CHAPTER II

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example, reached a stage of development and considerable maturity and set the trend to be followed on the temples of the later period. According to the Hāṭhīgūmpha inscription, Khāravela in his thirteenth regnal year repaired all the decayed temples. This postulates the existence of shrines in Kālīṅga prior to the Mahāmeghavāhana rule. About those shrines we have absolutely no idea.

It is difficult to trace a systematic history of Orissa after the end of the Mahāmeghavāhana rule to the rise of the Sailōdbhavas in the 7th century A.D. The excavations at the site of Sīsūpāla-garh, about 2½ kms. from Bhubaneswar have brought to light a fortified township. The site was in occupation from the beginning of the third century B.C. to the middle of the fourth century A.D. The finds of the excavations indicate a high degree of economic progress resulting from a prosperous external trade, particularly with the Roman empire.

26. Sava devāyatana samkhara karako

Hāṭhīgūmpha inscription, Line 17.


28. The finds of the Sīsūpāla-garh include, among others, clay bullae imitating Roman coins and a gold coin bearing on the reverse a Roman head with the Roman legend. (Ancient India, No.5, pp.101-105). Orissa's trade with the Roman empire was not direct. The Tamil merchants of the Southern India were the intermediaries in this trade.
The absence of a powerful sovereign power marked the political scene of this period. The discovery of the so-called Puri-Kuśāna coins have led some scholars to suggest a period of Murunda supremacy over a part of Orissa before the rise of the Guptas in Magadha, but at present nothing can be said definitely about it. It appears that in the absence of a sovereign authority different parts of Orissa was held by local chiefs. The Bhadrak inscription (3rd century A.D.) speaks of one Mahārājā Surasama ruling in the Bhadrak area of the Balasore district. The Asanpat inscription (4th century A.D.) describes the achievements of one Mahārājā Satrubhanja in grandiloquent terms. He was the ruler in the Keonjhar region.

In spite of the political instability the sculptor's work continued unhampered during this period. This is evidenced by a few yakṣa and nāga images discovered in the vicinity of Bhubaneswar. These images illustrate the popular art of this period. There is a close affinity between the yakṣa and nāga images of Orissa and of Parkhām, Patna, Pawāyā, etc. Like the Dhauli elephant these images

display considerable earthliness and physical vitality. The human figures found on the railing pillars discovered in the neighbourhood of the Brahmesvar temple at Bhubaneswar belong to this type. Artistically the railing pillars belong to the post-Mauryan period.

The Gupta rule was established in India in the first quarter of the fourth century A.D. Though Samudragupta's military expedition affected parts of the western and southern Orissa it did not lead to the imposition of the Gupta rule over the whole or any part of this land. But it brought Orissa within the cultural influence of the Gupta empire. 33

As a result of the contact with the Guptas the Gupta Era came to be used in several copper plate inscriptions. 34

33. K. C. Panigrahi, History of Orissa, p.43.
34. The Gupta Era has been used in the following copper plate grants:
   c) The Ganjam copper plates of Madhavaraja - El, VI, pp.143-146.

The Gupta Era appears to have been used in the Soro copper plates of Sambhūyasas (El, XXIII, p.201) and the Patikākela copper plates of Sivaraja (El, IX, pp.285-288).
of Orissa. Another important result was the introduction of the Gupta art-idiom into Orissa.\(^{35}\) The tempera paintings on the ceiling of a rock known as Rāvanachhāya as well as the \textit{Mukhalingam} at Sitābhīnji in Keonjhar district (4th century A.D.) bear the Gupta characteristics.\(^{36}\) The Gupta rule is significant for it marks the formative phase of the temple-building activities in India. Orissa is fortunate to possess large number of temples belonging to different epochs of her history in various stages of preservation, but there is not a single example which can be correctly assigned to the Gupta age. On the other hand a few architectural fragments and sculptures, either found inside temple compounds or re-utilised in later temples, recall Gupta art-idiom. These fragments once formed parts of the temples which are no longer in situ.\(^{37}\) Thus, it can be concluded that the temple-building activities continued in Orissa during Gupta period. It is unfortunate that none of the Gupta temples in Orissa has survived the ravages of nature.

\(^{35}\) K. C. Panigrahi discusses at length the Gupta influence on the art and architecture of Orissa (\textit{History of Orissa}, pp.44-46; 368-369).

\(^{36}\) T. N. Ramchandran, "Find of Tempera painting in Sitābhīnji District Keonjhar, Orissa", \textit{Artibus Asiae}, Vol.XIV, 1-2, pp.5-25.

In the political sphere the Matharas rose to power in the middle of the fourth century A.D. in the Kalinga region which comprised the Ganjam district of Orissa and the Srikakulam, Vishakhapatnam and East Godavari districts of Andhra Pradesh. The names of the rulers are known from their copper plate grants which absolutely throw no light on their political activities. This period also witnessed the rise of several other minor dynasties in Orissa such as, the Vasisthas, the Durjayas, the Vigrahas and the Manas in coastal Orissa and the Nalas in Western Orissa. The dynasties of coastal Orissa were involved in mutual conflicts and in the process they were eliminated.

Towards the close of the fifth century A.D. the Eastern Gangas rose to power in Kalinga which then comprised parts of Ganjam district of Orissa and Srikakulam and Visakhapatnam districts of Andhra Pradesh. Their capital Kalinganagara has been identified with present Mukhalingam in the Srikakulam district. They used an era of their own in their copper plates, the initial year of which is still a matter of controversy. Here we have accepted A.D. 496 as the initial year of the Gangga Era. The rise of the Gangas marked the efflorescence of the Brahmanical religion which provided an impetus to the temple-building activities in Kalinga particularly in Mukhalingam region. 38 The temples of Mukhalingam, built

under their patronage, betray the characteristics common to the temples now found in Orissa. Gokarnesvara on the Mahendragiri was the presiding deity of the family.

In the early part of the seventh century A.D. Sasāṅka of Gaudā brought Dandabhukti, Utkala and Kaṅgoda regions of Orissa, i.e., entire coastal Orissa under his political authority. He placed Dandabhukti and Utkala under Sāmantamahārājās and allowed the Sailodbhava rulers to rule over Kaṅgoda as his feudatories. But after his death the Sailodbhavas became independent. They succeeded in maintaining their position against the dangers posed by the growing imperialism of the Western Chālukyas of Bādāmi on one hand and Harsavardhana of Kanauja on the other. The earliest group of extant temples of Orissa can be assigned to the period of the Sailodbhava rule, even though the rulers were not directly responsible for their construction.

Hsuan Tsang, the Chinese pilgrim visited Orissa in about A.D. 639 and has left an account of it. According to his account Orissa was divided into three regions, i.e., U-Cha (Odra = Uttara Tosali), Kang-Yu-t'io (Kaṅgoda) and

39. The Sailodbhava ruler Mādhavarāja II has acknowledged Sasāṅka as his over lord in his Ganjam copper plates which is dated in the Gupta Era 300.
Ki-ling-kiā (Kaliṅga). He also visited the neighbouring kingdoms of Kośala and Āndhra. His account is useful for the study of the religious and social conditions of the seventh century Orissa.

