, tonic, carminative, bitter and cooling ; used in dyspepsia, nausea, fever, renal diseases and gonorrhoea and mixed with SESAMUM oil externally applied in vertigo. Seeds and fruits are used for healing cracks in feet. The essential oil obtained from the flowers is prescribed in ophthalmia and gout.

The species is propagated by seeds or stem cuttings having one or two tender leaves.

Milletia peguensis Ali

Family : Fabaceae
Bengali : TUMA*
English : MOULMEIN ROSEWOOD

A native of Burma, the species is admired for its dwarf habit, elegant foliage and beautiful lilac-colored flowers appearing in dense clusters. It is often found in Calcutta gardens and on roadsides. Good specimens are seen in and around Victoria Memorial.

The genus is dedicated to Dr. J. A. Millett, a botanist who wrote on China in 1726 and the name of species refers to its native place.

A small to medium-sized deciduous tree, 3.5 to 6.0 metres high with a rounded crown and somewhat drooping branches. Leaves imparipinnate ; leaflets 7, ovate-elliptic, glaucous. Flowers in drooping, axillary racemes with dark red or purplish sepals and mauve to lilac petals. Fruits 3-seeded, flat pods, narrowed to the base.

The species flowers in spring (February-March) ; flowers appear in leafless condition or along with tender leaves on trees.

Mostly raised from seeds.

In some places the tree is called TUMA because of its flowers which fall on the ground like pearl drops.

The other trees and shrubs growing in parks and gardens, on roadsides and in waste places belonging to this family are *Brya ebenus* DC., *Castanospermum australe* A. Cunn. & Fraser, *Dalbergia lanceolaria* L., *D. latifolia* Roxb., *D. sisoo* Roxb., *Piscidia piscipula* (L.) Sarg., *Pongamia pinnata* (L.) Pierre, *Pterocarpus indicus* Willd. non Baker, *Sesbania grandiflora* (L.) Poir. and *S. sesban* (L.) Merr.

Milletia peguensis Ali

Mimusops elengi L.

Family : Sapotaceae
Bengali : BAKUL, BOHL
English : SPANISH CHERRY, INDIAN MEDLAR
Hindi : MAULSARI, BOLSARI, BAKUL, MAULSER

A native of Indian Peninsula, Burma and Sri Lanka, the species bears star-like intensely scented flowers. The flowers are not attractive, but the tree becomes very fascinating in appearance when it is covered with CHERRY-like red fruits. The lustrous crown of foliage in a pyramidal shape makes the tree charming and elegant. The species is very common in the parks and gardens of Calcutta and also planted as an avenue tree.

The generic name *Mimusops* has originated from two Greek words, MIMO (an ape) and OPSIS (in appearance) which collectively allude to the resemblance of the flower to the face of an ape. The specific epithet is derived from a vernacular name in Malabar.

A medium to large-sized, evergreen tree, 8.0 to 16.0 or more metres high with a straight trunk from which numerous spreading branches originate. Leaves simple, alternate, undulate, ovate-lanceolate or oblong, shortly-acuminate, shining, dark green. Flowers solitary or in fascicles, star shaped, dirty white. Fruits ovoid, fleshy berries containing a single, hard, brownish seed ; orange to red when ripe.

The trees bloom from late spring to early monsoon (April-July), occasionally in other seasons.

Some trees have yellow berries, while in others the leaves are variegated with yellowish margins or mid-rib.

The small fragrant flowers scatter on the ground beneath the trees and are esteemed for making garlands and floral ornaments. These yield the MAULSARI essence and in dried condition are used for stuffing pillows. The fruits are edible. The seeds contain an oil which is used

Mimusops elengi L.

Mimusops elengi L. fruiting

for painting as well as for cooking and illumination. The wood is sometimes used for various household articles.

Medicinally the bark is used as astringent, tonic and as febrifuge, also prescribed for biliousness and diseases of the gums. The leaves are reported to have applications as an antidote to snake bite.

The species is generally propagated by seeds.

The other species of this family growing sporadically in some places is *Madhuca indica* J. F. Gmel., the BUTTER TREE which is of considerable economic value, particularly in rural areas. *Manilkara achras* (Mill.) Fosberg and *M. hexandra* (Roxb.) Dub. are cultivated for their edible fruits.

Murraya paniculata (L.) Jack.

Family : Rutaceae
Bengali : KAMINI
English : ORANGE JASMINE, CHINESE BOX, SAIN WOOD, SUMATRA BOX
Hindi : KAMINI, BIBSAR, ATAL, MARCHULA, JUTI

A native of India, the species is unique and ideal for making ornamental hedges and perhaps the best material for topiary. The plant is also adorned for its sweetly scented small clustered flowers and innumerable small red berries. It is found in most of the gardens and parks.

The genus is named in honour of John Adam Murray (1740-1791), a professor of botany at Gottingen and a pupil of Linnaeus and the species *paniculata* in Latin means having panicles, or tufts, of flowers.

An evergreen, large shrub or small tree. 2.5 to 4.0 metres high with ash-colored bark and tufted branches. Leaves compound, imparipinnate ; leaflets 5 to 9, arranged alternately, ovate, shiny, glandular, dark green. Flowers in small corymbs, axillary or at the ends of branches ; corolla campanulate, fragrant, white. Fruits small berries, tapering at both ends, green, turning bright red or orange-red at maturity.

The species flowers almost all the year round in sequence with a small interval of six to eight weeks between the two flushes.

The bark is used in the preparation of cosmetics, hence the plant is sometimes also called COSMETIC BARK TREE. The wood is used for walking sticks and engraving work. The fruits are edible.

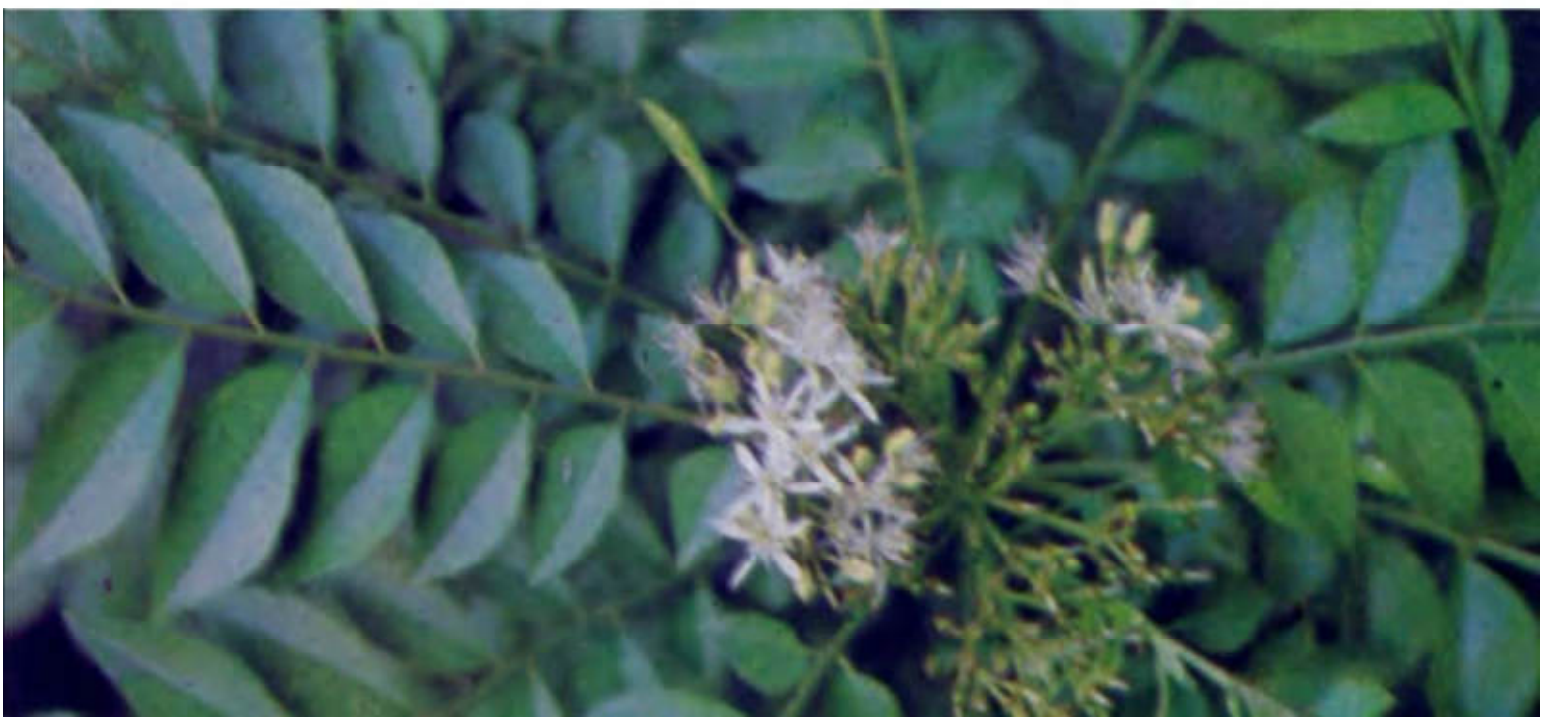
The plant is also used in medicine. The leaves are said to be stimulant, astringent and prescribed in diarrhoea and dysentery. It is used as an antidote to snake bite. The decoction of leaves is reported to cure dropsy. The bark of stem and root possesses antidiarrhoeal properties.

