

The Hindu Temple

An Introduction to its Meaning and Forms

GEORGE MICHELL

With a new Preface

THE UNIVERSITY OF CHICAGO PRESS
Chicago and London

NA,
6002
M52
1988
C-1

DEC 23 2009

The University of Chicago Press, Chicago 60637
The University of Chicago Press, Ltd., London

© 1977, 1988 by George Michell
All rights reserved. Originally published 1977
University of Chicago Press edition 1988
Printed in the United States of America

97 96 95 94 93 92 91 90 89 88 5 4 3 2 1

Library of Congress Cataloging in Publication Data

Michell, George

The Hindu temple : an introduction to its meaning and forms /
George Michell.

p. cm.

Reprint. Originally published: New York : Harper & Row,
c1977. Originally published in series: Icon editions. With new pref.

Bibliography: p.

Includes index.

1. Temples, Hindu. 2. Symbolism in architecture—India.

3. Hinduism. I. Title:

NA6002.M52 1988

726'.145—dc 19

ISBN 0-226-53230-5 (pbk.)

88-19079

CIP

JUN 8 1989

013876118

Contents

List of Illustrations	4
Acknowledgements	7
Map	8
Preface	10

Part One: The Meaning of the Temple

1 The Civilization of Hinduism	14
2 The World of the Gods	20
3 The World of Man	49
4 The Temple as a Link between the Gods and Man	61

Part Two: The Forms of the Temple

5 The Science of Building	78
6 Temple Styles	86
7 The Temples of India	94
8 The Temples of South-East Asia	159
9 The Hindu Temple Today	183

Further Reading

Indexes

185
187

I The Civilization of Hinduism

For over two thousand years much of Asia has been dominated by Indian Hinduism as a religious, social and political force. Hindu Asia encompasses the subcontinent of India, the peripheral sub-Himalayan valleys, the major part of mainland South-East Asia and the Indonesian archipelago. However, the influence of Buddhism and Islam has also been pervasive in these areas during this period, and today only India, Nepal and Bali are predominantly Hindu, even though the whole region still retains vestiges of Hindu culture.

The temple is the most characteristic artistic expression of Hinduism, providing a focus for both the social and spiritual life of the community it serves. Temples have been built in all parts of Hindu Asia at different periods and continue to be erected in those countries which are still Hindu. The temple reflects the ideals and way of life of those who built it and for whom it was intended to operate as a link between the world of man and that of the gods. In order to understand the architectural forms and sacred art of the Hindu temple it is necessary to investigate the origins and development of the civilization that produced it.

The term 'Hinduism' incorporates a larger part of Indian civilization than is communicated by the word 'religion': it is a synthesis of many different beliefs and practices, modes of living and thinking. These differences are bound together by a cultural continuity and cohesive force that characterize Indian civilization. It is significant that nowhere in the extensive vocabulary of the Indian languages is there a word that corresponds to the term 'religion'—in fact, religious and non-religious matters are never distinguished in Hinduism as it is unimaginable that any activity, impulse or process can be without some divine potential. Hinduism spans the complete spectrum of Indian culture from the everyday agricultural life of the village to the transcendental speculations of the philosopher. At its most rarefied and abstract level, Hindu thought dismisses the world as illusory; it aims at breaking through this illusion to discover an ultimate reality beyond. The temple reflects this range of Hinduism and is much more than a mere setting for the practices associated with certain beliefs; it is imbued with a complex system of symbolism by which it embodies the most elevated notions of Hindu philosophy while still serving the requirements of everyday religious life. It is, therefore, an expression both of Hindu society and of the most profound levels of Hindu civilization.

The origins of Hinduism

Cultural contrasts are implied by the geographical features of the Indian subcontinent. The river plains of northern India are divided by hills from peninsular India with its raised plateaux and rocky outcrops. There are also variations in climate—the western regions of India, for example, are desert, in striking contrast to the eastern and southern extremities which lie well within the tropical zone. Though isolated from the rest of Asia by a chain of mountains to the north and by oceans on three sides, India has experienced at all times cultural influences from invading peoples who entered the country, mostly from the north-west. In fact, the origins of Hinduism may be understood as a *reconciliation* of the cultures of indigenous Indian populations with succeeding invaders. India fused these contrasting languages, beliefs and social patterns into the composite and conservative civilization of Hinduism.

The religion which is identified by the term 'Hinduism' did not appear until the centuries immediately preceding the Christian era. Its origins and earlier phases, however, introduce a further thousand years, and more, of Indian civilization. The literary tradition of Sanskrit, the sacred language of Hinduism, extends back to the middle of the second millennium BC when India was invaded by waves of Aryan peoples. The Aryans brought with them a distinctive language and religion which were closely related to those that appeared in Iran and, more remotely, to those of the Aegean and eastern Europe at about the same time, having been brought there by other Indo-European speaking invaders. Though these peoples were wanderers they were able to preserve some of their early traditions, which they later set down in a body of sacred writings, the Vedas. The religion that is contained in the Vedas is not to be identified with Hinduism, even though the Vedas are still regarded as the source for later sacred Hindu literature. The *Rig-Veda* is the oldest of these texts and was composed between 1500 and 900 BC in an early form of Sanskrit. Its 1,028 hymns were intended to be used at the sacrifices performed by priests in order to secure boons from the gods. The pantheon of deities described in the Vedas is dominated by powerful male gods mostly associated with the heavens. The greatest Vedic deity is Indra who fulfils the dual function of war-god and weather-god. The *Rig-Veda* used a subtle system of symbolism so that in later Indian thought its meaning was always open to interpretation at several levels.

Indian archaeology extends the chronological perspective back into the shadowy centuries of the third millennium BC, well before the coming of the Aryans. At this time there existed a remarkable civilization which flourished at sites along the Indus river and its tributaries. These are customarily grouped together under the title of Indus civilization, or 'Harappan culture', after the name of the first site at which this civilization was discovered. Excavations have revealed evidence of a highly organized culture concentrated in at least two large cities with regular street layouts and brick structures. Despite the fact that the buildings discovered cannot definitely

be connected with any religious or ceremonial function, artefacts from these sites provide clues as to the possible beliefs of their inhabitants—cult figurines, especially ‘goddesses’, as well as seals and models of animals have been found in abundance. Some of the characteristics that are found in Hinduism after the Aryans arrived may be traced back to these river city cultures—for example, the worship of the female principle both as a maternal creative force and as an erotic and potentially destructive energy, the concern for the preservation of life including that of certain animals, and the cult of particular trees and plants. Other objects known from all periods of Indian civilization which are also found at these Indus valley sites include emblems of the male and female sexual parts, thus indicating the antiquity of the celebration of fertility in both male and female form.

The development of Hinduism

Over the centuries following the invasion of northern India by Aryan peoples in the middle of the second millennium BC, a distinct culture evolved, some strands of which bear little relation to the religion of the Vedas. These cultural manifestations may probably be traced to pre-Aryan beginnings—that is, indigenous to India—and may be tentatively identified with what is known of the Harappan culture. There are suggestions that by the time of the compilation of the *Rig-Veda* the Aryans had already absorbed many elements of the ideology of the civilization that they had found flourishing in the Indus valley. As the nomadic Aryan peoples settled down in the plains of northern India they gathered together in rural communities, some of which in time became urban settlements. Changes in living patterns were accompanied by changes in religion and the texts that were composed in the centuries following the Vedas, such as the Brahmanas and Upanishads, reveal the growing power of the priests who imbued the mystery of the sacrifice with a cosmic significance. From the pantheon of the Vedas the creator became more and more emphasized as a single divinity or godhead. In the Upanishads this godhead is further identified with the *atman*, the ‘self’ or spirit, which is formless but all-powerful and ever-present. A reaction to the prosperity of life is introduced for the first time in the cult of the ascetic individual who denies the enjoyment of life. The world of the senses is dismissed as unreal and the chief purpose of living is to secure an escape from a temporal existence. The notion of escape or release (*moksha*) from the present world underlies the beginnings of the doctrine of transmigration (*samsara*), in which the soul of man returns to earth after death in an endless cycle of rebirths. An important part of this doctrine is the concept of *karma* in which the actions of a human being in one life-span directly affect the rebirth that is to follow. It is in this context that Buddhism and Jainism appear in the sixth century BC. Neither of these two religious movements was originally concerned with an ultimate divinity; rather, they proposed ethical philosophies of everyday life which were directed towards the transcendence of human existence. This they combined with a concentration

upon the lives and teachings of actual personages, who came to be worshipped as divine in later centuries.

By the third and second centuries BC, from the varied strands of the different cultures of the Indian subcontinent there had begun to emerge the new religion of devotional theism: thus begins the true history of Hinduism. The new religion reached its final form by combining influences from both the north and south of India and probably also from the cultures of other invading peoples who continued to enter India from the north-west during this period. The outstanding feature of the new Hinduism is the worship of a personal deity who generally took the form of a particular god or goddess, especially Vishnu or Shiva. The adoration of such a deity was believed certain to bring about the fulfilment of all the desires of the worshipper, even ultimate emancipation from the cycle of rebirths. The deities upon whom this new religion concentrated were basically syncretistic creations, having their mixed origins in the earlier pantheon of the Vedas and in various folk heroes, often regional gods or goddesses, of whom there is little record in early Indian literature. Before the beginnings of the Christian era the major cults of Hinduism had emerged which were to dominate the beliefs and practices of Hindus for the next two thousand years. At the same time, a host of minor divinities and spirits appeared who were no less important for human affairs. Elaborate rituals and ceremonies were rapidly evolved for the worship of these divinities, and myths and popular legends flourished.

During this period an enormous body of sacred literature was produced. The Vedas, Brahmanas and Upanishads continued to be regarded as the most sacred of India’s religious texts and were studied by priests and theologians, as they still are today. However, the scriptures of popular Hinduism, available to all and not just to the priests, were the Epics, the Puranas or ‘Ancient Stories’, the books of Sacred Law and numerous devotional hymns. As these were not set down in writing until long after their composition, the period to which they originally belong cannot be determined with any accuracy. Even so, many of these texts may tentatively be dated to the early Christian era. The Epics express one aspect of the characteristic features of the new religion—the richness of contrasting cultural traditions. The *Mahabharata* and *Ramayana* were originally secular stories but at an early stage, probably before the Christian era, they developed a distinct religious character. The most celebrated portion of the Epics is the *Bhagavad Gita* in the *Mahabharata*, which is universally held to be a definitive statement of devotional Hinduism. The Puranas represent an even more popular aspect of Hinduism. They are compendia of legends and religious instruction which, in their present form, are not very ancient—none preceding the fourth or fifth centuries AD—even though they incorporate material that is very much older. A whole class of popular reciters of the Puranas grew up, travelling from village to village and commenting in the vernacular languages on their Sanskrit recitations. The religious hymns and poetry of Hinduism express much of the devotional theistic feeling that was popular in these early phases of Hinduism. In all of these texts the earlier pantheon of the

Vedas is overshadowed by a new repertoire of popular cults which were spread by such dissertations. Many of these folk cults concentrate on aspects of fertility which curiously contrast with the ascetic tendencies in the religion. The impact of Jainism and Buddhism is also of importance in the formative phases of Hinduism.

The emergence of the new religion and culture of Hinduism was soon to have its response in a sacred architecture and art, strongly influenced by the monumental architectural and artistic traditions first developed in India under Buddhist and Jain patronage in the second and first centuries BC. That earlier structures were fashioned from less durable materials such as timber, brick and plaster, means that the beginnings of Hindu architecture and art have either disappeared or are detectable only by the most fragmentary remains. It was not until the period of Gupta rule in northern India, from the fourth century AD onwards, that complete architectural schemes in stone were devised as settings for Hindu theistic cults. From the period following the Guptas, the building of temples in permanent materials for Hindu cults became a constant feature of Indian civilization. Patterns of history in India are characterized by a general lack of unification and continuous shifts in political and economic power; in addition, northern and southern India have had relatively independent histories. Since stone and brick architecture was mostly undertaken as a result of royal patronage, any account of the development of the Hindu temple and its art inevitably follows that of dynastic history. In the north of India the evolution of Hindu temple architecture was largely interrupted by Muslim invaders whose presence was increasingly felt from the eleventh century AD onwards, and many of the finest temples must have been destroyed. In contrast, the south of India was not to experience Muslim rule until a much later period, when it had a less disrupting effect upon Hindu traditions. Temple architecture in the south was therefore able to preserve a relatively unbroken development which has continued to the present day.

The spread of Hinduism

The dispersal of Hinduism to the kingdoms of mainland South-East Asia and the Indonesian archipelago was bound up with a more generalized expansion of Indian culture. In this process the religions of Hinduism and Buddhism, together with their theological systems and elaborate mythologies, the Sanskrit language and social system, came to be dispersed well beyond the confines of the subcontinent. Early contacts between India and other parts of Asia are traced back to the centuries immediately preceding the Christian era, and by the fourth and fifth centuries AD 'greater India' was already in existence. The means by which Hinduism spread beyond India is largely undocumented, but is most likely to have been stimulated by the priests accompanying merchant adventurers who probably set off on their colonial expeditions from ports on the eastern coast of India.

