

# PLANTS REPRESENTED IN ANCIENT INDIAN SCULPTURE

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## ABSTRACT

The plants represented in the bas-reliefs on the gateways of the Great Stupa<sup>1</sup> at Sanchi and the railing of the Bharhut stupa, belonging to the first and the second century B.C. respectively, are figured and described. These include about 40 representations of plants, 23 of which are mentioned in archaeological works. The names of the others are not known.

## INTRODUCTION

The bas-reliefs on the railing of the stupa at Bharhut and the gateways of the Great Stupa at Sanchi in Madhya Pradesh are remarkable, apart from their decorative beauty, for illustrating the life of Buddha, jatakas (legends of his former births) and events of Buddhist history. With these are shown scenes of the jungle, the village and everyday life of the people. Many plants are depicted in these carvings.

The original stupas at Bharhut and Sanchi were constructed in the middle of the 3rd century B.C. in the time of Ashoka. The railing of the Bharhut stupa was added in the Sunga period and is believed to date from the middle of the 2nd century B.C. The Sanchi gateways were built in the last quarter of the 1st century B.C. during the reign of Andhras. The Sunga and the Andhra dynasties were the successors of the Mauryan empire after it broke up in 185 B.C. In the early Mauryan period building material consisted chiefly of wood and the artists were skilled in wood and ivory carving. Stone as a medium of construction is believed to have been introduced by Ashoka. After the sculptures of the Mauryan period, of which only the Ashoka capitals and a few sandstone figures survive, the Bharhut and the Sanchi bas-reliefs are the earliest examples of the Indian sculptors' work in stone. (See BROWN, 1949; MARSHALL, FOUCHER & MAJUMDAR, 1940.)

The Bharhut stupa was discovered by CUNNINGHAM in 1873. At Bharhut itself there is not much left to see. Most of the Bharhut sculptures are now kept in the Indian Museum, Calcutta. A number of sculptures recovered later are kept in the Museum, Allahabad. These have been described by KALA (1951). The Great Stupa and other monuments of Sanchi are a tourist attraction. Detailed accounts of the Bharhut and Sanchi monuments are given in archaeological works, particularly those of CUNNINGHAM (1879), BARUA (1934-37), MARSHALL (1918), and MARSHALL, FOUCHER & MAJUMDAR (1940).

Apart from archaeologists and specialists in Buddhist religion and art, perhaps few others have given any attention to the plants of the bas-reliefs. The information in the present article has been compiled from archaeological works in the hope that it may be of in-

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1. "Stupa, originally a funeral mound or tumulus, but erected by the Buddhists either to enshrine a relic or to commemorate some sacred site." (BROWN, 1949, p. 253).







terest to botanists. The Text-figures are from free-hand drawings made by the writer, as faithfully as possible, of the plants seen in the photographs illustrating these works. Text-figs. 1, 2, 5, 7-11, 14-16, 19-20, 22-23, 25, 28-29, 31-34, 39-47 were sketched from MARSHALL, FOUCHER AND MAJUMDAR (1940); Text-figs. 3-4, 12, 17-18, 21, 24, 26-27, 30, 36-38 from BARUA (1934-37); Text-figs. 6, 13 from MARSHALL (1931) and Text-fig. 35 from KALA (1951).

## DESCRIPTION

The plants are portrayed in the bas-reliefs in a style which is partly conventional and partly realistic and, with the exception of some, cannot be identified by their leaves, flowers, etc. shown in the carvings. The ones depicted with a certain degree of realism are not difficult to recognise. Buddhist texts and the descriptive inscriptions found on the Bharhut bas-reliefs have helped in establishing the identity of several of them.

## BODHI TREES

It was while he had taken shelter and was meditating under the ashvattha (pipal) tree (*Ficus religiosa*) at Gaya that Siddhartha Gautama received enlightenment. The pipal therefore became known as the Bodhi (Wisdom) tree. It became an object of pilgrimage and its cuttings were taken to different places, including Shri Lanka, for planting. BASHAM (1954, p. 273) writes: "The Buddha himself probably taught that he was the last of a long succession of earlier Buddhas, who had lived before him. According to tradition these former Buddhas were revered even in the historical Buddha's lifetime."