The Bhauma-kāra rule was established in Tosāli or Utkala region in the year A.D. 736 which is also the initial year of the era introduced by them. The Bhauma-kāras conquered the Sailodbhava kingdom Kaṅgoda. During their heyday their kingdom included a wide area which comprised Balasore, Cuttack, Puri, Ganjam districts and parts of Dhenkanal and Keonjhar districts. Even Dandabhukti was under their jurisdiction. They had their capital at Jajpur which is mentioned either Guhadevapātaka or Guheśvarapātaka in their records.

The Bhauma-karas had family relation with the powerful Western Gangas of Southern India. They also maintained diplomatic relation with China. The Arab and Persian geographers of the 9th-10th century A.D. have referred to the power and grandeur of the Bhauma-kāras in their works.

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It is interesting to note that as many as six queens of this dynasty, four of them in succession, ruled independently.

The Bhauma-kāra rule is significant so far as the art and architecture of Orissa is concerned. Under their patronage both the Buddhist and Brahmanical monuments came into existence in different parts of Orissa. In this connection a reference can be made to the Buddhist Vihāra at Ratnagiri in Cuttack district. The temple architecture, which had already assumed the distinct Sikhara type, made further progress, both in its plan and scheme of decoration, during this period. Of the extant temples of Orissa a significant number can be assigned to their epoch. It appears that some of the Bhauma-kāra rulers caused the construction of temples in Jājpur, their capital.42

The Bhauma-kāra rule was replaced by that of the Somavamśīs in about A.D. 931.43 The Somavamśīs originally belonged to Kosāla i.e., the Sonepur-Sambalpur region of Western Orissa and their capital was Yajōtinagar or Binika

near Sonepur in Bolangir district. They utilised their matrimonial relation with the Bhauma-kāras for furthering their imperial design. It was Yayāti I who, taking advantage of decline of the Bhauma-kāra power, annexed their kingdom. Thus, the Somavamsīs united the kingdoms of Kośala and Utkala and made Jāipur the capital of the united kingdoms. The Somavamsīs ruled from Jāipur till they were overthrown by the Eastern Gaṅga ruler Anantavarman Chodagaṅgadeva in the year A.D. 1110.44

The Contributions of the Somavamsīs in the fields of culture and art are remarkable. Yayāti I re-established the shrine of Jagannath at Puri by a building a new temple.45 The temple-building activities became more vigorous under their patronage. Some of the rulers and the members of the royal family are credited with the construction of temples, particularly in Bhubaneshwar. It was during their rule that Bhubaneshwar in Utkala and Sonepur in Kośala regions because great centres of the temple-building activities. It was

due to their remote association with Central India, that they made an attempt to experiment certain Central Indian features on the traditional temple-style of Orissa. The Orissan temple-style reached its maturity during this period. The Lingarāja temple at Bhubaneswar (11th century A.D.) is the finest example of the Orissan style at its best.

Our discussion of the history of Orissa will not be complete without a reference to the Bhañjas who played an important role in the history and culture of Orissa. There were several Bhañja ruling families in Orissa among whom the Bhañjas of Khinjalimandala (Phulbani and parts of Ganjam districts) and Bhañjas of Khijjingakota (Khiching in Mayurbhanja district) were famous. They were ruling in the 9th–10th century A.D. The temples of Baud, Gandharādi and Khiching were constructed under their patronage.

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46. The Somavamśīs of Kosāla were the descendants of the Pânduvaṁśīs of Mahā Kosāla, which included Raipur and Bilāspur districts of Madhya Pradesh. The capital of Mahā Kosāla, Śrīpura has been identified with Sirpur in Raipur district.
CHAPTER II

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The practice of building houses for gods and goddess is very old in Orissa. According to the Hāthīgumpha inscription Mahāmeghavāhana Khāravela repaired sava-devāyatana, i.e., all devāyatanas or 'houses of god'. This postulates the existence of several Brahmanical shrines long before Khāravela's accession, i.e., in the 1st century B.C. Those shrines decayed and thus, required renovation which was promptly attended to by Khāravela, a ruler of very liberal outlook. Goddess Parnadevati referred to in the Bhadrak inscription (3rd century A.D.) must have been properly enshrined and worshipped. A shrine was built for the image of Natarāja by Maharāja Satrubhaṇja of the Asanpāt inscription (4th century A.D.). Hsuan Tsang who visited Orissa in A.D. 639 came across several Deva temples in different parts of the state.

At this stage it is very difficult to form an idea about the shape and form of the shrines mentioned above.

1. See Hāthīgumpha inscription, line 17.
In all probability those shrines were simple structures of very small dimension. It will not be far from the truth if we say that they were flat-roofed, square and cell-like structures with narrow openings. The experience thus gathered from building such structures was applied to the temples of the later period.

The Gupta rule constitute the formative period of Indian temple-architecture. In the formative stage the Gupta temples were characterised by a small, flat-roofed, square sanctum with a shallow pillared porch infront, both standing on a raised plinth; the pillars of the porch being consisted of a plain square base, a many-sided shaft, and a capital of pūrnaghāta design; a covered ambulatory around the sanctum; and the plain interior being pierced by a richly carved doorway with the figures of Gaṅgā and Yamunā occupying the upper corners of the jambs. The masonry is of dry order, i.e., the dressed stones being placed one above the other without the use of any kind of

5. Herman Goetz, Arts of the World; India, p.87;
R. C. Majumdar (ed.), The History and Culture of the Indian People, Vol.III (The Classical Age), pp.499-501;
V. S. Agrawala, Gupta Art, p.19.

6. The shallow porch in the later Gupta temples developed into a pillared portico and later into a full-fledged mukhasāla.
mortar. The temples which belong to this phase are the temple No. XVII at Sānchi, the temples at Tigāwā and Erān, the Pārvatī temple at Nāchnā Kūthārā, the Śiva temple at Bhūmarā, etc. These temples belong to the 4th-5th cen. A. D. 7

The addition of a low and squat tower called Sikhara marked the second phase in the evolution of the Gupta temples. The representative specimen of this type is the Daśāvatāra temple at Deogarh in the Jhansi district of Uttrā Pradesh 8 (6th century A. D.). It stands on a high basement with four pillared porticos projecting from four sides. There are sculptured niches on the three walls and whereas an elaborate gateway occupies the fourth one. The Sikhara or tower, now in a dilapidated condition, consists of blocks of gradually receding stone courses topped, probably, by an āmalaka. The chaitya-medallions decorate the body of the Sikhara. The corner projections of the Sikhara probably had bhūmi āmalās. 9 The Daśāvatāra temple

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is thus, "one of the most ornate and beautifully composed examples of Gupta architecture". To this group also belongs the brick temple at Bhitargaon in Kanpur district of Uttar Pradesh.

The *Sikhara*, thus evolved, was further elaborated so as to give it a distinct shape. This *Sikhara* became the distinguishing feature of the temples of Northern India. This style of temple-architecture came to be known as the *Nāgara* style. The foundation of the southern style, called the *Drāvida* style, characterised by storeyed arrangement in its elevation also had its origin in the Gupta period. Since our main concern is with the *Nāgara* style of which the Orissan style is a variation, we do not propose to dwell upon the *Drāvida* style.

