

© Padmaja Satapathy

7. Panchayatana Temples In Odisha: A Case Study On Bramhesvara Temple Of Bhubaneswar

Padmaja Satapathy

Assistant Professor in History (Guest Faculty), Central Sanskrit University, Puri, Odisha

padmaja.archaeology@gmail.com

Abstract

The present study examines the architectural significance of the Panchayatana temple tradition in Odisha through a detailed case study of the Brahmesvara Temple at Bhubaneswar. Situating the temple within the broader evolution of Kalinga architecture, the paper traces the stylistic maturity achieved during the Somavamsi period. Built around A.D. 1058 by Kolavati Devi, the temple represents a fully developed Odishan Nagara form characterized by a pañca-ratha plan, elaborately ornamented bada and gandi, and a well-proportioned jagamohana. The research analyses structural components such as the pabhaga, jangha, baranda, and superstructure, highlighting the increasing emphasis on decorative elaboration rather than structural innovation. Special attention is given to sculptural programs, including dikpalas, alasa-kanyas, mithuna imagery, and Tantric motifs, which together reflect the religious, cultural, and socio-aesthetic milieu of medieval Odisha. The subsidiary shrines reinforce the Panchayatana layout and demonstrate continuity in design principles. The study concludes that the Brahmesvara Temple marks a decisive stage in the smooth and uninterrupted development of Odishan temple architecture, bridging earlier experiments and later monumental achievements. It thus serves as a key monument for understanding the regional adaptation and maturation of the Nagara temple tradition.

Keywords: *Panchayatana Temple, Brahmesvara Temple, Kalinga Architecture, Somavamsi Period, Odishan Temple Art*

Temple architecture of high standard developed in almost all regions during ancient India. The distinct architectural style of temple construction in different parts was a result of geographical, climatic, ethnic, racial, historical and linguistic diversities. Ancient Indian temples are classified in three broad types. This classification is based on different architectural styles, employed in the construction of the temples. Three main style of temple architecture are the Nagara or the Northern

www.theresearchers.asia

© **Padmaja Satapathy**

style, the Dravida or the Southern style and the Vesara or Mixed style. But at the same time, there are also some regional styles of Odisha, Bengal, Kerala and the Himalayan areas¹.

Kalinga style having three specific types of temples prospered in Odisha and Northern Andhra Pradesh. The three styles are Pidha Deula, Rekha Deula and Khakhara Deula with the first two linked with Shiva, Surya and Vishnu and the latter is predominantly associated with Goddesses Durga and Chamunda. Again the first type comprises of outer halls for offerings and dancing while the latter two comprise of the sanctum sanctorum. The word Deula means temple. The famous Jagannath Temple of Puri and Lingaraj Temple of Bhubaneswar portray Rekha Deula style while Vaital Deula of Bhubaneswar typifies Khakhara Deula and the Sun Temple at Konark remains a prominent example of Pidha Deula².

Panchayatana Temples in Odisha :

Among certain Panchayatana Temple's of Odisha are Bramhesvara temple, Muktesvara and Chitrakarini temple in Bhubaneswar, Somanath temple ghoradia at Puri, Manikesvara siva temple in the village of Suklesvara in Mahanga Police station area Cuttack district, Chainesvara Siva temple in Kundesvar on the Bank of the river Alaka in Jagatsingpur area of Cuttack district, is famous for the Trilochanesvara Mahadeva temple, Angesvara Mahadeva temple at Pitapara situated on the Bank of Prachi river near village Madhava in Govindapur Policestation area of Cuttack dist, Kanakesvara temple of Kualo near Talcher, the Panchupandava Vishnu Mandira of Jaluka in Cuttack dist, Twin temple Gandharadi Baudh and some new discovery like, Bajrakot at Dhenkanal ,Kishor pur (Betanati) and Banesvaranasi³.

