

Nature Guides
Common
TREES
of India

PIPPA MUKHERJEE



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FOREWORD

Lost in the recesses of man's unconscious lies buried the hidden reason for his existence. A secret that held no mystery for our ancestors in the Vedic ages. Attuned to Nature, our pastoral civilization was firmly rooted in one purpose. The purpose of discovering and merging with the origins of all life.

It was in the forests which thickly covered our country that our civilization was born and acquired its distinct character. Our people instinctively used natural resources in a way that was conducive to the long term survival of man. This was different to developments in colder lands where man felt he had to protect himself against the onslaught of an inimical environment. In constant contact with Nature's renewing growth, the Indian mind was free from the desire to extend its dominion by erecting boundary walls around its acquisitions. Absolute isolation from other living forms was not acceptable. It was not power over but participation with other creations that gave purpose and joy to living. A series of conquests superficially altered the pattern of our existence. We adopted alien norms. Everything was subordinated to the specious ideal of making money, and yet more money. Wants multiplied. The ravages of this short-sighted approach fell with a heavy hand on Nature's bounty. Wild life was decimated, forests uprooted, hill-sides denuded of their thick supply of trees and undergrowth, until today only about 12 per cent of India's green cover survives, threatening the very existence of our civilization. Warning signals in the form of frequent floods, shortage of timber and famine of forest products are being constantly given by Nature. Deprived of its natural purifiers, the trees, the atmosphere around our cities is polluted and endangers the very life of man, but he cheerfully proceeds to accumulate more and more goods, and to multiply himself. The greatest challenge of our times is to try and re-establish the vital link with Nature in the face of modern urban pressures. While the West is well on its way to rectifying its errors, we are still following a dangerous path. In our ignorance, we are not even being selfish.

Since the earliest times man has depended on trees. Primitive man worshipped trees. This deep affinity of man was graphically illustrated by the recent 'Chipko' movement, when men and women wrapped themselves around trees rather than allow them to be destroyed. Our claim to a superior state of knowledge has led to the discovery that trees are remarkable organisms for stabilizing the environment. We cannot use such resources at a pace that does not allow Nature to rejuvenate itself — and in so doing protect all life including man.

There is still time, if only just, for us to start a crusade against the wanton destruction of our survival base. In the forefront of this movement is World Wildlife Fund—India. We address ourselves to the younger generation, the torch bearers of the future, seeking to reach their hearts with the first of a series of books, to introduce and guide them into the mystery, loveliness and necessity of living in union with nature. From love and knowledge comes responsibility.

FATESINGHRAO GAEKWAD
President

World Wildlife Fund — India.
15 Feb 1983

PREFACE

The purpose of this book is to describe and illustrate in the simplest and most effective way some of the beautiful and eye-catching common trees which we see in our everyday lives, by the sides of roads, in our gardens and parks.

I have tried to use language that is as simple as possible so that a Glossary can be dispensed with and a child can easily understand the text. I hope I have achieved this objective.

I would like to feel that this book will perhaps create an awareness in children of what is happening in nature around them and make them think of the importance of trees within their environment.

Before concluding, I'd like to thank Mr J.S. Serrao for his moral support and Professor P.V. Bole for his invaluable advice and assistance in the writing of this book.

Bombay August 1982

PIPPA MUKHERJEE

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INTRODUCTION

When Mother Nature made the earth she obviously had a very good plan of how each part of nature should fit together so it would work like a well-kept machine.

To show you what I mean I will give you an example of a story in nature that is so strange, it sounds almost like fiction.

You may have heard of the Dodo. It was a large flightless bird which once lived on the island of Mauritius and Reunion in the Indian Ocean near the coast of Africa. Because of man it became extinct.

300 years ago, when ships anchored near these islands, the sailors would land, and while exploring would find the poor clumsy Dodos. Because they were large and couldn't escape, the sailors killed them for fun. After a very short time they ceased to exist anywhere in the world. This was senseless cruelty since even the flesh of the bird was not particularly pleasant to eat.

But this bird had a purpose on earth which has been realized only recently. This was to help the seeds of a tree called the Calvaria Major to grow into plants and then full-grown trees. The seeds were eaten by the Dodo. While passing through its digestive system the hard outer covering of the seed was dissolved. So when at last it was passed out of the bird's body it was ready to grow.

Since the disappearance of the Dodo so many hundred years ago, no more Calvaria trees have grown. The trees that remain are very old and are now dying. Scientists have been working hard to find another bird to do the job that the Dodo once did. It is now thought that the turkey is a possible substitute, as it has the same kind of digestive system. Let us hope that although the Dodo cannot be restored to earth, at least the Calvaria tree will not be lost.

There are many trees whose seeds need the help of the digestive systems of birds or animals to grow. In this book you will notice that I have pointed out several. The story I have just told you shows very clearly how everything on earth is connected directly or indirectly to every other thing and how man can interfere in this relationship. Destroy one thing and everything else will be affected in one way or another. This balance is called the ecological balance and is very important for the well-being of the entire world. If, for instance, all the trees in one forest were cut down for some reason, and another kind of tree not usually grown in that area were planted, it would completely change the balance of nature. Insects, birds and animals would either die or move elsewhere to find their normal food, and other insects, birds and animals may or may not replace them. Similarly, the small plants normally growing beneath the trees would change: for the same reasons. People living in the forest might find that the trees from which they got their fruit were no longer there and the animals they hunted for meat had gone away.

Now we will talk about trees in general. The first thing that I want to say is that the same trees have different habits and these depend on where they grow. For example, a tree growing in Bombay may flower in January or February, whilst the same tree in Delhi or U.P. may flower in August or September or some other month of the year. This is very important. To remember when recognizing trees.

The soil the tree grows in and the air around it (for example dirtied (polluted) with exhaust fumes or carbon dioxide and other unpleasant gases, or clean and fresh and full of oxygen) make a great difference to the way that it grows. If a tree has poor soil and little fresh air, it will grow up stunted in the same way that you would if you lived in poor conditions and had little or no food. If people tell you that a tree loses its leaves in September—October and flowers in February—March, remember that it might not do exactly that.

This is the interesting part of nature, and this is what I would like everyone of you to start watching for. At the back of the book you will find a page which tells you some of the things to look for when recognizing or simply looking at a tree. This can be really exciting as there are so many things to see. I hope that it will encourage you all to be more observant on your daily walks.

GENERAL DESCRIPTION OF TREES: All trees have trunks with which to support the spreading branches above. This trunk has a protective covering or bark, which is essential for the well-being of the tree. If, for any reason, this bark is destroyed by animals or by man, the tree will die.

EVERGREEN OR DECIDUOUS: You may have heard the terms 'evergreen' and 'deciduous' used in connection with trees. In case you have not I will explain them simply.

If a tree is evergreen it means that its leaves never fall (all at the same time) leaving the tree bare. They will fall, a few at a time, and the new leaves will grow in the same way. You may notice the new leaves, as they are often a brighter green than the older ones. All this happens very gradually.

If a tree is deciduous it means that the tree once, or in some cases twice, a year will lose all its leaves, and become completely leafless. Later all the new leaves will grow and open at the same time.

There are also trees which, because of the climate they live in, are neither deciduous nor evergreen. The Badam tree is one of them. These trees are called semi-(which means half) deciduous, or nearly evergreen. You will notice this when we get on to the section on the individual trees, later in the book.

ROOTS: These differ from one tree to another in size and shape, but basically they do two jobs. They anchor the tree and stop it from falling down, and they feed the tree by sucking food from the earth.

The water and mineral salts needed by the tree are often taken from the rich shallow soil near the surface. It is therefore the job of the roots at the top to feed the tree while the deeper roots act as anchors.

Sometimes, however, when water is difficult to obtain, the roots have to grow deep down to reach the necessary moisture.

LEAVES: The colour, shape and the way leaves grow differ from one type of tree to another. . By studying these one can quickly recognize each one.

In hot countries it is usual to see young new leaves, reddish brown or pale pink in colour. This may be a protection against strong sunlight which could otherwise damage them. But most full-grown leaves are green as they contain chlorophyll. This is the substance which (in the presence of sunlight) helps the plant to change carbon dioxide and water into sugar. By doing this it feeds the plant or tree.

AGE OF TREES: This again depends very much on the conditions in which the tree lives. If for example a Pongam tree grew in a city with very poor soil, it would be likely to have a shorter life than the same tree growing in a village with plenty of space and good soil. Of course there are some trees that are well known for their long lives. The Banyan, Peepal and Tamarind were known for centuries, and many of them have lived for hundreds of years.

SPEED OF GROWTH: Most trees do not grow very fast. It is difficult to give measurements in feet or inches that would give an idea of how much all trees grow in one year. Again, their living conditions play an important part.

In some trees there are definite scars left on the trunk at places from where old leaves have fallen. The rings on the trunk of the coconut palm show clearly how long it has taken to grow. But other trees do not have this and so it is very difficult to judge how fast they grow, unless they are measured regularly.

The important thing to remember is that a tree is very adaptable (this means that it can grow in places it was not meant to). You will notice, when you read about trees, that many of them originally came from other countries, but now grow in India and grow well. But they often grow very differently from the way that they grew in their original homes.

Now I want you to think about the most important uses of trees. This will help you realize the important part they play in our lives.

USES OF TREES

1. First, trees work very hard to keep the air we breathe clean and healthy. They are like sponges. Their leaves breathe in much of the poisonous unwanted carbon dioxide in the air, and replace it with the oxygen which we need for healthy living.