The species is propagated by seeds. Propagation by cuttings or air layering is difficult as the plant is obstinate in rooting.

The other species under the genus is *M. koenigii* (L.) Spreng. (CURRY LEAF PLANT), cultivated mostly in private gardens for its leaves (used for flavouring curries) and also for its ornamental flowers.

Murraya paniculata (L.) Jack.

Murraya koenigii (L.) Spreng.



Mussaenda philippica A. Rich.

Family : Rubiaceae
Bengali : MUSHANDA, PATRALEKHA
English : FLAG BUSH
Hindi : BEDNIA

A native of Philippines, the species was introduced into India recently, yet it has captured the fancy and within few decades, can be seen now in many public, private and industrial gardens, office premises, courtyards and traffic islands in the city. From a distance, it appears like a cascade of white, pink or rosy-pink colors embeded with small beads of yellow pearls.

The name of the genus is derived from native name in Sri Lanka, while the specific name is after its place of origin.

A deciduous shrub, 1.5 to 3.5 metres high, bushy in nature with greyish-brown bark. Leaves simple, opposite, stipulate, ovate to elliptic, coriaceous, pubescent with distinct convergent venation, glossy green. Flowers small, in clusters at the ends of branches, yellow or yellowish-white with all sepals expanded into flag-like bracts, ovate, white or various tinge of pink and rosy-pink.

The species flowers throughout the year excepting the few winter months.

Several varieties and hybrids originating from this species are in cultivation. Of these, *Aurorae*, *Donna aurora* and *Luz* are most commonly grown.

The species is propagated by cuttings or air-layering. Cuttings treated with indoleacetic acid (IAA) or naphthaleneacetic acid (NAA) strike roots easily with greater survival. The plants require drastic pruning for maintaining a bushy habit with profuse flowering.

In addition, *M. erythrophylla* Schum. & Thonn., *M. frondosa* L. and *M. luteola* Del. are also cultivated in Calcutta gardens.

Mussaenda philippica 'Aurorae'

Mussaenda luteola Del.

Mussaenda frondosa L.

Mussaenda philippica 'Luz

Nerium oleander L.

Family : Apocynaceae
Bengali : KARABI, RAKTA KARABI, SWET KARABI
English : OLEANDER, ROSEBAY
Hindi : CHANDNI, KANER
Synonyms : *N. indicum* Mill., *N. odorum* Soland.

A native to Mediterranean region extending eastwards to Japan. Common in templeyards, courtyards, traffic islands, road medians and house gardens. Presently planted in medians of bigger avenues. Good plantations are observed in boulevards of Kazi Nazrul Islam Sarani, Dr. Meghnad Saha Road and traffic islands at Lake Town, New Alipore, Bidhan Nagar area and Surendranath Park.

The name of the genus is derived from the Greek word NEROS meaning moist referring habitat in which it grows wild ; the species is named after the common English name OLEANDER.

An evergreen, small to medium-sized attractive shrub, 1.5 to 5.5 metres high with long, slender, upright branches. Leaves thick, coriaceous, oblong-lanceolate, in pairs or whorls. Flowers in terminal clusters, funnel-shaped, fragrant with shades of white, pink or deep pink and red. Fruits a pair of follicles with numerous winged seeds.

Flowering occurs throughout the year ; but more profusely in summer (May-June) or autumn (October-November).

In wild condition the flowers are generally single, but under cultivation, semi-double or double forms occur with variations in color through pink, purple, rosy-purple, red, white and even light yellow. Variegated variety having grey-green leaves with creamy margins is also recorded.

All parts of the plant particularly the root and the bark are poisonous. In *Atharbaveda* it is said that if a horse eats young leaves, it will acquire arrow's speed, but the speed will stop if the root is consumed. The tender

Nerium oleander L. *rosea*

Nerium oleander L. *rubra*

Nerium oleander L. *alba*

leaves are said to be cardiac stimulant. The leaves, bark, root and latex have medicinal properties, used in various preparations in pyorrhea, flatulence, dyspepsia, ringworm, piles and leprosy. The bark of the root relieves excessive sneezing, while the flowers yield good quality honey.

Propagation by stem cuttings during rainy season is advisable. Pruning after flowering makes the plant bushy and attractive.

Nyctanthes arbor-tristis L.

Family : Nyctanthaceae (Oleaceae)
Bengali : SEPHALIKA, SHEULI
English : NIGHT JASMINE, CORAL JASMINE
Hindi : HARSINGHAR, SEOLI

A native of India, the species bears small beautiful flowers which are esteemed as offerings in temples and the plants are commonly found in temples, particularly in north India. In Bengal when the species flowers in early autumn it brings the message of ensuing festive occasions. It is also widely cultivated.

The name of the genus is derived from two Greek words NUX means night and ANTHOS means a flower which collectively refers to its bloom in night. The epithet *arbor-tristis* in Latin means dull colored trees.

A hardy, large shrub or small tree, 2.5 to 6.0 metres high with quadrangular, erect branches. Leaves simple, ovate, acuminate or acute, rough and scabrous above, densely pubescent below, margin with large distant teeth. Flowers on axillary or terminal trichotomous cymes; calyx tubular, pubescent outside; corolla tube small, bright orange colored, lobes 4 to 8, divided at apex, fragrant, white. The flowers open in late night and drop off early next morning. Fruits sub-orbicular, compressed capsules, separating into two flat, one-seeded carpels.

The species flowers from autumn to winter (September-January).

The petals yield an essential oil similar to that of JASMINE; a dye is extracted from corolla tube which is used in dyeing cotton and silk clothes. This dye is used for coloring the robes of Buddhist priests and the dresses of school girls for offering worships to Goddess Saraswati (the Goddess of Learning). The wood is sometimes used for poles or batton base for thatching roofs. The bark is used as a tanning material.

The species is much reputed for its medicinal properties. The leaves contain acrid and bitter principles, useful as cholagogue, laxative, diaphoretic and diuretic. It is also given in fever and rheumatism and to children for expulsion of round and thread worms. The bark is said to be expectorant and the powdered seeds are administered in scurfy affections of the scalp.

The plant is propagated by seeds or cuttings.

Nyctanthes arbor-tristis L.

Ochna jabotapita L.

Family : Ochnaceae
Bengali : RAMDHAN CHAMPA
English : BIRD'S EYE BUSH, GOLDEN CHAMPAK
Hindi : KANAKCHAMPA, KHAMBAR
Synonym : *O. squarrosa* L.

A native of tropical Asia, the species is spectacular for its orientation of fruits in an amazing manner on a brightly colored receptacle, as if costly gems are carefully placed on a velvety casket.

The genus is named after a Greek word OCHNE referring to a wild pear. The name of species is originated probably from some vernacular name in Sri Lanka.

An evergreen shrub, 1.0 to 2.0 metres high with smooth, brown bark. Leaves simple, alternate, elliptic or elliptic-lanceolate, finely serrated, dark green. Flowers several together on short spurs ; calyx persistent, overlapping, bright red or crimson-red ; corolla butter cup-like, yellow, short-lived. Fruits one-seeded drupes, placed on large, central disc-like receptacle, surrounded by deep purple or red sepals.