There is not a single temple in Orissa at present which can be distinctively termed 'Gupta temple'. The earliest of the extant temples of Orissa is a fullfledged *Sikhara* temple. It does not display such characteristics which would lend it an archaic character. This does not imply that temples were


not erected earlier which would show tentative efforts at building the \textit{Sikhara} temples.

There is reason to believe that temples were constructed in Orissa during the Gupta period. The temples seen by the Chinese pilgrim (7th century A.D.) might have been constructed in the 5th-6th cen. A.D. The Early Ganga rulers of Kalinga were devoted to Gokarnesvara Siva on the Mahendra mountain. In the Ponnuturu plates of the Ganga ruler Mahārāja Sāmantavarmā we find the earliest reference to Gokarnesvara. This presupposes the existence of the temple of Gokarnesvara prior to the date of the issue of the Ponnuturu plates, i.e., A.D. 560. The architectural and sculptural fragments found at Bhubaneswar in Puri district and Jajpur in Cuttack district were once formed parts of the temples which are no longer in existence. Very likely those temples belonged to the earlier period. Dr. Panigrahi has tried to prove that the original shrine of Viraja at Jajpur, located at a short distance from the present temple, belongs to the Gupta period.

\begin{itemize}
\item[12.] EI, Vol.XXVII, pp.216-220.
\item[14.] Ibid.
\end{itemize}
Thus the earliest extant temples were the products of the experience gathered out of building temples as referred to in the previous paragraph. It is most unfortunate that all the earlier temples have perished. Being the products of the tentative efforts of the craftsmen, those temples did not possess the inherent strength to resist the fury of nature. This experience must have led the craftsmen to invent the technique of imparting stability to the temples under all circumstances in later period.

It was a practice in the past to reconstruct, even in a bigger scale, the ruined and dilapidated monuments of religious importance. Evidences show that some of important temples were built on the sites of the older shrines. According to a tradition preserved in the Mādalāpanjī Yayāṭī Kesari reconstructed the temple of Lord Jagannāṭh at Puri by pulling down the old and dilapidated one.15 The temple built by Yayāṭī also decayed and it was Anantavarman Chodagaṅgadeva, the founder of Gaṅga rule in Utkala, undertook the work of the reconstruction.16 The fame of


the shrine of Kapileśvara of Bhubaneswar has been narrated in some traditional Sanskrit texts composed in the 13th century. The present Kapileśvara temple is a monument of the 15th century. This indicates that an earlier temple of Kapileśvara existed in the site of present one and that temple has been extolled in the orthodox Sanskrit texts.

It can be concluded from the above discussion that the important shrines, when required, were reconstructed either in the same site or in its neighbourhood by the munificence of the kings and the rich. It is not unlikely that most of the earlier temples, when decayed, were replaced by new ones. Śikhara type temples took the place of earlier ones because that type was then universally followed in Orissa. In some cases the fragments of the ruined temples have been reutilised in the new ones. Even some fragments are still laying scattered in various places.

17. Ekāmra Purāṇa, Svarṇadri Mahodaya, Ekāmra Chandrika, and Kapila Saṁhitā

18. K. C. Panigrahi, Archaeological Remains at Bhubaneswar pp.14-21. He has drawn the attention of the scholars to the specific sculptural and architectural fragments of the ruined temples noticed in the temples of the later period, religious monuments, and also laying scattered different parts of Bhubaneswar.
The earlier temples were probably flat-roofed square structures. At this stage nothing can be said about their decorative programmes. It is said in the previous chapter that Orissa came under cultural influence of the Guptas in the 4th-5th cen. A.D. That might have influenced her temple-building activity to a great extent. Therefore the assumption that the early temples of Orissa were flat-roofed square structures is not altogether incorrect. The Bhghara or tower of the later temples also lend support to this assumption. It is already said that the addition of Bhghara to the flat-roofed square sanctums of the Gupta period led to the development of the Nacara style of temple-architecture of which the Orissan style is a variation. Therefore the temples of Orissa must have undergone similar transformation in the beginning. That the Bhghara was added to the flat-roofed square sanctum is evident in the earlier temples of our period where the Bhghara and the bhada or the wall are clearly demarcated. But in the later temples the Bhghara is completely integrated into the bhada. Moreover the use of Gupta art-motifs in the Orissan temples establishes the relation between the two styles.

The early temples were built by the local craftsmen. They were not trained enough to make a temple perfect in all respects like their counterparts in the Gupta empire.
This accounts for the disappearance of all the temples in Orissa built in the Gupta period.

Dr. Panigrahi traces the origin of the Orissan temple-architecture to the wooden model. The introduction of stone as the medium of art in India goes to the days of Asoka (3rd century B.C.). Prior to that wood was used for the purpose. It was by the force of habit and experience that the carpenter's technique was applied to the works of stone during the period of transition. This technique is best illustrated in the execution of the Asokan pillars; the railings of the stupas at Sānchi and Bhārhat; the gateways of the Great Stupa at Sanchi; and the early rock-cut caves. These pillars, railings, gateways, and caves must have been designed after wooden models since it was hardly possible to conceive an altogether new design and plan at that stage. But the temple-architecture, the foundation of which was laid in the Gupta period, cannot be expected to have been copied from some other model, particularly of wood. By that

time the art of stone masonry had travelled a long way so as to evolve its own style and design.

During its long period of evolution the Orissan temple-architecture acquired certain distinct characteristics which distinguished it from that of the Nāgara style. The distinction became so well-marked that a separate nomenclature called Kaliṅga style was used for the Orissan temples. This style received due recognition when it was mentioned in the śilpa texts and the inscription.\(^\text{22}\)

The temples thus evolved in Orissa consist of two main parts - the sanctum and the frontal hall. The sanctum (called Vimāna) can be divided into two types and so also the frontal hall or the mukhaśālā (also called jagamohana). The sanctum is either a rekha or a khākhara type deula.\(^\text{23}\) Similarly the mukhaśālā is either a flat-roofed rectangular hall or square hall with the roof arranged in pīdhās, i.e., tiers. The


\(^\text{23}\) In Oriya language the temple is called deula.
latter is called pidhā deulas. N. K. Bose refers to the Gauriya type but only two temples of very late origin belong to this type. Therefore this type does not come within the purview of our discussion.

Majority of the sanctums of our period are of rekha type and whereas the Khākhara type is limited to a few Sakta temples. The mukhasālās of the earlier temples are flat-roofed rectangular halls but in later temples they are pidhā deulas. In the fully developed temples the nātamandapa (dancing hall) and Bhogamandapa (hall of offering) belong to the pidhā type. Thus the rekha deula and the pidhā deula are the dominant types of Orissan temple-architecture.