This system of absorbing gases on which all plants rely for their food is called photosynthesis. In this, the plants with the help of sunlight, water, minerals and the green material called Chlorophyll within the leaves change the unwanted carbon-dioxide into food for themselves. When doing this they release oxygen into the air which is vital for our lives.

At night when there is no sunlight the plant no longer makes food, so it does not release the same amount of oxygen. One is often told not to sleep with plants in one's room, as they will use up all the oxygen. However, at night although photosynthesis does take place the plants also rest, so that little oxygen is absorbed from the air and very little harm can be done to the sleeper.

You will now see that what we do not need plants require, and what they do not need is essential for us humans and animals.

2. Tree roots dig deep into the earth and hold it together so that the rain and wind cannot wash or blow it away. This is very important as the earth has only a very thin layer (seldom more than one foot) of fertile soil covering it. If this is washed, blown or worn away leaving rock or sand in which then no plants can grow then the earth would become a desert. The removal of this top-soil is called soil erosion. Scientists, all over the world are trying to find ways to prevent it. One of the most important ways is by planting more trees.
3. Because of this you can see that trees also help to prevent floods. The roots keep river banks firm and do not let them crumble. Water is thus prevented from pouring out onto the fields and spoiling the farmers' crops, or entering villages and destroying houses and drowning people and animals.
4. Wherever there are groups of trees, or forests they attract rain. Trees send up water vapour into the atmosphere through their leaves. When this vapour meets the cool air above it turns into drops of water which then fall as rain.
5. They give us shade and protection from weather. More important, crops such as coffee, cocoa and tea are protected from strong winds, rain, or too much sunshine by trees which grow around them.
6. They give us beauty, colour and greenery. This is something which we often forget and fail to appreciate.
7. They are the homes of many birds, animals and insects. Each of these is important in keeping up a balance in nature.
8. They give us food, and juice to drink (think how many fruits we eat). Ropes medicines, wood, paper, and so many other things we use in our homes every day, or which are necessary for our health, are made from trees.

These are only a few of the ways in which a tree helps us in our daily lives. Now let's read a little about some of the common trees which are around us.

BABUL

Leguminosae

Acacia arabica

Or Gum Arabic. It is known as Kikar or Babul in Hindi, Babla in Bengali and Karu-valam in Tamil and Malayalam, Baval in Gujarati.

WHERE IT GROWS: It originated in India and many parts of Africa. This tree is very hardy, needs little moisture and grows well in dry areas and also on wet land near the sea.

GENERAL DESCRIPTION: It varies in size from a small, spreading plant to a very large tree. It is evergreen and grows fairly slowly. In less suitable areas it grows in an uneven, untidy way.

Its dark brown bark is cracked and uneven. The lower part of the tree is often covered with silvery white and dangerous thorns that prevent cattle eating its lower branches. Often the upper branches have no thorns at all.

The tree is the favourite home of the striped squirrel, the weaver bird and many other birds and animals, probably because the thorns protect them from intruders. The Lahtora Grey shrike, or butcher bird uses the thorns to store its food. It pierces and hangs the insects it catches onto them so that it can eat them later.

LEAVES: The leaves close when it is very hot to protect themselves from the sun and preserve moisture.

FLOWERS: In some places the flowering season is June to October but in others the trees flower all the year round.

The flowers grow in groups of two to six and are faintly perfumed. Each flower develops on a tiny stalk growing out from between the leaf stalk and branch.

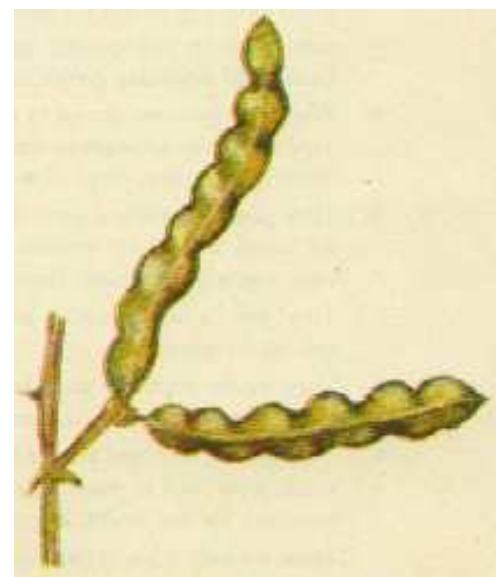
FRUIT: These are leathery seed cases (pods) containing about seven to twelve seeds (each seed in a separate section).

The Babul is one of the trees that has seeds that grow well after being passed through the digestive system of animals or birds. This is because the seed itself has a very hard outer casing and needs the acid of the stomach to dissolve the cover and allow the seed to grow. Some gardeners boil the seeds to get the same result.

USES: All parts of this tree are useful and important to village people. The branches and leaves are cut and used as food for cattle and goats. The heavy wood is excellent for making farm tools, and is also used for fuel and charcoal. The gum, which comes from the trunk and oozes out of damaged parts of the bark from February to March is used for making glue and sweets. The thorns are used as pins.

The twigs are used for cleaning teeth, and lac is obtained from this tree.

NOTE: Above I have mentioned lac. As lac is obtained from several trees mentioned later I should tell you something about it. Lac insects are tiny parasites (that is, insects that get their food from the juices of the trees on which they live). They live together in colonies on certain trees and produce lac. This is a dark red liquid which later hardens and is used to make varnish and many other things. For example jewellers use lac to support the metal-work into which they are setting precious stones. When the work is complete the lac is chipped away. You may have seen lac used for sealing packages and securing envelopes.



BADAM

Combretaceae

Terminalia catappa

Otherwise known as the Indian almond, Malabar almond or Bengal almond. Its Indian names are Deshi badam in Hindi, Bangla badam in Bengali, Badamuchetti in Tamil.

WHERE IT GROWS: This tree originally came from the islands off the coast of Malaysia and the sandy coast of Malaysia itself, but is now widely grown in India. It likes a sandy soil and tropical climate. It can grow well close to the sea.

GENERAL DESCRIPTION: It is a fairly fast growing, tall, semi-deciduous tree, with smooth grey bark. It is easy to recognize as the branches grow in layers almost at right angles to the trunk and start fairly high up. The tree requires quite a lot of space, as its branches spread a long way outwards. You should not confuse this tree with the true almond which is a member of the rose family.

LEAVES: The large leaves are rough and leathery. Once or twice a year they turn bright red and fall. The new leaves that grow are a bright green but darken quickly when older. They are often eaten when young by beetles and grasshoppers and so the young trees have to be looked after carefully.

FLOWERS: Small greenish-white flowers which grow in spikes at the end of the smaller stems or branchlets. They usually appear in March and April and again in July and August.

FRUIT: The oval nut cases contain a nut somewhat similar in taste to an almond.

USES: In Malaysia this tree is often planted around monasteries and in gardens. In India it is also grown for its beauty. If the nut is crushed, it produces an oil very similar to almond oil. The nuts are also considered to be good food for pigs. The wood from this tree is used for house building. The tasar silk worms who weave their cocoons of silk thread from which is then woven tasar silk love to eat the leaves of the Badam. The trees are therefore often planted near silk farms to feed the caterpillars.



BANYAN TREE

*Urticaceae or
Moraceae*

Ficus bengalensis

Called Wad in Marathi, Ala in Tamil and Bor or Gar gad in Hindi.

WHERE IT GROWS: This is probably the commonest tree in the country and originated in India.

GENERAL DESCRIPTION: Because of its size and splendour, and the shade it gives, it is often used (like the Mango tree) as the central meeting place in villages. There are over 600 different kinds of fig trees growing in tropical countries. It needs lots of space. From its branches hang roots which touch the ground, take root and support the tree. Thus the tree grows sideways, supported by hanging roots. In this way some trees can cover large areas of ground. If all the hanging (aerial) roots were cut down the tree would fall. It is a tall, fast growing evergreen tree. It has shallow roots and a smooth dark grey bark that peels in patches. It can grow to enormous width and live for hundreds of years. The name Banyan may have been given to this tree, because for centuries banyas or merchants have sheltered and traded under it.

LEAVES: The leaves appear in February—March and sometimes again in September-October. If a leaf is broken off, as in any other fig tree, a white sticky liquid (sap) oozes out.

FLOWERS: The figs which contain the flowers grow in pairs just below the leaves and look like cherries. The figs contain a number of flowers, both male and female. So that the banyan and all the other members of the fig family can continue to produce seeds and increase in numbers, a kind of wasp called a fig wasp bores a hole in the figs. (In some figs there may be many different kinds of fig wasps.) If you cut open nearly ripe figs you will see the tiny fig wasps. You may be able to find as many as eighty wasps in one fig. They are quite harmless and won't sting you. They use the fig as their nest, where they can lay their eggs and hatch their young. Some of the young wasps leave the figs carrying a little pollen from the male flower on their backs. This gets brushed onto the female flower inside another fig, and thus the seeds can be formed and a new tree develop and grow.

FRUIT: The figs ripen between February and May and in some areas in August—September. They are a favourite food of many birds, flying foxes, and other fruit-eating bats, many squirrels and certain kinds of insects. Often seeds from the figs are dropped in strange places, for example in palm trees. The seeds grow and use the tree for support. They then grow so fast around the palm that they kill the tree that supported them. This is why they are known as strangling figs. Trees that do this behave like epiphytes. This means that although they use another tree for support they take their food from the atmosphere around them through their roots.