The wood is fairly hard and used for making walking sticks and is suitable for inlaying.

The root is considered an antidote to snake bite ; its decoction is used in menstrual complaints and asthma. The bark has disgestive and tonic properties.

The species is best propagated from semi-hard wood stem cuttings.

O. artopurpurea DC. is seen in some gardens.

Ochna jabotapita L.

"The butterflies spread their sails
on the sea of light.
Lilies and jasmines surge up
on the crest of the waves of light".

—Rabindranath Tagore

Pandanus odoratissimus L. f.

Family : Pandanaceae
Bengali : KEYA, KETUKI
English : SCREW PINE, UMBRELLA TREE, NICOBAR BREAD-FRUIT, WALKING TREE
Synonym : *P. tectorius* Soland. ex Park.

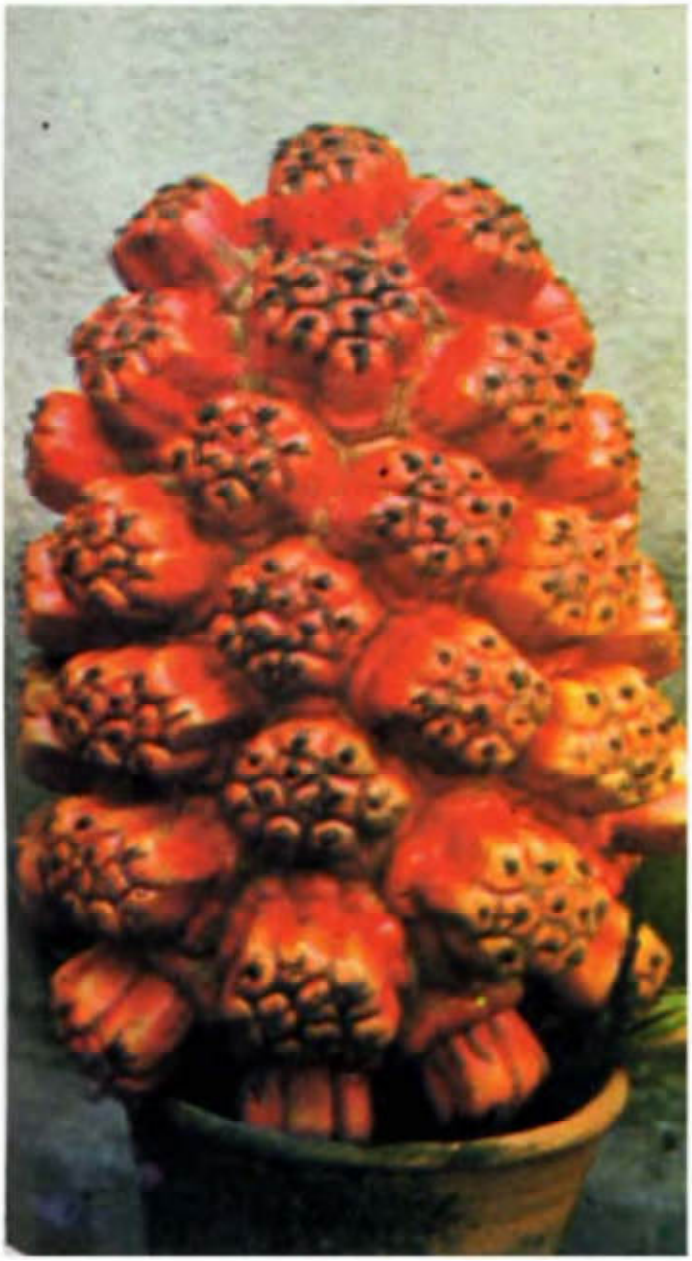
A native of Old World tropics, the species is very popular in the country since ancient times for its commercial perfume, the KEWDA essence, a product which is extensively used by the rich. To the poor the plant supplies the edible fruits and leaves for thatching or making cordage and for the city dwellers it is a novelty for its long lustrous leaves and curious stilt roots. The plant is seen in many gardens and parks or as potted house plants but rarely on roadsides, excepting in some traffic islands.

The genus *Pandanus* is latinised form of a Malayan vernacular name and the species is named after its very sweet scented flowers.

A tall, evergreen shrub or small tree, 3.0 to 6.0 metres high with frequently branched stem which rests on stiff stilt roots. Leaves arranged in tufts on the top of stem, long, narrow, margins deeply serrated usually twisted in spirals on the stems (hence the name SCREW PINE), deep or light green, sometimes variegated. Male flowers borne in dense, terminal clusters, enclosed in white spathe : females in solitary, dense clusters, surrounded by whitish leaves ; both are extremely fragrant. Fruits composite, oblong or spherical, pineapple-like, green, turning to red or yellowish-red on maturity.

The species flowers mostly in spring and summer (March-June), sporadically in other season.

The species is grown in parks and gardens for its beautiful foliage and scented flowers. Its flowers are perhaps the most highly scented blooms recorded in the world.



Pandanus odoratissimus L. f. fruits

Pandanus odoratissimus L. f.

The fruits are edible and a strong fibre obtained from the leaves is used in making ropes, cordage or sometimes for making matting and sacks, baskets and fancy items. An aromatic essential oil is obtained from the flowers which is added to drinking water, banquet halls and rooms ; used in cosmetics, hair oils, soaps, lotions, etc.

Medicinally the leaves are bitter, pungent, aromatic and are applied in leprosy, small pox, leucoderma, syphilis and scabies. It is also said to be useful in diseases of the heart and brain.

The plants are propagated by seeds or suckers.

Parkinsonia aculeata L.

Family : Caesalpiniaceae
Bengali : NABINA*
English : JERUSALEM THORN, PALO VERDE, RATAMA
Hindi : VILAITI KIKAR

A native of tropical America, it is recently planted as avenue trees in some places. Sometimes grown on the corners of lawns. Well established in India now, the species is gaining a place in boulevard plantations of the city, particularly in Bidhan Nagar, and few private gardens at Diamond Harbour Road.

The genus is named after John Parkinson (1567-1629), a pharmacist of London and the author of *Paradisus 'Terrestris'* and *'Theatrum Botanicum*. The name of the species is given due to the thorny nature of the plant.

A quick growing, small, thorny, evergreen tree or bush with feathery drooping branches. 2.0 to 4.0 metres high. Leaves alternate, bipinnate with numerous tiny, linear to linear-oblanceolate leaflets, the common petiole spinescent. Flowers in long racemes, fragrant, petals bright yellow, spreading with tubular orange centre. Fruits slender pods tapering at both ends.

Flowering time generally from late spring to early summer (March–May).

The species is suitable for making hedges. The stem bark yields a white brittle fibre.

The plant is easily propagated by freshly harvested seeds. It prefers to grow under dry conditions.

Because of its very recent introduction in the city, the species is named as NABINA, means new comer.

Parkinsonia aculeata L.

Peltophorum pterocarpum
(DC.) Backer ex K. Heyne

Family : Caesalpiniaceae
Bengali : ARUNJYOTI*
English : BRAZILETTO WOOD, COPPER POD, RUSTY SHIELD-BEARER, YELLOW FLAME TREE, YELLOW GOLD MOHUR
Synonym : *P. ferrugineum* (Decne.) Benth.

A native of Sri Lanka, the plant is now considered to be one of the best avenue trees. In Calcutta it is extensively grown on all avenues, parks and perhaps occupies the top position while considering the total population of individual avenue trees. A vast area in central Calcutta bounded on the north by Lenin Sarani, on the south and east by Acharya Jagadish Chandra Bose Road and on the west by the river Hooghly is under massive plantation of this species. This, and *Delonix* form the main species on Kazi Nazrul Islam Avenue to airport.

The generic name in Greek means shield-bearing, referring to the peculiar shape of stigma, and the species is possibly after its flat, thin and winged seeds.

A large, partly deciduous tree, 10.5 to 20.0 metres high with smooth grey bark and spreading crown of many branches. Leaves feathery, *Mimosa*-like, bipinnate ; pinnae 8 to 24 pairs, each bearing 20 to 30 opposite, obliquely oblong, obtuse, dark green leaflets. Flowers borne in large panicles at the ends of branches, cupped in a coppery-red downy calyx ; petals 5, crinkled, bright golden-yellow, fragrant. Fruits flat, indehiscent, rust-colored pods ; seeds broadly winged.