The great kingdoms that came to be established in South-East Asia were

outwardly Indian in their culture and religion but, not surprisingly, the Hinduism that was fostered in these civilizations was a mixture of indigenous elements and imported Indian features. Among the most important notions incorporated into Hinduism outside India are those concerned with the worship of the ruler on earth as divine. The cult of the god-king (*devaraja*) never truly gained popularity in India but was of the utmost importance for cultural life and sacred architecture in 'greater India'. This cult was accompanied by a concern for the worship of ancestors and burial. Sacred architecture, therefore, developed a memorial and mortuary character. The Indianized kingdoms of South-East Asia experienced alternating phases of Hinduism and Buddhism, frequently combining them into one complex religious system. In the Himalayas, too, a mixed religious culture was fostered in which the erection of Hindu and Buddhist temples was sometimes carried out at one and the same time.

2 The World of the Gods

A great pantheon of gods, goddesses, semi-divine beings and lesser deities unfolds in the countless myths of Hinduism which exist in numerous versions throughout Indian literature, particularly in the Puranas and Epics. These myths present the collective wisdom of a timeless, anonymous and many-sided civilization and are much more than just fanciful 'biographies' of the gods. Like the great philosophical systems of India, the myths of Hinduism reveal the ultimate reality of the universe by giving symbolic expression to that which cannot be discursively expressed.

The gods are never far away from man. The elements of the landscape throughout Hindu Asia—the trees, hills, mountain slopes, caves, rivers, springs and lakes—are all imbued with a potential sanctity. Rudimentary markings in the landscape, such as a coloured paintstroke, a flag or pile of stones, indicate man's awareness of the proximity of the gods. In the Hindu temple the potentially divine becomes visibly manifest and therefore approachable by man. Sacred images in Hinduism are never mere effigies; their function is to make visible the world of truth. Since truth lies beyond the world of appearance, these images do not always conform to the evidence of human senses. The source of this art lies in the spectrum of gods vividly described in the enormous repertoire of Hindu myths and legends.

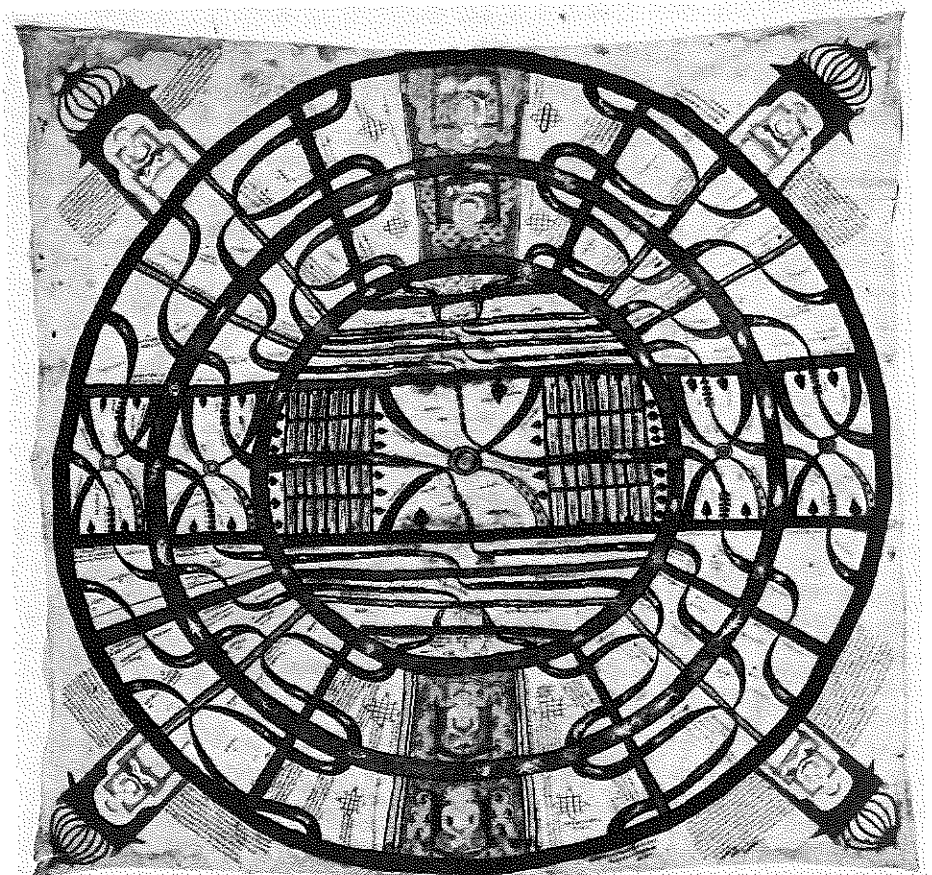
Time and the universe

The activities of the gods and the lives of human beings are linked together in a continuum in which time is conceived as a cyclical system. According to the Indian view the universe is destroyed by fire and is dissolved into the cosmic ocean out of which a new universe is created and another cosmic era begins. A single cycle of creation to destruction is sometimes described as one day of Brahma, the active creator-god of the universe. On the human time-scale, the blinking of an eyelid of the god Vishnu may encompass a complete life-span. In this manner mythology expresses the chronological sequences by which the divine and human time-scales are related. Each cycle of creation to destruction is divided into four ages (*yugas*) arranged in order of declining strength, peace and happiness. This inherent tendency towards destruction influences the affairs of both the gods and man. As man is mostly unable to perceive the cyclic nature of time and the universe, he can discover no explanation for the recurring rebirths that he must endure. His past, present and future lives are all linked together in a continuous time system, as are the actions of the gods and the dynamic mechanism of the universe. Man's entanglement in this cycle is likened to a spell or

illusion (*maya*) and it is the aim of all Indian thought to learn the secret of this *maya* and, if possible, to cut through it into a reality that lies beyond. In Hinduism this liberating process is evocatively termed 'release' (*moksha*). The gods have compassion for mankind and when provoked by exceptional circumstances may reveal the delusion from which man suffers, thus indicating for him the path towards true knowledge.

Related to the time continuum of Hinduism is a spatial continuum in which an infinite series of universes is imagined, each isolated from the other and suspended in empty space. This conception of the cosmos is characterized by the shape of the universe, which is described as the 'egg of Brahma' (*Brahmanda*). This cosmic egg is divided into zones or regions, one of which represents the abode of human beings. Above are the heavens and beneath are the nether worlds. This model of the universe is related to Hindu

- 1 Diagram of the universe showing the 'rose-apple tree continent' (*jambudvīpa*) with the oceans, continents and rivers arranged around the central mountain, Meru. Painting on cloth, western India, seventeenth century



astronomy and contrasts with another model which postulates a flat and circular universe. The centre of this latter scheme is the cosmic mountain Meru about which the sun, moon and stars revolve. Concentrically arranged around the base of Meru are the continents and oceans. The continent to the south upon which human beings dwell has a rose-apple tree as its distinctive flora and is known, therefore, as the 'rose-apple tree continent', *jambudvīpa* (Fig. 1). This theologically determined cosmic model is of great importance for the Hindu temple, especially in the functioning of the temple as a symbolic reconstruction of the universe.

The gods and demons

Parallel to the recurring cycles of cosmic creation and dissolution is the concept of light and darkness as personified in Hinduism by the gods and 'anti-gods' (*asuras*) or demons. The complex themes of Hindu mythology are dominated throughout by the continuous enactment of light versus darkness,

- 2 The myth of the churning of the ocean: the gods pulling the serpent Shesha.
Balustrade from the entrance to Angkor Thom, Cambodia, thirteenth century



good opposed to evil. Time never operates in a linear manner and the struggle is eternal; neither good nor evil can triumph for long. Though the gods are always fighting the demons and other powerfully opposed forces, they are also related in some way to their darker counterparts. So too are creation and destruction part of a single process. The very dynamics of the cosmos are expressed in the tensions of the conflict between good and evil rather than in an ultimate resolution which never takes place.

One celebrated myth in Hinduism vividly illustrates the interaction between the gods and demons—this is the churning of the cosmic ocean by means of the serpent Shesha who conveniently wrapped himself around the mountain Meru which, for this purpose, was supported on the shell of Vishnu who had assumed the form of a tortoise. The demons and gods took opposite ends of the cosmic serpent, the gods the head and the demons the tail, and by alternating pulling and pushing movements a churning action was set up by which the ocean was 'milked'. Eventually all that exists in the universe was produced, including the much sought after elixir of eternity (*soma*). In the Khmer monuments at Angkor this myth of search, struggle and creation is translated into a unique architectural feature—many of the temples are surrounded by a stone balustrade which is fashioned into the scaled body of a serpent, appropriately gripped by the gods and demons (Fig. 2).

The major cults of Hinduism

Innumerable gods and goddesses are found throughout the mythology and art of Hinduism, but the history of this religion at its highest devotional level is mostly bound up with the simultaneous development of two major cults—those of the male gods Shiva and Vishnu. A third cult is also of importance—that of the Mother or the Goddess—but is rarely seen in isolation, as the Goddess is essentially the consort of Shiva. These cults are synthetic in character owing to their evolution as amalgamations of many different minor deities. Shiva, Vishnu and the Goddess are compound creations with a wide range of divine powers and richly paradoxical personalities. The majority of Hindus ally their beliefs with one or other of these cults, worshipping Shiva, Vishnu, or the Goddess as the highest principle. In devoting themselves to one of these three deities Hindus do not deny the existence of the other two, who are regarded as minor expressions of the divine power. Thus in the cult of Shiva, Vishnu is considered an unimportant aspect, whereas in the cult of Vishnu, Shiva is reduced to a secondary emanation. To the worshipper of the Goddess, the male gods are mostly passive and shadowy figures.

In general, the cults of Hinduism developed peacefully together and only rarely is there any evidence of friction or religious persecution. The reason for this mutual co-existence is to be found in the belief that the ultimate godhead lies beyond the divisions of cult and that the worship of Shiva, Vishnu or the Goddess leads inevitably to the same goal. From this point of

(Fig. 5) and, as the tortoise, supporting the axial mountain Meru in the churning of the ocean.

Also significant in Hindu art are the scenes of adoration in which cult images of divinities come to be worshipped. Such scenes often appear as the final episodes in the depiction of myths and are intended to indicate to the devotee the suitability of his pious acts. Thus in a temple dedicated to Shiva, worshippers may be depicted in attitudes of devotion before an image or symbol of the god, together with accessory deities and mythological beings.

Hindu art displays a preference for celestial 'family groups' in which the gods are shown together with their various consorts, children, attendant figures and animal or bird vehicles. Shiva and his consort Parvati, with Ganesha and Karttikeya who are often considered to be their children, are depicted in their mountain retreat of Kailasa. Nandi, Shiva's bull mount, *ganas* and ascetics are also in attendance. When the multi-headed Ravana threatens their peace he is rapidly subdued by the crushing pressure of Shiva's toe. In addition, there are compositions of the marriage of Shiva and Parvati in which Brahma acts as priest. Doubtless, such scenes reflect the desire to bring together into a single artistic composition many of the contrasting elements within a cult.

In order to illustrate the epic stories of the *Mahabharata*, *Ramayana* and various Krishna legends, Hindu art evolved a narrative series of successive scenes in which episodes from these stories are depicted. Particularly popular are the battle scenes from the *Mahabharata*, as well as episodes from the *Ramayana* in which Rama and his brother Lakshmana, and also the monkey-accomplice Hanuman, fight numerous demons and overcome extraordinary obstacles in their search for Sita, Rama's abducted wife (Fig. 16). The climax of the *Ramayana* is the fight between Rama and Ravana, the wicked king of the mythical island Lanka, who has imprisoned Sita. Krishna legends, too, are popular subjects for narrative art, especially the stories drawn from the childhood of the god and his youthful dalliances with the beautiful Radha.

3 The World of Man

From the Hindu point of view, the lives of human beings are merely stages in the progression towards ultimate liberation. The world of man is the sum total of countless individual life-spans bound up in the cycle of rebirth. Liberation is accessible to all human beings, though never within a single life-span. In the world of man the temple functions as a symbol of ultimate enlightenment: it is the house of the gods among men, the place where the gods may be approached and divine knowledge discovered. As the centre of religious and cultural activities, the temple is the focus of all aspects of the life of the community it serves. But the temple is also the product of a desire to transcend the world of man—the principles of its construction, the forms of its architecture and decoration, as well as the rituals that take place within its walls, are all aimed at ultimate liberation.

