STUDY OF COLUMNS IN HINDU ARCHITECTURE

Rashmi Gothi

STUDY OF COLUMNS IN HINDU ARCHITECTURE

SPECIAL PROJECT

GUIDE: PROF K. TRIVEDI

RASHMI GOTHI
876105

APPROVAL SHEET

The Special Project entitled

'Study of Columns in Hindu Architecture'

by

Rashmi Gothi

is approved for the partial fulfilment of the requirements for the degree of Master of Design in Industrial Design.

Guide

11.4.1989

Industrial Design Centre
Indian Institute of Technology
Bombay 400 076

April 1989

INTRODUCTION
METHOD OF CONSTRUCTION
PARTS OF THE HINDU COLUMN
DERIVATION OF BASIC FORM
EVOLUTION OF FORMS
SIGNIFICANCE OF YUPA
EXAMPLES

If we were to observe all the columns that exist in Hindu Architecture lined up in one long row, we would be overawed by the countless forms their outlines define, fascinated by the range and complexity of motifs that adorn their narrow surfaces, and confused, as our minds would attempt to segregate, find connections so as to absorb the essence of these unique structures.The richness of motifs and forms is exemplified on the one hand by the surrounding structure which offers an immediate context and also by the fact that the information these forms communicate is at varying levels of obvious and symbolic.The variations arise not from a mere jugglery of shapes and images, but from a well worked out predetermined form principle. The perfection of form here does not mean a display of physical beauty, but the adequacy of compositional outplay to the significance and inner meaning of the image.

In Hindu symbology, the straight is considered active and dynamic. It penetrates, cuts,divides and disrupts. The movement of the straight line runs into infinite space. It is bodyless and limitless. The forms predominantly in the vertical axis are regarded in the nature of fire and stand for divine aspirations, illumination and are imagined to rise upwards, raising the spirit of the beholder towards a vision of divine truth.

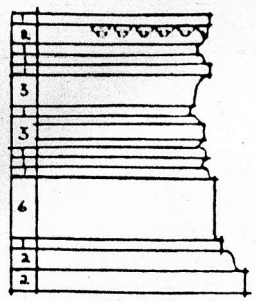
Hence the column is accorded great importance in Hindu Architecture, symbolising as it does, a structure that was built to transcend the space and time in which it was erected.

METHOD OF CONSTRUCTION

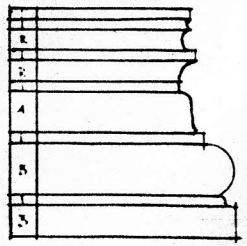
As mentioned, the complexity of construction, and evolution of forms would not have been possible if it were not for the existence of some basic ground rules or principles. Just as the temple plans were based on **vāstū-maṇḍalas** (basic diagrams or grids through which temple plans were generated), so also there exist compositional diagrams for form generation. These are called **pañjaras** comprising vertical, horizontal and diagonal lines. These diagrams give the meaning of lines, the importance of setting the image or form along various lines and thus act as grids for deriving forms of making images.

Vertical lines or fire lines produce upright forms which convey a feeling of elevation. Horizontal or water lines express a feeling of fluidity and longing. Diagonal or wind lines are fiery and energetic and are used for the purpose of creating a terrifying form.

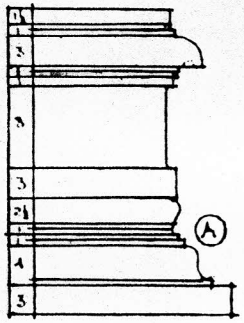
Thus the **sthāpaka** (architect or sculptor) based his composition of form within the framework of the **pañjaras**. The panjara took on the function of a basic grammar within which the sthapāka was at liberty to improvise and innovate. These compositional diagrams gave him a holistic view of what he was to build and also how it should function in consonance with the other elements of the temple structure.