USES: The wood of the trunk of the Banyan is not of any use but the aerial roots are strong and are used to make tent poles. Rope is made from the bark and young aerial roots. The leaves are used as plates and many parts of the tree are used in local medicines.



BER

Rhamnaceae

Ziziphus mauntiana

Indian names for this tree are Bor or Ber, the English name is Jujube tree.

WHERE IT GROWS: This tree originated in India and its neighbouring countries, and is very similar to its close relative from China. In fact, trees closely related to the Jujube grow in Africa, Australia and many other countries as well. The differences are very small.

GENERAL DESCRIPTION: This is a tree that grows wild, and in gardens but best in dry areas. As it produces many seeds which grow easily it is not a favourite in gardens, as the seedlings have to be dug out to prevent too many growing and crowding out other trees. It is a small to medium sized, thorny tree, fast growing and deciduous. It often divides low down the trunk, and always has many branches. The bark is dark brown or black, very rough and cracked. The young stems are pale green and covered with soft brown hair.

LEAVES: The under-sides of the leaves appear to be almost white because of the thick layer of soft white hair covering them. The three main veins on the leaf are very clearly marked. When the leaf is in the bud stage they are folded up along the veins into four sections.

FLOWERS: The main flowering season is September to December, but flowers often appear at other times. The flowers are five-petalled and greenish-yellow in colour. They grow in small groups on tiny stems.

FRUIT: These are fleshy, and differ in shape and size, some being small and round, others oval and larger. They contain one or two seeds in a wrinkled, pointed, hard case. The cultivated Jujubes have much larger berries than those which grow wild. The Chinese date or Chinese Jujube tree has a far finer quality fruit. It differs from the Indian tree only slightly: the under-sides of the leaves being smooth instead of hairy.

USES: The berries are eaten as fruit. The thorny branches are used for making fences and the wood is made into agricultural tools and burnt as fuel.



BHENDI

Malvaceae

Thespesia populnea

Otherwise called Umbrella or Portia tree. Parsipu (Hindi), Dumbbla (Bengali), Bhendi-ke-Jhar (Marathi), Paarsapeepala (Gujarati), Bhendi around Bombay.

WHERE IT GROWS: A tree belonging to India, Burma, and parts of Africa, tropical Asia and the Pacific. It cannot live at any distance from the sea or in places where the winter is cold. Its favourite home is a warm tropical coastal region.

GENERAL DESCRIPTION: It is a small to medium tree and nearly evergreen. It grows fast but has a short life. It has a smooth grey bark and a crown of leaves which makes the tree look like an umbrella. When Captain Cook discovered this tree in Tahiti he found that it was always planted near temples. Its Latin name 'Thespesia' means divine, or holy.

LEAVES: The leaves generally fall in early spring but never all together. Since the withering leaf is bright yellow, it often makes the tree look as if it is covered in flowers.

FLOWERS: These usually appear in the cold season but many trees have a few flowers throughout the year. The flowers are five-pet ailed, lemon-yellow in colour and set in a green cup. Inside the flowers are patches of deep maroon and purple. As the flowers fade, they turn from orangy-pink to purple. The name Bhendi is given to this tree, as the flowers are very similar to those on the plant which produce the vegetable Bhindi or Okra (commonly known as Lady's fingers).

FRUIT: Small bell-shaped seed cases remain on the tree for a long time, first turning brown and then black.

USES: It is a tree commonly planted on the sides of roads in cities to provide shade and beauty. The wood is water resistant and is often used for boat building. From the bark string is produced for making sack cloth and rope (although not in India). Medicines are produced from many parts of the tree.



CANNON-BALL TREE

Myrtaceae

Couroupita guianensis

In Marathi Kailashpati, in Hindi Shivalingam, and in Bengali and Tamil Nagalingam. Also called Monkey Pots in English.

WHERE IT GROWS: It originated in South America but it can live happily in all tropical countries, preferring moist, low-lying areas.

GENERAL DESCRIPTION: It is a large, fairly fast growing evergreen tree, with a thick straight trunk and rough grey-brown bark. Branches start growing fairly high up the trunk. The tree often looks untidy as the branches grow unevenly.

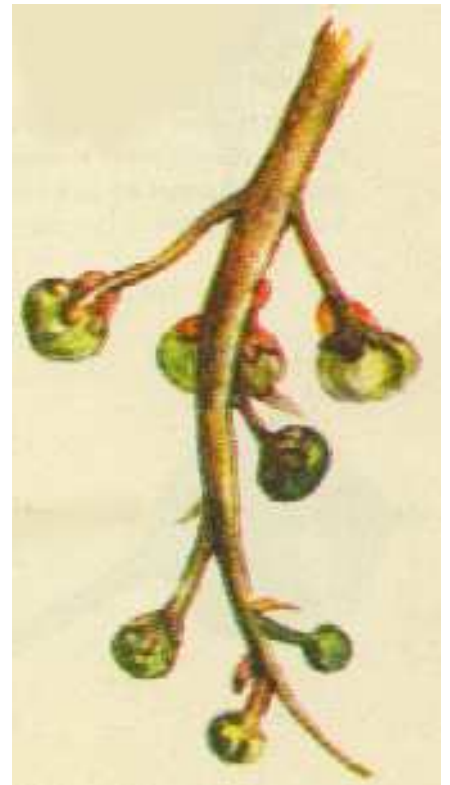
LEAVES: This tree sheds its leaves several times a year for a short period. It is common when one walks past a tree to be showered with yellow-green leaves. When they fall it only takes a few days for new ones to grow so the tree is never completely bare. The new leaves grow as the old ones fall. The leaves are long and narrow. They are a rich green colour when new, but darken within a few days.

FLOWERS: These six-petalled fleshy (soft and juicy) flowers appear all the year round. They are pink and maroon, or can be many-coloured, with white or yellow on them. They have a strange sweet perfume and hang from long wood-like stalks which grow out from the trunk (or branches) of the tree. When they fall they lie in large numbers under the tree. If the petals are crushed, they immediately turn blue as the air reaches the crushed parts.

In India the flowers are used by Shiva worshippers for their pujas, as the shape of the flower has a religious significance.

FRUIT: These take eight to nine months to develop. They are round and when ripe the size of a cannon-ball. Hard and brown outside, they contain a sour smelling soft flesh, and many seeds.

USES: The tree is not of much practical use, but it is often planted in tropical countries for its beautiful flowers, and because of its odd appearance. The wood of the tree is of value, and the pulp of the fruit is made into drinks. The shell of the fruit is made into utensils by natives of South America, and in Guiana the pulp is fed to farm animals, and also eaten by the local monkeys. This is why one of its English names is Monkey Pots.



CASUARINA

Casuarinaceae

Casuarina equisetifolia

Also called She-oak, Australian oak, Beefwood. Known as Vilayati saru in Hindi and in Marathi Jungli saru, in Tamil Chouk, and in Bengali Jhau.

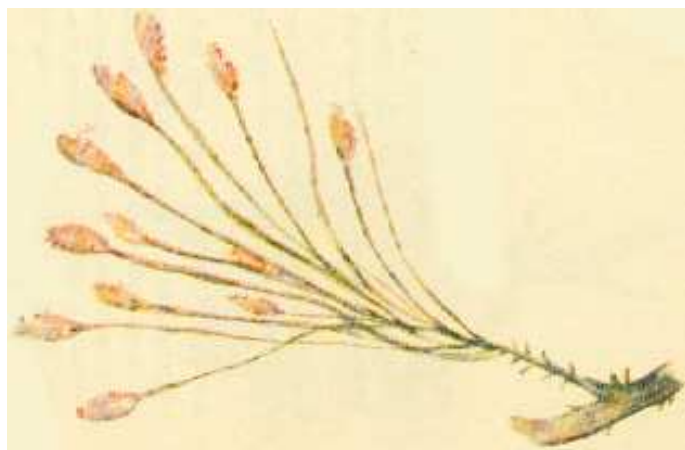
WHERE IT GROWS: This could be called an Australian tree, but it also grows wild in the south-east of India through to Australia, and now has been planted all along the coasts of India. It loves plenty of sunlight and a sandy soil, and grows well on beaches and in exposed places. However, it also thrives inland (and large numbers often grow together).

GENERAL DESCRIPTION: It is a tall, fast growing, evergreen tree with a short life and has long untidy branches. The bark is dark grey-brown, uneven, and peels off in patches. What look like the grey-green, needle-shaped leaves that fit one into another in the illustration are in fact the branchlets. As these age they grow brown in colour and fall in heaps under the tree. The name Casuarina is believed to come from a Latin word meaning cassowary (a bird from New Guinea) whose feathers look like the spiky twigs of the tree. It is called beefwood in Australia because under the bark the wood is the same bright red colour as raw beef.

FLOWERS: On this tree there are often male and female flowers, the main seasons being February and then September—October. Some trees bear both male and female flowers whilst others either male or female flowers only. The female flowers start as buds covered with curly dark red fur. This fur falls as the buds develop into small round wood-like cones. The male flower grows at the end of the needle-shaped branchlets in a fluffy yellowish spike.

FRUIT: A wood-like cone, which is green at first and then turns brown. **USES:** In Europe this tree is grown in hot houses and used for decoration. In tropical countries it is very useful for preventing soil erosion, which I have explained at the beginning of the book. In some places the trees are trimmed and made into hardy hedges. This is done by cutting the stems and branches every time they grow too tall and in this way they spread and form a hedge.