Hindu society is traditionally divided into a hierarchy of four principal classes, each with its own distinctive way of life and separate duties. Though there is a common law (*dharma*) for all to follow, there is also a law appropriate to each class and to each stage in the life of the individual. According to this theory, the highest of these four classes, the brahman, is considered divinity in human form. In Hindu society the brahman enjoys great privileges and from this class come the professional priests. At all times many brahmins led truly religious lives and members of this class constituted the theologians who set down their ideas and beliefs in the language described as 'perfected', Sanskrit. It is in this language and its derivatives that many of the sacred books of Hindu religion and philosophy are written. Some learned brahmins also came to hold high positions at royal courts, at which they were frequently influential in the affairs of state. From the *kshatriya* or warrior class came many of the rulers of the kingdoms of Hindu Asia, while the *vaishya* or mercantile class provided the guilds of artisans and craftsmen. As the patrons and the builders of temples these two classes had great importance for the development of sacred architecture. The lowest class, the *shudras*, acted as servants and labourers and had little relation with the temple. In some communities *shudras* were not admitted inside temple enclosures. Outside the Hindu social system were the 'untouchables'.

To the traditional Hindu the religious and the secular life are never truly distinguished, and the ordinary procedures of everyday life necessitate frequent contacts with the divine, whether it be with the 'high' cult deities or the lesser folk spirits. These contacts take place in the home, one room of which functions as a miniature temple with an image for worship, or at the local temple where priests officiate. For the three upper classes of Hindu society the temple is a place of both daily worship and occasional worship

on a particular occasion; it may also be an object of pilgrimage at festival times. Every community in Hindu Asia, even the smallest village, has its place of worship, the temporary habitation of the gods. (Differences in prosperity and in political and cultural importance between towns and villages account for much of the variety in the scale of temple architecture, the techniques of building and the particular deities that are worshipped there. Lack of historical information about many Hindu temples makes it difficult to distinguish these factors. Even though potent sites for temples are frequently dictated by sacred geographical features, which means that significant temples are sometimes located beyond the confines of towns and villages, Hindu temple architecture mostly forms part of an urban or village environment.

Royal patrons

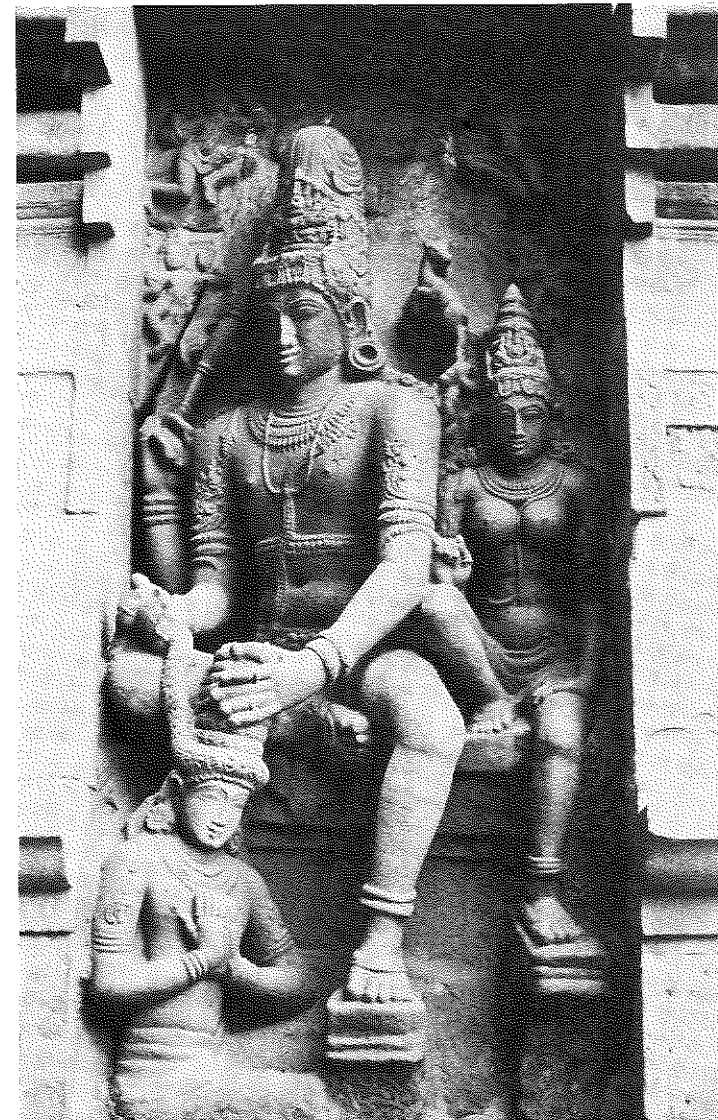
The climate of Asia is not conducive to the preservation of historical records unless they were inscribed on stone slabs or metal plaques. Little information has survived about most Hindu temples and their builders, and in the case of smaller temples, perhaps built of mud or timber, it is unlikely that any such information was ever committed to writing. From the few records that have survived it is clear that temple building, at least in stone, was mainly carried out as a result of royal patronage. Stone construction involved much labour, time and organization, all of which was extremely expensive, and only rulers who had access to the concentrated economic wealth of a country could afford such building activity. That stone temples were costly undertakings is indicated by the number of cases in which the material itself is known to have been transported from a quarry far away from the temple site. Workmen with different skills had to be employed and organization and supervision of the building project maintained. Major craftsmen responsible for the design and execution of particular parts of the temple and priests to officiate at the various ceremonies were highly paid and had sometimes to be brought from another region.

Temple building seems to have been a sincere expression of the devotion and piety of the ruler. Hindu literature frequently describes the merit that is due to the patron of the temple. 'Let him who wishes to enter the worlds that are reached by meritorious deeds of piety and charity build a temple to the gods', suggests the *Brihatsamhita*, an early text, while the later *Shilpaprakasha*, a manuscript on temple building, ensures that the patron 'will always have peace, wealth, grain and sons'. The erection of a temple for the gods was also undertaken for the benefit of the whole community that it served, and whose common spiritual aspirations it embodied. In this way the ruler of a community provided his subjects with the facilities by which their spiritual life might be maintained. There was also the possibility of achieving fame, if not immortality, because 'everything vanishes with time, only a monument lasts forever', according to the *Shilpaprakasha*.

Temple building communicated the physical power of the ruler as it was an expression of his economic resources.

Inscriptions carved on the walls and columns of temples throughout Hindu Asia from many periods demonstrate that private individuals or groups of individuals were also able to function as patrons. There are numerous records of contributions of money, treasure or income towards the fashioning of a sculptural panel, the renovation or upkeep of a temple, or for the performance of certain rituals. Not all of these individuals belonged to the ruling classes; guilds of wealthy merchants played a particularly prominent part in the patronage of temple architecture. However, the role

- 17 Rajendra, the Chola ruler, receives a floral garland of victory from Shiva who is seated with his wife Parvati. Brihadeshvara temple, Gangaikondacholapuram, eleventh century



lives with the world of the gods. In the eighth century temple at Kanchipuram dedicated to Vaikunthaperumal, an aspect of Vishnu, the interior walls of the colonnade around the courtyard are covered with carved panels. Here is found the whole history of the Pallava kings from which scholars have been able to reconstruct the dynastic chronology. Coronation scenes are particularly prominent (Fig. 19) and there are also many episodes of warfare. In fact, military campaigns form a popular subject of decoration throughout Hindu temple art, and illustrate connections between the lives of rulers and the building of temples. Elephants, horses, footmen and soldiers are all popular motifs.

More complex associations between kingship and temple building are found in the Hindu temples of Java and Cambodia. The ancient kings of these countries sometimes identified themselves with incarnations of the gods, upon whom the safety of the realm and success of the ruler depended. Here were evolved rituals and cults of the god-king (*devaraja*) centred upon the sacred *linga* which was imbued with the essence of divine kingship. According to these cults the temple was dedicated simultaneously to the god and the king himself. Angkor Vat in Cambodia, where the climax of Khmer temple architecture is to be seen, introduces a further variation upon this theme since it is also a temple of death. The complex forms of its architecture focus upon the central building dedicated to Vishnu which is also a sepulchre of its founder Suryavarman II who died in 1152 (Figs 103, 104). Reliefs carved on the gallery walls of this temple illustrate the mythology of Vishnu together with processional scenes from the life of the founder king. Yama, the god of death, also appears.

The artist and society

Traditional Hindu society makes no allowance for the individual pursuit of self-expression. The role of the Hindu artist is to give visible form to the values of his society, rather than to communicate a personal interpretation of these values. The artist is considered an instrument by which things higher and greater than himself find expression in the forms that he creates, whether these be works of architecture, painting or sculpture. The notion of signing a work of art is of little importance as it is believed that the artist does not himself directly imagine the work—he is 'guided' and functions only as the executor. For this reason most works of Hindu art and architecture are anonymous. That the artist thought of his work as a means of access to the divine is demonstrated in the large amount of literature that describes the mental preparation and ritual purification that he is to undergo before commencing the work. Only in this way can the artist identify himself with the transcendental principles to which he attempts to give visible form.

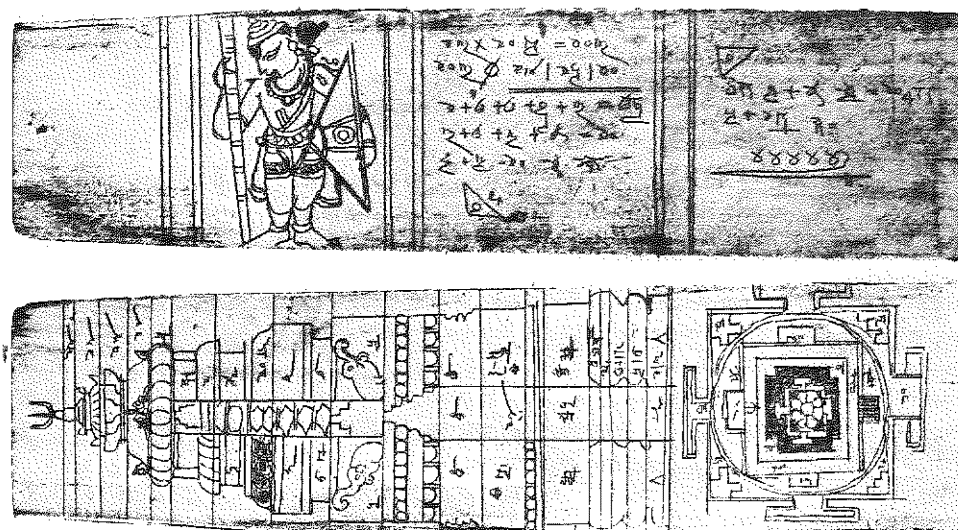
Of great importance for the evolution of Hindu art was the relationship that developed between artists and brahmins. In order that certain theological ideas should be translated into art, particularly in the fashioning of sacred images, the priests set out elaborate prescriptions which governed

all the details. The earliest records of these prescriptions occur as sections in the Epics and Puranas; later they are found gathered together in the Shastras and Agamas. These texts on image-making reflect the ambition of theologians to codify all aspects of the production of sacred images in stone, metal or wood, and even painted images, and there is substantial evidence of the success of their efforts. The earliest periods of Hindu art, at least from the period of Gupta rule in the fourth century, were characterized by considerable freedom and variation in the images chosen to depict the divine. With the development of Hindu art, especially from the ninth and tenth centuries onwards, much of this freedom was lost and there was an increasing consistency in the choice of images and their appearance with regard to costume, posture and physique, and the emblems that the figures hold in their hands. The fuller and more naturalistic images from the earlier periods became stiffer and more stylized as Hindu art developed. The disciplines of iconography and iconometry were increasingly applied, presumably reflecting the influence of brahman theologians. As temple projects became larger, both in India and in other parts of Hindu Asia, there was an accompanying increase in the number of images that had to be fashioned in either stone or metal. The expansion of the production of Hindu art was accompanied by an increasing dependence of the artist upon the brahman for the suitable forms of sacred images. Even so, the essential role of the artist in society as giving expression to its values remained unaltered.

Craftsmen, guilds and the builders of temples

Among the few surviving records that describe the erection of temples is a remarkable palm-leaf manuscript recording in detail the building operations of the thirteenth-century Surya temple at Konarak in Orissa. The manuscript lists the workmen, their salaries and rules of conduct, and provides an account over several years of the various building operations. It has been possible, therefore, to reconstruct many of the economic and organizational procedures of this particular building project. Much of the information may be taken as typical of other temples both within India and in other parts of Hindu Asia.

The architects, artisans and workmen engaged in the various activities associated with the building of a temple were organized into groups which functioned as guilds. The traditions of these guilds were mostly preserved orally, the guilds being extensions of family units in which techniques were handed down from one generation to the next. As the means of livelihood of these families depended on their knowledge and skill, traditions and techniques were often jealously guarded. The guilds united both the family and the individual craftsmen into a single corporate body. They fixed rules of work and wages and set standard prices for work completed, and their regulations had the force of law. Over their own members guilds had judicial rights and could expel a rebellious member. They exercised control over the social life of their members, ordaining who could be married to



20 Two sides of a palm-leaf from a manuscript on temple building. Above left—the architect of the temple holds a surveyor's rod; above right—calculations of proportions; below—the vertical section of the temple is marked with height indications and rises upon the *mandala* regulating the temple plan. Orissa, seventeenth century

whom and even acting on occasions as guardians of widows and orphans. Guilds frequently became wealthy and powerful and there exist many inscriptions recording their charitable donations. That members of guilds frequently travelled from one region to another in order to work on different projects accounts for much of the spread of architectural and artistic traditions that took place throughout the history of the temple.