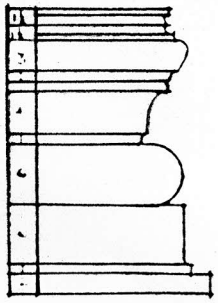
1. KUMUDA BANDHA



2. ŚRĪ BANDHA

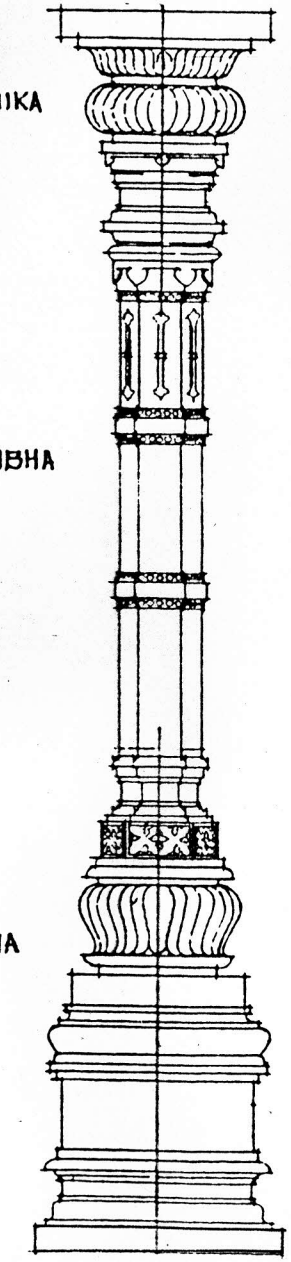


3. MAÑCHA BANDHA

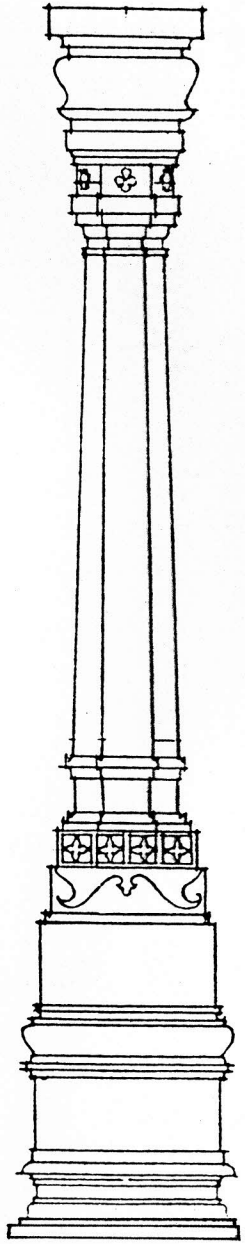


4. PADMA BANDHA

TYPES OF ADHISHTANA



KUMBHA STAMBHA



PADMA STAMBHA

PARTS OF THE HINDU COLUMN

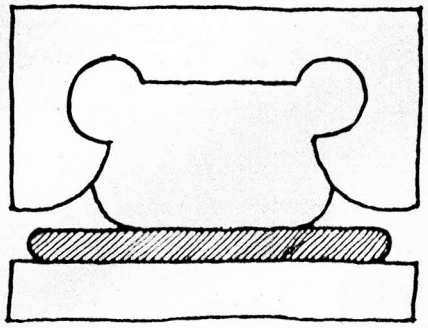
The location of the column in the temple plan is determined by the position as indicated in the vastu-mandalas. In isolation, the column comprises three basic elements with several subdivisions, numerous variations and classes of each of these elements. The three elements are:

a. **Adhishṭhāna** or base
b. **Stambha** or shaft
c. **Bodhika** or capital

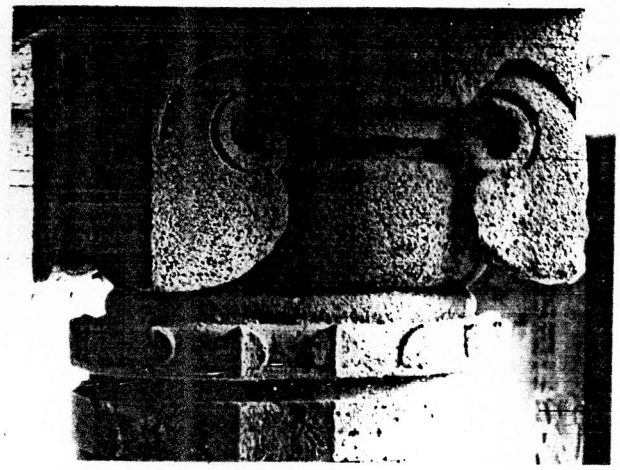
Starting from the bottom, is the adhishṭhāna of which there are nineteen types, with several subtypes of each. The classification is based on the form of the base and the type of mouldings used. Some examples are mentioned alongside.