Brahmesvara Temple

Brahmesvara temple is located on the outskirts of Bhubaneswar midway between the Rajarani and Meghesvara temples. It is of the pancayatana class with subsidiary shrines erected at the four corners of the compound. According to the inscription the temple, along with four Charu-sala temples, was built by Kolavati devi, mother of the Somavamsi king Uddyota-kesari, in the latter's eighteenth regnal year at a place known as Siddha-tirtha in Ekamra (Bhubaneswar)⁴. This would place the date of construction in about A.D. 1058. With the Brahmesvara the Odishan temple reaches its mature form. The architectural activities were more concerned with elaboration than with innovation. The pidha roof of the jagamohana is crowned by a complete mastaka, rather than just a kalasa, and iron beams

© **Padmaja Satapathy**

have been used as joists above the corbelled arches to help support the flag stones and the increasing weight of the *gandi*⁵.

Bada Decoration

The *deul* rises abruptly from the ground level, without a *pitha* or platform, to a height of about 60 feet. The *bada* is *panca-ratha* in design and measures 20 feet from corner to corner with the *rahas* each projecting out an additional 34 inches. The *pabhaga* is 16 inches high and consists of five mouldings of the standard design. A vertical bar, divided into two tiers by the pointed *kani* moulding and relieved with single figures superimposed one above the other⁶, joins the *patta* with the crowning *vasanta* moulding. The *vasanta* is flat on top, as on the *Muktesvara*, rather than being capped with a sloping crown as on the *Rajarani*. The *campaka-leaf* on the *kumbha* continues this vertical line and joins with a bell-shaped *kirita* on the *khura* moulding. The *tala-garbhika* beneath the *raha-paga* niche duplicates the *pabhaga* design with the center division flanked by narrow *stambhas*. The *stambhas* are flat and relieved with the circular *vartula* scroll motif crowned by a female figure at the top. The overall design is very flat and contrasts greatly with the *khakhara-mundi* with multiple offsets and *naga-stambhas* carved on the *Rajarani*⁷.

The *jangha* is divided into two stories by a *madhya-bandhana* consisting of a broad, *khura*-shaped moulding relieved with scrollwork on its vertical face and a diminutive figure on the center facet of its sloping upper surface⁸. The *kanika* and *anartha pagas* are identical in design. The lower story of both *pagas* is designed as a *khakhara-mundi* and the upper story as a *pidha-mundi*, an arrangement which becomes standard on most later temples though the crowning *vimanika*, particularly in the *khakhara-mundi*, will vary in design. Here the *vimanika* of the *khakhara-mundi* consists of five mouldings, diminishing in size, with an elaborate *vajra-mastaka* carved on the center facet of the lower four mouldings. This *vajra-mastaka*, generally of the *bho*-type with flanking figures, is a residual carry over from the standard *vajra-mundi* designs on earlier temples now being transformed into *khakhara-mundis*. The *vimanikas* of the *pidha-mundis* of the upper story consist of three *pidha*-mouldings of diminishing size crowned by an *amalaka*. The *mundis* are all *tri-ratha* in plan with the niches of the *pidha-mundis* housing primarily *alasa-kanyās*, female musicians, or *mithuna* images. The niches are framed by scrollwork. On the *khakhara-mundis* of the lower story. This alignment of three figures on the *paga* deviates from the standard practice of isolating figures by scrollwork and suggests Central Indian influence, though the Odishan images are housed in niches and not carved in high-relief one

© **Padmaja Satapathy**

next to the other. The center niches on the kanikas house the dikpalas while those on the anartha house various aspects of Siva. The lateral projections facing outward on these mundis also contain a narrow niche which houses generally a female figure, either an alasa-kanyā or in a few examples a deity⁹.

The anuraha recesses begin above the pabbaga and are not cloaked in semi-darkness as on the Rajarani, where the multiple projections cast them in shadows, so that figures now play a more pronounced role in the overall decorative program. On the lower story these recesses are filled with virala motifs and on the upper story with alasa-kanyas. In size these figures are now larger than those housed in the wundis of the projecting *pagas* and set the trend whereby they will soon dominate the figure decoration of the temple walls.