Most important among those involved in the erection of a temple were the chief architect (*sutradhara*) (Fig. 20) and the superintendent of works, almost his equal in authority. Also of importance were the head stonemason and the chief image-maker who co-ordinated those responsible for the architectural and sculptural portions of the buildings. Sculptors (*shilpins*) were engaged on all portions of buildings and, judging from the intimate connection between architecture and sculpture in Hindu temples, their services must have been required at many stages in the work. It would seem that many of these workmen comprised whole families, for whenever someone had an accident, fell ill or died, there was always a family relation to take his place. Women were also employed for lighter auxiliary work such as clearing and polishing stones. Workmen settled in camps around the building site; they had their meals in a common mess staffed by cooks, kitchen supervisors and servants. The building of the temple proceeded over most of the year, but during the rainy season when work was halted workmen were generally given leave. Holidays were celebrated when the royal patron came on a visit, when a son and heir was born to him, or when an important

part of the building was completed. There were officials for the maintenance of law and order and administrators for settling any internal disputes. Fines were imposed as punishment for delay in delivering materials or completion of the work. Doctors were also present to look after the sick and injured. There were barbers, and men who served refreshments to the workmen engaged in fine chisel work, while another team of menials provided drinking water; there were also oilmen to feed the torches and lamps during work at night.

A crucial role in temple building was played by the learned brahmins who were expert in the theory of art and who had to give advice and guidance to the workmen whenever required. The brahmins performed various ceremonies at every important stage of work for the removal of obstacles or when some accident required atonement. There were also important consecrations such as the purification of the site, the initial tracing of the ground plan, the setting of the crowning finial of the superstructure, and the instalment of the principal image or symbol of the divinity in the sanctuary.

Architectural and sculptural work was assigned on the basis of contracts for separate operations, each contract probably having a different leader for each task. Payment of the workmen was related to these contracts. The chief architect and superintendent of works did not usually have contracts for any particular task; rather, they were responsible for co-ordinating the various stages of building and directing the entire project. There were workmen for every skill—stonemasons to cut stones to size, artisans to fashion them into architectural forms, and sculptors to do the finest chisel work (Fig. 21). Specialists carried out particular jobs such as laying out the axes of the building, marking out the plumb and square lines which regulated the carving, grinding the polishing materials, carving the bands of friezes and mixing the coloured pigments for paintwork. Leading master-craftsmen worked on the principal images of the sanctuary and its outer walls. Though the products of the great masters were probably executed with the assistance of other workmen, the design and composition of each panel were almost certainly the inspiration of a single artist.



21 Cutting, chiselling and transporting stone for temples. Sketch of a panel from Khajuraho, eleventh century

The temple as a focus of culture

The temple has always been the centre of the intellectual and artistic life of the Hindu community, functioning not only as a place of worship, but also as a nucleus around which all artistic activity is concentrated. To begin with, general education within the temple was of great importance, with the teaching of such subjects as grammar and astrology as well as the recital and teaching of sacred texts. Many endowments to temples were specifically made for the establishment of colleges which were incorporated into temple complexes. Apart from schools connected with temples, which mostly catered exclusively for brahman pupils, there also existed scope for popular education. The spacious halls of temples were settings for recitations of the Vedas, the Epics and Puranas, and the singing of hymns and devotional chanting, of benefit to the whole community. Music and dance generally formed part of the daily ritual of the temple and during special celebrations and annual festivals these played a particularly dominant role. Large temples would maintain their own musicians, both vocal and instrumental, together with dancers, actors and teachers of the performing arts.

In the patronage of architecture, sculpture and painting the temple has been of paramount significance throughout the history of Hindu civilization, and there can be little doubt that the greatest efforts in these were always directed towards sacred architectural projects. Despite the countless stone and brick temples of Hindu Asia from all periods, there are only exceptional instances of secular structures built in these materials.

The economy of the temple

Sources of wealth for the Hindu temple consisted mainly of donations from royal patrons and private individuals. These were received by the temple in the form of money, valuable objects, livestock or income from grants of land, including whole villages and their inhabitants. Donations might be made for a number of reasons, including gratitude for services rendered by the temple, or perhaps in fulfilment of a vow. Grants not only financed the building of temples but also provided for their upkeep and renovation. There were grants for the performance of rituals, perhaps in perpetuity for a certain individual. Donors were stimulated by the notion that a grant to a temple would promote religious merit and increase the possibility of their ultimate salvation. Substantial donations were likely to propagate the reputation of an individual or the power of a ruler. There was also the desire to record a pious act in the form of an inscription or to have a portrait of the donor made in sculpture or painting.

As grants accumulated, temples became wealthy and could afford to become employers and act as patrons. The wealth of a temple was usually invested in land and in this respect the temple came to function as a landlord. From the produce of the land came income upon which the economic life of the temple was based. Projects of cultivation and land reclamation were

embarked upon, and in order to facilitate cultivation the land was usually leased to tenants. These leases, as indeed all economic transactions of the temple, were entered upon in the name of the god to whom the temple was dedicated. This served to emphasize the sacred character of the transaction, reminding the landed tenants that they only temporarily held sacred land. Usually strict and efficient control was exercised over the tenants and fixed units of measurement were established by which to measure the grain that was brought in. However, the tenants were protected by the temple and there are records of loans being made and credit extended to needy cultivators. The holders of temple land were permitted to enjoy a proportion of its produce and as this was a hereditary settlement, the land passed from one generation to another. Improvements in agriculture were also embarked upon by the temple, and sometimes there was the provision of such facilities as water tanks, canals and new roads. The lands belonging to the temple were mostly exempt from taxes.

Some temples enjoyed independent jurisdiction and also the right to prevent any kind of 'pollution' from the entry of undesirable persons into their locality. The area under temple control was considered sacrosanct and inviolable, and conferred immunity from military attack. In times of danger and political unrest temples would sometimes serve as fortresses protecting members of the community.

As temples provided work and the means of livelihood for a large number of persons, they were able to exert great influence upon the economic life of the community. Even small temples needed the services of priests, garland-makers and suppliers of clarified butter, milk and oil. The authorities of the temple entered into contracts with individuals or groups who undertook to supply specified goods and services at stated periods: clarified butter for burning lamps, the number vastly increasing with the ever-growing endowments of devotees, flowers for garlands, rice for offerings and for the feeding of brahmins, vegetables and fruits, sandal-paste and incense. Securities were demanded and penalties enforced on defaulters. One of the most detailed accounts that have been preserved of the number of people who were supported by a temple and the wages they received is that given in an inscription on the Brihadeshvara temple at Tanjore dating from 1011. The list includes dancing-girls, dancing masters, singers, pipers, drummers, lute-players, conch-blowers, superintendents of temple women and female musicians, accountants, sacred parasol bearers, lamp-lighters, sprinklers of water, potters, washermen, bearers, astrologers, tailors, jewel-stitchers, brazier-lighters, carpenters, and superintendents of goldsmiths, totalling more than six hundred persons. Most of the employees rendering these services were part-time as payment was in land which they had to cultivate. In return for the execution of the contract with the temple, the employee was entitled to live off the produce of the land. Some gratuitous services were usually considered obligatory, such as dragging the temple chariots on festival occasions and helping when a large building project was undertaken.

Among the employees of the temple were specially chosen and highly

esteemed maidens (*devadasis*) whose services were dedicated to the god of the temple. These temple maidens played an important role in dancing as well as in the singing of devotional hymns by which the temple god was entertained; they also bore lamps for the deity. Girls were admitted to the temple before reaching puberty and after an appropriate period of training they were 'married' to the god by means of a special ceremony.

The temple has traditionally been foremost among charitable institutions in Hindu society. In records of gifts to temples the stipulation is often found: 'to provide for worship, for gifts of food to the assembly of ascetics and for repairs'. Generally wayfarers, whether pilgrims or other devotees, took their food in the temple together with many of the temple employees. The fare was by no means sparse and consisted of cooked foods, especially rice. On festival occasions the cooking might be most elaborate. Some temples would house a number of residential students in boarding schools attached to the temple. There are also instances of hospitals associated with temples in which beds were provided for the sick. The most important role of the temple in matters of charity was the feeding of brahmans on sacred occasions. Endowments frequently provided for the feeding of specific numbers of brahmans in temples after the offerings had been made to the gods. Sometimes feeding houses were established in which free food would be offered daily throughout the year. Feeding of the poor was also widespread, with cooked rice offered as a public charity to the poor of the lower classes.

4 The Temple as a Link between the Gods and Man

The Hindu temple is designed to bring about contact between man and the gods; it is here that the gods appear to man. The process by which this contact is made comprises a series of ideas and beliefs incorporating a complex symbolism. Dynamic rituals and ceremonies permit a realization of these ideas through which the Hindu temple functions as a place of transcendence, a place where man may progress from the world of illusion to knowledge and truth. The rituals and ceremonies that lie at the very core of the religious life of Hinduism, as well as the more elusive ideas and beliefs that accompany divine personages, have fundamentally influenced the forms of temple architecture. Some of the earliest records of these symbolic ideas and beliefs are found in the Epics and the Puranas; in later periods they form the subject of chapters in texts on sacred architecture such as the numerous Shastras and Agamas. These texts are often concerned with imbuing sacred architecture and its art with symbolic meaning and are the work of theologians who compiled them from many different sources.

The fundamental preoccupation of Hindu thought is with man's release (*moksha*) from an illusory world into which he is recurrently born. The architecture of the Hindu temple symbolically represents this quest by setting out to dissolve the boundaries between man and the divine. For this purpose certain notions are associated with the very forms and materials of the building. Paramount is the identification of the divinity with the fabric of the temple or, from another point of view, the identification of the form of the universe with that of the temple. Such an identification is achieved through the form and meaning of those architectural elements that are considered fundamental to the temple. Hence the significance attached to the site of the temple, its ground plan and vertical elevation and the dominating images of mountain, cave and cosmic axis. A sacred mathematics is created, composed of a language of precise measurements, which permits a symbolic realization of the underlying cosmic ideas. The relationship that develops between forms and their meanings within the Hindu temple is essential to its function as a link between the gods and man.

The temple as a house of god

The willingness of the gods and goddesses of Hinduism to make themselves visible and accessible to man is emphasized everywhere in Hindu literature. That temples are places where the gods make themselves visible is conveyed by the very terms used to designate a temple: a seat or platform of god (*prasada*), a house of god (*devagriham*), a residence of god (*devalaya*) or a

waiting and abiding place (*mandiram*). The temple is a receptacle for the gods, who may appear there in the forms imagined by their worshippers. These forms are embodied in the sacred images or symbols of the deities which constitute the most important part of Hindu art.

Sacred images and symbols of the deity to whom the temple is dedicated are housed in a small sanctuary within the temple known as the 'womb-chamber' (*garbhagriha*), a term indicating that here is contained the kernel and essence of the temple. The sacred image or symbol of the god represents a means of union with the divine but is not usually identified with the deity—the god or goddess only temporarily resides within the fabric of the image. Such an occasional coincidence of form and divine presence only occurs after the sacred image or symbol has been prepared for worship by elaborate rituals of consecration and then ceremoniously enshrined. Precise laws regulate the production of these sacred images and symbols so that they may function successfully as suitable receptacles for the deity. The devotional cults which are served by the Hindu temple inevitably focus upon this sacred image or symbol of the deity in the 'womb-chamber', but devotion also extends to encompass the temple as a whole. Thus the temple is not only a place of worship but also an object of worship. The divinity that is revealed within the sanctuary may also be revealed in the very fabric of the temple itself. From this point of view the architectural and sculptural components of the temple are considered to be an evocation of the presence of the divine. To this end mythology, folklore and art meet in a common attempt to portray the varied manifestations and exploits of the gods and goddesses. All of Hindu art aims at recreating the celestial environment of the world of the gods.

As sacred images and symbols in Hindu art represent only temporary receptacles for the gods and goddesses who intermittently inhabit their outer forms, so the temple as a whole is also understood as a temporary abode of the gods in the world of man. In the temple the divine is always potential, but only on occasions is it manifested. Rituals and ceremonies are essential to promote this manifestation of the divine and, in fact, the priesthood of a temple is resident in order to maintain the continuous presence of the god. There are also the particular occasions when the community or an individual needs to approach the gods. If the necessary rituals are not performed, the temple lies dormant as the deities are not 'in residence'.

Rituals of temple worship

It is the direct worship of gods and goddesses (*devapuja*) that forms the focal point of the religious activities embraced by the Hindu temple. The various rituals of worship permit an identification of the worshipper and the place and means of worship with the godhead. Those who are able to achieve a unity of self and godhead through ritual gain merit and access to the path that leads to ultimate liberation. Practices of temple worship originated before the principal Hindu cults had become differentiated, and rituals performed in

temples dedicated to the cults of different deities follow more or less a basic pattern. Worship is conceived as an evocation, reception and entertainment of the god or goddess as a royal guest, reflecting the ancient association of royalty with the divine. There is also the belief, which has been particularly popular outside India, that the ruler's power is an extension of the divine law. The practices of temple worship are strictly laid down in a series of texts devoted to ritual, some of which may be traced back to the Puranas and earlier. What may be observed of rituals and ceremonies in present-day Hindu Asia indicates that they have not basically altered from what was practised in the earliest periods of Hinduism, even though the ancient rituals have doubtless become greatly simplified.