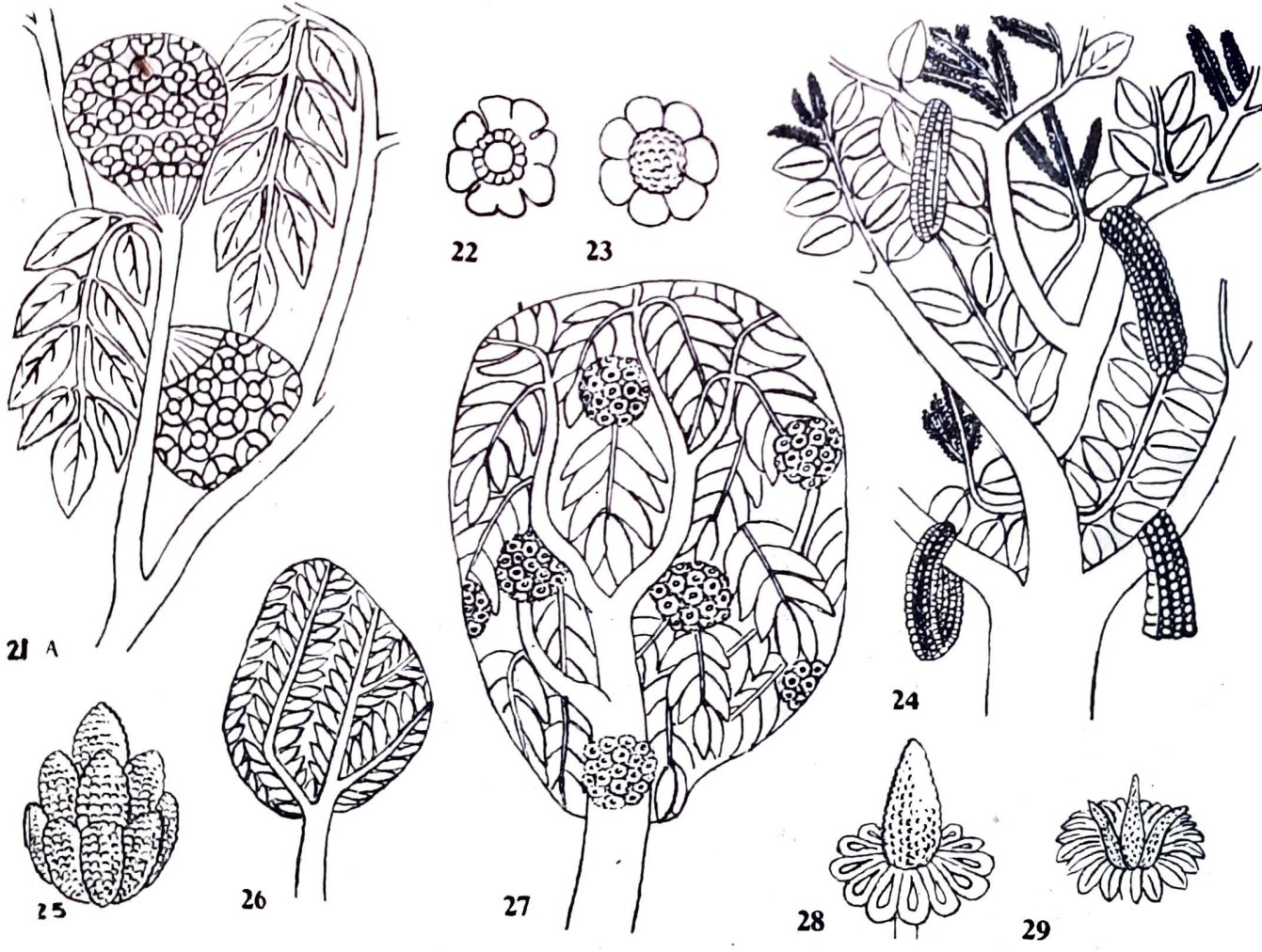
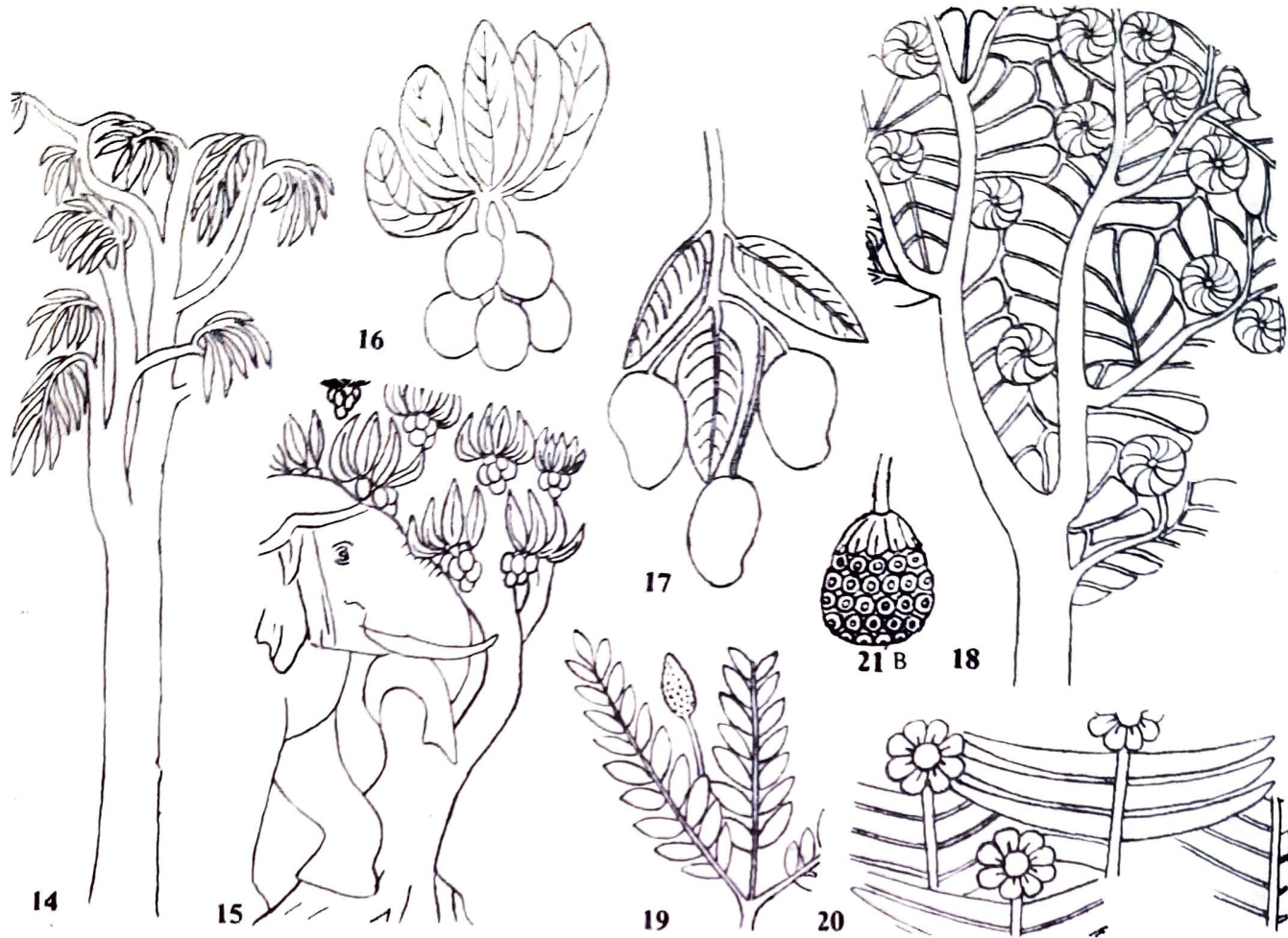
In keeping with the tradition of those days, Buddha was not shown in the bas-reliefs in his bodily form but was represented by certain emblems. These were the stupa, denoting his mahaparinirvana (death), his empty throne (shown in the carvings in the form of a cubical seat), placed under the Bodhi tree, or the Bodhi tree itself. Other emblems were the tri-ratna (three jewels), dharma-chakra (wheel of the Law), umbrella and the Master's footprints. At Sanchi a panel on the southern gateway shows six past Buddhas and Gautama Buddha symbolically by four Bodhi trees and three stupas, and on the eastern gateway all the seven Buddhas are represented by Bodhi trees (MARSHALL, FOUCHER & MAJUMDAR, 1940, Pls. 15, 45).