The Sikhara or the tower is the characteristic feature of the rekha deula. We have already traced the origin of the Sikhara type temples. Originally the sanctum was a flat-roofed square structure pierced by an elaborate doorway on one of its sides. At a stage it was thought expedient

24. There is no description of the flat-roofed rectangular type of mukhasālā in the Śilpa texts of Orissa. The second type or the pidhā type finds adequate treatment in the texts. This shows that the former type had gone out of vogue when the texts were composed. Therefore no distinctive terms has been used for the first type of mukhasālā. The second type is called the pidhā deula or the bhadra deula.

to raise a tower on the roof in order to emphasise the height of the sanctum. The tower was formed by corbelling the blocks of stones, i.e., by gradually inclining the stone courses into the centre as they proceed in height. Naturally the stone courses on all sides meet together to form a centre at a certain height. Its outlines on any side are in the form of a triangle. No specimen of this type of Sīkhara is available today.

There were further developments in the above type of Sīkhara. The process of building the Sīkhara remained the same for the subsequent periods. The corbelling is such that a hollow chamber is formed just above the roof of the sanctum. It is meant to lessen the load on the roof which rests on the four walls without any pillar inside to support it from below. Secondly, an arch is formed above the lintel of the door-way in order to reduce the pressure on the front wall which is not as solid as the other three because of the opening for the door-way. The Lakṣmīnāreśvara temple (Fig.1) which is at present bereft of all facing stones can be cited as the example to illustrate this technique.

With the arrival of Sīkhara the technique of the construction of the roof also underwent change. It is formed by tying the opposite walls by the blocks of stone. In the beginning iron bars were not used in the roof. The use of iron bars is noticed for the first time in the
Simhanātha temple. In later temples the use of such bars became a regular feature. In the Silpa texts such roof has been mentioned as the garbhamūda. It is so called because it covers the cella, which is called garbha. In the Oriya language mūda means cover. The increase of the height of the Śikhara necessitated another similar mūda in the hollow chamber above the garbhamūda. This is called the ratnamūda. This is done by tieing the stone courses of opposite directions and is meant to ensure the stability of the walls of the sanctum and the Śikhara.

The stones on the inner side of the Śikhara are smooth but indented on the outer side. The outer faces of the Śikhara are then covered by stones which are carved for surface decoration. The opening formed by the corbelling arch above the door lintel is kept hidden behind a broad, flat pilaster called rāhā paga which runs vertically up to the topmost course of the Śikhara. This pilaster is slightly broader than other three central pilasters. It is because the frontal pilaster serves the purpose of a screen to hide an opening which is definitely wider than the space occupied by other pilasters. In later temples, such as in

Markandeyesvara at Bhubaneswar (Fig. 22), the frontal pilaster projects prominently from the body of the Sikhara but with the appearance of the pyramidal mukhasālās, as in the Muktesvara temple at Bhubaneswar (Fig. 34), this once again becomes flat.

The ground plan of the sanctum of the rekha type is square. In conformity with the ground plan the cross-section at any point of the Sikhara is also square. The Sornesvara temple at Rānipur-Jharial and the Kapileśvara temple at Charda, both in Bolangir district, have a different ground plan. Here the indentations of the inner walls have produced a cruciform ground plan. The temples of Baud have star-shaped ground plan. All these can be taken as local variations.

The Orissan craftsmen conceived the temple as the body of the Cosmic Being. Therefore different parts of the temple have been considered as its limbs and named accordingly. The cella where the presiding deity is enshrined is conceived as the womb of the Cosmic Being and thus called in garbhagrha. Like the womb it is intensely dark. The dim light of the earthen lamp along with the fragrance of the flowers, incense,

it creates an atmosphere of solemnity where a devotee can fix his mind in meditating his beloved God.

The *Vimāna* can be divided into four parts along the vertical plane. These are the *pista*, the *bāda*, the *gandi*, and the *mastaka*. The *pista* or platform is not a regular feature of the Orissan temple architecture. It is absent in most of the temples of our period. These temples rise abruptly from the ground.

The *bāda* is the perpendicular wall of the *Vimāna*. The bottom portion of the bāda is called *pābhāga* which consists of a set of mouldings. The types of *pābhāga* mouldings are related to the chronological sequence of the temples. In the early stage the *pābhāga* is characterised by three mouldings of which the lower one is in the shape of hoof or *khurā*. In this category the *pārvadevata* niches and the mouldings are not perfectly adjusted. The *pārvadevata* niches are found overlapping the mouldings.

In the next stage of development the number of mouldings increased to five. The lowermost one retains the *khurā* shape. The second from the bottom takes the *kumbha* design. This design has been adapted from the vase and foliage motif that is found in the *Sisīresvara* temple.28 In the Muktesvara

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temple we notice the complete kumbha design. The other three mouldings are called pāta, kani, and vasanta. These mouldings run all through the bada including its projections and recesses. The adjustment of the pārśvadevataś niches and the mouldings has been perfectly done. The niches have their own set of mouldings and they do not encroach upon the pābhaga mouldings. The only exception to the above categories is the Simhanātha temple where the pābhaga of the sanctum is divided into four mouldings.

The portion above the pābhaga is called jāngha or shin. It is the vertical portion of the wall of the Vimāna. The jāngha in its projections contain niches—the niches on the central projections on the three sides being bigger. These bigger niches house the pārśvadevataś. The niches in the subsidiary projections contain different divine figures. An elaborate doorway dominate the front side of the bada. The doorway occupies the position of the front central projection.

The height of the bada increased with the increase of the height of the Vimāna. The increase of height warranted modification in the treatment of the jāngha. Instead of proportionately elongating the niches which would definitely look odd, an attempt was made to add more items into the
increased space. In the new arrangement the niches and figures are placed in two levels on the jāngha, but the three central pārśvādevatā niches occupy the central position extending to both the levels. A set of mouldings divide the jāngha into two levels—the upper and lower. These mouldings are called bāndhanā or binder. The uppermost portion of the bada called baranda. It is a set of projecting mouldings by which the Śikhara is separated from the bada. In the earlier temples a recessed band or kānthis runs round the vimāna to demarcate the partition between the Śikhara and the bada. In these temples the baranda mouldings are not conspicuously projected.

The bada is relieved with vertical projections called rathas. Depending upon the number of projections the design of bada becomes either triratha or pancharatha or saptaratha or navaratha. In the triratha design there is a central projection and two corner ones and whereas in the pancharatha design in between central and corner projections there are two intermediary projections. In this manner the saptaratha and navaratha designs are formed. The central projection is always wider than the rest which are of equal size. It is said earlier that the central projections contain the bigger niches to house the images
of pārśvadevatās. With the increase of the number of projections, the bada or wall becomes more or more round in appearance in spite of the square ground plan. In the triratha design the rathas are always flat but in other designs we notice a tendency towards roundness. In the temples of the Rājarāṇī, the Brahmesvara and the Līṅgarāja the projections other than the central one are round, slender and ornate.