The wood is cheap and is often used for flooring planks instead of the more expensive teak. It also makes good firewood. A dye from the bark is used to colour fishermen's nets.



COCONUT PALM

Areaceae

Cocos nucifera

Called Naryal or Naral in Marathi, and Tenkar in Tamil.

WHERE IT GROWS: The origins of this tree are a mystery. It may have come from South America, the nut being carried by sea tides and currents from place to place. It is however generally believed to have come from the Cocos islands in the Indian Ocean. It has grown in India for many hundreds of years and is cultivated in all hot damp regions, particularly low-lying sandy areas near the sea.

GENERAL DESCRIPTION: The palm takes about eight to ten years to mature (that means to grow to full size and bear fruit), although some cultivated palms take as little as five years to produce nuts. By the time it is ten years old it has a large number of feathery leaves. The tree is tall, and medium to fast growing. It has a slender and usually straight trunk, ringed at intervals by the scars of the fallen leaves (I have mentioned this in the introduction). The bottom (base) of the trunk is swollen and surrounded by roots, and the bark is dark grey-brown and quite smooth. The wood is water-resistant and called porcupine wood because of the attractive design on it.

LEAVES: These are large and feather-like, and appear in a cluster at the top of the tree. Each leaf takes about a month to develop.

FLOWERS: Male and female flowers grow together on a branched stalk which start from the point where the leaves join the trunk. There are many of them and they are yellowish-orange and look like small Catkins (spike of soft, feathery flowers hanging from twigs of trees like willows and birches). The male flowers are smaller, there are more of them and they have a scent.

FRUIT: There will be few of you who have not seen a coconut in some form or other. About the size of a man's head, it has a green outer covering which turns yellow and then brown when the nut is ripe. The string-like fibre covering the shell of the coconut is to protect the nut within. Inside the nut is a liquid which sweetens as the nut ripens. This liquid then gradually becomes a thick white solid which coats the inside of the nut and is called copra.

Some trees can grow over a hundred nuts a year, which makes them very good crop trees. **USES:** This is perhaps the most useful tree in India as nearly every part of it can be used. In South India it is called 'Green gold'. The string-like covering inside the outer case called coir is used to make rope, carpets, and mattresses. The ribs of the leaves are used for making kites and brooms.

From the sap or juice of the tree palm wine or toddy is produced. The kernel or copra inside the nut is eaten. When crushed it gives coconut oil from which candles, soap, margarine and many other things are made. In South India most of the food is cooked in coconut oil.

During the Second World War injured soldiers urgently needing body fluids were given transfusions (that means injecting liquids into the veins) directly from coconuts. This was because the water inside the nut is sterile (that means it contains no germs). Different types, of coconut palms are being grown now which not only produce nuts much sooner but are also shorter in height so that the nuts can be reached and picked more easily.



COPPER POD

Leguminosae

Peltophorum ferrugineum or *roxburghii*

Its other English name is Rusty Shield Bearer. It is called Iya Vakai in Tamil and Kon-dachinta in Telugu.

WHERE IT GROWS: Originally from Sri Lanka and islands near the coast of Malaysia and North Australia, this tree is now planted in many tropical countries. It was planted in east India about 150 years ago, but only came to the west coast recently.

GENERAL DESCRIPTION: It is a fairly fast-growing, tall tree with a straight trunk and smooth grey bark. It is a strong tree and can live in most conditions without difficulty. From the trunk many branches rise and spread giving a great deal of shade. It is semi-deciduous (loses many of its leaves in winter) but sometimes loses all its leaves for a few weeks before the new ones appear.

LEAVES: The large leaves are made up of small smooth leathery leaflets (smaller leaves). These have delicate fur on the underside. When they fall in the cold season they make the tree look ragged and bare. The new bright green leaves appear in early spring and darken in a matter of weeks.

FLOWERS: The main flowering seasons are from the end of February to April and then from September to December. Some trees have a few flowers for most of the year. First, rust-red shoots appear covered with soft hair and buds of the same colour. These open to show bright yellow five-petalled, slightly scented flowers with wavy edges. They only last for a short time and the falling flowers leave a carpet underneath the tree.

The tree has the strange habit of flowering in sections. One half of the tree will flower one week and the other the next. The name Rusty Shield Bearer has probably been given to this tree because of the shape and colour of the seed-cases which look like shields.

FRUIT: The rust-red seed-case remains on the tree for many months, and later turns black.

USES: It makes a good home for the lac insect. The wood of this tree is light and does not last long but is used for making furniture. It is a popular tree in cities as it is very beautiful and suitable for planting at the sides of roads. It is also used to provide shade for cocoa and coffee crops. The trees protect the growing plants from harsh sunlight, rain and wind.



CORAL WOOD TREE

Leguminosae

Adenanthera Pavonina

In Bengali it is called Rakta kambal, in Marathi Thorligunj or Ratangunj, in Telugu Bandi guruvendi and in Tamil Anikundumani. In English it is also known as Red Wood.

WHERE IT GROWS: This tree has its home in India, Burma and the Andamans. It is very common, growing wild in the Western Ghats and parts of south India. It loves a moist damp climate.

GENERAL DESCRIPTION: It is a very popular tree as it spreads out its branches to make a shady cover. Also, the seeds are very bright and pretty to look at. It is a medium-sized to tall deciduous tree with a rough, dark grey-brown bark, and a slim straight trunk. The branches usually start to grow high up the trunk and then spread outwards. The younger branches have smooth, red-brown bark.

LEAVES: Each single large leaf from this tree is made up of a lot of small leaflets which grow up a stalk ending with one single leaflet. These are dark green in colour when fully grown but a fresh bright green when new. Where the leaves have fallen, a horseshoe scar marks the place where they grew. The leaflets are shed in the winter months.

FLOWERS: The flowers appear from March to May. They are pale yellow and grow on spikes that look like small bottle brushes. The long stems grow from under the leaf stalks, and at the end of the branchlets. The five petals fold back and the stamens stand out from the flower. The petals darken before the flower falls, but they are so tiny that they can hardly be noticed on the ground under the tree.

FRUIT: The seed-cases (pods), which are green when they first ripen soon turn to dark red and then brown. As they open they peel back and twist to show a creamy yellow inner lining and bright red shining seeds. These seeds are all the same size and shape and fall to the ground in hundreds. They are called Circassian seeds. Although the seed-cases appear at any time from the monsoon onwards they often remain on the tree until after the next flowering season.

USES: Children love the seeds which can be used as counters for games, stringing as beads and in many other interesting ways. Goldsmiths still use the seeds in some places for weighing gold. They are also ground to a powder and used to make medicines. The wood is used instead of red sandal wood for furniture and panelling walls. A paste made from the wood is used for caste marks.



DRUMSTICK TREE

Moringaceae

Moringa Oleifera

Also called Horse-radish. Munga Soudha in Hindi, Soanjna in Bengali, Shevga in Marathi, Midhosaragavo in Gujarati, Mulaga in Telugu and Murangakai in Tamil.

WHERE IT GROWS: This tree has its home in the Western Himalayas but is now planted throughout India and in many other tropical countries. It grows best in the sandy beds of rivers and streams.

GENERAL DESCRIPTION: It is a small, delicate, fast-growing deciduous tree with a short life (approximately twenty-five years). It has a thick grey grooved bark like cork that peels off in patches. The wood is easily broken and very soft.

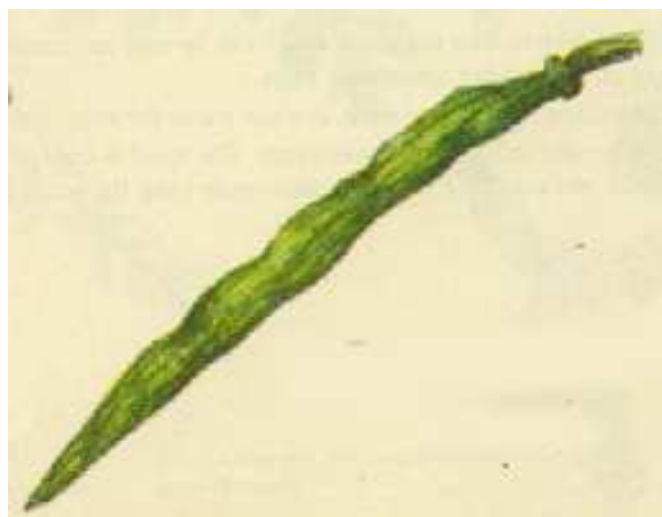
LEAVES: The leaves are shed in December and January and are clear green, rather feathery looking, with many leaflets on the long leaf-stalk.

FLOWERS: These are long bunches of small five-petalled flowers, greenish-white in bud, creamy white when open and yellowish when withering. The flowers are honey scented and attract many insects. The main flowering period is March and April but many trees can be seen flowering from September onwards.

FRUIT: These ripen in April to June, although there are many trees that bear a few fruit all the year round.

The fruits are long and stick-like, green in colour and often ridged. They contain many seeds, each of which have three wings attached to them.

USES: The tree is generally useful apart from the wood which rots very fast. The roots are used for making horse-radish sauce (a spicy sauce eaten with meat). The leaves and flowers are rich in vitamins and are made into curries. The seeds when crushed give an oil which is used by watchmakers and for making perfume. The fruits make a popular vegetable.