Before ceremonies can begin the priests who are to perform the rituals must first be prepared. Bathing and other acts of purification are necessary in order to promote the transformation by which the priests are able to identify themselves with the divine object of worship. At the ceremony there is no need for a congregation to be present as rituals are performed by priests on behalf of the community. However, devotees who desire to benefit from the influence emanating from these rites may also be present. The absence of a congregation reveals the fundamental role of the temple priests, who represent the community they serve and who are responsible for its satisfactory relationship with the divine. Upon this depends the happiness, welfare and success of the members of the community.

Temple ritual for an ordinary day consists of four celebrations which take place at sunrise, noon, sunset and midnight. The ceremonies usually begin with the reverential opening of the door of the sanctuary, or 'womb-chamber', in which the image of the deity is housed. The powers guarding over the door are saluted, and there is the sounding of the bell and the clasping of hands before the sanctuary is entered, in order to expel any unwanted spirits and to attract the attention of the god or goddess. The priest then expresses his intention of worship and asks the divinity for consent. Hymns are recited to persuade the deity to take visible form by inhabiting the image or symbol and once this takes place the priest is able to converse with the divine. Various verbal formulae (*mantras*), sacred syllables (*bijas*) and symbolic hand gestures (*mudras*) are then employed to concentrate the power of the god or goddess and to permit the performer of the ritual to draw himself into contact with the divine. The worship proper consists of the awakening of the god or goddess, who is considered to be asleep when unmanifested. Due attention is paid to the comfort of the divine presence, the preparation of vessels and ingredients necessary for worship, the bathing and dressing of the sacred image, and the offering of refreshments. The image is anointed with oils, camphor and sandalwood, garlanded, and entertained with moving flames. The offerings which are next presented vary considerably but usually have cooked foods such as rice forming the principal meal of the god. Several circumambulations (*pradakshinas*) are then executed around the image where it is free-standing and the priest bows and offers a handful of flowers. Finally the sanctuary door is closed as the deity is again considered



to be asleep. In this manner a typical ceremony is completed, to be repeated at the other appropriate times of the day.

In addition to these daily ceremonies there are also opportunities for private worship in the temple by individuals who make offerings to the deity, recite prayers and perform suitable circumambulations. Such private worship usually takes place between the regular ceremonies when the god or goddess gives 'audience' to the priest. Private worship may be undertaken as the result of simple devotion, or for some particular reason, perhaps in the hope of securing divine assistance in a time of trouble, danger, pain or sickness. Vows and presentations of offerings by laymen are an important part of the activities in any Hindu temple. Ceremonies such as the investiture of the sacred thread for brahman boys which is the commencement of their religious life, marriages, and oaths for civil and criminal cases also take place in the temple, either in front of the sacred image of the sanctuary or in the temple compound. Devotees and other individuals who wish to approach the deity are first required to purify themselves by bathing. They then present their offerings to the priest who places them at the feet of the god and recites the appropriate sacred hymns and prayers.

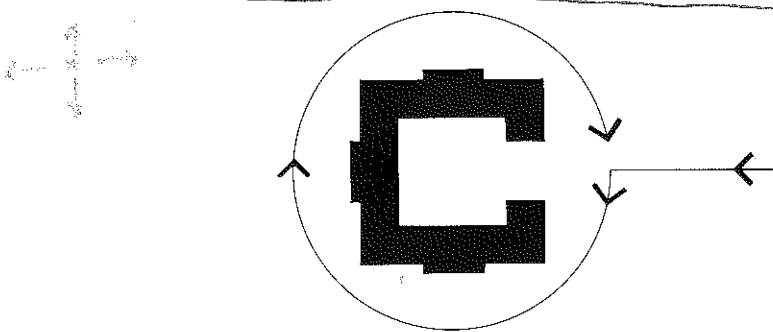
Some forms of worship that take place in the temple are more congregational in character. For example, public performances of sacred song and dance to glorify the worshipped god or goddess are an important aspect of the activities of the temple, as are the recitals of ancient texts and their exegesis by learned priests. Other ceremonies occur at regular intervals and are sometimes treated as festivals. Every important temple throughout Hindu Asia has regular festivals which consist mainly of processions and enactments of particular myths and are sometimes most spectacular. Processions have a particular significance for the community because the sacred image or symbol from the sanctuary of the temple, or its substitute, is brought outside to become visible to those who may not generally be admitted into the temple. Devotees have the opportunity of directly presenting flowers, fruits and other offerings to the god or goddess who is carried in procession. The processional image is not always the same as that which is permanently housed in the sanctuary, but for the purposes of ceremony it is identified with that image. Great attention is lavished upon the chariot (*ratha*) on which the processional image is carried and which may be an elaborate structure of timber, bamboo and canvas. The chariot functions as a temporary and mobile temple throughout the festival (Fig. 22). Of particular significance in festivals is the link with the agricultural life of the region, and they often coincide with the planting or harvesting of a crop. Festivals provide opportunities for the mingling of mythology and folklore expressed in performances of music, dance and theatre as well as for the manufacture of temporary images of clay or earth for special ceremonies.

22 *Left* Mobile temple—the chariot bearing the processional image is pulled by villagers at a festival near Badami

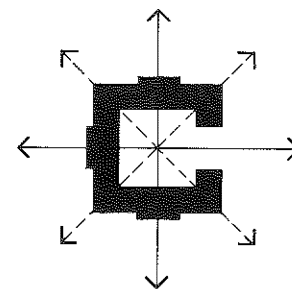
Dynamics of the temple

Associated with temple festivals is the undertaking of pilgrimages to sacred places. In Hinduism the attainment of spiritual perfection is likened to a long journey of many stages, frequently visualized as a progression upwards through various stages of consciousness. Likewise, the temple is conceived as a place of transit, a ford or crossing-place (*tirtha*). In the rituals that take place within the temple the movement of the worshipper and priest is of greatest importance. There is the symbolism of the passage through the doorways which is connected with the idea of transition from the temporal to the eternal. But the most significant aspect of devotional dynamism in Hinduism is the circumambulation (*pradakshina*) which proceeds in a clockwise direction around a sacred person, image or object and even around the temple itself. This circumambulation is a rite constituting a bodily participation in movements and prayer. In some cases it is translated into architectural forms and many temples are furnished with ambulatory passageways. Circumambulation takes the worshipper from the doorway of the sanctuary, housing the image or symbol of the deity, around the sanctuary in a clockwise direction where further cult icons introduce other aspects of the divine (Fig. 23).

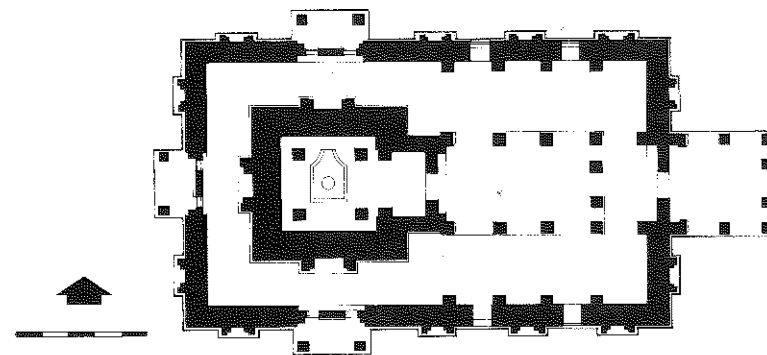
The centre of the sanctuary functions as the focus of other dynamics which are realized through a process of symbolic association. To begin with there is the radiation of energy outwards from the centre of the sanctuary in four directions. The sacredness of the image in the 'womb' of the temple expresses itself as a powerful force whose influence expands outwards: hence the potency of sacred images that are aligned with these forces, especially those positioned in the centres of the north, west and south sanctuary walls. These secondary images are often given prominence by being set within projecting and elaborately decorated niches. As a further extension of the idea of these lines of energy providing potency, images are placed at the four corners as well as at the centres of the sanctuary walls (Fig. 24). A connection with the guardian deities of the eight directions of the universe is sometimes realized in temple architecture with the positioning of the eight gods around



23 The dynamics of temple worship—the approach to the sanctuary and the circumambulation around it in a clockwise direction



24 Outward radiation of energy from the centre of the sanctuary. Along these lines of eight directions are positioned important secondary images of the deity housed within the sanctuary



25 Plan of the Svarga Brahma temple, Alampur, seventh century. In the appropriate niches of the outer walls are positioned the *dikpalas*, the guardians of the eight directions of space, and two syncretistic deities (here and throughout each scale division represents one metre, unless otherwise stated)

the temple (Fig. 25). Penetration inwards towards the centre of the sanctuary, usually conducted along an east-west axis, is of the greatest importance in ritual for the worshipper, and this too has had its effect upon the development of temple architecture. The interior spaces of temples are arranged to promote the movement of the devotee from the outside towards the sanctuary through a series of enclosures which become increasingly sacred as the sanctuary is approached. At the final stage in the penetration towards the centre, when the doorway of the sanctuary is reached, the priests take over from the worshipper and conduct offerings to the image of the deity inside the sanctuary. This is undertaken on behalf of the worshipper who must wait outside but who follows the movements of the priests, accompanying their actions symbolically. A further expression of the energy of the sanctuary radiating outwards is in the movement upwards; though the worshipper cannot physically participate in this ascent, the symbolism attached to the parts of the temple permits him ritually to undertake such movement.

The Hindu temple serves as a reminder of impermanence, a notion that

implies a turning away from the present illusory world in an effort to surmount and to transcend it. Though the temple with its art may be indispensable for the rituals of worship, it marks only a transitory stage in the journey from the temporal to the eternal. Mythology juxtaposes relative time sequences and cosmic eras as the keys to the inner mechanics of the universe. This overlapping of cycles of time and repetition of cosmic eras finds visual expression in the forms of the temple, where architectural and sculptural motifs repeatedly appear in different sizes in different parts of the building. The finial placed at the summit of the temple symbolizes the absolute and timeless principle beyond repetition and relativity, and is intended as a reminder of the ultimate goal of the journey that man embarks upon.

Potent temple sites

Hindu Asia abounds in sacred places, the potent sites where gods dwell or where they might reveal themselves. The locations of these sites are attractively described in many ancient texts: 'the gods always play where groves are, near rivers, mountains and springs and in towns with pleasure-gardens', states the *Brihatsamhita*. Temples are built at such places to gain the full benefit of resident auspicious deities. When the temple is completed and consecrated the potential sacredness of the site manifests itself and the distinction between artificially and naturally sacred places disappears. The principal features associated with these sites are water, shade and seclusion. The importance attached to these features indicates that they also came to be objects of worship.

Rivers are sacred, especially the Ganges which issues from the mountain of Shiva, and are celebrated for their healing and purifying powers, as are innumerable springs and lakes. Waters are identified with their most characteristic flower, the lotus, an ever popular symbol in Hinduism for renewal and enlightenment. Water is also necessary for the successful functioning of the temple as it is required for ritual ablutions. Where no river, spring or lake is available, artificial cisterns or reservoirs are constructed in which water is preserved in times of rain. Tree cults, common the world over among many cultures, are widespread in Hinduism where every village and town has its sacred tree or grove. These shady locations are always considered to be places where meditation is possible and at which contact with the divine may be successfully achieved.

In the sacred geography of Hinduism every natural feature is invested with significance by mythology and folklore. Certain sites are associated with a particular exploit or appearance of a god or goddess, for example the places in northern India where the god Krishna made his earthly appearances and those where the *yoni* and other parts of Parvati fell to earth after she had flung herself into flames. There hardly exists in Hindu Asia a temple that does not have some legend attached to it to explain the holiness of its location. Archaeology demonstrates that the sacredness of the site frequently survived changes of cult through the centuries. Some of these legends may perhaps

have been intended to justify the sanctity of sites whose original divine associations had been forgotten or were no longer considered appropriate. Potential sanctity of a site is also related to the calendar, in that only at certain times in the year may it be manifested, thus providing an opportunity for ceremony and festival.