The tree flowers twice in a year, in late spring to early summer (March-May) and in autumn (September-November).

The heart wood is fairly hard and is used for making cabinets.

The species is mostly propagated by seeds, although stem cuttings also strike root during rainy season.

The species is since being called RADHACHURA, which actually refers to the var. *flava* (yellow-flowered) of *Caesalpinia pulcherrima*. The upright golden-yellow flower panicles are often mistaken in the morning as rising sun or rays. Hence the vernacular name ARUNJYOTI is given to this species.

***Peltophorum pterocarpum* (DC.) Baker ex K. Heyne**

Plumeria rubra L.

Family : Apocynaceae
Bengali : LAL GULANCHA,-LAL GORUCHAMPA, LAL KATCHAMPA
English : CRIMSON TEMPLE TREE, RED FRANGIPANI, PAGODA TREE, RED JASMINE TREE
Hindi : GOBUR CHAMPA, LAL GULACHIN, LAL GOLAINCHI, KHAIR CHAMPA, SON CHAMPA
Synonym : *P. acutifolia* Poir.

A native of tropical America, the 'FRANGIPANIS' are one of the outstanding novelties of the gardens. Due to the sweet fragrance of the flowers, the tree is often found planted in templeyards, graveyards and in church campuses.

The genus is named after Charles Plumier (1646-1706), the French Botanist, species name refers to the red color of flowers.

A large, deciduous shrub or small tree, containing milky latex in all parts, 3.5 to 7.5 metres high with thick or slender, brittle branches. Leaves large, simple, alternate, oblong-lanceolate, pale green with conspicuous nerves. Flowers borne on terminal clusters, showy, with 5 overlapping petals ; petals purple, red, rose or crimson, with or without shades of white or yellow, exceedingly fragrant. Fruits a pair of narrow follicles, but rarely formed.

The flowers appear profusely from early spring to late autumn (February-October) with intermittent flowering in winter months.

There is considerable complexity regarding the species and varieties of *Plumeria*. Some classify into seven species and a few varieties, while others recognise only three or four species, but several varieties. The classification of PLUMERIAS is based mainly on the characters of the leaves and color of the flowers.

The leaves are used as a poultice to cure swellings. The milky latex is a remedy for rheumatism, and is applied

Plumeria rubra L.

in tooth ache ; applied with coconut oil it cures skin troubles. The root bark has drastic purgative action. Wood is sometimes used for making musical instruments.

The plants are propagated easily from stem cuttings. In some varieties aerial roots develop from branches.

Plumeria acuminata Roxb.

Portlandia grandiflora L.

Family : Rubiaceae
Bengali : RAMYANI*
English : PORTLANDIA

A native of West Indies, it is one of the most charming plants in the gardens, due to the contrast of its shining dark foliage and dazzling white blossoms. Good specimens can be seen in some private gardens and also in Assembly House Garden.

The genus is named in honour of Margaret Cavendish Bentinck (1715-1785), a Duchess of Portland. The name of the species is after its large, showy flowers.

An evergreen shrub, more or less bushy in habit, 1.5 to 3.0 metres high with smooth darkish bark. Leaves simple, stipulate, in opposite pairs, elliptic-ovate, thick, coriaceous, shining, dark green. Flowers large, snow white, slightly fragrant, 1 to 3, on axillary peduncles, funnel-shaped with long corolla tube ; corolla 5-lobed, spreading at the mouth with 5 stamens and conspicuous anthers exerted out of the corolla. Fruits oblong capsules with numerous seeds.

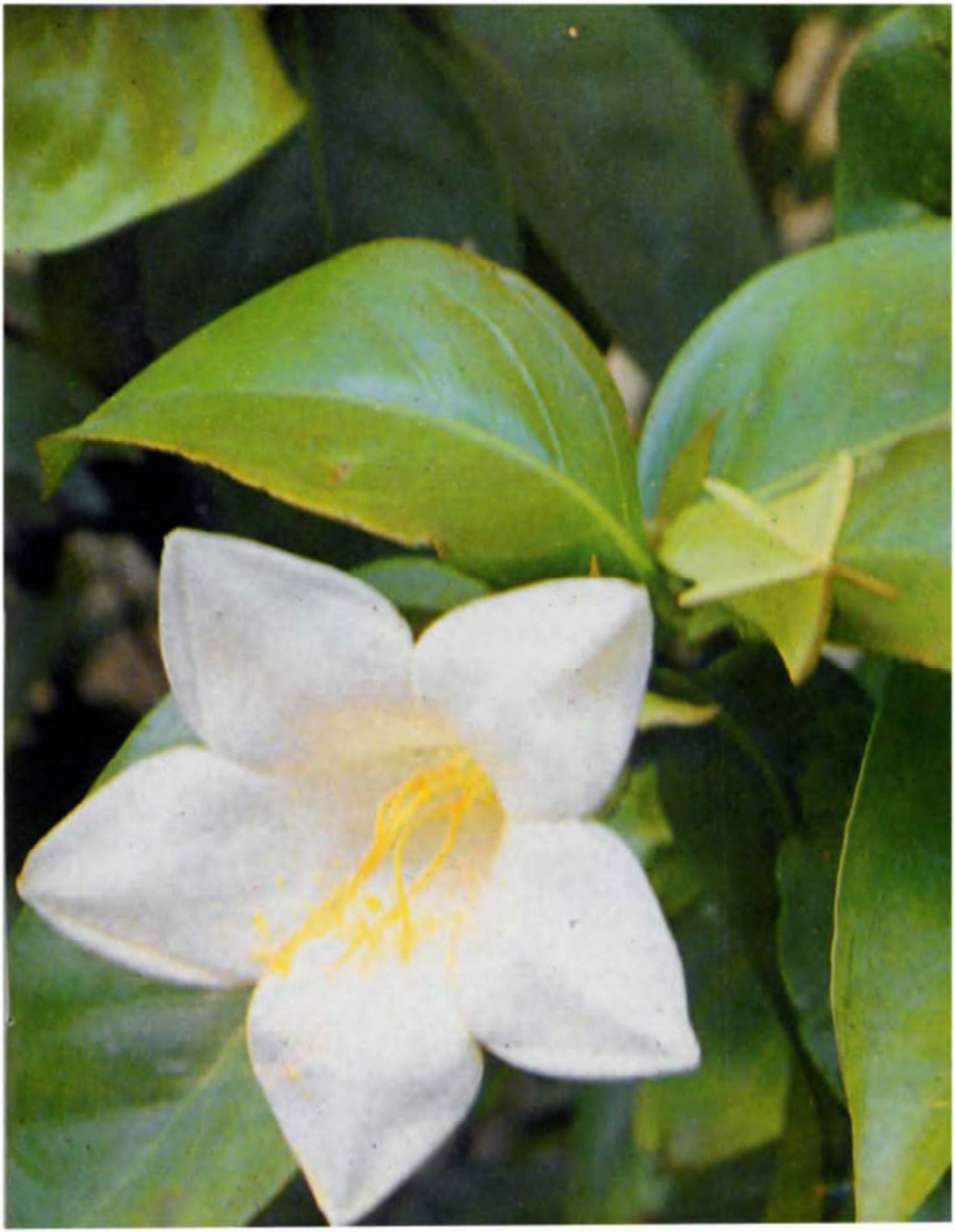
The species flowers from early spring to late autumn (February-November), occasionally during winter.

It can be propagated easily by seeds. It is desirable to sow seeds immediately after harvest. The species prefers morning sun and should be grown under partial shade.

The vernacular name RAMYANI is given for the exuberant beauty of the flowers.

The other trees of this family found growing in Calcutta are *Morinda bracteata* Roxb., *M. citrifolia* L., *Nauclea orientalis* L., etc.

Portlandia grandiflora L.



Pterospermum acerifolium (L.) Willd.

Family : Sterculiaceae
Bengali : KANAK CHAMPA, MUCHUKUNDA
English : BAYUR TREE
Hindi : MOOCHKUND, KANAK CHAMPA
Synonym : *P. aceroides* Wall.