The Śikhara bereft of the crowning elements is called gandī. It rises straight up to a certain height and then begins to curve inwards. The curve is more pronounced in later temples. Like the bada, the gandī has offset projections called pagas (also ratha). These pagas creates the optical impression of vertical lines or rekhās on the gandī. It is because of the prominence of the rekhās the temples having Śikharas became known as rekha deulas or rekha type temples. Being integral part of the gandī the projection curves inwards after rising straight up to a certain height. 29

29. The upward curves of the rekhās or lines on the gandī present the appearance of tall bamboo posts which have been struck to the ground on four sides with their topes being tied by a rope tightly, see N. K. Bose, op. cit., p.79.
The number of pagas on the gandi determine the order of the temple. One central paga or rāhā paga and two corner pagas or kanika pagas make the temple a triratha one. In the pancharatha temple the rāhā paga is flanked by two intermediary pagas called anuratha pagas besides the Kanika pagas.

In a saptaratha temple the pagas are seven in number. The pagas on the either side of the rāhā are called anurāhā and the pagas near the Kapika go by the name anuratha. The temples of saptaratha and navaratha orders do not come within the period we have taken for discussion. The Kapika paga is divided into several bhūmis (sections) by miniature amalās called bhūmi-amalās (ribbed discs). Each bhūmi is further subdivided into a number of horizontal mouldings called bhūmi-barandis. The earlier temples have five bhūmi divisions. With the increase of the height of the Vimāna the number increased to seven and finally in the Liṅgarāja temple it is ten. The variation in the number of bhūmi-barandis in different temples do not follow the chronological sequence.

30. In the brick temple of Visnu at Rānipur-Jhariāl (tenth century A.D.) the bhūmi divisions may be more than seven. Since the upper portion of the gandi is missing it is difficult to know the exact number.
The rāhā paga on the gandi of the rekha deula is always aligned to that of the bada but in the earlier rekha deulas the other pāgas are independent of alignment from those of the bada. During the Somavāṃśi period the pāgas of the gandi and the rathas of bada became aligned. They extend vertically from the base of the bada to the top of the gandi in a continuous thrust. The pāgas terminate under bisama (the topmost course of the gandi below beki). The bisama seals the top of the Sīkharā. It is only in later temples that the bisama partakes of the paga divisions of the gandi.

In the temples of the moderate height, the gandi gradually inclines inwards and so also its projections or the pāgas. It is because of this the gandi bears the

31. According to Prof. Donaldson the alignment of pāgas of the gandi and bada of the rekha deula is a central Indian feature introduced in Orissa by the Somavāṃśi rulers. (T. Donaldson, "Decorative Programme of Superstructure on the Orissan Rekhā deul", Sidelights on History and Culture of Orissa, pp.578-579). But, as it appears, the alignment of pāgas of bada and gandi were not due to any external influence. Attempts at such alignment in the previous period became successful during the Somavāṃśi period.
appearance of squat and heavy-set. The technique of gradually inclining the gandi proved unsuitable for temples of soaring height. In that case the gandi takes the curve at the top, i.e., the gandi rises straight up to a great height and takes a sudden curve at the top. The curve is more pronounced in temples like the Rājarāṇī, the Brahmesvara and the Līgarāja. In such temples the pagas are slender, ornate and round like their counterparts on the bada. The gandi assumes a perfect circular form completely suppressing the interior square ground plan. In these temples the pagas produce a charming effect through the play of light and shade.

The gandi of the temples built during the period of Somavāṃśī rule are found decorated with aṅga-Sikharas (miniature rekhā deulas). The aṅga-Sikharas, an important feature of the Chandel temples of Central India, was applied to the temples of Orissa by the Somavāṃśī rulers who hailed from that region. Dr. Panigrahi contends that the practice of decorating the gandi of the rekhā

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33. K. C. Panigrahi, Archaeological Remains at Bhubaneswar, pp.54 & 98.
deula with the *anga-Sikharas*, is not exotic and its origin can be traced to the half-śmalakas on the corner paga of the gandī. Miniature rekha deulas have also been used as decorative designs on the temples built during the pre-Somavāmsī period. In the temples as early as the Parasūrāmesvara the central pilasters of the bada containing Pārvavadevataś niches are designed as miniature rekha deulas. In the Vaitāl the four corners of the rectangular mukhasāla are embedded with the rekha deulas. Thus the *anga-Sikharas* are the outcome of the process of evolution and not borrowed from any extraneous source. This much can be said that the influence from Central India made the *anga-Sikharas* more conspicuous than they were before. The manner of their decoration on the temples like the Rājarāni, the Dākarā-Bhimesvara, and the Ekāmbareśvara betrays Central Indian influence.

On the Central Indian temples the *anga-Sikharas* have been used apparently to provide additional support to the tower of the temple and are treated in separate volumes. 34 When experimented on the Orissan temples such

34. Ibid., p.52.
as, the Rājarāñī, the Dākara-Bhimesvara and the Ekāmbaresvara, it was found unsuitable from the architectural point of view and thus was abandoned. One of the tangible results of the above experimentation was its assimilation into Orissan style. In the subsequent temples the āṅga-Sikharas were used as elements of decoration.

On the temples of Brahmesvara, Liṅgarāja, etc., these are used to enhance the grace and dignity of the Śikhara. Instead of appearing as sharp projections, as noticed on the Rājarāñī, these are treated here as part of the surface of the gandi. In the Liṅgarāja temple they are superimposed one above the other in diminishing order on the anuratha pagas. The āṅga-Sikharas emphasise the soaring height of the gandi without breaking its contour. Unlike those of the Rājarāñī, the Dākara-Bhimesvara and the Ekāmbaresvara here they are treated as the part of the wall surface and hence add to the grace and elegance of the Śikhara. Thus by the eleventh century A.D. the āṅga-Sikharas became an important element of the decoration of the gandi.

On the four rāhā pagas above the bho motifs in later temples are projected the figures of either a rampant lion

35. Ibid.
or a crouchant lion upon a prostrate elephant. These projected lion figures do not serve any purpose so far as the architecture of the temple is concerned. Nor they add substantially to the overall decoration of the wall surface. Perhaps these lions symbolically represent the majesty of the temple.

The portion above the gandi is called mastaka or head. The recessed cylindric portion just above the bisama is termed as beki or neck. It serves the purpose of a stand for positioning the huge āmalaka stone. The āmalaka stone cannot rest firmly on the surface of the bisama. The āmalaka, a flattened spheroid ribbed at sides, is a huge piece of stone and when placed on the top, it exerts downward pressure by which the blocks of stone are kept in position. In later temples, where the āmalaka is enormous in size, supports are provided from below. These supports are in the form of lions with two hind-parts, seated dwarfish figures called deulachārinis, etc. The roof of the āmalaka is covered by a slightly curved stone slab called khapuri. It is surmounted by a kalaśa or water jar.36 Besides kalaśa the other element, which, surmounts khapuri, is āyudha or weapon of the deity to whom the temple

36. In a few temples ākaśā-liṅga takes the place of kalaśa.
is dedicated,

Khākharā deula: The second type of sanctum is called Khākharā deula. This type is exclusively meant for the Śakti worship. The Vaitāla temple of Bhubaneswar is an important Khākharā temple of Orissa and therefore this type is often called Vaitāla type. The temple is so called, as supposed by some scholars, because of its resemblance with vaita-Kakhāru the local name of pumpkin-gourd. But this analogy does not seem to be correct. Similarly the view that it is called Vaitāla due to its Vaita or boat-like shape, is also not correct. We agree with Dr. Panigrahi when he says that the name Vaitāla has been derived from vetālas or spirits who were invoked by the Kāpālikas at the time of the worship of Chāmundā, the presiding deity of the temple.