The Bodhi tree is shown with garlands suspended from its boughs and a canopy formed by one or more umbrellas (Text-fig. 11). Generally, the trunk and the branches of the tree are shown realistically and the leaves and the flowers conventionally (Text-figs. 18, 21, 27). Worshippers are shown standing or kneeling beside the throne on which they have placed floral offerings.

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Text-figs. 1-13. 1. Representation of banyan tree (*Ficus benghalensis*). Sanchi, 1st century, B. C. 2. Banyan, foliage and fruits. Sanchi, 1st century B. C. 3. Banyan, foliage and aerial roots. Bharhut, 2nd century B.C. 4. Representation of *F. glomerata* (gular). Bharhut, 2nd century B.C. 5. Part of design, showing lotus (*Nelumbo nucifera*) leaves, buds and flowers, from a nativity scene. Sanchi, 1st century B.C. 6. Hairpin-head of vitreous clay representing a lotus receptacle (diameter about 2 cm). Mohenjo-daro (Harappa Culture, c. 2500-1500 B.C.). 7. Foliage and flowers of unnamed tree. Sanchi, 1st century B.C. 8. Foliage and flower of unnamed tree, perhaps a champaka. Sanchi, 1st century B.C. 9. Unnamed tree in flower. Sanchi, 1st century B.C. 10. Representation of champaka (*Michelia champaca*). Only a part of the tree is shown. Sanchi, 1st century B.C. 11. Representation of pipal tree (*F. religiosa*). Sanchi, 1st century B.C. 12. Foliage of pipal. Bharhut, 2nd century B.C. 13. Pipal on steatite seal from Mohenjo-daro (Harappa Culture, c. 2500-1500 B.C.).