GULMOHUR

Leguminosae

Delonix (or Poinciana) regia

Often called Flamboyant, Royal Peacock flower, Royal Gold Mohur or Fire tree. The Hindi name is Gul Mohur. Mayaram in Tamil, Shima Sankesula in Telugu and Gulmohr in Marathi.

WHERE IT GROWS: Its home is Madagascar. It came to India from Mauritius many years ago. It is a very popular roadside tree because of its shape and the beauty of its flowers. It grows in many tropical conditions and is quite hardy but prefers dry areas near the sea.

GENERAL DESCRIPTION: It is a medium sized deciduous tree, very fast growing, with a straight slender trunk and smooth ash-grey bark. It has shallow roots which spread out around the tree and do not allow many other plants to grow nearby. The branches are brittle and easily broken. They often get damaged in storms.

LEAVES: These are shed usually in autumn or winter but sometimes soon after the monsoon. Then the tree remains bare until May or June. It has feathery looking leaves like many other ornamental trees belonging to the Pea Family.

FLOWERS: These begin to bloom in the hot season from April onwards. At first a few open and then they cover the whole tree in orange, bright red, and maroon. Four of the petals are orange red, the fifth is larger with several shades of white and yellow and bands of red. Christians sometimes call this tree the Pentecost tree or Holy Ghost tree as it flowers at the time of Pentecost, fifty days after Easter.

FRUIT: The long broad seed-cases which are green in colour at first gradually become hard and black. They remain on the tree for many months, and look very prominent after the leaves have fallen. The seeds are often soaked in hot water before planting to help soften the outer case and help them grow more easily.

USES: It is a tree that is largely grown for its beauty. The wood which is white and soft is used for making ornaments, and can be very highly polished. The flowers and buds are used (as a herb) for flavouring food.



INDIAN CORAL TREE

Leguminosae

Erythrina indica or variegata

Called Mandara in Hindi, Dadap in Bengali, Mandaram in Malayalam, Kaliyana Murrukku in Tamil. Its Marathi name is Pangara.

WHERE IT GROWS: This Indian tree is common in coastal forests, and also lives wild in Burma, the Andaman, Java and Polynesia. It grows well close to the sea.

GENERAL DESCRIPTION: It is a very fast-growing, hardy, deciduous tree of medium height with smooth grey-green bark which peels in patches. The trunk and branches are covered with sharp thorns (these disappear as the tree gets older). They are obviously there to protect the young tree from birds and animals. The roots are shallow and the wood is brittle and easily broken.

LEAVES: The leaves are made up of three large triangular shaped leaflets, the centre one being the largest. They are bright green in colour, and fall in the winter, leaving the tree leafless until March or April. Young trees often keep their leaves throughout the year.

FLOWERS: These appear from early January and often continue up to March or April. The bright scarlet flowers grow on spikes either alone or with others at the end of the smaller branches. Each spike has many blooms on it. The flowers have five petals, one of which is much larger than the others. The tree is very beautiful in the spring when it flowers. It is often planted with trees of the same family that have white or pink flowers, so that the two together make a contrast of colours.

FRUIT: The seed cases clearly mark the kidney-shaped brown, red, or purple seeds inside them. The seed pods remain on the tree throughout the year, quickly turning black. They ripen from May to July.

USES: The soft wood is used for making small boats and carving ornaments. The new leaves are made into curries. A red dye is obtained by boiling the petals. The tree is often used to provide shade for crops or for supporting grape creepers and pepper plants. It is popular in coastal cities for growing on the sides of roads. It is also grown as a hedge around gardens. The planting of these trees help to nourish poor soil as the roots contain Bacteria which can take in nitrogen from the air. The nitrogen is then used to enrich the soil. Although the flowers have no scent many birds and insects love the nectar and are attracted by the bright colours of the flowers. The leaves are useful for feeding cattle. The seeds are poisonous.

The Coral tree is mentioned in the Mahabharata.



INDIAN CORK TREE

Bignoniaceae

Millingtonia hortensis

In English it is called the Jasmine tree, in Hindi Akas nim or Nim chameli, in Bengali Minr chambeli or Cork gach, in Tamil karkku, and in Telugu Kavuku.

WHERE IT GROWS: Originally from Burma and Malaysia. This is a tree that grows well all over India. It has been grown in this country for a very long time, and grows wild in parts of central India.

GENERAL DESCRIPTION: It is usually planted because of its beauty and its fast growth. But it has very shallow roots and doesn't allow many plants to grow underneath it. It is a tall, straight, evergreen tree with dark yellowish-grey bark which is rough and cracked. It has few branches but these bend down and show off the lovely dark green leaves.

LEAVES: The whole leaf is made up of small leaflets that grow in pairs up the leaf stem and end with one single leaflet.

The leaves are shed gradually during early spring, January to March, so that the tree is never bare.

FLOWERS: It flowers from April to June and then again in the autumn, September to December, which is the main flowering season. The waxy looking flowers are shining white in colour and some have patches of pink in them. They have a long tubelike lower end to which four petals are attached. One of these has a deep split in it so that it looks as if there are five petals. The flowers grow in bunches on stems at the end of the branchlets. When they fall they leave the ground carpeted in white.

FRUIT: The Cork tree doesn't produce seeds very easily. The seeds grow inside long thin seed-cases with pointed ends and each thin seed has a delicate wing.

USES: The bark of the tree, which can easily be pulled off in chunks is used to make a rather poor type of cork. The wood is very soft and breaks easily. It therefore often snaps off in a strong wind, so it is not a very suitable tree to plant along roadsides. The wood is used for some furniture and is very pale yellowish-white in colour. When branches break off a new stem grows again very fast, making the tree look untidy.



JAVAPLUM

Myrtaceae

Eugenia jambolana *Syzygium jamboanum* or *cumini*

In English it is also known as the Black Plum, in Hindi Jamun or Jambhool, in Bengali Kala Jam, in Marathi Jambhur or Jaman and in Tamil Naval or Nagai.

WHERE IT GROWS: This tree originated in India, Burma, Sri Lanka and Malaysia, and grows all over the country except in very dry sandy areas. It also grows well in Australia. It is very common in Maharashtra where forests of Jambhool can be seen.

GENERAL DESCRIPTION: It is tall and fast growing after the first two years. An evergreen tree, it can grow in many conditions and is fairly hardy. It has a pale or darker grey-brown bark which is rough and thick, and peels off in patches. The branches start high up the trunk and make a wide tent of leaves.

LEAVES: These grow facing each other up the stems, some thin and lance-like, others oval and others almost round. If the leaves are held up to the light tiny transparent spots can be seen all over them. These spots can be seen on many of the leaves of the Myrtle family of which the Jamun is a member. The trees lose their leaves in early spring, usually January or February. When the leaves are crushed they have a strong smell. They are often fed to the Tasar silk worms.

FLOWERS: These are greenish-white in colour and very tiny. They are bunched together in groups on stalks that grow out under the leaves. They are very sweetly perfumed, and open from March to May.

FRUIT: These ripen in June or July and sometimes a little earlier. They are oval in shape and dark purple in colour when ripe. They vary in size but can grow quite large, about the size of a pigeon's egg. They are very juicy and sweet when ripe, but the juice dries the mouth, and some people do not like to eat them for this reason. Ponies love the Jamun fruit and a few can often be seen with their mouths covered in pale purple froth. Many people do not like to plant this tree in their gardens as the fruits when they fall make a mess and small boys throw stones at the tree so that they can steal the fruit.

USES: The tree is often planted near temples. It is also planted for the shade it gives on the sides of roads in cities. Liquor and vinegar are made from the juice of the fruit and many parts of the tree are used in local medicine.



MANGO TREE

Anacardiaceae

Mangifera indica

In north India known as Am/Amb and in Tamil Mangas. Amri in Gujarati, Amba in Marathi and Amram in Malayalam.

WHERE IT GROWS: Probably the original home of this tree was in the Assam-Burma region, as for thousands of years the mango has grown in India from the Himalayas to the South.

GENERAL DESCRIPTION: This hardy tree is evergreen. It grows fairly fast and in its wild state can grow to enormous size. The trees that are specially grown are never as large and are known only for their fruit. There is no record of the age of the mango tree but some definitely live hundreds of years.

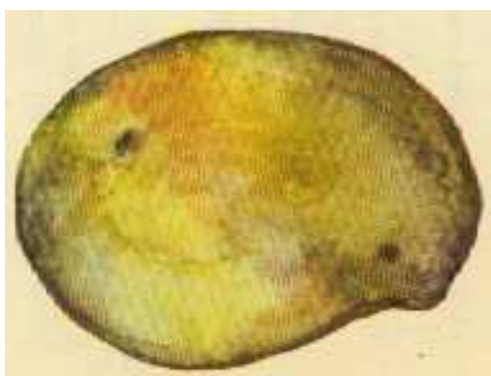
They have a huge crown of branches which act as a tent and often in the countryside the tree is used as the meeting place for villagers. The bark is dark and thick, like cork, and peels off in patches.

LEAVES: The leathery leaves are lance-shaped, smooth and are grouped at the end of the branches. When they are crushed they give off a strong smell of sap.