A native of Indo-Burmese region, the species is frequently found in Calcutta gardens, particularly in churchyards and in templeyards. Also planted as avenue tree on many north Calcutta roads.

The genus is named after the winged fruits and the species after its *Acer*-like foliage.

A medium-sized, robust, evergreen tree, 12.0 to 16.0 metres high with a large crown. Leaves large, deep cordate or peltate, shallowly and irregularly lobed, leathery; upper surface glabrous, green, lower surface greyish-brown, densely wooly with prominent nerves. Flowers large, showy, densely tomentose, white, fragrant. Fruits 5-angled woody capsules, clothed with brown wooly hairs ; seeds with membranous wings.

The species flowers in early spring and continues up to early summer (February-April).

The leaves are used as platters and for packing tobacco. The wood is used for making packing cases, planks, turnery articles and plywood. It takes a good varnish.

The flowers are of great domestic use. These are good repellant and disinfectant for insects and bugs, probably due to the presence of some aromatic compounds in the small glands located on the sepals. These are also used as a general tonic and in the treatment of inflammation, blood diseases, tumours, ulcers and leprosy.

The tree is propagated by seeds.

Pterospermum acerifolium **(L.) Willd.**

The other species growing in the city are *P. lanceaefolium* Roxb. and *P. suberifolium* Lam.

The other trees and shrubs of this family found in Calcutta parks and gardens and on roadsides are *Abroma augusta* L., *Firmiana colorata* (Roxb.) R. Br., *Guazuma ulmifolia* Lamk., *Pterygota alata* (Roxb.) R. Br., *Sterculia foetida* L. and *S. villosa* Roxb.

Punica granatum L.

Family : Punicaceae
Bengali : DALIM
English : POMEGRANATE, GRANADA
Hindi : ANAR, DARIM

A native of Iran, the species is widely cultivated throughout the country. In the city it is grown in private gardens for its nourishing and tasteful fruits, while in public parks and lawns of Government and industrial buildings it is planted for its handsome flowers. Appreciable collections of the species may be seen in the lawns of a paper mill at Lake Town.

The name of the genus is derived from PUNICUS, an early name of pomegranate, and the specific name is probably due to the innumerable seeds embedded in juicy edible pulp.

A large deciduous shrub or small tree, 2.5 to 4.0 metres high. The ornamental variety, particularly *Nana*, is dwarf, it attains a height of 1.0 to 1.8 metres. Leaves narrow, opposite, entire, oblong or obovate, deep green, glabrous and more or less polished. Flowers showy with crinkled, glossy, deep orange-red or bright scarlet petals. Fruits large thick skinned, many-seeded pome-like berries.

The plant flowers during rainy season. Ornamental varieties flower all the year round, but more profusely during spring to autumn (March-November).

Ornamental varieties include *Nana* (dwarf double-flowered), *Florepleno* (crimson-red double-flowered), *Legrellei* (coral red with stripped yellowish-white bordered double-flowered) and *Albescens* (white double-flowered).

The usefulness of this plant, the fruits in particular, has been vividly described in ancient Indian literature. The juice of the fruit is said to be stimulant and cooling and is believed to cure various diseases of the liver, spleen, stomach, and the circulatory and the nervous systems,

The stem and root bark are astringent ; they are anthelmintic specially for tape worms. Peel from the fruit is used in diarrhoea and dysentery. Stem bark contains high percentage of tannin.

The species can be propagated by seeds, cuttings, layering and grafting ; grows well in warm sunny areas.

Punica granatum L.

Quassia amara L.

Family : Simaroûbaceae
Bengali : KASTURI
English : SURINAM, BITTERWOOD, QUASSIA

A native of tropical America, the species with its brilliant red flowers and characteristic jointed foliage is often seen adding sparkling beauty to some of the gardens in Calcutta. A fine specimen can be found in the National Library Garden.

The genus is named after Quassi, a native medicine man of Surinam who gained much reputation for his administration of the barks as a miraculous remedy for fever. The epithet *amara* means bitter.

A lofty, shrubby tree, 2.0 to 2.5 metres high with greyish bark and slender branches. Leaves opposite, odd-pinnate ; leaflets 5, elliptical oblong, tapering at the base ; petiole distinctly winged ; dark green with pinkish veins. Flowers in small racemes at the tips of branches ; corolla 5-lobed, spirally twisted, bright red or crimson. Fruits biglandular, ovoid drupes.

The species flowers in summer and rainy seasons (April-August).

The wood and bark contain some bitter principles which are medicinally important.

The species can be propagated by seeds or stem cuttings.

The other member of this family growing in some places and also on roadsides is *Ailanthus excelsa* Roxb., a tall deciduous tree with small white or yellowish flowers.

Quassia amara L.

" .... the elimination of one species
creates problems to others
sooner or later."

—Indira Gandhi

Ravenia spectabilis Griseb.

Family : Rutaceae
Bengali : LABONI
Synonyms : *Limonia spectabilis* Lindl.

A native of Cuba and Brazil, the species although rarely found in Calcutta gardens, is perhaps one of the appropriate examples of love at the first sight. Its foliage is ornamental, lustrous and soothing to the eyes. The flowers are beautiful in color and artistic in shape and appearance.

The genus is named after J. F. R. Raven, a pupil of Joseph Pitton de Tournefort (1656-1708), the father of modern genus concept. The species is named after its beautiful flowers.

An evergreen, medium-sized, tender shrub, 1.5 to 3.0 metres high with dense branching. Leaves compound, trifoliate, opposite ; leaflets entire, lanceolate, glandular, dark green. Flowers borne on long, axillary peduncles, solitary or in clusters of 3 to 5 ; sepals 2, spoon-like, foliaceous ; petals 5, asymmetrial, connate below forming a short corolla tube, bright pink. Fruits small berries containing 1 or 2 seeds, rarely formed.

The species flowers throughout the year, more in summer months (April-July).

The plants are generally propagated by cuttings and air layerings. Prefers to grow under partial shade.

The other trees of the family Rutaceae cultivated in the city for their edible fruits are *Aegle marmelos* (L.) Corr., different species of *Citrus* and *Limonia acidissima* L. [*Feronia limonia* (L.) Swingle], *Glycosmis arborea* (L.) DC., is a common woody shrub in waste places.

Ravenia spectabilis **Griseb.**

Samanea saman (Jacq.) Merr.

Family : Mimosaceae
Bengali : BILITI SIRIS
English : RAIN TREE, GUANGO, COW TAMARIND, MONKEY POD
Hindi : VILAITI SIRIS
Synonym : *Pithecolobium saman* Benth.

A native of Central America, the legendary RAIN TREE is introduced in the country not for getting the rains in night but for its unique umbrella-like crown providing adequate shade and relief from the scorching sun. Planted extensively as an avenue tree, and also in some gardens in Calcutta.

The genus *Samanea* is a corruption of its native Spanish name ZAMAN and name of the species is based on American vernacular name.

A large tree, beautiful, partly deciduous, reaching a height of 15.0 to 30.0 metres with widespreading branches. Leaves pinnate, divided into a number of blunt leaflets set on either side of branches from the central mid-rib of the leaf, shining dark green above, pubescent beneath. The leaves exhibit distinct photo-tropic movements. During night or in cloudy weather, they fold and bend sideways, while at day time they remain wide open allowing little sunlight through the thick canopy. Flowers appear in clustered panicles ; they are small, with numerous long, pink, white or rose colored stamens which form an attractive puff. Fruits straight, thick-margined, indehiscent pods.

Flowering starts from early spring (February-March) and continues sporadically up to late monsoon (September).

Extensively planted as an avenue tree for its characteristic canopy when planted on both sides of a highway it maintains a perfect and uniform symmetrical shape giving excellent landscaping.

Samanea saman (Jacq.) Merr.

The leaves and pods are used as good cattle feed. The pods when eaten by cows are said to increase the quality and quantity of milk. The wood is sometimes used for platters, split posts, planks and furniture.

The species is easily propagated from both seeds and stem cuttings. It is resistant to wind and thrives best in moist climate.

The other trees of the family growing in the city are *Acacia auriculiformis* A. Cunn., *A.nilotica* (L.) Willd. ex Del. subsp. *indica* (Benth.) Brenan, *A. polyacantha* Willd., *Adenanthera pavonina* L., *Haematoxylon campechianum* L. and *Pithecolobium dulce* (Roxb.) Benth.