The name khākharā suggest a non-indigenous origin of this type. The oblong ground plan, semi-cylindrical vaulted roof and the manner of treatment of the exterior walls make

37. The rekha deula also houses the sākta deities. For example, the Mōhīnī temple in the southern bank of Vindosarovara houses a ten-armed dancing image of Chāmundā.
the Vaitāla temple, the earliest of this type, a structural representation of the rock-cut architecture. This led M. M. Ganguly to trace its origin to the rock-cut rathas of Mahabalipuram. But in all other respects the temple confirms to the Orissan style. The other temples of the Khākhārā type mark the further elaboration of the elements introduced into the Vaitāla temple.

The ground plan of the temples of the Khākhārā type is oblong instead of square as that of the rekha type. The garbhagṛha remains dark, but in the Vaitāla temple the inner walls are relieved with the images of the Saptamātrkās, Ganeśa and Bhairava. The presiding deity Chāmundā occupies the central position of the back wall. This is the only example in Orissa where the inner walls of the temple are relieved with images.

Externally, on vertical plane, the sanctum can be divided into the usual divisions—pīṣṭa, bāḍa gandā, and mastaka. The Gaurī temple at Bhubaneswar and the Vārāhī

temple at Chaurasi stand on pistanas or platforms. The treatment of all the divisions except mastaka is same as that of the rekha deula. Therefore the descriptions given in connection with the rekha deula hold good here. But the bada of the Vaitala temple has, above its pabhaga mouldings, elegantly carved shallow pilasters in the place of ratha projections. The gandi has two bhumi divisions. In the Gauri temple the bhumi-amalas are not represented. Both the kanika and anuratha pagas are decorated with two superimposed miniature khakhara temples with a kalasa on the top. The Agha-Sikharas are conspicuous by their absence in the khakhara temples.

The most distinguishing feature of the khakhara deula is its semi-cylindrical vaulated roof which is separated from gandi, either by a recessed panel as in the case of Vaitala temple or by a bold moulding as noticed in the Gauri temple. The roof is constructed in two levels with a recess in between.41 Except the Vaital the roof partakes

41. D. Mitra thinks that in the Gauri temple it was originally one. The present two divisions are the outcome of the restoration work carried on in recent time. See D. Mitra, Bhubaneswar, p.48.
of the paga divisions of gandī. Its bald appearance in
the Vaitāla temple develops into an ornate one in the
Vārāhī temple. In Gaurī and Vārāhī temples a kalasa crowns
the top whereas in the Vaitāla the arrangement is different.
In this temple the roof is crowned by three āmalakas, each
with the usual finials. 42

Rectangular flat-roofed Mukhaśālā: The frontal hall
of the temple is called mukhaśālā or jagamohana. In this hall
the devotees congregate for the purpose of worship and prayer.
The mukhaśālā appears to be a second thought. When the idea
of building houses of god was developed, a single structure,
i.e., the sanctum was contemplated and the necessity of a
frontal structure was felt later on. To free the devotees
from the difficulties faced by them in connection with
worship and prayer a subsidiary structure was thought of.
Therefore in the beginning it was not organically integrated
into the sanctum, rather treated as its appendage. The
subsequent addition of nātamandapa and bhogamandapa to the
sanctum strengthens the above contention. The last two

42. The multiple finials of the Vaitāla temple are
fully in keeping with the elongation of the upper ridge of
the semi-cylindrical roof (the length is about 25). In the
subsequent Khākhara temples the roof was compressed enough
to hold a single crowning member.
structures were created in order to meet the necessities felt in later time.

In the beginning a portico-like structure supported by pillars formed the sanctum. Of course, like the early flat-roofed temples those frontal structure perished bearing no trace of it. A further development of the pillared portico is the pillared mukhasālā. Of the surviving temples the earlier ones possess the pillared mukhasālās. Therefore these mukhasālās have a chronological significance. These are flat-roofed and rectangular in shape.

By the time the Silpa Śāstras were composed this type of mukhasālā had become obsolete. This accounts for the omission of this type of mukhasālā in the Silpa Śāstras, though the mukhasālā of a substantial number of temples are of this type. In such a mukhasālā the ground plan is rectangular. In the interior stand pillars of plain square shafts to support the roof. In the mukhasālās of the Vaitāla and Sisiresvara temples the pillars have been

43. Some later temples of Bolangir district possess pillared mukhasālās. But this is mainly due to the influence of the Central Indian temples.
abandoned. It is an improvement over the existing technique and thus paved the way for the construction of non-pillared mukhasālā.

Thus interior of the mukhasālā present a contrast to that of the sanctum. The interior of sanctum (garbhagrha) is intensely dark, but provision has been made for free flow of light and air into the interior of the mukhasālā. Consequently its interior is lighted as well as airy. Light and air are allowed to let in though its multiple windows on the walls (either balustraded or latticed) and also through the clerestory between the two sloping eaves of the roof. In the temples like the Parasurāmesvara the mukhasālā possesses an additional doorway.

The pābhāga mouldings mark the base of the mukhasālā. The vertical divisions of the rekha deula are not applicable here. The wall rises straight up to the flat roof. The wall surface is divided into several compartments for the purpose of decoration. The important feature about such mukhasālās is the arrangement of the roof. Generally the roof consists

44. Though the Sisireśvara mukhasālā does not have free-standing pillars inside, it has pilasters embedded on the walls. This definitely shows the transition from the use of pillars to ashlar principle.
of two tiers with the eaves sloping downwards. The sloping is intended to pour down the rain water from the roof. The roof of the mukhasālās of the Simhanātha and Malikesvara temples at the foot of the Jogamunda hill are three-tiered and whereas in the Pātāleśvara temple at Paikapada it is six-tiered. In each case the tiers gradually recede to the top. The last example is a prelude to the pīḍhā type mukhasālās erected in later period. The topmost terrace and eaves of the roof are constructed by placing plain and large slabs of undecorated stone.

The roof does not bear any crowning member. In the Parasurāmeśvara mukhasālā we notice the clerestory between the caves, but this could not become a regular feature with the rectangular and flat-roofed mukhasālās.

**Pīḍhā deula**: The second type of mukhasālā is called pīḍhā deula. Chronologically this type of mukhasālās are posterior to the rectangular and flat-roofed mukhasālās. The avoidance of pillars in the pīḍhā deula is an advanced technique and therefore it is definitely later than the pillared mukhasālā as described earlier. Even on the rectangular mukhasālās experiments had been made to dispense with pillars. These mukhasālās, including that of the Sisiresvara where pilasters have been embedded on walls,
can be placed in the transitional phase. The pillars in the square mukhasālās of the temples of Baidyanath, Charda and Ranipur-Jharial in Bolangir district are mainly due to the influence of the central Indian style. The absence of finials on the roof of the first category of mukhasālās make them archaic. In all the later religious structures the finals constitute an important element.