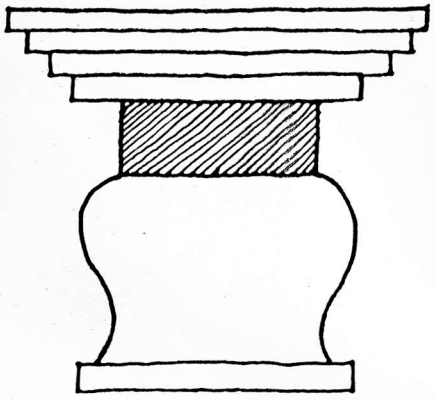
Similarly, the stambha or shaft of the column may have different shapes. Depending on these forms they are classified as shown.

The bodhikas or capitals also vary and are classified according to the motifs or forms used. They may take the shapes of **padma** (lotus), **kumbha** (pot).



1. INTRODUCTION OF MOULDING



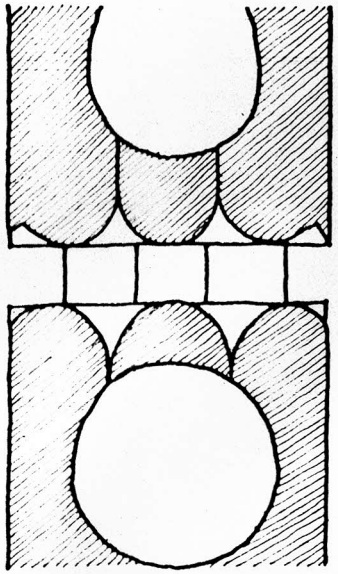


2. SHRINKAGE OF SUBSIDIARY FORM.

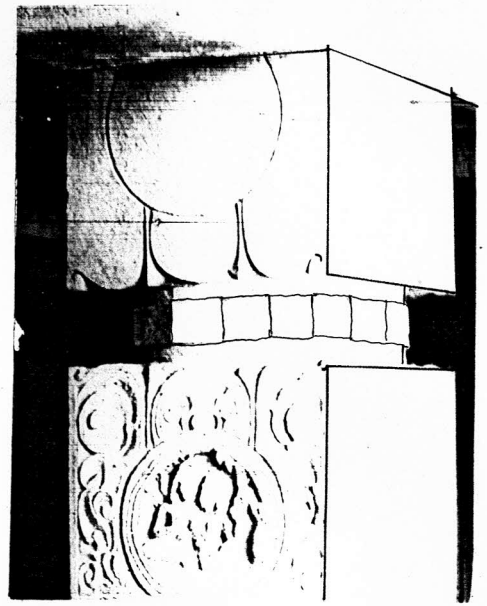
DERIVATION OF BASIC FORMS

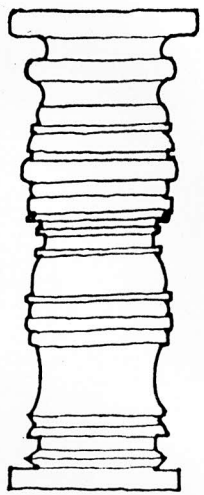
Since a large number of the columns are decorated in the form of motifs, religious figures, gods and god esses in relief, the underlying geometry of the column does not reveal itself in the first instance. In fact we can lay bare and extract the basic form or forms fo the pillars in order to create a large storehouse of information on how a form can be varied and treated along a surface. Through the study, it was observed that there are several ways in which form transitions take place along the column. These are:

1. Through introduction of a small moulding band at the point of transition of the two forms.
2. By a shrinkage or expansion of a subsidiary form that links the two main forms in question.
3. By incorporating a motif on either side of which the two forms end.
4. Through a gradual process of transition by layers of subsidiary forms or bands which culminate in a new form or move along the entire column height.
5. Through a simple placement or addition of one form over