Saraca asoca (Roxb.) de Wilde

Family : Caesalpiniaceae
Bengali : ASOK, ASOKA
English : ASOKA TREE, SORROW-LESS TREE
Hindi : ASHOK, ASOK, AMPICH
Synonym : *S. indica* auct. non L.

A native of India, Burma and Malaya, the species is associated with several mythological beliefs and religious sentiments. One of such beliefs is that the tree is the symbol of love, and is dedicated to Kama, the Indian God of Love who kindles passion and love in the hearts of human and even celestial beings with arrows of five different flowers ; one of these five is formed from the flowers of ASOKA. Growing in several parks and gardens in Calcutta, the species does enchant many by its beautiful flowers and foliage.

The name of the genus is derived from an Indian vernacular name SARAC and the species got its name from the old Sanskrit name ASHOKA.

A small, evergreen tree, 3.0 to 5.0 metres high with spreading branches in all directions and forming a dense crown. Leaves compound with 6 to 12 leaflets, oblong lanceolate, dark green ; young leaves thin, flaccid, pinkish-brown or coppery-red, drooping. Flowers borne in dense corymbs, axillary or from the scars of fallen leaves or branches ; corolla tube slender, expanded at the mouth ; stamens long, spreading with small, kidney-shaped anthers ; orange or orange-yellow, changing to vermillion, fragrant. Fruits fleshy pods with smooth grey seeds.

The species normally flowers from early spring to late spring (February-April), but under Calcutta conditions, occasional blooming is noticed in other seasons too.

The ASOKA is regarded as one of the sacred trees of the Hindus. The married women worship the tree and on particular ceremonial occasions in the month of CHAITRA

Saraca asoca (Roxb.) de Wilde

(March-April) consume some flower buds in order to keep their children away from sorrows and grief. Lord Buddha is said to have been born under this tree; hence it is a holy tree to the Buddhists. Legend says that when Sita was abducted by Ravana, Sri Ramchandra moved from one tree to another in the ASOKA BAN (forests of *Saraca*) and prayed for the safe return of his beloved wife and to free him from the sorrows of separation from Sita. The leaves and flowers serve as important objects of decorating the temples and idols.

The medicinal uses of the tree are also noteworthy. The flowers are pounded in water and are given in haemorrhagic dysentery. The bark is astringent and is used in menstrual disorders and uterine affections and as a febrifuge ; it is also an antidote in scorpion sting.

The species is propagated from seeds and stem cuttings.

The other species of *Saraca* grown exclusively for their attractive colorful flowers are :

i) *S. declinata* (Jacq.) Miq., the RED SARACA with orange-yellow flowers turning blood red ; it has edible seeds.

ii) *S. thaipingensis* Cant., the YELLOW SARACA with showy floral clusters of yellow bracts and flowers devoid of petals.

The other trees and shrubs of the family growing in Calcutta are *Acrocarpus fraxinifolius* Wight & Arn., *Colvillea racemosa* Boj. ex Hook., *Cynometra cauliflora* L., *C. polyandra* Roxb., *Schizolobium excelsum* Vog. and *Tamarindus indica* L.

Saraca asoca (Roxb) de Wilde

Saraca thaipingensis Cant.

Solanum grandiflorum Ruiz & Pav.

Family : Solanaceae
Bengali : GACH BEGUN*
English : POTATO TREE, LARGE-FLOWERED NIGHTSHADE, BRAZILIAN POTATO-TREE
Synonyms : *S. macranthum* Dunal, *S. wrightii* Benth.

A native of South America with brinjal-like fruits hanging from an abnormally big EGG-PLANT. It also gives a delightful look when in bloom with violet or bluish-purple flowers turning to white. Beautiful specimens of this tree can be seen in the Assembly House Garden and in the garden of the Rowing Club at Rabindra Sarobar.

The name of the genus is derived from the Latin word *Solamen* meaning solace or quieting and the specific epithet is given for its showy flowers.

A large shrub or tree, 6.0 to 8.0 metres high with small, straight prickles and branching from near the base. Leaves large, sometimes narrowing at the base forming a winged leaf-stalk, partially divided into several deep lobes or angles, coriaceous, upper surface hirsute, deep green, lower surface densely armed with prickles, pale green. Flowers appear in simple or branched clusters; corolla campanulate, wrinkled, 5-lobed; stamens distinctly pointed with big yellow anthers. Fruits small, ovoid or oblong, many-seeded berries.

The species generally flowers from late spring to late autumn (March-November)

The species is easily propagated by seeds. Hardwood stem cuttings can also be utilized for propagation during the rainy season.

The leaves and fruits resemble the brinjal plant, but the species attains a tree habit. Hence the vernacular name GACH BEGUN is given.

Solanum grandiflorum **Ruiz & Pav.**

The other species of *Solanum* is *S. erianthum* D. Don, an evergreen large shrub or small tree mostly growing in waste places. Sometimes cultivated in gardens for its small white flowers and small edible fruits.

Spathodea campanulata Beauv.

Family : Bignoniaceae
Bengali : TULIP BRIKSHYA
English : AFRICAN TULIP TREE, SYRINGE TREE, FOUNTAIN TREE, SCARLET-BELL TREE, SQUIRT TREE

A native of tropical Africa, the species is showing amazing performance as an avenue tree coupled with extraordinary flower formation and coloration. It has attracted wide attention of town planners and landscape architects. Although the species was formerly sporadically grown, presently its trees are planted in a planned way on the sides of the roads.

The name of the genus is derived from the Greek word SPATHE referring to the spathe-like calyx, while the species is named after its campanulate or bell-shaped flowers.

A tall, erect, evergreen tree, 12.0 to 20.0 metres or more high with short and slender branches. Leaves large, compound, odd pinnate, having 4 to 8 pairs of leaflets and a terminal one, oval, pointed. Flowers borne in clusters on top branches, large, showy : corolla enclosed by a spathe or boat-shaped calyx filled with liquid which splits on one side exposing the petals ; corolla TULIP-shaped, tube short and narrow, expanding into a five-lobed bell, deeply corrugated, brilliant crimson with yellow frilled edge. Fruits smooth, woody, oblong, boat-shaped capsules, pointed at both ends.

The species flowers only in early spring (February-March).

The wood is of minor importance, used for small carpentry work or in paper industries.

The tree is propagated by seeds, stem cuttings or root suckers.

Spathodea campanulata Beauv.

Syzygium malaccense
(L.) Merr. & Perr.

Family : Myrtaceae
Bengali : MALAKA JAMRUL
English : MALAY APPLE, POMERACK JAMBOS, OTAHEITE CASHEW, KAVIKA TREE
Hindi : MALAYA JAM
Synonym : *Eugenia malaccensis* L.

A native of Malay Peninsula, the species has gained more popularity for its very attractive bright purplish-red flowers and pinkish-red young fruits, than for its edible berries. Generally growing in private gardens and courtyards.

The name of the genus is derived from the Greek word SUZUGOS meaning united, referring to the calyptrate petals. The species is named after its native house.

A small, evergreen tree, 8.0 to 12.0 metres high with elegant shape and appearance. Sometimes a few leaves are shed during the flowering season. Leaves simple, opposite, elliptic-lanceolate, thinly coriaceous, polished, green. Flowers showy, a few together in axillary cymes from the old branches; petals 4 to 5 with numerous purplish stamens bearing small, yellow anthers. Fruits fleshy berries with incurved calyx lobes.

The species flowers in early spring (February-March), sometimes with a second flush in summer and late autumn (November).

The fruits are edible either raw or cooked but not so favoured as those of *S.samarangense*. The bark is astringent and used for preparing mouth wash for thrush. Dried and powdered leaves are applied in cracked tongue. The wood is rough and soft and is of little value.

The species may be propagated by seeds or stem cuttings. Treatment with indolebutyric acid (IBA) and

Syzygium malaccense (L.) Merr. & Perr.

Syzygium jambos (L.) Alston

naphthaleneacetic acid (NAA) may prove beneficial.

The other species cultivated in gardens are *S. cumini* (L.) Skeels (*Eugenia jambolana* Lamk.), *S. samarangense* (Bl.) Merr. & Perr. *(Eugenia javanica* Lamk.*)* and *S. jambos* (L.) Alston *(Eugenia jambos* L.*)*. Of these *S. jambos* is an attractive small, evergreen tree with beautiful white flowers. A very charming specimen can be seen in Raj Bhavan campus.