The raha is now designed as a *pidha-mundi* truncated at the level of the second pidha in contrast to the truncated rekha design on the earliest temples. The niche is flanked by a flat pilaster on either side which support the pidha roof above¹⁰. The shaft of the pilasters is relieved with scrollwork and an overlaying alamba design near the top. The capitals are decorated with two superimposed shallow niches filled with mithunas, warriors or secular themes. The niche, measuring 18 by 30 inches, is framed by three narrow bands left plain except for a small inset on the lintel decorated with a small image of Sarasvati on the west while on both the north and south sides the figure is a seated Ganesa. A rectangular panel appears above the lintel, aligned with the top panels of the pilaster capitals, and is decorated with a siksadana motif of a guru instructing his disciples or the related motif of a royal figure surrounded by attendants. Similar scenes appear on the pilaster capitals of the lateral flanks. The roof consists of two pidha mouldings which extend to the height of the lowest baranda moulding. The top pidha serves as the base for the large anga-sikhara which dominates the *raha* of the gandi and obfuscates the baranda division on this *paga*. The overall design of the *raha* on the *bada* is thus single-storied in contrast to the two-story design of the side *pagas*. As with the side *pagas* there is a return to a flat treatment in keeping with indigenous traditions¹¹.

Gandi Decoration

The *baranda* is very large and effectively demarcates the *gandi* from the bada on the anartha and kanika *pagas*. It consists of three mouldings, a *khura* relieved with scrollwork on its *muhanti* or lower projecting edge and diminutive figures on the center facet of its sloping upper surface; a plain kani or pointed middle moulding; and a modified kumbha decorated with scrollwork. There is no baranda

© **Padmaja Satapathy**

division on the *raha* as its anga-sikhara springs directly from the roof of the projecting *pidha* covering the *parsva-devata* niche.

The *gandi* is *panca-ratha* in design and aligned with the *pagas* of the *bada* even though the *anuraha*-recesses have been eliminated. This vertical alignment is achieved by extending the width of the *kanika* so that it incorporates the space assumed by the recess on the *bada*. The *kanika* is divided into five *bhumis* as on the earliest Odishan temples though there is an additional *barandi* or moulding to each *bhumi* which increases the overall height of the *gandi* so that the squatness characteristic of these earlier temples is eliminated. The first *bhumi* of the *anartha* and *kanika* is decorated with an *anga-sikhara* which is flattened and completely assimilated with the indigenous decorative program and the continuous contour of the *gandi*. The *anga-sikharas* are aligned with the *pagas* and effectively separated from the *bada* by the *baranda* so they do not visually serve as the terminus for the lower *paga* divisions as on the *Ekambaresvara*, *Dakra-Bhimesvara* and *Rajarani* temples¹².

The *ariga-sikhara* carved on the base of the *raha*, as indicated, springs directly from the *pidha* roof of the *bada* design, thus obfuscating the *baranda*, and extends half-way up the second *bhumi*. It is thus larger than those on the side *pagas* and is more ornate in decoration. It is likewise *pañca-ratha* in plan and houses a diminutive *parsva-devata* in the niche of its *jangha*. Above the *pidha* roof of the *parsva-devata* is a small *vajra-mastaka*. The *gandi* of this *anga-sikhara* is divided into five *bhumis* and crowned by an *amalaka* with surmounting *kalasa*. The *caitya* of the motif is bell-shaped and flanked by *ganas*. The *kirtimukha* mask at the apex serves as a platform which projects out sharply to interrupt the silhouette of the *gandi*¹³.