In the Sanchi and Bharhut bas-reliefs the six Buddhas immediately preceding Gautama Buddha, Gautama himself and the Buddha to come are represented. Like Gautama, each of these Buddhas has a Bodhi tree belonging to a particular species. These trees and the Buddhas to whom they belong are as follows :

*Patala* (*Stereospermum suaveolens* DC.)—Described as the trumpet flower (BARUA, 1934-37), patala is the Bodhi tree of Vipashyin (Text-fig. 27). It is among the plants frequently shown in the Sanchi bas-reliefs. The Caryatid yakshis (fairy-spirits) on the northern and eastern gateways are shown standing under either a patala or a mango tree. The tree in Text-fig. 27 is from Bharhut and bears several clusters of flowers.

*Pundarika*—This is the Bodhi tree of Shikhin. The name pundarika is given to a number of plants including white lotus and mango. BARUA (1934-37) writes that pundarika is *Mangifera indica* or white mango with fragrant flowers. On the northern gateway, Sanchi there are seven trees representing seven Buddhas (MARSHALL, FOUCHER & MAJUMDAR, 1940, Pl. 22). According to FOUCHER, the tree representing Shikhin here is not a mango but a *Ficus*, namely *F. elastica* Roxb., the India-rubber tree. He mentions, however, that the mango seen on the southern gateway (MARSHALL, FOUCHER & MAJUMDAR, 1940 Pl. 16) could be the Bodhi tree of Shikhin.

*Shala* (*Shorea robusta* Gaertn. f.)—Text-fig. 24 shows a sal tree from Bharhut which is in flower. This is the Bodhi tree of Vishvabhu. Gautama Buddha was born in a sal grove in the Lumbini garden. At the time of his death he laid himself down on a couch which he had ordered to be spread between two sal trees (MARSHALL, 1918).

*Shirisha* (*Albizia lebbek* (L.) Benth.)—Siris is the Bodhi tree of Krakucchanda. Text-fig. 18 shows a much stylised representation of the tree from Bharhut.

*Udumbara* (*Ficus glomerata* Roxb.)—The gular is the Bodhi tree of Kanakamuni. In Text-fig. 4 is a representation of the tree from Bharhut. It is shown bearing fruits. Note the garlands. The throne under the tree is not included in the drawing.

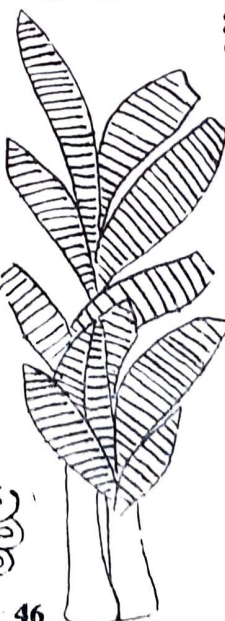
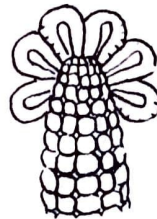
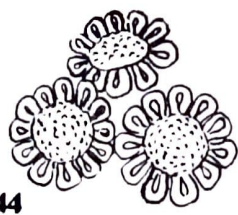
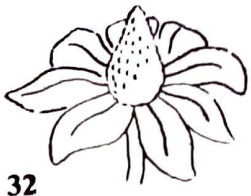
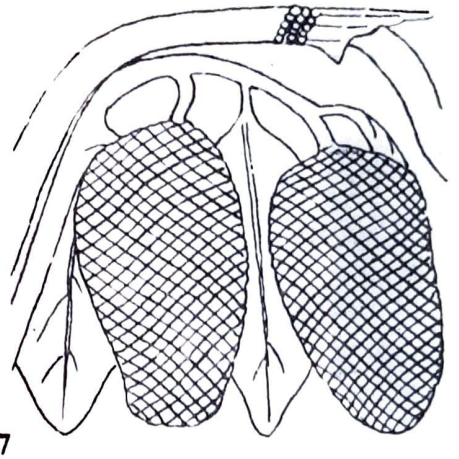
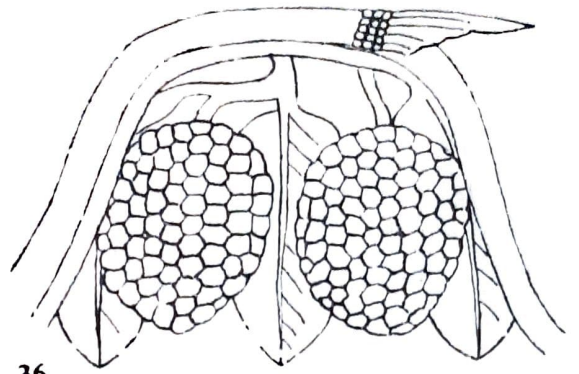
*Nyagrodha* (*F. benghalensis* L.)—The banyan (Text-figs. 1-3) is the Bodhi tree of Kashyapa. The carvings show this tree with some realism, especially the trunk and the aerial roots. The tree in Text-fig. 1 is from the illustration of the Chhaddanta jataka on the southern gateway, Sanchi. According to this legend, the Boddhisattva was once born as the king of a herd of elephants. Some of them are seen standing under the tree.