The other representatives of the family growing in the city are *Eucalyptus citridora* Hook., *E. oleosa* F. Muell., *E. rostrata* Schlecht., *Melaleuca leucadendron* L. and *Psidium guajava* L.

Tabebuia chrysantha
(Jacq.) Nicholson

Family : Bignoniaceae
Bengali : BASANTI*
English : GOLDEN TRUMPET TREE
Synonym : *Bignonia chrysantha* Jacq.

A native of South America, the species is perhaps the loveliest of all which are planted in boulevards. The exuberant beauty of its flowers has appealed to all ever since its introduction. Excellent plantations are found in the boulevards, traffic islands and on the roadsides of Bidhan Nagar, Lala Lajpat Rai Sarani, Dr. Meghnad Saha Road, Samar Sarani, Sarat Bose Road, etc.

The generic name is derived from a Brazilian native name. The specific epithet is after the 'golden flowers

A small to medium-sized, deciduous tree, 15.0 to 25.0 metres high with rounded and spreading crown. Leaves opposite, palmately compound : leaflets broadly elliptic to obovate, abruptly acuminate, pubescent, greyish-green. Flowers borne on terminal or axillary clusters, infundibuliform, slightly bilabiate, bright golden-yellow. Fruits elongate-cylindrical capsules, recurved at the ends.

The species flowers in early spring (February-March).

The tree yields valuable wood : used generally in fine curvings and making decorative toys.

The species is either propagated by seeds or stem cuttings.

The tree blooms in spring and the flowers are yellow in color ; hence the name BASANTI is given to this species.

The other species of this genus growing in the gardens or on roadsides of the city are *T. donnell-smithii* Rose, *T. pallida* Miers and *T. rosea* (Bertol.) DC.

Tabebuia chrysantha (Jacq.) Nicholson

Tabebuia pallida Miers

Tabernaemontana divaricata

(L.) R. Br. ex Roem. & Schult.

Family : Apocynaceae
Bengali : TAGAR, TUGUR
English : CREPE JASMINE, WAX FLOWER, NERO'S CROWN, EAST INDIAN ROSEBAY
Hindi : CHANDNI, TAGAR, CHAMELA
Synonym : *Ervatamia coronaria* Stapf.

A native of India, the species is extensively cultivated in gardens for the liberal supply of flowers which are one of the most preferred species for temple offerings. The profuse white flowers also provide dazzling beauty in moonlit nights.

The genus is named in honour of the renowned physician and botanist John Theodore Tabernaemontanus and *divaricata* in Latin means spreading widely.

An evergreen, dichotomously branched, large shrub or small tree, 2.0 to 3.0 metres high with spreading habit. Leaves simple, opposite, coriaceous, undulate, lanceolate, glossy green. Flowers borne in clusters of 20 or more; corolla salver-shaped, 5-lobed, imbricated with slender tube, milky white with light yellow centre. Fruits a pair of ribbed follicles.

The species flowers throughout the year, more profusely during summer and rainy seasons (April-September).

There are a few varieties of this species which differ mainly in size and coloration of leaves as well as in the number of petals. The double varieties are more attractive for their extremely polished dark green leaves and enchanting snow white flowers, but they bloom in less numbers.

The flowers are string into garlands, offered in worship and largely used on occasions where white flowers alone are required. This also serves as a good hedge plant which on pruning becomes bushy and dense. The

Tabernaemontana divaricata (L.) R. Br. ex Roem. & Schult. (double)

red pulp around the seeds is used in dyeing fabrics.

The root is prescribed in biliousness, epilepsy, paralysis and diseases of blood ; it is chewed in toothache and applied on scorpion sting. Its charcoal is considered a remedy for ophthalmia. The milky latex is applied on head to relieve pain in the eyes, and the juice of flowers is said to be useful in healing eye sores.

The species is mainly propagated by stem cuttings which easily strike roots in rainy season.

Tabernaemontana divaricata (L.) R. Br. ex Roem. & Schult. (single)

Tecoma stans (L.) H. B. & K

Family : Bignoniaceae
Bengali : CHANDAPRABHA
English : YELLOW ELDER, YELLOW BELLS
Synonyme : *Bignonia stans* L., *Stenolobium stans* (L.) Seem.

A native of tropical America, the species is abundantly cultivated in Calcutta gardens, private houses, traffic islands and medians and occupies a prominent position amongst the ornamental shrubs.

The name of the genus is abridged from the Mexican name TECOMAXOCHITL, and of the species denotes its erect or upright habit.

An evergreen, medium to large-sized, upright shrub, 2.0 to 4.0 metres high with slender branching, originating from near the base. Leaves odd-pinnate; leaflets in opposite pairs, sessile, ovate or lanceolate, acuminate, sharply serrate, glabrous, dark green. Flowers borne in small clusters in terminal racemes or panicles, corolla funnel-shaped, bright yellow. Fruits long, slender capsules.

The species flowers profusely from early spring to late monsoon (March-September), less profusely in other seasons.

There are several varieties of this species; *Apiifolia* with deeply pinnatisect leaflets is grown as hedge.

The root is considered to be a remedy for snake and rat bites and for scorpion sting.

The species is propagated mostly by seeds. Pruning in late winter enhances production of branches and the plant can be trained to bushy habit.

The other trees of the family growing in the city are *Crescentia cujete* L., *Dolichandrone spathacea* (L.f.) K. Schum., *Heterophragma adenophyllum* Seem. ex Benth. & Hook. f., *Millingtonia hortensis* L. f., *Oroxylum indicum* (L.) Vent. and *Parmentiera cereifera* Seem.

Tecoma stans (L.) H. B. & K.

"Pluck this little flower and take it, delay
not ! I fear lest it droop and
drop into the dust.

—Rabindranath Tagore

Terminalia arjuna
(Roxb. ex DC.) Wight & Arn.

Family : Combretaceae
Bengali : ARJUN, ARJHAN, KAHU
English : ARJUNA, WHITE MURDAH
Hindi : ARJUN, MARUTHU, KOHA, KAHUA, JAMLA

A native of India, the species is grown in the country as an avenue tree from very ancient times. Although the flowers are not very handsome yet when the small trees are in full bloom, the mass effect of flowers is very attractive and eye-catching. The tree is abundantly found in parks and old premises and also on the roadsides.

The name of the genus is derived from a Latin word meaning terminal referring to the rosettes of leaves at the ends of the branches and the name of species is after its common Indian name.

A tall, deciduous tree, 15.0 to 25.0 metres high with grey or greyish-white bark which peels off in thin flakes. Leaves simple, in opposite or sub-opposite pairs, oblong or elliptic, obtuse, coriaceous, pale green. Flowers borne in profusion in large terminal spikes, cup-shaped, pale-yellowish-white. Fruits pear-shaped nuts with five narrow wings.

The species flowers from summer to early monsoon (May-July).

The stem bark is used for dyeing and tanning purposes and the leaves are fed to a species of silk worm. The wood is used for making boats, house building, carts and agricultural implements.

The tree is reputed for the cardio-vascular action of its bark. It is used in heart diseases and as a cardiac stimulant from the time of Charaka and Sushruta. It has also got tonic, astringent and diuretic properties and is used in bilious affections, sores and is reported to cure hyper-

tension and cirrhosis of liver. The ashes of bark are prescribed in scorpion sting. The juice of fresh leaves is used to relieve ear-ache.

The species is generally propagated by seeds. Adequate moisture and proper aeration are necessary for their germination.

The other species under this genus growing in parks, gardens or as avenue trees are *T. bellirica* (Gaertn.) Roxb. (BELLERIC MYROBALAN), *T. catappa* L. (INDIAN ALMOND) and *T. chebula* Retz. (BLACK CHEBULIC MYROBALAN). All these species possess significant medicinal properties, while the seed kernels of *T. catappa* are edible and nutritious.

Terminalia arjuna (Roxb. ex DC.) Wight & Arn.

Thespesia populnea
(L.) Soland. ex Corr.