FLOWERS: The main flowering season is in spring from December onwards, but in many parts of the country the trees flower at other times of the year as well. The pyramids of tiny, pale, four or five-petaled flowers grow together on a branching stalk and have a strong pleasant, perfume that attracts insects and bats. Only a few of the many flowers are perfect and capable of producing fruit. According to one legend, the daughter of the Sun God was being chased by a witch and to escape she jumped into a lake and turned into a lotus. A passing king fell in love with the flower and the witch was so angry that she burnt the lotus to ashes. From these ashes grew the mango tree.

FRUIT: It is said that there are a thousand varieties of Mangoes, and though most bear fruit in summer there are many that bear fruit throughout the year. However, not all the fruits are good to eat. In fact, some wild mangoes taste very bitter and unpleasant.

USES: The wood of the mango tree is used for making furniture, boats and dugouts but is soft and lasts for a very short time (it has a longer life under water). The fruit contains Vitamin C. The tree is supposed to be a manifestation of Prajapati the Lord of all creatures and is sacred to Hindus. Mango leaves are therefore used to decorate houses on festive occasions. The fruit is regarded as being the nectar of the gods.



MAST TREE

Annonaceae

Polyalthia longifolia

Also called Cemetery tree. In Hindi called Ashoka or Debdaru, Asopala in Gujarati, Nara in Telugu, and Debdaru in Bengali. The tree should not be confused with the other Ashoka tree, which is a short, spreading tree with dark green leaves and orange-scented flowers.

WHERE IT GROWS: This tree belongs to the drier parts of Sri Lanka and the south of India, but is now planted in many parts of India along roads, by rivers, around buildings and temples. It grows well in poor soil and its trunk is strong enough to stand against the monsoon winds; but it does not grow well very close to the sea.

GENERAL DESCRIPTION: It is a tall, slim evergreen tree, that grows rather slowly. Its bark is smooth and dark greyish-brown. Although the tree we know best is tall and slim, another form of this tree spreads outwards with weeping branches that hang down. The leaves, flowers and fruit of both the forms are, however, similar.

LEAVES: The leaves are dark green and shiny on both sides. This tree probably once grew in very wet areas as the leaves hang down and rain drops pour off the shiny surfaces keeping the tree dry.

FLOWERS: The six-petalled flowers appear in the months of February, March and April, which are the main flowering months. They grow in bunches and produce a great many fruit. As with many trees, one may be in full flower while the next one is still only budding.

FRUIT: They are small and generally ripen in September and October. Each fruit contains one seed. The ripe fruits are purple, but they are difficult to see as they remain hidden in the leaves.

Flying foxes and other bats, monkeys and birds love the fruit. They leave the ground covered with seeds that they throw down during their feasting.

USES: This tree is planted for its beauty, and is held sacred by Hindus who make wreaths and garlands of the leaves to hang over doorways at festival times.

In olden days, the straight trunks were used to make masts for sailing ships, but now the wood is used only for making matches and pencil boxes.



MUDILLA

Lecythidaceae

Barringtonia speciosa or asiatica

Mudilla is the Singhalese name for this tree.

WHERE IT GROWS: Belonging to tropical Asia and Australia this tree grows well on sandy beaches and in most coastal regions. It grows best quite close to the sea where there is a lot of salt in the soil. Even though it is a fairly common and beautiful tree in cities not much has been written about it. If you live on the coast it is a tree to look for.

GENERAL DESCRIPTION: It is a medium sized, fairly slow growing evergreen tree. It has a dark brown or almost black bark which is rough and uneven. The younger and smaller stems are smoother. The straight trunk has branches quite high up, and these fan out to give it a beautiful crown of greenery.

LEAVES: Dark green, thick and shining, the leaves have clearly marked veins and they grow in groups at the ends of the branches. The new leaves are paler in colour and a brighter green.

FLOWERS: These grow in bunches on stems at the end of the branchlets. They open at night and are visited by bats and moths who pollinate them. First, large round green buds appear. These open and expose the flower which is made up of four fleshy white petals which flatten out and contain a mass of long pink-tipped stamens.

The flowering season is generally September—October but in many places a few flower's can be seen throughout the year.

I should explain the word pollinate in case you do not know it. It means that birds, insects and animals (in this case moths and bats) come to the flower to take nectar and in doing so rub some of the pollen off the stamen or male part of the flower onto themselves. When they fly on to another flower this pollen falls onto the female part of the flower or pistil so that the fruit can be formed.

FRUIT: A large green triangular seed case which turns brown after ripening and has a lid to let out the seeds. As this seed case floats it is often carried by the sea to other parts of the coast. Inland rivers also carry the fruit to other places.

USES: The wood is soft and doesn't last long but is used for floats (for example fishermen's floats which are pieces of light wood or cork attached to the nets to mark their position in the water).

The bark and fruits are poisonous. They are made into powder and used to paralyze fish so that they can be easily caught. The fruit is also eaten in Indo-China, the cooking of the seed obviously destroying the poison.



NEEM TREE

Meliaceae

Azadirachta indica

Or Margosa tree. Called Nim in Hindi, Nimgach in Bengali, Nimba in Gujarati and Marathi, Vepa in Telugu, Tamil and Malayalam.

WHERE IT GROWS: This tree originated in India but now grows in Sri Lanka and Malaysia as well. It is a hardy tree and grows in many conditions, preferring dry areas.

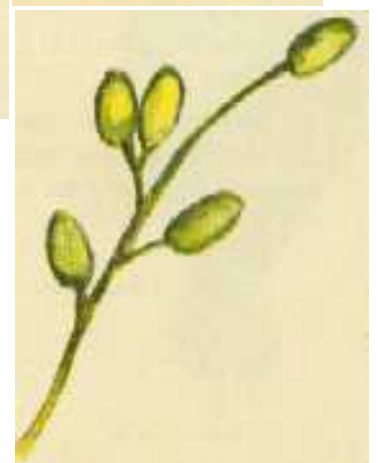
GENERAL DESCRIPTION: It is a medium to large evergreen tree, fairly fast growing with rough pale grey-brown bark. The trunk rises to quite a height before the branching starts. In drier areas this tree becomes deciduous.

LEAVES: New leaves appear throughout the year but mainly in March and April, to replace the old leaves that have fallen. The leaves are fresh green and sometimes rust tinted when new. They are shining and crowd together near the end of the branches. Since it is thought that the leaves absorb carbon dioxide faster than other trees more oxygen is released. For this reason it is a healthy tree to grow in gardens, or near houses.

FLOWERS: The tiny pale cream-coloured and star-shaped five-petaled flowers hang under the leaves and are difficult to see. They flower from March to May and again during the rains. Their strong perfume attracts many insects.

FRUIT: These are small berries, yellow when ripe. Birds and bees love their sweet-tasting juice. After rain the fruits give off a strong unpleasant smell.

USES: Often planted along the roads to give shade particularly in north India. The tree has so many medicinal uses that it is difficult to decide how to start listing them. However, the most famous product of the tree is the oil obtained from the seed, Margosa oil, used for treating skin diseases (and leprosy). The wood is heavy and drives away insects. It is often used for building boats. The twigs are used in place of tooth brushes and tooth paste, particularly amongst the poor and in the countryside. The leaves are used for treating boils. There is a story that Chaitanya Maha Prabhu was going on a pilgrimage to Puri in Orissa and stopped to rest one night in a village on the border of West Bengal and Orissa. There he used the twigs of the Neem tree to clean his teeth and ever since then the village has been named Danton. In north India the trees grow so well that there is often a sturdy branch onto which a swing can be attached.



PEEPAL TREE

Urticaceae or
Moraceae

Ficus religiosa

Sometimes called the Bo tree, and in Hindi it is known as Pipal, in Bengali as Asvattha. Jari in Gujarati, Ashathwa in Marathi and Ashvatthame in Telugu.

WHERE IT GROWS: The Peepal tree comes from the Himalayan foothills, but is now planted all over the country and in Burma. It is another 'member of the fig family.

GENERAL DESCRIPTION: It is the largest of the trees belonging to the fig family, and because it is sacred to Hindus it is often planted near temples and holy places. It is supposed to be one of the longest-living trees, and there is one in Sri Lanka which is said to be over two thousand years old. This tall tree is nearly deciduous, and grows very fast. The bark is light grey and peels off in patches. Instead of the hanging aerial roots which grow from the Banyan branches the Peepal tree has roots which are attached to the trunk so that they look as if they were pillars supporting it. The tree needs lots of space, and the soil must be deep enough to let the roots grow down a long way. There are so many tales about this tree that they would fill a book in themselves. Lord Buddha was supposed to have found enlightenment while resting under a Peepal.

LEAVES: The long pointed leaf tips help to drain water off the leaves and dry the tree after rainfall. They are shed in March and April and in some areas in the autumn months. When the new leaves appear they are often pink and darken to copper and then green.

FRUIT: Like the Banyan, the flowers of the Peepal are hidden within the figs. These figs ripen in May and June generally, but are also found at other times of the year in different areas. The fig wasp is a visitor to these fruits as well as the Banyan figs. As with the Banyan, when the fruits are eaten by birds or bats the seeds are dropped and start to grow in all sorts of places. It is a common sight to see a Peepal tree growing from a gutter or the wall of a house.

When this happens, the tiny plant gets all its food from the air and water but uses the wall or gutter as a support. After a while, if the tree continues to grow the roots, which are very strong, will begin to break the support and so it is better to pull out the plant when it is very small and let it grow somewhere else.