*Ashvattha* (*F. religiosa* L.)—The pipal, as already mentioned, is the Bodhi tree of Gautama, the historical Buddha, also known by the title Shakyamuni. It can be easily recognised in the carvings by the characteristic shape of the leaves which the sculptors have always shown faithfully (Text-figs. 11, 12). Note in Text-fig. 11 the umbrella, garlands and throne. Like patala and mango, the pipal figures quite often in the Sanchi bas-reliefs.

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Text-figs. 14-29. 14. Unnamed tree. Sanchi, 1st century B.C. 15. Representation of mango tree (*Mangifera indica*). Sanchi, 1st century B.C. 16. Mango, fruits and leaves. Sanchi, 1st century B.C. 17. Mango, fruits and leaves. Bharhut, 2nd century B.C. 18. Representation of *Albizia lebbek* (siris). Bharhut, 2nd century B.C. 19. Shoot of unnamed tree. Sanchi, 1st century B.C. 20. Foliage and flowers of unnamed tree. Sanchi, 1st century B.C. 21A. Representation of ashoka (*Saraca indica*). Bharhut, 2nd century B.C. 21B. Pendant body resembling ashoka flower-heads in fig. 21A. Sanchi, 1st century, B.C. 22. Flower of unnamed tree. Sanchi, 1st century B.C. 23. Flower of unnamed tree. Sanchi, 1st century B.C. 24. Representation of sal tree (*Shorea robusta*). Bharhut, 2nd century B.C. 25. Flower of unnamed tree. Sanchi, 1st century B.C. 26. Representation of sandalwood tree (*Santalum album*). Bharhut, 2nd century B.C. 27. Representation of patala tree (*Stereospermum suaveolens*). Bharhut, 2nd century, B.C. 28. Flower of unnamed tree. Sanchi, 1st century B.C. 29. Flower of unnamed tree. Sanchi, 1st century B.C.







The reverence shown in India to the pipal tree dates from times much earlier than the Buddhist period. Pipal leaves are carved on several steatite seals discovered at Mohenjodaro, the ancient city of Harappa Culture (ca. 2500—1500 B.C.). Text-fig. 13 shows one of the seals with pipal leaves. The stem springs from the jugate heads of two unicorns. This animal is frequently shown on the seals and was perhaps associated with the pipal goddess worshipped by the Indus people as her vahana (vehicle) (MARSHALL, 1931).

*Nagpushpa* (*Michelia champaca* L.)—The champaka (Text-fig. 10) is the Bodhi tree of Maitreya, the future Buddha. The conventional representation of champaka at Sanchi is in the form of a star-like, four-petalled flower. Text-fig. 8 is perhaps also a champaka of different design.

#### OTHER SACRED OR ORNAMENTAL TREES

*Ashoka* (*Saraca indica* L.)—Text-fig. 21A shows part of an ashoka tree from Bharhut. The obconical bodies are probably conventionalised flower-heads. The carving at Bharhut shows a female figure (Chulakoka Devata) standing on an elephant under the tree grasping its branch. She is the goddess of hunters (BARUA, 1934-37). A tree with pendant bodies (Text-fig. 21B) like those of ashoka is figured on the western gateway, Sanchi. On the east pillar of the northern gateway one of the trees is described as ashoka (MARSHALL, FOUCHER & MAJUMDAR, 1940, Pl. 35B).

*Jambu* (*Syzygium jambos* (L.) Alst.)—The gulab-jaman or rose-apple tree is shown on the eastern gateway, Sanchi, in a panel depicting the departure of Prince Siddhartha from Kapilavastu (MARSHALL, FOUCHER & MAJUMDAR 1940, Pl. 40). The umbrella, garlands and railing indicate its sacred character. This tree is also seen at Bharhut (BARUA, 1934-37, Pl. 91, fig. 140). The Bodhisattva's first meditation took place under the jambu tree and its shade did not move while he sat under it (MARSHALL, 1918).

*Kovidara* (*Bauhinia variegata* L.)—The tree in the Bharhut bas-relief illustrating Buddha's descent from the Tushita heaven is regarded by BARUA as kovidara (kachnar) (1934-37, Pl. 48, fig. 48).

*Chandana* (*Santalum album* L.)—Text-fig. 26 shows one of the sandalwood trees figured in the carving at Bharhut illustrating the legend of the purchase of Prince Jeta's garden.