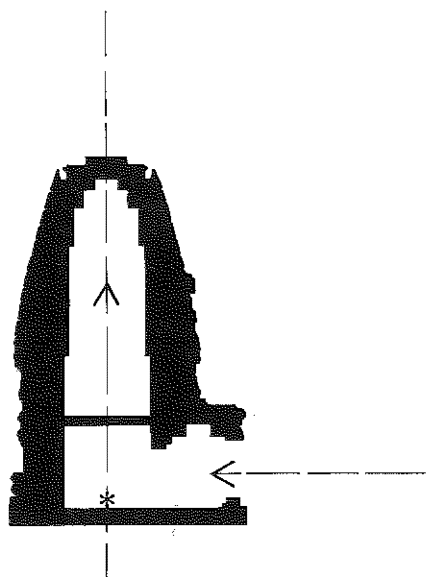
Mountain, cave and cosmic axis

The gods of Hinduism are always attracted to mountains and caves, and these geographical features have great importance for the symbolism and outer appearance of the temple. That the temple itself is considered a mountain is indicated by the names, Meru and Kailasa, that may be given to actual temples (Fig. 80). Demonstrated in a temple so designated is a specific desire to identify it with these celebrated mythological mountains. Thus, the temple becomes an architectural facsimile of the sacred places of the gods, providing for the worshipper the merit that would be his through an actual visit to the mountains. Meru is the centre or 'navel' of the universe, standing as a reference point for the surrounding and concentrically arranged continents, oceans and heavenly bodies. Kailasa is the celestial abode of Shiva, the supreme mountain god. In the superstructure of the Hindu temple, perhaps its most characteristic feature, the identification of the temple with the mountain is specific and the superstructure itself is known as a 'mountain peak' or 'crest' (*shikhara*). The curved contours of some temple superstructures and their tiered arrangements owe much to a desire to suggest the visual effect of a mountain peak (Fig. 62). The development of building techniques—in stone, brick and timber—permitted architects to realize increasingly complex schemes for the superstructures of temples, and there was a particular impulse to extend upwards to create soaring towers. The horizontal tiers or storeys which appear on the superstructures of temples are referred to as 'earth' or 'soil' (*bhumi*) in the architectural terminology of ancient texts on temple building, as if to further reinforce this mountain symbolism. In the reduplicating superstructure systems of some Hindu temples, spectacularly developed in the north Indian style, can be seen a conscious attempt to create in stone a complete mountain range.

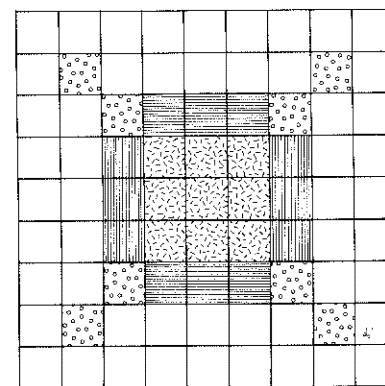
The cave is a most enduring image in Hinduism, functioning both as a place of retreat and as the occasional habitation of the gods. Caves must always have been felt to be places of great sanctity and they were sometimes enlarged to provide places of worship. Thus came about the practice of excavating into rock to create man-made grottos which were believed to be as sacred as their natural prototypes (Fig. 44). In fact, architects in India only turned to free-standing stone architecture with the greatest reluctance. Such hesitation is not satisfactorily explained merely in terms of technical inexperience with structural stonework, but reflects the survival of the symbolic power of the image of the cave in matters of sacred architecture. In all Hindu temples the sanctuary is strongly reminiscent of a cave; it is invariably small and dark as no natural light is permitted to enter, and the

surfaces of the walls are unadorned and massive. Penetration towards the image or symbol of the deity housed in this setting is always through a progression from light into darkness, from open and large spaces to a confined and small space. This movement from complexity of visual experience to that of simplicity may be interpreted by the devotee as a progression of increasing sanctity culminating in the focal point of the temple, the cave or 'womb'.

Accompanying this penetration inwards towards the cave is the ascent upwards to the symbolic mountain peak, whose summit is positioned over the centre of the cave-sanctuary. This means that the highest point of the elevation of the temple is aligned with the most sacred part of the temple, the centre of the inner sanctuary which houses the image of the god. Summit and sacred centre are linked together along an axis which is a powerful projection upwards of the forces of energy which radiate from the centre of the sanctuary (Fig. 26). The movement upwards is both visual and symbolic, since it dominates the external appearance of the temple and is associated with certain ideas about the universe. The Hindu imagination supplies various associations with this ascent along an axis which is likened to a progression towards enlightenment, and the goal of this journey is identified with the crowning finial of the superstructure of the temple. The mechanical conception of the cosmos identifies the axis with the support of the heavens, the central mountain Meru. The biological viewpoint transforms this axis into an ever-living trunk of a tree supporting the universe in its ample branches. The anthropomorphic approach imagines the cosmic man (*mahapurusha*) displaying the whole of creation on his body, providing a



26 Relation of the symbolic images of cave, mountain and cosmic axis in the temple section: the summit of the temple is directly above the sacred centre



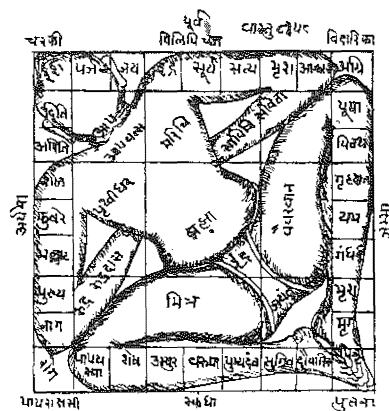
27 The mandala governing the temple plan, following the *Bṛhatsamhita*, a text dating from the Gupta period. Brahma occupies the central nine squares and is surrounded by various planetary divinities, including the Sun and Moon

means of access to the higher and more sacred spheres through his spine which is identified with the vertical axis. Also of significance is the pillar (*yupa*) associated with kingship and royal proclamations; cosmic support is another function of this pillar, which keeps apart the earth and sky. In one of the most celebrated of Hindu myths the world mountain is specifically identified with a churning axis or pillar. Vertical ascent and cosmic axis, therefore, are all bound up with ideas about the composition of the universe.

The cosmology of the temple plan

Once the site of the temple has been selected and ritually purified, the next stage in its erection is the laying out of the ground plan. Great importance is attached to the establishment of the temple's ground plan because it functions as a sacred geometric diagram (*mandala*) of the essential structure of the universe. The mandala is a concentric figuration, usually a square divided into a number of smaller squares by an intersecting grid of lines. This arrangement of central squares with others that surround it is taken to be a microscopic image of the universe with its concentrically organized structure (Fig. 27). By constructing this diagram to regulate the form of the temple, a symbolic connection is created, binding together the world of the gods—the universe, and its miniature reconstruction through the work of man—the temple. The assumption permitting such an identification of the universe with its model is that of a spatial and physical correspondence between the worlds of god and man.

The mandala of the temple plan is also considered a symbolic pantheon of the gods, as the smaller squares of the diagram are each the seat of a particular deity. The central and largest square is usually occupied by Brahma or some other prominent deity concerned with creation. Arranged around this square are the planetary divinities, the guardians of the directions of



28 The cosmic man, *mahapurusha*, drawn on a temple *mandala*, from an ancient manual of architecture

space, and other astronomical deities. The mandala is thus able to incorporate the courses of the heavenly bodies which are related to all recurring time sequences. It may also contain an image of the cosmic man arranged diagonally, each square connected with some portion of his body. This cosmic figure is identified with the processes of the creation of the universe and its underlying structure (Fig. 28).

Profound significance is attached to the centre of the temple mandala, as it is here that the worshipper may experience transformation as he comes into direct contact with the cosmic order. The centre is the most sacred part of the diagram and is materialized in Hindu temple architecture by the image or symbol of the divinity placed in the sanctuary. In the cosmological interpretation of the plan the centre coincides with the sacred mountain, Meru, the support of the universe. In ritual the dynamics of the temple all proceed with reference to this central point; symbolic processes of interpreting the form of the temple all focus upon the centre of the plan.

Set rules attend the laying out of the temple mandala before the commencement of building operations. In order that the temple should be able to function effectively the moment when the diagram is drawn upon the ground has to be accurately and suitably determined. Here the relation between time and architecture is introduced, in which the observation of the heavenly bodies bears upon temple building. Astronomy and astrology, never truly separated in Hinduism, provide the basis for determining the appropriate moments when all important activities are undertaken. The *Brihatsamhita*, one of the early sources of information about temple building, is actually a treatise on astrology which includes a chapter on architecture. Not only is the moment in time determined at which the plan of the temple is laid out, but the regulating mandala itself is a product of astronomical calculations. Characteristic is the symbolism of the cardinal points of the compass and the orientation of the mandala according to the course of the sun. The plan of the temple is strictly orientated to the cardinal directions,

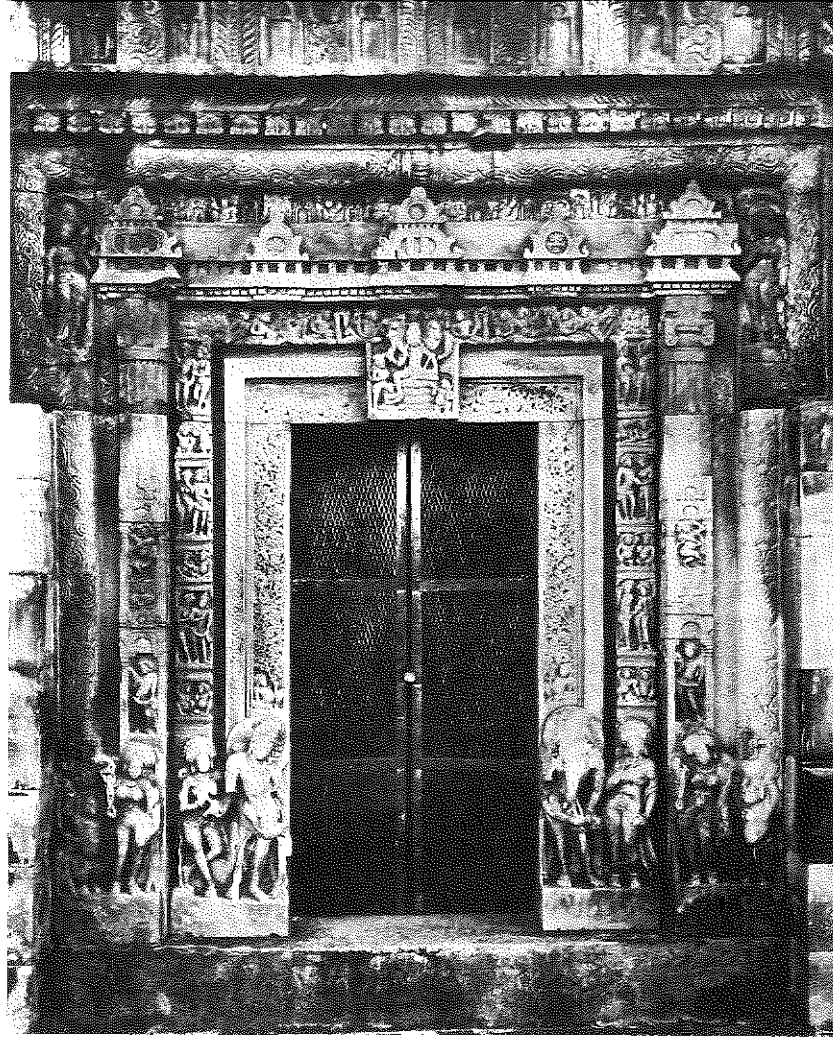
usually along an east-west axis. Of great importance in the architectural texts, the *Shastras* and *Agamas*, are the detailed sections giving astrological-astronomical information. Here is expressed a conscious desire to identify the physical forms of the temple with the laws that govern the movements of heavenly bodies.

Sacred mathematics

In Hindu thought number is considered an expression of the structure of the universe and a means of effecting the interplay between the universe and man. Mathematical schemes are frequently constructed by the philosophers and theologians of Hinduism to describe the celestial, terrestrial and even the ethical worlds. In the Hindu temple mathematics has a peculiar significance. A common word used to designate a temple, *vimana*, means that which is 'well-measured' or 'well-proportioned'. Textbooks on temple building all devote lengthy chapters to the subject of proportional measurement, describing in detail different systems which are intended to control every dimension of the temple—the length and width of its plan, the extent of its internal spaces and even the measurements of such details as doorways and base mouldings. The proportional systems have as their outstanding feature the use of a unit of measurement sometimes known as the 'finger' (*angula*), from which are derived the dimensions of the sanctuary or the height of the image of the deity housed there. This then regulates the masses of the temple as they extend upwards and outwards from the sanctuary. Every part of the temple, therefore, is rigorously controlled by a proportional system of measurement and interrelated by the use of the fundamental unit.

Only if the temple is constructed correctly according to a mathematical system can it be expected to function in harmony with the mathematical basis of the universe. The inverse of this belief is also held: an architectural text, the *Mayamata*, adds that 'if the measurement of the temple is in every way perfect, there will be perfection in the universe as well'. Thus the welfare of the community and the happiness of its members depend upon the correctly proportioned temple, and architectural texts stress that only work that is completed 'according to the rules' will gain the desired merit for its builder.