USES: Nearly every part of the tree can be used as medicine. From the bark a reddish dye is taken out. The leaves are used to feed camels and elephants, and the tree is often the home of the tiny lac insect.

When the leaves are dried, they are used for decoration and often painted on. Like all the fig trees many birds and bats love to eat the fruit, and in times when there is little food, villagers eat them as well. The wood lasts well in water and is sometimes used for building small boats.



PONGAM

Leguminosae

Pongamia glabra

Indian beech. Called Karanj or Karanja in Hindi, Bengali, Marathi and Gujarati. Pongam is the Tamil name, Pungu in Telugu.

WHERE IT GROWS: This tree is found from the Seychelles to India, the Pacific islands and Australia. It grows all over India and is planted for its beauty, by the sides of roads and in gardens. It is very hardy and can thrive in the cold as well as the heat. It grows especially well on coasts and near streams and rivers. This tree grows so commonly along the coast of Maharashtra that there is a peninsula not far from Bombay called Karanja after the tree.

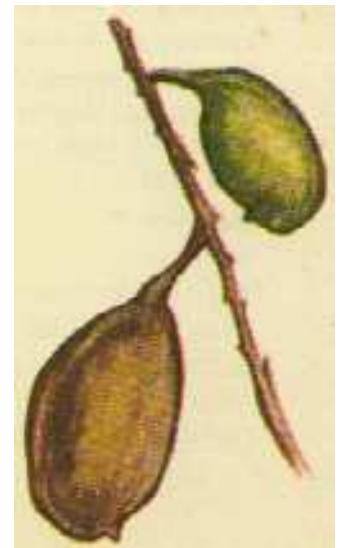
GENERAL DESCRIPTION: It is a fast growing, medium sized, nearly evergreen tree with a short trunk and spreading crown of branches. It has smooth dark grey-brown bark. In good conditions it can grow very tall.

LEAVES: These are shed at irregular intervals in winter and spring. The new leaves which appear are very bright green but soon become a dull green colour. It is common to see brown patches on the leaves caused by caterpillars. In fact many insects and fungi attack this tree. It is called Indian beech because in February—March when the new leaves unfold it looks very like the European Beech tree.

FLOWERS: The stems of pale purple or white flowers appear soon after the new leaves, around February, March and April, and carpet the ground with the blossoms as they wither. In some places the flowering season is very irregular, some trees bearing blossoms in summer or autumn, or even twice a year.

FRUIT: The wood-like seed cases are fairly small and a patchy dull yellow or dark brown colour when ripe. They ripen just before the new leaves appear, but remain holding the seeds until the seed-case decays. The seed inside is red in colour. Wherever the seed-case falls the seeds grow easily and in some places they have to be removed because otherwise too many trees would grow. As they often grow on river banks the floating seed cases often get carried a long way from their parent tree.

USES: The wood is yellow in colour and does not last long. It is sometimes used for making cart wheels and other implements. The branches when cut are fed to cattle or ploughed into the land to enrich the soil. The seeds produce an oil which is useful for treating skin diseases, for burning in lamps and making soap. The oil has a strong and unpleasant smell which is not easily removed.



QUEEN'S FLOWER

Lythraceae

Lagerstroemia speciosa flosreginae

In English its other names are Pride of India, or Crepe flower. In Marathi it is known as Taman, or Mota bondara, in Hindi as Arjuna, in Bengali Ajar, in Tamil Kaduli and in Telegu Vara gogu.

WHERE IT GROWS: This tree belongs to Assam, Burma, Sri Lanka and Kerala, but is now found in many parts of India. It is very common on river banks and in marshy places.

GENERAL DESCRIPTION: It is a fast growing deciduous tree which can grow very tall in wet areas but remains small or of medium height in dry or unsuitable places. Hardy in rich soil it can often flower only two years after planting, and has smooth light grey bark which peels in patches. The branches grow fairly high up the trunk and produce a crown of leaves. In Kerala there are forests of these trees which look very beautiful in the flowering season.

LEAVES: Leaves fall gradually from January and the tree is rarely completely bare. The leaves turn a reddish brown before falling. They are large, oval shaped and rough with veins clearly showing. The upper side is a dull green colour but it is paler underneath. The new leaves grow in pairs along the branches.

In early April the new leaves appear. They cover the tree in a very short time, and are a clear pale green.

FLOWERS: These appear in April and remain till June, often flowering again in July and August. They grow on long spikes at the end of the branches and are very showy, six-or seven-petalled purple flowers turning paler as they fade. The petals have a crushed and crumpled look, like tissue paper.

FRUIT: These are wood-like seed-cases with five or six openings. They are green in colour at first but later change to brown and black. The seeds are pale brown and smooth with a stiff wing attached to each.

USES: The wood of this tree is very hard and is used for boat building. Many other parts of the tree are used medicinally or for producing tannin (a chemical used for tanning leather). But the tree is one of the loveliest trees grown by the side of roads in India and is now a popular city tree.



RAINTREE

Leguminosae

Enterolobium saman or *Pithecolobium saman* or *Samanea saman*

Otherwise known in Marathi as Saman or Guango; in Hindi as Belaiti Siris, and in Tamil as Thungumoonji.

WHERE IT GROWS: This tree comes from South America and was introduced to Sri Lanka and then India. It is a tropical tree and cannot stand cold climates. It likes moist areas best.

GENERAL DESCRIPTION: It is a tall, fast growing, nearly deciduous tree, which has the ability to keep its shape even with strong winds blowing towards it from one direction. It has shallow roots and dark grey bark.

LEAVES: The oval dull green leaflets can change their position according to weather conditions. In full sunlight they lie flat and open, but at night and in cloudy weather they swivel and fold, so that they lie sideways. The leaves are shed in winter but the tree is never completely bare.

FLOWERS: The flowering periods are March to May and again in late autumn. In many cases the tree flowers all the year round. The flowers are grouped together in bunches that look like balls of fluffy cotton-wool. The flowers are pink and they show up because of their grouping.

FRUIT: These are flat, fleshy brown seed-cases containing a sweet pulp which surrounds the seeds.

USES: The tree was supposed to have been brought to Sri Lanka in the hope of making good railway fuel. But it was found that it did not even burn well. However, it is commonly planted at the sides of roads and gardens, and is used to protect coffee and cocoa crops from the sun. The fruits are very popular with squirrels and fed to horses and cattle. They are said to increase the quantity of milk produced by cows. The seeds are not digested, but are swallowed and the passed out of the animals body in the same condition. In times of scarcity the leaves are used to feed animals.

This tree is also the home of the lac insect but the lac produced is not of a very good quality. It is also called the Rain tree in Malayasia where they say that when the leaves fold, rain will follow. You will notice this is not always true. The tree also has a habit of spraying moisture onto the ground, which gives it its name. But this moisture is produced by insects and not by the tree itself.



SILK COTTON TREE

Malvaceae

Bombax malabaricum or Salmalia malabarica

In Maharashtra called Kate-savari, Savar, or Saur; in Hindi Simal or Shimbali, in Bengali Ragtasimal, in Tamil and Malayalam Illavu and Salmali in Sanskrit.

WHERE IT GROWS: The silk cotton tree is believed to come from the area stretching from Malaysia to North Australia, but it grows wild in most parts of India except in very hot, cold or dry areas. It loves a damp sandy soil and grows well in coastal regions, especially in the Konkan.

GENERAL DESCRIPTION: This tree has a very long life, and there are silk cottons that are believed to be as much as a thousand years old. It is a tall deciduous tree, very easy to pick out in a forest or jungle in the spring when it is bare of leaves and covered with flowers. It has a straight thick upright trunk which is often wider at the bottom to support the heavy branches above. The branches grow out horizontally, that is, sideways. Most trees have branches which curve upwards. This makes the Badam and Silk Cotton very easy to recognize. The bark is smooth silver grey and covered with hard sharp prickles. As the tree gets older the bark roughens and cracks.

LEAVES: The whole leaf is made up of up to seven small leaflets which are oval or lance-shaped, and have a long leaf stalk which joins the smaller branches. They are dull green in colour and when they are on the tree from April or May until the winter months they give a great deal of shade.

FLOWERS: From January to March the flowers appear and they are easy to see on the leafless tree. The flowers are usually bright red, but can also be pink or yellow or white. They have five large curved petals and contain a great many long stamens (male part of flower containing pollen) which are grouped in bunches. The flower sits in a fleshy cup divided into three sections which feels silky and is green in colour. It is called the calyx. The word calyx is the cup on which the flower sits and nearly all flowers have them; although they are all different in shape, colour and size.

FRUIT: The green seed-cases, which start to ripen in April are oval but soon thicken and turn brown and hard when ripe. They split and the soft silky cotton inside is blown away by the wind. This cotton contains the oval black seeds, from which new trees develop and grow.

USES: There are many stories in folklore about this tree, and one name given to it is 'Parrot's despair', probably because the seed-cases look so delicious but only contain cotton. But this cotton has many uses as it is ideal for filling cushions and quilts and is even sent to other countries under the name 'Simal'. The gum which is obtained from the trunk is called Mocha-ras and is used in medicine and for book binding. Many other parts of the tree are used for medicines. The flowers with their green calyx are eaten as vegetables, and also loved by animals, especially deer, who make a meal of the fallen petals. When the tree is in flower it is always covered with birds and insects who love the nectar, especially drongos, mynahs and sunbirds. The holes in the trunks of old trees are used as nests by parakeets.