#### FRUITS AND FRUIT-PLANTS

*Amra* (*Mangifera indica* L.)—Like patala, the mango is very frequently portrayed at Bharhut and Sanchi. It is shown both as tree, sometimes with sacred emblems, and isolated shoots. Shikhin's Bodhi tree pundarika is probably the mango. In spite of the conventional treatment, the tree can be recognised by the fruits. Text-figs. 16, 17 show twigs with leaves and fruits. In Text-fig. 15, from the eastern gateway, Sanchi, an ele-

- Text-figs. 30-47. 30. Representation of *Borassus flabellifer* (palmyra). Bharhut, 2nd century B. C. 31. Unnamed tree in flower. Sanchi, 1st century B. C. 32. Flower of tree in fig. 31. 33. Flower of unnamed tree. Sanchi, 1st century, B. C. 34. Grape (*Vitis vinifera*). Sanchi, 1st century B. C. 35. Design showing grape-vine. Bharhut, 2nd century B.C. 36. Design showing representation of custard apple (*Annona squamosa*). Bharhut, 2nd century B. C. 37. Design showing representation of jak-fruit (*Artocarpus heterophyllus*). Bharhut, 2nd century B. C. 38. Unnamed arborescent plant. Bharhut, 2nd century B.C. 39. Representation of bamboo clump (*Bambusa?* sp.). Sanchi, 1st century B.C. 40. Unnamed flowering tree. Sanchi, 1st century B.C. 41. Flower of tree in fig. 40. 42. Flower of unnamed tree. Sanchi, 1st century B.C. 43. Flower of unnamed tree. Sanchi, 1st century, B.C. 44. Flowers of unnamed tree. Sanchi, 1st century B.C. 45. Representation of wild date-palm (*Phoenix sylvestris*). Sanchi, 1st century, B.C. 46. Representation of plantain (*Musa paradisiaca*). Sanchi 1st century B.C. 47. Representation of *B. flabellifer*. Sanchi, 1st century B.C.



phant is seen tearing up a tree. Carvings at Bharhut show a monkey sitting on a mango branch and parrots pecking at the fruit (BARUA, 1934-37, Pl. 26, fig. 21; Pl. 28, fig. 24).

*Panasa* (*Artocarpus heterophyllus* Lamk.)—Text-fig. 37 shows the jak- or jack-fruit (katahal) from Bharhut. Realistic representations of it, mango and custard apple are seen on the ornamental panels of the coping of the Bharhut railing. The characteristic sculpturing of the skin of the jak-fruit is seen much better in the carving (BARUA, 1934-37, Pl. 24, fig. 24c) than in the drawing in fig. 37. The jak-tree is seen at Sanchi on the western gateway (MARSHALL, FOUCHER & MAJUMDAR, 1940, Pl. 55).

*Sitaphal* (*Annona squamosa* L.)—Text fig. 36 shows the custard apple from Bharhut. This plant is of West Indian origin (VAVILOV, 1949-50) and is believed to have been introduced into India by the Portuguese, probably in the 16th century (WATT, 1889; MEHRA, 1965). Cunningham regarded the custard apple as Indian. His view was opposed by botanists but his remarks on this subject are worth reproducing: "My identification of this fruit amongst the Mathura Sculptures has been contested on the ground that the tree was first introduced into India by the Portuguese. I do not dispute the fact that the Portuguese brought the Custard Apple to India, as I am aware that the East India Company imported hundreds of grindstones into the sandstone fort of Chunar<sup>1</sup>, as if for the purpose of illustrating the proverb about carrying coals to Newcastle. I have now travelled over a great part of India, and I have found such extensive and such widely distant tracts covered with the *wild* Custard Apple that I cannot help suspecting the tree to be indigenous. I can now appeal to one of the Bharhut Sculptures for a very exact representation of the fruit and leaves of the Custard Apple." (CUNNINGHAM, 1879, p. 47.)

WATT was of the opinion that the representations referred to by CUNNINGHAM might be associated with a large number of plants. They may prove to be conventional representations of the jak-fruit tree or some other allied plant and are not unlike the flower-heads of the sacred kadamba or *Anthocephalus*. Watt said that *A. squamosa* and *A. reticulata* had been naturalised in India but neither of the species was seen forming a forest where it showed any indication of being indigenous. (See WATT, 1889, pp. 259-60.)

*Kadala* (*Musa paradisiaca* L.)—The plantain (Text-fig. 46) is a common plant in the Sanchi bas-reliefs and is not difficult to recognise.

*Draksha* (*Vitis vinifera* L.)—Text-fig. 34 from the eastern gateway, Sanchi shows a parrot with a bunch of grapes. The creeper in Text-fig. 35 is from a pillar of the Bharhut railing. The grape-vine has been incorporated in several ornamental designs at Sanchi, e.g. on the pillar of the western gateway (MARSHALL, FOUCHER & MAJUMDAR, 1940, Pl. 66c). The grape-vine had its origin in the Central Asiatic Centre which includes Punjab, North-West Frontier Province and Kashmir (VAVILOV, 1949-50).