The overall design of the *gandi*, with a row of flattened *anga-sikharas* aligned horizontally at its base but contained within the vertical *paga* divisions, serves as a harbinger for one of the two major solutions for integrating *anga-sikharas* into the overall plan without disrupting the vertical thrust of the individual *pagas* from the base of the *deul* to the *bisama*. Also setting the trend for later temples is the wider *kanika*, the increased size of the projecting *udyata* lions and the placement of two *vajra-mastaka* designs on each face of the *gandi*. The increased height in the *gandi*, with the silhouette bending in sharply near the top, also serves as a model for later temples. Though the temple rises to a height of 60 feet, nearly 20 feet higher than the *gandi* of the *Parasuramesvara*, the measurements at the base of the *deul* are nearly identical, the *Brahmesvara* being only 6 inches larger than the earlier temple¹⁴.

© Padmaja Satapathy

Jagamohana

The jagamohana is panca-ratha in design and measures approximately 29 feet square at the base. The pabhaga is 45 inches high and consists of five mouldings as on, the deul though they are generally devoid of decoration. The kanika and anartha are identical in design and consist of khakhara-mundis with a bho motif carved on the vimanika above the niche as on the lower janghaof the *deul*. Dikpalas likewise appear on the kanikas though they are not flanked by attendant figures, the framing elements of the niche being left plain. Various deities, including Gandharadi Siva Ardhanarisvara, appear in the few anartha niches remaining intact. The recesses between the mundis are filled with a virala motif surmounted by female figures or a mithuna, the two-storied design of the recesses on the deul being reduced to a single story similar to examples on temples from Central India. The baranda consists of a single broad moulding relieved with an animal frieze on its lower edge and lotus petals on its sloping upper surface¹⁵.

The pidba mouldings of the roof are arranged in a continuous succession without a break as on the Muktesvara and Rajarani. The crowning mastaka contains all of the components of a full-fledged design-a beki, ghanṭā, amla-beki, amalaka, khapuri and kalasa. Although there are no beki-bhairavas, as on the Lingaraja, there is an udyatā lion seated on the top pidha above the entrance on the east. The ceiling of the jagamohana is decorated but not as elaborately as the ceiling of the Muktesvara. The top slab sealing the interior is shaped like an inverted lotus with naga figures at the corners. The lowest course of the ceiling is relieved with a procession of armed infantry, calvary and elephants while the middle one is decorated with numerous scenes of processions and various motifs such as linga-puja. The upper of the three courses is relieved with broad lotus petals barely visible in the dark interior¹⁶. The entrance portal on the east projects out 36 inches from the wall, some 30 inches more than the gevaksa designs and 20 inches more than the sandhi-sthala, and is covered by a pidha roof of five mouldings with crowning amalaka that obscures the lower vajra-mastaka design of the east pediment which is flanked on either side by a miniature rekha-deul rather than a pidha-mundi. The design is surmounted by a small pidha roof with an uncarved panel overlaying its mouldings and a seated lion above its amalaka at the level of the beki.

Portal Decoration

The navagrah slab over the entrance portal on the jagamobana is more ornately carved than on the Rajarani with each graha housed in a miniature pidha-mundi rather than a simple arched niche. The

© **Padmaja Satapathy**

grahas are flanked at the ends by an additional niche which enshrines a mithuna. The pilasters supporting the navagraha are left plain. The door is framed by three jambs decorated with the standard kutila, gelaba and jalapatra scroll motifs. Gaja-Laksmi is carved on the dvara-lalāṭa-bimba panel over the door. The elephants are highly stylized and stand on lotus roundels rather than flattened cushions. A vartula scroll motif is added at the top of the lintel above a padma-pheni. A nandavarta appears beneath the door flanked on each side by a mithuna carved above an abbreviated pabbaga design. The panel beneath the dvarapale niches is decorated with a double gaja-kranta motif depicted frontally, reminding one of the triple motif carved on the base of the flanking naga-stambhas on the Rajarani, rather than a single lion monster as on temples from the early Somavamsi period. The dvarapalas are two armed and hold the trident in their right hand as on the Rijarini. The roof of the niche is likewise surmounted by an ornate kirita design though, its caitya is bell-shaped and flanked by female figures duplicating the vajra-mastaka designs on the gandi.