TAMARIND

Leguminosae

Tamarindus indica

In Hindi called Imli. Tentul in Bengali, Chinch in Marathi and Amla in Gujarati. The Persian name Tamar-i-hind means Indian date.

WHERE IT GROWS: Originally said to have come from Central Africa, there is no record of its arrival in India. It grows well in all tropical countries and in Southern Europe, and is very adaptable.

GENERAL DESCRIPTION: Tamarind is a slow-growing tree, nearly evergreen in moist areas and nearly deciduous in dry areas. It is a large tall tree with a short trunk and a crown of leaves. It has very long deep roots and its bark is thick, almost black, cracked and uneven. It can live a very long time (200 years has been recorded). As the tree contains a lot of acid some small ground plants will not grow underneath it.

LEAVES: These fall and are replaced almost immediately, normally in April, May and June in dry areas. The young leaflets which together form the whole leaf are small and thick. They are bright green when new but soon darken to a dull dusty green.

FLOWERS: Hardly noticed but very pretty and scented. They are pink, purplish cream or yellow veined and hang in loose bunches from the ends of the branches from April to June, and often later in the year.

FRUIT: They ripen from February to April, and there are usually a great many of them, (It is said that there is less fruit on the trees in north India.) The seed-cases differ in shape. Some are long, some curved, others flat and small. They are green at first covered with brownish fur, and later turn dark brown or reddish black and brittle (stiff but easily broken). The pulp inside the seed-cases surrounds the seeds and is sour in taste.

USES: The tree is often planted in parks and avenues and its wood has a regular grain and is very hard. The wood is often used for charcoal and for making the pin on the potter's wheel, wooden hammers and furniture. The fruit is a favourite for curries and pickles. The seeds are ground to make a flour which is sometimes used for making chapatis. The flour also makes a starch for stiffening cloth, and has other uses in the textile industry. The seeds are used commercially as they contain pectin which is used for making jams and jellies. In Gwalior there stands a tamarind tree over the tomb of Tansen a musician from Akbar's court. By tradition, singers eat the leaves of the tree to improve their voices. The tree is nearly always found where there are people and villages and very rarely in jungles. This means that it has always been planted for its uses and is not a wild tree.



TEAK TREE

Verbenaceae

Tectona grandis

Or Indian Oak. Called Saigun in Hindi, Saka in Sanskrit, Sag in Marathi, Saguna in Bengali and Saga in Gujarati.

WHERE IT GROWS: This tree comes from central and southern India, Burma and Thailand. It is fairly adaptable but grows best inland and loves a warm, moist tropical climate with plenty of rain. Teak trees also need plenty of space, light, and a good soil. They are often found near rivers and can grow enormously tall.

GENERAL DESCRIPTION: The tree is a fairly slow growing deciduous tree, but takes time to mature (sixty to eighty years). The bark is ash coloured or brownish-grey and scaly. Until recently there were laws to protect teak trees, so that they could not be cut down without government permission. For this reason some people are still afraid to grow them in their own gardens. They are however very attractive trees. There are caves in which the ceilings are lined with planks of teak which are supposed to be over 2000 years old. When travelling- in the countryside from June to September look for this beautiful flowering tree.

LEAVES: Large and strong they grow in pairs and are shed from November to January in dry areas. In moist areas they often remain on the tree until March. The tree remains bare during the hot weather and the new leaves start early in the monsoon season. In some areas certain insects eat away the leaves leaving only skeletons, making the tree look wild and untidy.

FLOWERS: Pyramids of tiny white scented blooms appear from June to September. They stand out above the leaves and make the tree look very beautiful. The flowering stems remain on the tree long after the flowers have died.

FRUIT: Like tiny crushed green Chinese lanterns they contain a furry nut. The seeds inside take a long time to develop.

USES: The tree is most famous for its wood although its quality depends on where the tree grows.

Some areas in India produce fine wood but Burma teak is considered to be the best. The wood contains a resin which preserves it and stops insects or white ants from eating it, so that even the poorer quality wood has many uses. The leaves are used as plate and for covering the roofs of cottages. When the tender leaves are scratched, a red colour appears and this is used for dyeing cloth. Ash from the wood when burned is supposed to be very good for the eyes.



TEMPLE TREE

Apocynaceae

Plumeria acutifolia or *acuminata*

Its other popular names are Champa, Frangipani and Pagoda tree. In Maharashtra it is called Khera chapha or Pandhra chapha, in Hindi Chameli or Gulechin, in Bengali Dalama phula, in Gujarati Rhada Champo, in Marathi Khair champa and in Tamil Arali.

WHERE IT GROWS: This tree comes from Mexico, Guatemala and tropical American countries, but is now commonly grown all over India and in Sri Lanka where it has found a new home. It is a small or medium sized deciduous tree with a fleshy crooked stem and branches, fast growing and very hardy in most conditions. The bark is grey and smooth, and if any piece of the stem breaks off and is planted it will take root and grow in a short time. If any part of the tree is damaged, a white sticky sap oozes out.

LEAVES: These are smooth, bright dark green, oblong (longer than wide) and pointed at both ends on short leaf stalks. They grow alternately up the stems, one after another. The leaves grow in large numbers from winter to the rains and then the tree remains nearly bare for the rest of the year, except for young trees which often keep their leaves throughout the year.

FLOWERS: The lovely flowers are at their best from March to May but often the tree will have some flowers all the year round. They grow in bunches on an upright stem, at the end of the branchlets. They are white with bright yellow centres (sometimes the petals have little patches of pink). The petals, five in number, are waxy and twisted, and have a very sweet scent. When they drop to the ground they are still perfect and can be used for decoration.

FRUIT: In India these are not supposed to develop often but I have seen several fruit-bearing trees in the Bombay area. The seed-cases are first like two green sticks and then oval, brownish, wood-like, that stick out like horns from a long stalk. They contain thin flat oval seeds with delicate wings attached.

USES: This tree is often planted in temple gardens (which gives it its name) where the flowers are used for pujas. Many parts of the trees are used for medicines, for example the white sap which is used for treating rheumatism.

This white sap has also been tried out as a substitute for rubber but without any success. There is a popular belief that the seeds from this tree, if eaten after a person has been bitten by a snake, acts as a cure. This is not a very helpful remedy since the seeds are so rare in India, and in any case they have been proved to be ineffective.



TULIP TREE

Bignoniaceae

Spathodea campanulata

The other English names are Bell Flambeau, Scarlet Bell tree, Fountain tree, Syringe tree, Squirt tree and sometimes wrongly Flame tree. Rugtoora in Hindi, Patade in Telugu and Patadi in Tamil.

WHERE IT GROWS: This tree originally came from tropical Africa and was then brought to Sri Lanka and India. It grows well in most tropical countries, particularly in drier areas. In moist areas it does not grow to the same large size that it does elsewhere.

GENERAL DESCRIPTION: It can be damaged by high winds as the wood is soft and the branches are easily broken. It is a fast growing, tall deciduous tree in dry areas, in moist areas it is of medium height and semi-evergreen. It is a narrow slender tree with upright main branches and a straight trunk. The bark is light grey and rough. New trees are usually grown by cutting a piece of a leafy stem and planting it. After some time this cut section produces its own roots and grows into a new tree. Proverbs in Africa use the name of this tree to describe people who are weak-willed.

LEAVES: Deep green oval leaves which fall during February and March. They are coarse and have deeply marked veins.

FLOWERS: These also appear in February and March but often go on flowering into the monsoon. There is a second flowering season from October to December. First, velvety olive-green buds appear in huge bunches at the end of the branches followed by the blooms of orange, bright red and dark red, which are beautiful to look at. When the flower buds are squeezed a jet of water comes out and little African boys use them as water pistols.

FRUIT: It is not reported to produce fruit very often in Maharashtra, although in hotter drier areas this problem does not arise, but even when the seeds appear they have some difficulty in germinating (that means growing to produce another tree). They are lance-shaped, smooth, wood-like and dark brown, containing winged seeds.

USES: Often planted for its beauty. In Africa the fruits are boiled and a poisonous liquid is obtained which hunters use to kill their prey. The soft wood won't burn and is seldom used except for the sides of blacksmiths' bellows.



WHAT TO LOOK FOR ON TREES

1. The size of the tree and whether the branches grow out from the trunk high up or lower down, near the ground. Also whether the branches start at right angles from the trunk or curve upwards.
2. Whether it is a shady tree, a tidy or untidy tree, or a prickly tree. Is it very tall or very short?
3. Notice the colour of the bark and whether it is smooth or rough, peeling or uneven.
4. Watch to see if any roots grow above the ground or are twisted into the trunk of the tree.
5. Look for any flowers on the tree, and if there are any see what colour and shape they are.
6. If there are no flowers perhaps there are seed-cases or edible fruits, in different shapes and colours. Now look under the tree to see if any flowers or fruit have fallen to the ground (sometimes you may find seeds of fruit eaten by animals or birds). You can pick up the fallen fruits or flowers and examine them.
7. Notice if the flowers have a scent and whether bees and other insects come for nectar.
8. Note the size, shape and colour of the leaves. Do you think the tree is deciduous or evergreen. Also, do the leaves grow singly, or are they divided into smaller leaflets.

Watch for all these things, and write them down so that you can tell your teachers or parents. You could keep a notebook for this and press the leaves and flowers of trees you have written about in it.

By just observing and noting down such things you are learning something which will be of life-long benefit to you.