According to SMITH (1930), the view that the introduction of the grape-vine into Indian bas-reliefs is an evidence of copying Hellenistic models is untenable. The Indian artists had ample opportunities of studying the forms of vine-growth at first hand and were under no necessity to seek foreign models. MARSHALL (MARSHALL, FOUCHER & MAJUMDAR 1940), however, regards the vine as a characteristic motif of Hellenistic art. WATT (1893) says that while viticulture in India never at any period attained the proportions it assumed in the Greek and Roman ages of Europe, the grape-vine and its products have been known in this country for perhaps 3,000 years. The Bharhut and Sanchi sculptors must therefore have been quite familiar with this plant.

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1. Chunar, Mirzapur district, in south-eastern Uttar Pradesh. Extensive sandstone quarries exist in the Chunar-Mirzapur area.



*Tala* (*Borassus flabellifer* L.)—Text-fig. 30 shows one of the two palmyras on a medallion of the Bharhut railing. The palm in Text fig. 47 is from a panel of the western gateway showing a procession of gods arriving to witness the great miracle of sambodhi (enlightenment). The figure under the palm represents one of the gods.

The leaf of fan-palm has provided the motif for the crowning member of the capitals (c. 150 B. C.) found at Vidisha (Besnagar). One pillar with palm-leaf capital was built at Vidisha by Heliodorus, ambassador of the Greek King of Takshashila (Taxila) to the Sunga court. The pillar was raised in honour of Vasudeva and thus appears to be one of the earliest known stone monument associated with the Hindu religion (BROWN, 1949).

*Kharjura* (*Phoenix sylvestris* Roxb.)—The sculptors seem to have set covention aside in portraying palms and, like the palmyra, the wild-date shown in Text-fig. 45 from the eastern gateway, Sanchi is very lifelike.

*Vansha* (*Bambusa?* sp.)—The bamboos shown in Text-fig. 39 are from one of the pillars of the northern gateway, Sanchi. They can be recognised by their characteristic culms. At Bharhut they figure in a scene of Mt. Narada where they grew in large clumps (BARUA, 1934-37, Pl. 94, fig. 142).

#### CEREAL

*Godhuma* (*Triticum* sp.)—One of the bas-reliefs of the coping of the Bharhut railing shows, according to CUNNINGHAM (1879, Pl. 40, inside scene 1), a woman cutting standing corn.

#### LOTUS

*Padma* (*Nelumbo nucifera* Gaertn.)—Probably the earliest representation of the lotus in India is that found at Mohenjo-daro (Harappa Culture, 2500—1500 B. C.). It is a hair-pin head of vitreous clay representing a lotus receptacle. One of the specimens, about 2 cm in diameter, is shown in Text-fig. 6. (See MACKAY in MARSHALL, 1931.) Some terracotta figurines of the mother goddess of pre-Mauryan age have been found at Mathura. In these the head appears to be adorned with ornaments which look like lotus receptacles. No sculptured representation of the lotus flower or leaf is met with in India in this or the Harappa Culture period.

The lotus has long been regarded as a sacred flower in India. At Bharhut and Sanchi it has provided the motif for the most varied designs in borders, medallions and decorative panels. It is depicted as the tree of life and fortune and wishing-creeper. Queen Maya, Gautama's mother, is shown seated or standing on a full-blown lotus. Text-fig. 5 shows lotus leaves, buds and flowers on a panel of the southern gateway, Sanchi depicting the scene of the birth of Gautama. The figure of Maya is not included in the drawing but one of the two Naga elephants flanking her is seen standing on an open lotus flower.

On the soffit of the bottom lintel of the northern gateway there is a row of full-blown flowers representing the pink lotus (padma) and the blue lotus (utpala) (MARSHALL, FOUCHER & MAJUMDAR, 1940, Pl. 23b). Utpala or nilpadma is probably *Nymphaea cyanea* Roxb. which is regarded as a variety of *N. stellata* Willd.

The lotus flower motif is seen in the lion capital at Sarnath and other Ashokan capitals. Here the fluted "bell" represents, according to COOMARASWAMY (1927), an inverted lotus flower.



The unnamed trees in the bas-reliefs can be conventional representations of certain species or imaginary introductions in the carvings. Some of them are shown with the sacred umbrella, garland and throne symbols. If they represent actual plants, their identification is not possible.

In most cases the trees are shown leafless but in full bloom. The artists perhaps intended to depict the phenomenon which is seen in several species in India which shed all their leaves before bursting into flower (the silk-cotton tree, *Bombax ceiba* L. (*Salmalia malabarica* Schott. et Endl.); flame of the forest, *Butea monosperma* (Lamk.) Endl. Taub.; amaltas, *Cassia fistula* L.).

*Text-fig. 7.* Foliage and flowers of a tree from a panel on the southern gateway, Sanchi showing the visit of Emperor Ashoka to the stupa of Ramagrama (MARSHALL, FOUCHER & MAJUMDAR 1940, Pl. 11). This scene has 10 trees in the background including mango, champaka and fan-palm.

*Text-fig. 8.* Foliage and flower of a tree from the western gateway, Sanchi. This may be a champaka (cf. Text-fig. 10).