Family : Malvaceae
Bengali : DUMBLA, PALASPIPAL, PARESH
English : BHENDI TREE, PORTIA TREE, TULIP TREE, UMBRELLA TREE
Hindi : BHENDI, GAJHAND, PARASPIPAL
Synonym : *Hibiscus populneus* L.

Indigenous to India, the species is growing widely in parks, gardens and as an avenue tree in most of the roads and streets in the city.

The name of the genus is derived from the Greek word, THESPESIOS meaning divine, so named because Captain Cook noticed this tree growing near Tuhiti temples. The species is named after its POPLAR-like leaves.

A small to medium-sized, evergreen tree, 5.5 to 10.5 metres high with numerous branches forming a spreading crown. Leaves simple, alternate, broad, heart-shaped, glossy; dark green. Flowers axillary, solitary or in pairs, showy, campanulate, crinkly, united centrally to a thick staminal column, lemon-yellow with purple centre, fading to salmon-pink to deep pink. Fruits globular, capsules flattened at the top, filled with white papery seeds.

The tree flowers throughout the year, more during hot season.

The wood is hard, durable and used for making boats, cartwheels, gun-stocks, furniture, musical instruments and tool handles. The bark is used for cordage and the seeds yield an oil suitable as luminant. Young buds and flowers are edible.

The tree has many medicinal uses. The fruits, leaves and root are applied on scabies, psoriasis and other skin diseases. The leaves form good poultices for swellings,

Thespesia populnea (L.) Soland. ex Corr.

sores and abscesses. The root is said to be a good tonic.

The tree is propagated by seeds and stem cuttings.

Kydia calycina Roxb., a small ornamental tree belonging to this family is cultivated for cordage and ropes.

Thevetia peruviana
(Pers.) Merr.

Family : Apocynaceae
Bengali : KOLKEPHUL, KOKILPHUL
English : YELLOW OLEANDER, BASTARD OLEANDER, BE-STILL TREE, LUCKY BEAN, TRUMPET FLOWER
Hindi : PILI KANER
Synonym : *T. nerifolia* Juss. ex Steud.

A native of West Indies, the species is one of the commonest plants cultivated in the country. It is planted more frequently in private gardens, than in public parks or on avenues. Presently it is planted in road medians and traffic islands.

The genus is named after Andre Thevet (1502-1590), a French Monk. The species name refers to Peru.

A large, evergreen shrub or small tree with a woody stem and greyish-brown, shining bark, about 2.0 to 4.0 metres high, with numerous cylindrical, cane-like branches. Poisonous milky latex copiously exudes from all parts of the plant on incision. Leaves smooth, closely crowded in spirals near the ends of twigs, narrow, linear, glossy green. Flowers large, showy, borne on small terminal or semi-terminal clusters; sepals green persistent; petals twisted, funnel-shaped, lobes broad, sweetly fragrant. Fruits small, fleshy drupes, broader than long.

It blooms throughout the year but profusely during rainy season (July-October).

Trees with flowers of different colors are seen growing in the city. The variety with yellow or lemon-yellow flowers is the most common. The other two varieties have white and saffron flowers.

The species is cultivated for its evergreen attractive foliage and profuse blooming. The flowers are used for

Thevetia peruviana (Pers.) Merr. (white)

Thevetia peruviana (Pers.) Merr. (yellow)

Thevetia peruviana (Pers.) Merr. (saffron)

Wrightia tomentosa (Roxb.) Roem. & Schult.

temple offerings. The plant can also be trained into nice hedges.

The milky latex is reported to be poisonous and the seeds contain acro-narcotic poisons. The plant is rarely eaten by cattle. The bark yields a bitter febrifuge used in different kinds of intermittent fevers.

The tree is raised easily by seeds or stem cuttings ; it can withstand certain inclement conditions.

The other members of this family growing in city gardens are *Carissa carandus* L., the fruits of which are used for pickles ; the two medicinally important species, *Rauvolfia serpentina* (L.) Benth. ex Kurz and *R. tetraphylla* L. and the ornamental species, *Adenium Obesum* Roem. & Schult., *Wrightia coccinea* Sims, *W. tinctoria* R. Br. and *W. tomentosa* (Roxb.) Roem. & Schult. Of these the reddish-orange flowers of *W. tomentosa* are very showy.

"Under the greenwood tree
Who loves to lie with me,
And turn his merry note
Unto the sweet bird's throat,
Come hither, come hither, come hither :
Here shall he see
No enemy
But winter and rough weather.

—William Shakespeare

Some Useful Literature

BAILEY, L. H. (1958). *The Standard Cyclopedia of Horticulture* (Vols. I-III). The MacMillan Company, New York.

BENTHALL, A. P. (1946). *The Trees of Calcutta and its Neighbourhood.* Thacker Spink & Co. Ltd., Calcutta.

BLATTER, E. and MILLARD W.S. (1954). *Some Beautiful Indian Trees.* Bombay Natural History Society, Bombay.

BUDDHADEB, B. and DASGUPTA, M. (1979). *Flower Garden* (in Bengali). Ananda Publishers, Calcutta.

CHATTAPADHAYA, S. (1977). *Calcutta Municipal Gazzettee.* Corporation of Calcutta, Calcutta.

CHOPRA, R. N., NAYAR, S. L. and CHOPRA, I. C. (1956). *Glossary of Indian Medicinal Plants.* Council of Scientific & Industrial Research, New Delhi.

COLTHURST, I. (1924). *Familiar Flowering Trees in India.* Thacker Spink & Co., Calcutta.

COTTON, H. E. A. (1980). *Calcutta Old and New* (ed. RAY, N. R.) General Printers & Publishers Pvt. Ltd., Calcutta.

GRAF, A. B. (1981). *Tropica.* Roehrs Company-Publishers, East Rutherford, N. J. 07073, U. S. A.

HALDAR, A. (1984). *Pollution Rules over Calcutta.* Omniprint, Calcutta.

JAIN, S. K. (1968). *Medicinal Plants.* National Book Trust, India, New Delhi.

MAHESHWARI, J. K. (1963). *The Flora of Delhi.* Council of Scientific & Industrial Research, New Delhi.

MENNINGER, E. A. (1962). *Flowering Trees of the World (for tropics and warm climates).* Hearthside Press Inc., New York.

MENNINGER, E. A. (1975). *Fantastic Trees.* Horticultural Books, Inc., Stuart, Florida, 33494.

PAL, B. P. and KRISHNAMURTHI, S. (1967). *Flowering Shrubs.* Indian Council of Agricultural Research, New Delhi.

PERRY, F. and HAY, R. (1982). *Tropical and Subtropical Plants.* Ward Lock Ltd., London.

PERTCHIK, B. and PERTCHIK, H. (1951). *Flowering Trees of the Caribbean.* Rinehart & Co. Inc., New York.

RANDHAWA, M. S. (1961). *Beautiful Trees and Gardens.* Indian Council of Agricultural Research, New Delhi.

RANDHAWA, M. S. (1978). *Beautifying Cities of India.* Indian Council of Agricultural Research, New Delhi.

RANDHAWA M. S. (1983). *Flowering Trees.* National Book Trust, India, New Delhi.

SANTAPAU, H. and HENRY, A. N. (1973). *A Dictionary of the Flowering Plants in India.* Council of Scientific & Industrial Research, New Delhi.

SATYAVATI, G. V., RAINA, M. K. and SHARMA, M. (1976). *Medicinal Plants of India* (Vol. I). Indian Council of Medical Research, New Delhi.

SHARMA, A. K. (1981). *Impact of Development of Science and Technology on Environment.* Presidential address, 68th Session, Indian Science Congress Association, Varanasi.

SINGH, U., WADHWANI, A. M. and JOHRI, B. M. (1983). *Dictionary of Economic Plants in India.* Indian Council of Agricultural Research, New Delhi.

TRIVEDI, P. P. (1983). *Home Gardening.* Indian Council of Agricultural Research, New Delhi.

"Forests bring rain and provide
many necessities of life ;
it should be the endeavour of every
enlightened citizen to help
grow trees"

Index

All entries including vernacular names are in usual roman type. The entries in italic type are those of valid botanical names, synonyms and varieties. Page numbers in italic type denote color photographs.

"I wonder about the trees :
Why do we wish to bear
Forever the noise of these
More than another noise
So close to our dwelling—place ?"

—Robert Frost