Measurement in the Hindu temple is not confined to the architecture. The sacred images of the temple, whether carved or painted, are also subject to strict mathematical control in the discipline of iconometry, the geometry of image-making. The *Shukranatisara*, an iconographical text, states that an image is 'said to be lovely which is neither more nor less than the prescribed proportions'; another text warns that 'the image not made with the prescribed rules . . . is fruitless and its worship is without any effect'. Only a well executed image, satisfactory in its proportional measurements, will be able to invite the deity to reside within it. Various canons of proportions are discovered in the texts on image-making which mostly propose the face-length as the module (*tala*) for the figure. The systematic ordering of icons

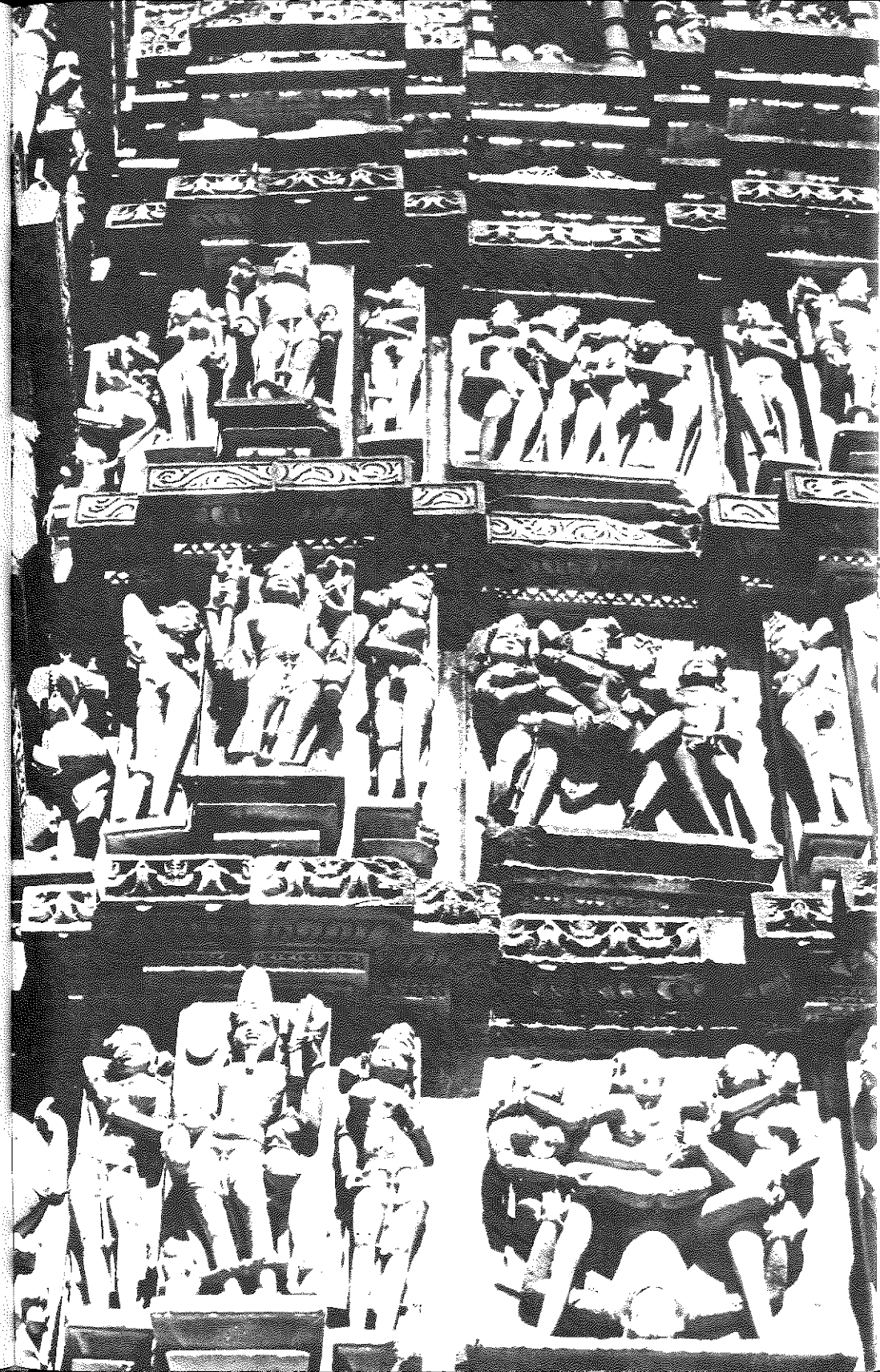


- 29 Above Doorway to the Dashavatara temple, Deogarh, sixth century, showing the river goddesses elevated at either side, guardians, protective couples and auspicious female figures
- 30 Right Ritual sexual exhibitionism—the Kandariya Mahadeva temple, Khajuraho, eleventh century

according to their measurements is accompanied by equally particular classifications based upon facial expression, posture, hand gesture, costume, ornament and colour.

Protection of the temple

The sanctity of the temple naturally requires protection at all times from unwanted negative forces, sometimes personified as evil spirits or demons. In fact, the whole programme of erecting a temple is replete with rituals to provide adequate protection at vulnerable moments in the building process,



in particular the selection of the site, the drawing of the plan upon the ground, the laying of the foundation stones, and the final stage of building when the finial is placed on the summit of the superstructure. When completed, the temple continues to need protection as a place where the power of the divinity radiates outwards for the benefit of the community. The symbolic processes that permit the temple to be identified with the scheme of the cosmos and with the world of the gods are also in need of beneficial influences.

Many of the rituals performed in the temple are undertaken for the sake of security and as a source of prosperity and good health for the worshipper. Likewise, much of the art in the temple functions in this dual role. This is particularly true of the motifs and images that decorate the doorway or entrance to a temple or enclosure, the most vulnerable part of a sacred structure and the one most in need of protection from evil forces, real or invisible (Fig. 29). Protection is also required at the most critical moment in the fashioning of a sacred image—the carving or painting of the eyes of the image which are then ‘opened’. At this point the image becomes a potential receptacle for the divinity. The magical aspect of Hindu temple art is seen in the numerous minor deities, guardians and attendant figures that surround the sacred image once it is installed, their powers of protection emanating from them. Coupled figures and demonic masks also appear as part of the repertoire of motifs which function in a protective manner.

Among the motifs that provide protection in the Hindu temple are erotic female images, the displayed female *yonis*, and ritual sexual exhibitionism in which the conjunction of male and female is stressed (Fig. 30). The only convincing explanation for the constant appearance of these motifs throughout the history of Hindu temple architecture as decoration, especially at doorways, would seem to be that they function as ornamentation imbued with magical powers. The fact that erotic images are continually found on temples, whereas other decorative motifs may be omitted, suggests that eroticism has a uniquely auspicious significance. Almost certainly this significance is bound up with the protection of the temple and the continuance and well-being of the community which it serves. The same is true of many of the other motifs that recur in Hindu temple art. From the Vedas onwards, Indian religion is full of prayers for the propagation of life and survival of the community. This is the cogent explanation for the copulating figures and emblems of fertility found on Hindu temples. Even sexual deviations, where they are depicted in the art of the temple, are an expression of life, which above all the Hindu temple embodies.

PART TWO

The Forms of the Temple

5 The Science of Building

The earliest Indian records of the ancient Hindu science of building (*vastu*) are contemporary with the beginnings of temple building from the fourth century onwards and form chapters in the larger Epics and Puranas. In later centuries compendia of architectural information form complete works, the *Vastushastras*, in which many aspects of building, sculpture and painting are gathered together. From the language in which these works are written and the fragmentary nature of much of the information they contain, it appears that the known *Shastras* are more likely to be the theoretical writings of theologians, the learned brahmans, than manuals of architectural and artistic practice compiled by builders and craftsmen. Those directly involved with the creation of the temples, their sculptures and their paintings, usually had no need to set down their traditions in writing as the knowledge of building techniques was imparted from one generation to the next. The function of recording architectural and artistic practice was largely left to the brahmans, who attempted to control the processes of design and execution by setting them down in writing. The *Shastras* are mostly compilations of several different architectural and artistic traditions and aspire to an encyclopedic survey of all that is known. However, they are frequently obscure in their terminology and fragmentary in the information they impart; it would seem that their compilers were always one stage removed from building practice. In fact, the *Shastras* are rarely concerned with the process of erecting temples and most of their information about building practice relies upon the evidence of the temples themselves. The lack of technical information in the *Shastras* reveals their true function as a collection of rules which attempt to facilitate the translation of theological concepts into architectural forms. The early texts, furthermore, indicate a concern with all aspects of secular building as well as sacred, and contain material on fortifications, the layout of cities, and military equipment.

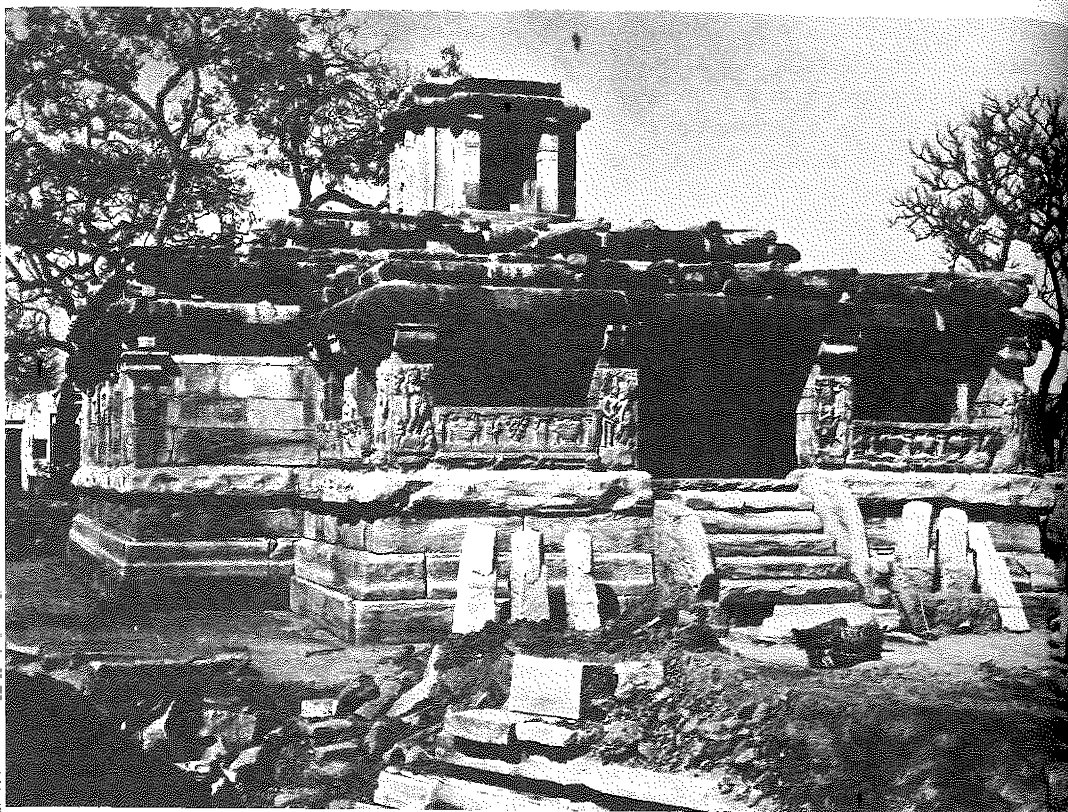
Materials

'Stone or wood is worthy of the gods, brahmans, kings and hermits, but unsuited to *vaishyas* and *shudras*', recommends the *Mayamata*, an early text on temple building. In this way the materials of the temple are directly related to the classes of Hindu society. Other *Shastras*, however, permit the use of stone as a material for all temples, irrespective of who builds them or worships there. On occasion, the colours of the building materials are related to the different strata of Hindu society—white stone is to be used by brahmans, red by *kshatriyas*, yellow by *vaishyas* and black by *shudras*. These colours may

also apply to other materials. Some *Shastras* identify the materials of the temple with gender: thus, stone and brick are considered suitable for a temple dedicated to a male deity, while a building in brick and wood is appropriate for a female divinity. If all three materials are combined then the temple is neuter. Many texts strongly recommend stone as the most sacred of building materials—'it is a hundred times more meritorious to build a temple in brick than to build one in wood . . . it is even ten thousand times more meritorious to build a temple in stone than in brick.' As soon as the building materials are removed from their natural environment they are freed from all former associations by the performance of certain rites. The felling of trees, baking of bricks or quarrying of stone initiates the process by which the materials of the temple eventually come to be identified with the body of the god or goddess who temporarily resides in it. The *Shastras* prohibit the re-use of materials from ruined temples as these have already been given identity and could function effectively only in their original context; they insist on the use of materials made or collected expressly for a new building, otherwise impurities might enter the building. However, older materials were in fact frequently re-used in temple building.

Temples continued to be built during all periods in Hindu Asia from timber, mud and plaster, though large and important buildings usually employed the more durable brick or stone. Brick building was the earliest technique to gain popularity, and remains of brick structures in India date back to the centuries before the Christian era in Buddhist, Jain and Hindu architecture. Brick and mortar continued to be preferred for Hindu temples in those areas of India which were dominated by brick traditions and which had a scarcity of suitable available stone. Central and eastern India, the Himalayas as well as parts of mainland South-East Asia and the Indonesian archipelago preserve brick building traditions to the present day.