*Text-fig. 9.* Tree from the western gateway, Sanchi. The throne and umbrella of the original are not shown in the drawing. The tree is leafless and in full bloom.

*Text-fig. 14.* Tree from the southern gateway, Sanchi, with tall, smooth trunk and sparse foliage.

*Text-fig. 19.* Shoot from a tree on the western gateway, Sanchi (MARSHALL, FOUCHER & MAJUMDAR 1940, Pl. 55).

*Text-fig. 20.* Leaves and flowers of another tree from the western gateway, Sanchi (MARSHALL, FOUCHER & MAJUMDAR, 1940, Pl. 55). The leaves are cycad-like but for the flowers shown with them.

*Text-fig. 22.* Flower of a tree on the southern gateway, Sanchi.

*Text-fig. 23.* Flower from a tree seen in the illustration of the Mahakapi jataka on one of the pillars of the western gateway (MARSHALL, FOUCHER & MAJUMDAR, 1940, Pl. 64). The tree is shown growing on the bank of Ganga. It is leafless and covered with flowers.

*Text-fig. 25.* A flower of peculiar form from a leafless, flower-laden tree in a carving on the south pillar of the eastern gateway, Sanchi depicting the miracle of Buddha walking on water (MARSHALL, FOUCHER & MAJUMDAR, 1940, Pl. 51b).

*Text-figs. 28, 29.* See under Text-figs. 31, 32.

*Text-figs. 31, 32.* Trees with flowers of this type (looking somewhat like a *Magnolia*) are seen frequently at Sanchi. Text-fig. 28 shows a flower of more elaborate design than the one in fig. 32 and with larger number of petals. In fig. 29 the number of petals has further increased and the central cone has become tri-lobed. A tree with flowers of the last type is seen on the middle lintel of the southern gateway (MARSHALL, FOUCHER & MAJUMDAR, 1940, Pl. 17).

*Text-fig. 33.* Flower from a tree on the western gateway, Sanchi (MARSHALL, FOUCHER & MAJUMDAR, 1940, Pl. 63). This is also a variation of the flower in fig. 32.

*Text-fig. 38.* An arborescent plant with smooth, columnar trunk topped by a number of large leaves. Such plants are seen on the right and left sides of some scenes in the Bharhut bas-reliefs (BARUA, 1934-37, Pl. 37, fig. 32; Pl. 50, fig. 52; Pl. 52, fig. 54). They could be representations of a fan-palm though very unlike the palmyras seen in Text-figs.



30 and 47. According to BROWN (1949), tall palm trees reminiscent of pillars are conventionally placed at the sides of some of the scenes on the Bharhut railing.

*Text-fig. 40.* Trees of this type are not uncommon in the Sanchi bas-reliefs. The one shown in fig. 40 is from the southern gateway. Fig. 41 probably represents one of the flowers.

*Text-fig. 42.* Flower of peculiar design from a tree on the southern gateway, Sanchi (MARSHALL, FOUCHER & MAJUMDAR, 1940, Pl. 11).

*Text-fig. 43.* Another flower of peculiar design from a tree on the south pillar of the eastern gateway (MARSHALL, FOUCHER & MAJUMDAR, 1940, Pl. 52).

*Text-fig. 44.* Flowers from a tree on the eastern gateway, Sanchi (MARSHALL, FOUCHER & MAJUMDAR, 1940, Pl. 47).

#### CONCLUDING REMARKS

Except two, all the plants in the Bharhut and Sanchi bas-reliefs whose identity is known are indigenous. The exceptions are custard apple (see p. 22) and tala, *Borassus flabellifer*. The latter is a native of tropical Africa. One view is that the plant growing in India is distinct from the African species. Whatever the case may be, *B. flabellifer* is depicted so realistically in the bas-reliefs that there can be no mistake about its identity and one is led to the conclusion that the species had become well-established in India long before the commencement of the Christian era.

With its peltate, concave leaves standing above water, the sacred lotus of India seen in the bas-reliefs is undoubtedly *Nelumbo nucifera*. It differs from *Nymphaea* which has cordate leaves floating on water. India has several species of *Nymphaea* and one, utpala, is believed to be shown in the bas-reliefs. The words lotus and padma are somewhat loosely used for both *Nelumbo* and *Nymphaea*. In the bas-reliefs the two cannot be easily distinguished unless the leaves are also shown.

Plants continued to figure in later Indian sculpture but not in such large number as seen in the bas-reliefs of Bharhut and Sanchi. The Gandhara and the Mathura schools, which developed in North India under Kushana rule, began depicting Buddha in his bodily form. In the South, too, the carvings on the Amaravati stupa, which belong to the 2nd century A.D., showed him in person. Perhaps, with the emphasis shifting from the Bodhi trees to Buddha himself, the sculptors' interest in plants declined. In the medieval period the sculptural decoration of the Hindu and Jain temples, though extremely rich, was dominated by images of gods and goddesses and various human and animal figures.

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