It will be seen in the subsequent chapters that the arrangement of the decorative panels in the mukhasālās of the first category does not show that amount of maturity as noticed in the mukhasālās of the second category. Therefore the pidhā deulas are to be taken as the successors of the rectangular flat-roofed mukhasālās. Like the rekha deula, pidhā deula became an important temple type and both jointly constitute two components of a single shrine.

The ground plan of the pidhā deula is square. The interior is slightly lighted because of the exposure of its doorway to outside and the windows, either latticed or balustraded. The interior is severely plain except a few like the Muktesvara and the Brahmesvara where ceilings

are carved and the carved pillars which support the ceilings of the Kosalesvara temple at Baidyanath and Kapileśvara temple at Charda.

Externally the *pidhā* deula possesses divisions similar to that of *rekha*, i.e., *piśta*, *bāda*, *gandi*, and *mastaka*. The *piśta* is not a regular feature. Both *vimāna* or sanctum and the *mukhasālā* or jagamohana stand on the same level. The *bāda* is exactly the same as that of *vimāna*. The treatment of the *bāda* of the *mukhasālā* is almost similar to the *bāda* of *vimāna*. Of course certain mānor variations are discernable in some temples. In case, the existing *mukhasālā* of a *vimāna* is a later addition because of some reason or the other major differences are bound to occur.

It is only in the respect of *gandi* that the *pidhā* deula differs from the *rekha* deula. It is the *gandi* which gives the *pidhā* deula its distinctive shape. The *gandi* consists of a number of tiers or *pidhās*. The *pidhās* are arranged in diminishing order as they go up by which the *gandi* bears the appearance of a pyramid. The *pidhās* diminish in such a proportion that the size of the topmost *pidhā* becomes exactly the half of the size of the lowermost *pidhā*. It is because of the succession of the *pidhās* that the temple or *deula* is
called pidhā deula. In case of increase of the number, the pidhās are arranged in groups called potalas. So the arrangement in potalas is a characteristic found in later pidhā deulas. The potalas are separated from one another by recessed kānthis.

Pidhā deula also differs from the rekha deula as well as khākharā deula in respect of the mastaka. The mastaka of a full-fledged pidhā deula consists of a beki, ghantā (a massive bell-shaped member), again beki, āmalaka, khapuri, kalaśa, and āyudha. Here the ghantā is an additional member and for the perfect placing of the ghantā one beki is raised just above the topmost pidhā. The ghantā also has the supporting animal and human figures just below it.

On close observation it appears that the pidhā deula is the result of the endeavour for increasing the height of the mukhasālā. The rectangular mukhasālā of Simhanatha bears the sign of first attempt in this direction. Here the height of the roof is increased by adding one more tier to the normal two-tiered roof. The number of tiers increases to six in the Pātāleśvara temple at Paikapada. With the increase of the number of tiers the plinth area is reduced proportionately. Ultimately in the Muktesvara temple at Bhubaneswar it becomes a pidhā deula without the crowning
elements. At first its height was about half the height of the vimāna of the rekha order, but subsequently the height increased overstepping the centre of the elevation of the rekha deula.

Both the vimāna and mukhasālā stand close to each other on the same axis and are linked internally. The vimāna with a soaring Sikhara and the mukhasālā with a pyramidal superstructure and lower in height provide a pleasing contrast. The mukhasālā standing just before the vimāna also accentuate the height of the latter.

In the beginning the vimāna and mukhasālā or jagamohana were not conceived as an organic whole. Both were treated as separate, though not independent, architectural entities. The vimāna was constructed first and then the mukhasālā against the front wall of the former. This explains why the joining of these two structures in some early temples (e.g., the Parasurāmesvara) is not perfect. The joining is so imperfect that a portion of the carvings on the front wall of the vimāna are completely hidden behind the back wall of the mukhasālā for which the visitors are not able to see them.

46. The mukhasālā of the Rājarāni temple stand diagonally to the sanctum.
This imperfect joining has led some scholars to think that the mukhaśāla is a later addition.\textsuperscript{47} The contention that the mukhaśāla was always a later addition appears to be untenable because it was considered inseparable from the shrine.\textsuperscript{48} and hence must have been constructed immediately after the completion of the vimāna. Of course there are evidences to suggest that the mukhaśāla of the Parasurāmesvara was a later addition. The possibility of its later replacement cannot be ruled out. Therefore the imperfect joining is mainly due to the fact that these two structures were treated as separate entities instead of being one organic whole. They were placed side by side as two parts of one architectural scheme. In the subsequent period a successful attempt was made to join the two in a more perfect manner.

\textsuperscript{47} Even C. L. Fabri, has gone to the extent of suggesting that the shrine or vimāna, not the mukhaśāla, is a later addition. See, C. L. Fabri, History of the Art of Orissa, p.123.

\textsuperscript{48} According to the traditional view the rekhā deula is bridegroom and the mukhaśāla the bride. The junction between the two is called gauṁthāla, which means a ceremonial knot tied between the garments of the bridegroom and bride. (N. K. Bose, Canons of Orissan Architecture, p.154). In view of this it cannot be said that the mukhaśāla was always a later addition.
In the temples like the Sisirēśvara and the Mārkandēyesvara we notice an improvement in the manner of joining the mukhāśāla with vīmāna. Here the joining is such that the carvings on the front side of the vīmāna, flanking the doorway, are not covered altogether by the mukhāśāla. The back wall of the mukhāśāla, which was considered unnecessary in earlier ones, appears for the first time. The next stage in the development is the joining by two walls called antarāla.

It is interesting to note that in a later temple like the Liṅgarāja the joining is not so perfect like the Simhanātha, the Muktesvara, etc. The mukhāśāla has been constructed directly against the front wall of the vīmāna and in the process much of the sculptures of the vīmāna have been covered by the pīdhās of the mukhāśāla. In the present state of our knowledge it is difficult to explain why the architects followed this method while joining the mukhāśāla with the vīmāna. It is really astonishing to see the adoption of an immatured method of joining by the craftsmen of a temple which represents the culmination of the evolution of the temple architecture in Orissa.

The Liṅgarāja temple is the only example of the period under review which has two more pīdhā deulas—the nātamandapa and the bhogamandapa in the same axial alignment, but the
pidhās of the former are not fully developed. It seems that the practice of adding nātamanḍapā and the bhogamanḍapā developed in the post-Somavamsi period. Some temples are enclosed by a compound wall pierced by even more than one gate-ways. Inside the compound are seen many subsidiary shrines of various dimensions.

Method of Construction: Regarding the method of construction of the temples of Orissa our knowledge is limited. The Śilpa texts discovered so far do not mention anything about the method of construction. Therefore it is only by the application commonsense that a tentative idea can be formed about matters like transport of blocks of stone from the quarry site to the construction site; lifting of huge blocks of stone to the top of the temple; carvings on stone; and so on.

Normally the temples were constructed in the places which was considered most sacred from the religious point of view or at the sites where stood earlier shrines. Occasionally temples were constructed in other places.