It is in stone that Hindu architecture develops its most characteristic expression. The technique employed is either that of excavating into solid rock, or drystone structural masonry in which stone blocks are laid one upon another without any use of mortar. The highly evolved techniques of excavating and cutting blocks of stone constitute one of the major technical achievements associated with the history of the Hindu temple, both in India and in other parts of Hindu Asia. Variations in the quality of the stone available account for differences in the carving techniques and decorative forms evolved: thus, the hard and brilliant granite employed by the Pallava builders in the seventh and eighth centuries, the finely grained yellow sandstone of central India used by the architects of the temples erected under the Chandellas in the tenth and eleventh centuries, and the soft and volcanic stone common in Java and Bali all had their impact upon the sharpness of architectural detail and the modelling of carved decoration and sacred images. Most stone buildings were probably covered with a thin layer of plaster which was usually coloured, but no temple of any antiquity has survived with its original coloured surface. This layer of plaster was useful for unifying parts of the building executed in different materials. Countless



31 Ladkhan temple, Aihole, seventh century. The sloping roofs reproduce in stone the forms of thatch and timber

examples of temple architecture in southern India simultaneously utilized granite and brick, whose different textures were concealed by this plaster coating.

Timber origins of Indian architecture

The ground plans of Indian brick buildings from as early as the second century BC often involve curvatures which were achieved with facility in brick, and later in rock-hewn architecture. Wood and flexible timber or bamboo traditions are also characterized by the versatility of their building forms, and examples of these structures are found in a number of representations in the relief carvings and paintings of early Indian art. The very impermanence of timber architecture probably promoted a degree of innovation which resulted in a variety of architectural forms. In fact, many of the traditional Hindu temple models are directly derived from wood and bamboo architecture, and this is especially evident in many roof forms and window shapes that have curved contours; among these are the popular

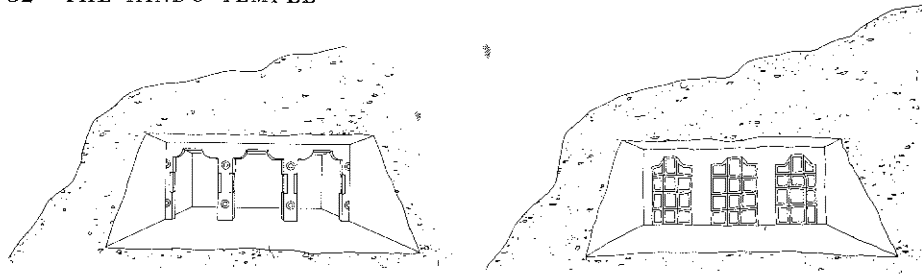
horseshoe arched window placed in the roof, the apse, and the ribbed barrel vault.

Indian architectural history in stone opens with a series of Buddhist sanctuaries entirely excavated into rock—usually an escarpment or cliff—whose cavernous interiors have ceilings of a rafted character. In the relatively early examples at various sites in western India dating from the first century BC, heavy cross-beams and rafted frameworks are found, either as actual timber beams or as rock-cut copies. This clearly demonstrates that the original architectural models, of which these artificial caves are facsimiles, were built in light and pliable materials, either flat-roofed or vaulted. Wooden details also influenced the elements of stone and brick architecture such as doorway and column design and roof forms (Fig. 31). The rich carvings of lintels and jambs of doorway openings quite clearly indicate the original timber joinery, with the projecting lintel copied in stone.

Cutting and carving in stone

Indian rock-cut sanctuaries date from as early as the third and second centuries BC, and the technique of cutting into rock to create artificial cave-temples was to influence Indian architectural practice for over a thousand years. Most of the early rock-cut sanctuaries were utilized by Buddhist and Jain sects and their changing forms follow the development of these religions through a variety of phases. Their interior spaces are skilfully and often elaborately organized and the range of sculptural images and motifs with which they are decorated, together with their painted surfaces, indicates the emergence of craftsmen who were later to be concerned with the decoration of the Hindu temple.

The methods employed of carving directly into stone are revealed in those caves that were never completed. The nature of the tools that were used can only be inferred from the traces they left behind in the rock; they would appear chiefly to have been a pointed chisel and an iron mallet. First of all the rock face was polished with iron chisels and the façade of the sanctuary sketched in and incised. If a high chamber was to be hewn out of the rock the workmen commenced by driving a tunnel as tall as a man into the rock beneath the place where the ceiling would be. This was then widened and deepened by cutting steps. On each level the stonemason who did the rough work was followed by another artisan who cleaned and polished the walls. Some of the incomplete caves at Mahabalipuram, begun under Pallava patronage in the seventh century, provide information about the technique used to hollow out low chambers. The artisans incised the colonnade on the polished rock of the façade and divided up the remaining area which had to be worked into a square panel. Deep grooves were then cut along the incised lines with a pointed chisel so as to leave regular protuberances which were then easily hewn off. When the first layer was removed the process was repeated until the chamber reached the required depth. Only when the entire rock-cut



32 Creating a rock-cut temple, Mahabalipuram, seventh century. The colonnade is incised and grooves are cut to leave protuberances which are then hewn off

temple had been given a roughly hewn shape did artisans set to work to polish the walls and columns (Fig. 32).

In the early development of the structural Hindu temple there were a great many features which were borrowed from rock-cut architecture. At some sites in India both structural and rock-cut techniques were employed at the same time. Towards the end of their rock-cut phase in the seventh century, Pallava architects initiated the practice of carving rock to produce monolithic facsimiles of structural temples; the 'rathas' at Mahabalipuram are among the most celebrated Indian examples (Fig. 33). The favoured technique of carving a building was still adhered to even after temples were erected in structural stonework. The mass of the temple and sanctuary was usually built from rectangular-shaped stone slabs from which was created an approximate and quasi-monolithic temple form. Stonemasons then chiselled this to achieve the carved outline of the features of the temple. Because of this method the joints between the stones only occasionally and haphazardly coincided with architectonic forms, running slantwise over cornices or cutting through pilasters. The same was true for images and ornamental motifs which were frequently carved across the joints (Fig. 7). The fact that stones were finely carved so as to achieve an almost invisible jointing system only enhanced the massive quasi-monolithic quality of the structural stone temple.

Another leading feature found throughout the history of Hindu temple architecture is the emphasis on the carving of surface ornamentation as the principal visual language. Carving lies at the very root of the endeavour of the Hindu artist, and architecture itself is considered as a mass which requires sculpturing. In fact, carving the surface of the building is always preferred to structural innovation which is usually deliberately rejected. In this respect Hindu architecture is directly opposed to Gothic architecture.

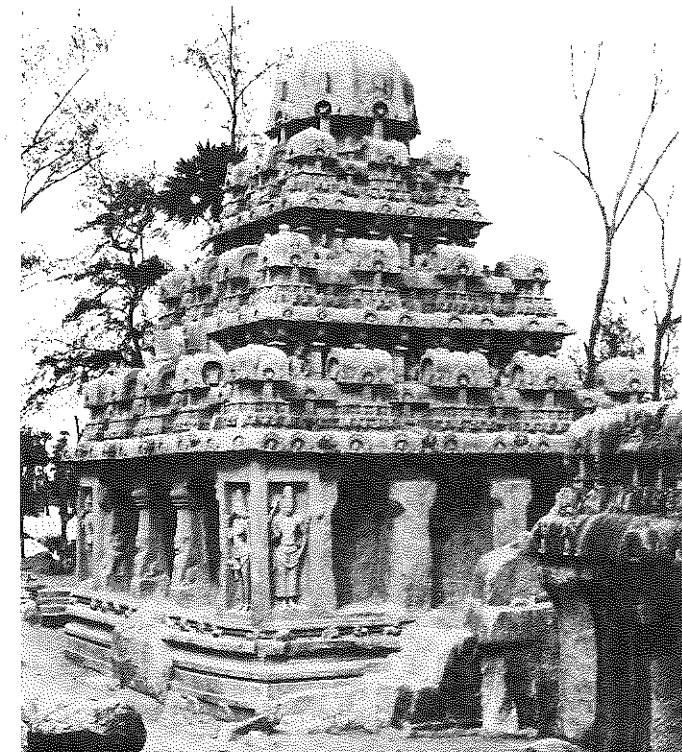
Brick and stone construction

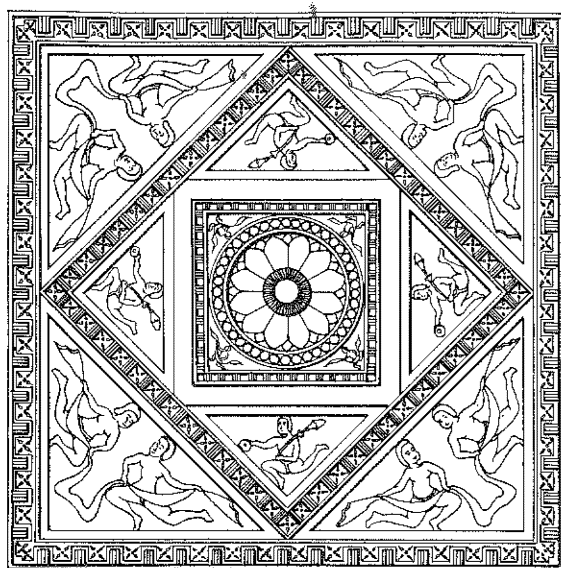
The fundamental architectural principle of the constructed Hindu temple is always formulated in the trabeate order by which only horizontal and vertical members are employed, stability being given by massive arrangements of vertical elements such as pillars and pilasters together with equally

heavy cross-beams and lintels. The most characteristic features of this post and beam method of construction are the techniques employed to span openings and enclose interior spaces. Most openings in Hindu temples are bridged with a single member, a lintel either of stone or timber, and interior spaces are covered by slabs of stone, usually laid horizontally (though sometimes inclined roof-slabs are preferred) spanning from one supporting beam or wall to another (Fig. 49). The post and beam construction method is extended by a development of corbelling techniques, by which stones or bricks in each horizontal course are progressively projected out to cause the gap between two walls to diminish until it can be closed with a single stone or brick.

Factors of functional engineering principle never really played a part in the evolution of Hindu temple architecture. The pillar-lintel-corbel scheme of construction is at the root of all Hindu temple building operations and other structural principles such as the cantilever and the dome are only of the most rudimentary nature. Thus, the fixture of the eave which projects from the wall, and which involves the cantilever principle, never develops any true structural application in the Hindu architectural context. Arrangements of internal ceilings are also deliberately confined to the overlapping of one stone course with another or, alternatively, to the laying of diagonal and square stone courses to produce designs with rotating and diminishing squares (Fig. 34). Sometimes circular stone courses are employed, seated one above the other in receding diameters, to produce complex designs—well

33 Dharmaraja 'ratha', Mahabalipuram, seventh century: the lower portions are incomplete





34 Ceiling of Shiva temple, Pandrethan, ninth or tenth century: this design is related to ceilings of other temples that have cosmological symbolism

exploited, for example, in the tenth- and eleventh-century temples of Rajasthan and Gujarat. Never was the principle of the arch with radiating components, such as voussoirs and keystones, employed in Hindu structures, either in India or in other parts of Asia. It was not so much that Hindu architects were ignorant of these techniques, but rather that conformance to tradition and adherence to precedents were firm cultural attitudes. Arched niches, where found, are created on the surface of a wall or tower and rarely carry loads from above as in the true arch. This also means that Hindu temple architecture provides no instance of the use of the vault or the dome. It is only the corbelled structural device that is used, always in its non-arched form, to create the interiors of temples and the stone shells of the superstructures that rise above the sanctuary. The preference of Hindu architects is for massiveness and strength in temple construction through the post and beam method.

In the erection of the structural temple an organized building programme was followed. Bricks were baked either on or near the site and stone was mostly quarried locally. From reliefs carved on temples and from a manuscript that has been discovered about the building operations carried out at the thirteenth-century Surya temple at Konarak it is learnt that stone from quarries was sometimes transported to the building site on wooden rollers

drawn by elephants or floated on barges along rivers and canals. At the site the masons roughly shaped the stone blocks which were then hoisted into position by rope pulleys on scaffolding; ramps were also constructed of timber or sand to facilitate the placing of extremely heavy members in place. The division of work into different phases corresponded to the tasks of different craftsmen such as stonemasons, carvers and sculptors. To secure stone slabs firmly together, iron clamps and wedges were utilized. This permitted the occasional virtuoso development of corbelling in which horizontal stone layers were projected out over large spans and cut into unusual shapes to produce highly decorative ceiling schemes. Occasionally, as in the Surya temple at Konarak, iron beams were used in the sanctuary and hall. Stone columns were at all times important supporting members, and most structural systems were built up with columns supporting principal beams upon which rested secondary beams running at right angles to them. These secondary beams, usually shorter than those beneath, were sometimes repeated in order to create continuous rising structural systems. Timber was always used for doors, and for windows timber bars were skilfully copied in pierced stone screens.