The decoration of the sanctum doorframe is similar though the padma-pheni and vartula scrollwork continue down the sides to the floor making five bands in all framing the door. The double gaja-kranta motif beneath the dvarapala niche is replaced by a single motif carved in profile. Flanking atlantid dwarfs are carved on the sides of the nandavarta. A Nandi is placed in the jagamohana facing the enshrined *linga*¹⁷.

Cult Images

Although the raha niches are now empty there are diminutive parsva-devatas in the niche of the anga-sikharas at the base of the gandi. Karttikeya and Parvati are both four-armed and assume a standing pose whereas Ganesa is represented dancing, one of the earliest surviving examples of Ganesa in this mode at Bhubaneswar though it was popular elsewhere in Odisha. All of the dikpala: on the deul are in situ, forming part of the wall itself rather than being carved from a single block as probably were the parsva-devatas, each seated in lalitasana on their respective vehicles. Their hair is piled up in a tall tiara and a trefoil-shaped arch appears on the back-slab of several of the figures. Except for Isana the niches flanking the dikpala are filled with female attendants, those flanking Isana being filled with scrollwork. On the jagamohana six of the dikpalas have survived intact so that for the first time two sets of dikpalas have survived from a single temple. Indra is missing from the jagamohana while only the lower portion of Varuna, seated on his makara, remains in situ. These dikpalas are also seated in lalitasana on their respective mounts though they do not have flanking niches and because of their

© Padmaja Satapathy

larger size, the *jangha* being only a single story, appear more monumental. Diminutive flying *vidyadharas* appear in the upper corners of the niche and a trefoil-shaped arch appears behind all of the *dikpalas* except for *Agni* who is surrounded by a mandorla of flames¹⁸.

Female Figures

Although the *alasa-kanyas* are replaced on the lower *anartha* by specific deities, primarily various aspects of *Siva*, the image of woman still plays a major role in the overall decorative program of the temple. The most prominent female images are the *alasa-kanyās* in the *anuraha* recesses of the upper *jangha*, on the lateral projections of the *paga* designs and on the balusters filling the *gavaksa* windows of the *jagamohana*. In addition she appears in the *anuraha* recesses of the *jagamohana*, in the niches flanking the *dikpalas* and deities of the lower *jangha*, as partners in *mithuna* motifs of the upper *jangha*, and flanking the *kirita* designs of *bho* motifs and in the *tala-garbhika* and *khura* mouldings of the *pabhaga*. Included among the standard motifs is the ubiquitous woman in a doorway, the *darpana* motif of looking into a mirror, the motif of a monkey tugging at her garments, the woman nursing a child seated on her thigh, the *dalamalika* motif of garlanding herself with a branch, *salabhanjika* motifs of embracing a tree and the *sukasrika* motif of playing with a parrot or *maina* bird. There are also numerous motifs of Tantric inspiration such as drinking from a *kapala* or holding a severed head¹⁹.

Erotic Imagery

Mithuna motifs appear on the upper *jangha* of the *deul*, in the recesses on the *jagamohana*, flanking the *navagraha*, on the lateral flanks of the projecting *mundi* designs and in the *vajra-mundis* superimposed up the height of the *anartha* on the *gandi*. For the most part these images are quite chaste, the partners generally placing an arm around their partner in a show of gentle affection or in some cases the female plays a musical instrument in the presence of an enraptured male. There are less innocent themes, however, including a rather curious scene in which a nearly prostrate female figure bows before a standing male figure fondling his erect *lingam*. Also present is the *yoniabhiseka* motif of a female at her toilet preparing herself for a Tantric ritual with the help of a diminutive attendant who is grooming her *yoni*. The *pabhaga* is replete with erotic imagery, though diminutive in scale, including numerous scenes of auspicious exhibitionism. Generally there is an obvious attempt to juxtapose male and female figures, as on the vertical panels joining the *patta* and *vasanta* mouldings, so that an auspicious “pair” is represented.