49. It appears that the nātamanḍapā and bhogamanḍapā were constructed much after the construction of the vimāṇa and the mukhāśāla. It is evident from the fact that the sculptures of the former are more developed than the sculptures of the latter. Moreover the type of stone used in the former is different from that of the latter. The balustraded window of the mukhāśāla on southern side was converted into an entrance probably at the time of the construction of the nātamanḍapā and the bhogamanḍapā.
The sites other than one occupied by earlier shrines were selected by a complicated procedure. After the selection, the site was consecrated and the foundation stone of the temple was laid on an auspicious day. A large number of people were engaged in the construction work which continued for years together. In the case of ambitious temples like the Lingarāja the construction work spanned over the reigns of several rulers.

Stones were quarried in the nearby hills. After being cut into blocks, some of which huge enough to form āmalaka, ghanta, etc., were transported to the construction site. There they were finally dressed and chiseled into required shapes and sizes under the supervision of the master architect. The temple was constructed as per the plan and elevation prepared earlier. The proposed temple was to be one of the prevailing types—rekhā, khākharā and pīdhā and therefore there was no necessity of preparing a model before the construction. It was only the scheme of decoration which was carefully prepared along with a plan of further improvement and modification.

No mortar was used to hold the stone blocks together. The blocks were placed one above the other. The sides were so finely dressed that the joints between two blocks were
bound to be perfectly tight. The blocks were held together by their downward pressure. Sometimes groves were cut into the blocks for fixing them together. In some cases iron cramps and dowels were used for the purpose.

It has been suggested that the temple was gradually buried under earth as it progressed in height at the time of construction. One side is made inclined to drag stone blocks to the desired height. Even the huge blocks meant for the āmalaka and ghantā were dragged easily on the inclined plane. Dr. Panigrahi has suggested that the inclined plane for the Liṅgarāja temple extended as far as the Khandagiri hill covering a distance of about four miles.

The above proposition is theoretically sound. But in practice it is not so easy a task. To the ancient Indians the mechanism of transporting huge blocks of stone from one place to other and their lifting up to a great height was known. It is a fact that the Asokan monolithic pillars were built either by the fine grained hard standstone quarried at Chunar near Benaras or spotted red-white


51. Ibid.
sandstone from Mathura both in U.P. Huge blocks of stone were transported from Mathura and Chunar to various places, some at a great distance, where the pillars have been found. It seems that there was a convenient mechanism for the transport of stone blocks. The placing of the capital weighing about 50 ton on the top of the shaft of more than 30' high shows the skill achieved by the Mauryan craftsmen for lifting a heavy piece of stone to a certain height.

In all probability blocks of stone were transported on land route by wheeled cart dragged by animals. Similar carts might have been used in Orissa. Perhaps the carts were constructed by several logs and fitted with wheels. Elephants were employed to drag the loaded cart. To build an earthen ramp from the top of the Liṅgarāja temple (ht. 45.11 m.) to the Khandagiri, a distance of about four miles is extremely labourious and time-consuming proposition. Moreover the inclination of the same requires constant adjustment at every stage of the increase in the height of the temple. So it is fair to conclude that blocks of stone were carried to building site by carts drawn by elephants.

if the building site is at a distance from the quarry site.

The next question is how the huge blocks of stone were lifted to great heights. It was not a problem for miniature temples or temples of small height. But it was definitely a problem for temples of moderate and soaring heights. In these cases, as said earlier, the temples were gradually buried under earth as they progressed in height. Small blocks were lifted manually. The temple was buried in such a manner that a winding path is created around the temple. The path was spacious enough to allow the cart to pass. It is easier to drag the cart on that path than on a straight inclined ramp as suggested by some scholars. Small blocks were lifted manually to the required height.53

After placing the stones in position outlines of the carvings were drawn. On some of the temples where carvings have not been completed the outlines are still discernable.

53. A sculptured panel fixed to a late temple in Puri depicts a scene of temple construction. It shows an inclined wooden plane, the lower part of which resting on the ground and the raised part on three wooden posts. One block of stone is being dragged across the plane by four persons. (N. K. Bose, "A Temple under construction", Journal of the Indian society for Oriental Art, XII, 1945). But this method does not seem to be a convenient one since the wooden plane would necessitate a constant adjustment at every stage of the increase in the height of the temple.
Secondly, sometimes a particular sculpture covers different blocks and it is due to the carvings on the body of the structure itself. After the completion of the vimāna, the mukhaśāla was constructed in the same manner.54

It is most unfortunate that the craftsmen responsible for the construction of the temples did not care to leave their names on record. Even the greatest of the temples of our period, the Lingarāja remains anonymous. Vidya Dahejia55 finds its answer in the ancient Indian concept of art as a craft. Art was considered as a hereditary vocation. It was learned and pursued like any other profession. The architects and sculptors of an area formed a guild56 and the services of the guild were requisitioned for the construction of the temples. Therefore the members of the guild were collectively responsible for the construction which did not warrant any name or names to be placed on

54. Dr. Panigrahi attributes the discrepancies at the point of the juncture of the vimāna and the mukhaśāla to the practice of adding the latter after the completion of the former. (K. C. Panigrahi, Op. cit., pp.66-67). We have already explained the cause of the unsatisfactory joining of the two structures.

55. V. Dahejia, Early Stone Temples of Orissa, p.20.

56. Ibid.
There is a kernel truth in the legend of Dharmapada which is very popular in Orissa. According to this legend, king Narasiṃha Deva requisitioned the services of about twelve hundred craftsmen for the construction of the splendid Sun temple at Konark. They worked for long twelve years but the task of placing the finial on the top baffled them for which the temple could not be completed. At last one Dharmapada, the son of a member of the team named Visu Mahāraṇa succeeded in doing so. The team of craftsmen apprehended that the credit of completing the work of construction would definitely go to Dharmapada. They also apprehended the wrath of the king for their failure. Therefore they urged his father to see that their prestige did not suffer because of his son. In order to pay respect to the wishes of the craftsmen Dharmapada finally decided to put an end to his life which he accomplished by throwing himself into the sea.

It is clear from the above story that individual credit was not recognised. Dharmapada could do what twelve hundred other craftsmen failed to do. It was in the fitness of the thing that Dharmapada was acclaimed as the most eminent architect. But he was denied that credit since the temple was the product of a team work. All the craftsmen contributed to the completion of the temple. Therefore the merit of a
single craftsman or some of the craftsmen did not count. This is the reason why the mention of the names of craftsmen including the master-craftsman had been avoided.

Similarly the names of the persons who caused the construction of temples had remained anonymous in most cases. Kings, members of the royal family and the rich built the temples for the purpose of acquiring religious merit and also made arrangements for the maintenance of the same. About some of the temples of the Somavamsi period we find the names of the builders from the epigraphic records.\footnote{57} Thereafter the practice became more frequent. But it is completely absent in the pre-Somavamsi period. In the present state of our knowledge no satisfactory answer is possible for the lack of interest on the part of the builders to record their names.

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\footnote{57. The names of the builder of a temple called Brahmeswara is known from the inscription.}