© **Padmaja Satapathy**

The most explicit erotic imagery appears on the walls of the four minor shrines at the corners of the compound. In contrast to the intimacy and tenderness exhibited by the partners in earlier mithuna maithuna scenes, the tenor here is more aggressive with the figures seemingly engaged in combat. In numerous examples there is an obvious suggestion of dominance, the male lifting up his right arm in a threatening gesture while forcing the kneeling female to submit, his left hand holding her head down. The placement of erotic imagery in the major niches of these small shrines, virtually elevating their activity to a cult status, reflects the religious beliefs of the Somavamsis who extol the pursuit of love in their copper-plate grants as mentioned earlier and in addition testifies to the increasingly secularized nature of the decorative program²⁰.

Decorative Motifs

This secularization is also evident in the elevation of the siksadana motif of a guru dispensing instructions to his disciples to a more dominant position on the temple. On the Muktesvara and Rajarani temples the motif was small in scale and placed in subordinate positions, generally on the pabhaga or high up on the gandi where it was difficult to perceive. On the Brahmesvara, however, the motif appears above the parsva-devata niches and in the gavaksa-mandana, two of the most conspicuous positions on the temple. The guru is generally seated on a low couch with one knee upraised and a cushion behind his back. He is bearded and accompanied by attendants in addition to the disciples facing him. On later temples this motif, representing the jnana-marga or path of knowledge," becomes standard decoration for the gavaksa-mandana though it is frequently replaced by the related motif of a Raja with his army or ministers. Also popular, as on the Rajarani, are images of warriors which appear both on the exterior of the temple and on the friezes running around the interior of the *jagamohana*²⁰.

The most interesting decorative motif which appears almost everywhere on the temple is the stylized bho-type vajra-mastaka. The most favored placement for the motif is on the vimanika of the khakhara-mundis, on the roof of the dvarapala niches of the doorframes and on the gandi. The motif is extremely varied in treatment and the caityas may be bell-shaped or consist of two superimposed medallions. The wings are arabesque in design and support flanking female figures some of whom hold stringed-bows. The motif is generally surmounted by a kirtimukha mask or lotus design. A related motif is the kiriṭa carved on the khura moulding of the pabhaga beneath the campaka-leaf. It is generally a bell-shaped crest with a bell hanging from above and houses a standing female figure²¹.

© **Padmaja Satapathy**

The most popular scroll motifs are the vana-lata with overlaying alamba designs and the circular vartula motif. The vana-lata is deeply undercut with convex and concave curves and normally appears on the horizontal mouldings of the pabhaga and on the pilasters flanking the raha niche. It also appears on the base of the aniga-sikhara above the raha niche where it completely frames the diminutive parsva-devata images. The circular sprays of the vartula are filled with various animals. The *scroll* appears over the gavaksa window, above the lintel of the entrance portal, on the tala-*garbhika* beneath the *raha* niche and on the vertical band overlaying the horizontal mouldings of the *kanika* on the *gandi*²².

Subsidiary Shrines

The subsidiary shrines at the four corners of the compound are small duplicates of the major shrine though without a *jagamohana*. In general the stone employed is of an inferior quality and most of the imagery is badly eroded. The bada is panca-ratha in plan and measures 9 feet 4 inches square. The pabhaga, 27 inches high, consists of five mouldings which are mostly devoid of ornamentation except for the campaka-leaf. The jangha is divided into two stories, each 29 inches high, by a single broad moulding. The *pagas* are designed as khakhara-mundis on the lower story and as pidha-mundis on the upper story. The dikpalas are housed in the mundi niches of the lower kanika while the anartha niches contain various deities including an example of the Dadhi-manthana motif of Krisna stealing curds. The niches of the upper jangha are filled primarily with mithunas, warriors or rsis. The anuraha recesses contain the virala and alasa-kanya motifs as on the main shrine. A jagrata is placed on the sides of the entrance as on the Muktesvara temple. The raha is similar to that on the major shrine though there is only one crowning pidha above the niche. The second pidha is replaced by a small upper niche to produce a two-story design²³.

The *gandi* is devoid of decoration except for the vajra-mastaka motifs which spring directly from the top of the upper niche of the raha and thus obfuscate the baranda division of the side *pagas*. The motif consists of a stylized caitya flanked by a female figure on either side. The projecting udyata lions above the design are mostly missing. The design over the roof of the entrance is more ornate and duplicates the pediment designs crowning the gavaksa projections on the jagamohana though the flanking miniature shrines are khakhara-mundis. The center niche is crowned by a bho and a springing

© **Padmaja Satapathy**

udyata lion. On one of the shrines the niche contains a Natta-Ganapati. The doorframes duplicate the design of the sanctum door with a single gaja-kranta carved in profile beneath the dvarapala niches.

The compound wall is pierced by two gates, one on the east and one on the north. The exterior walls are divided into pabhaga, jangha and baranda but are otherwise devoid of ornamentation. The only completed decoration appears on the east entrance where the dvarapalas are housed in vajra-mundis and an image of Gaja-Laksmi is carved on the lintel. This entrance, little used today, leads to a tank, known as Brahma-kunda, which is mostly dried up. North of the temple, just beyond the northern gate, are two rekha-temples devoid of decoration except for their vajra-mastaka and projecting udayata lion²⁴.

The study of the Odishan Temple, one of the most distinct variations of the Nagara style of temple construction is a rewarding factor, mostly due to the fact that there existance a continuous series of monuments spanning over a period of nearly seven hundred years of architectural activity. Odisha seems to be an exception to the other parts of India in the sense that its temple architecture shows a smooth and continuous development that appears to precede regard less of the vicissitudes of the various ruling families. It reveals an uninterrupted continuity from its start around 600A.D to its culmination in the 10th Century A.D at the temple Mukteswar and further on through the mature temples to its climax at the great Sun temple of Konark.

References

1. Behera, K.S,. Temples of Orissa, Orissa Sahitya Akademi, Bhubaneswar, 1993.
2. -----, "Konark, The Heritage of Mankind, Vol-II, New Delhi, 1996".
3. Bose, N.K. Cannons of Orissan Architecture, Calcutta, 1932.
4. D.Champati, Rathipur Kataka, Era Aitihāsika Adhyayana (Oriya).
5. Das, D.R. Temples of Orissa, New Delhi, 1982.
6. Dahejia, V. Early Stone Temples of Orissa, New Delhi, 1979.
7. Deva. Krishna. Temples of North India, National Book Trust of India, New Delhi, 1969.
8. Donaldson, Thomas. E. Hindu Temple Art of Orissa, Vol. II & III, E.J. Brill Leiden, 1985, 1986, 1987.
9. Ibid.
10. Ibid.



© **Padmaja Satapathy**

11. Ibid.
12. Ibid.
13. Ibid.
14. Ibid.
15. Ibid
16. Ibid.
17. Fabri, C.L. , An Introduction to Indian Architecture, Bombay, 1963.
18. Fergusson, J. History of the Indian and Eastern Architecture, London, 1875.
19. Ganguly, M.M., Orissa and Her Remains, Calcutta, 1912.
20. Kramrish. S, Hindu Temples, Two Volumes, Calcutta, 1946.
21. Mitra, R.L., The Antiquities of Orissa, Two Volumes, Calcutta, 1875.
22. Mazumdar, B.C. , Orissa in the Making, Calcutta, 1925.
23. Parida, A.N., Early Temples of Orissa, New Delhi, 1999.
24. Sahu, N.K., Utkal University History of Orissa, Vol-I, Bhubaneswar, 1964.