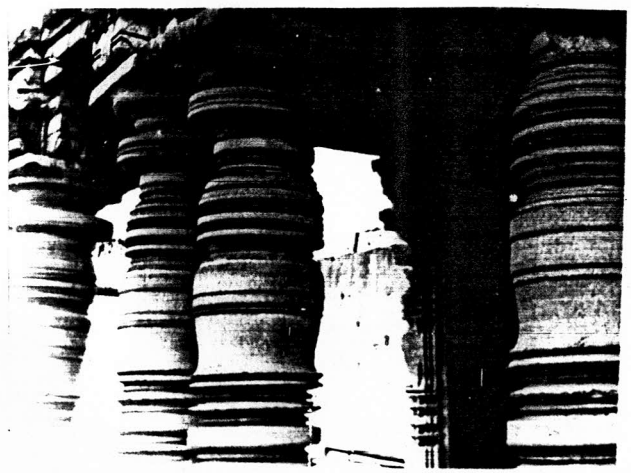


3. INTRODUCTION OF MOTIF





4. TRANSITION BY LAYERS



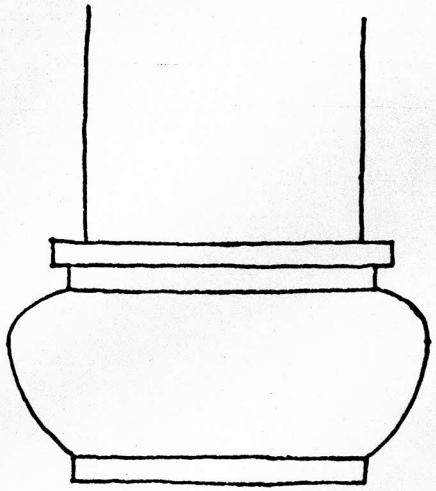
the other at the requisite height to achieve the desired effect.

6. By a simple multiplication of the number of sides at various intervals along the column length.

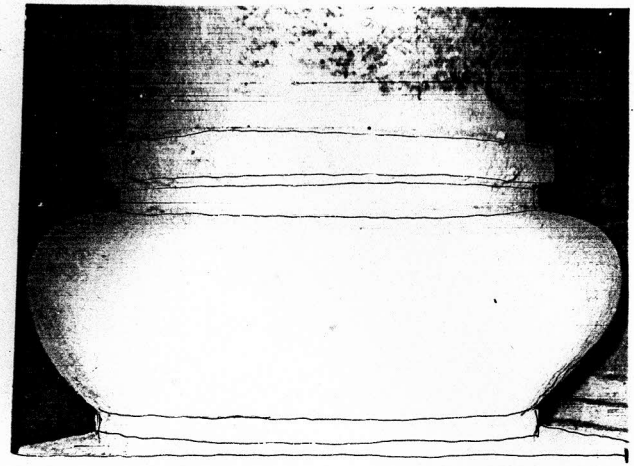
These aspects of form transitions are also responsible for imparting a dynamic quality to the structure of the column, since the forms are everchanging. Also along a single column length, the treatment on all the surfaces and sides is not the same. For instance, an octagonal column may exhibit panels on one surface and flutes on another. In this aspect it is unlike the modern column, where we can predict all surfaces even if only one is revealed.

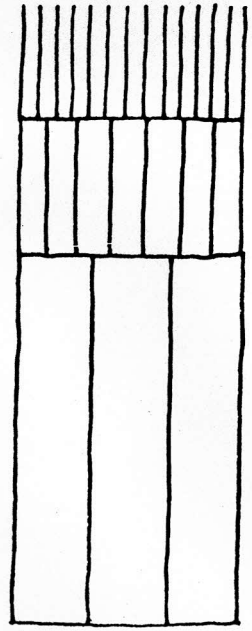
For the purpose of this study, several examples of columns were selected and grouped together on the basis of their external forms. Through these forms various parameters can be studied. These are:

1. Transition of forms
2. Comparision between weightage given to decorative elements, fluted areas and plain surfaces.
3. Differences in linear compositions arising from varying depths and widths of base forms, shaft and

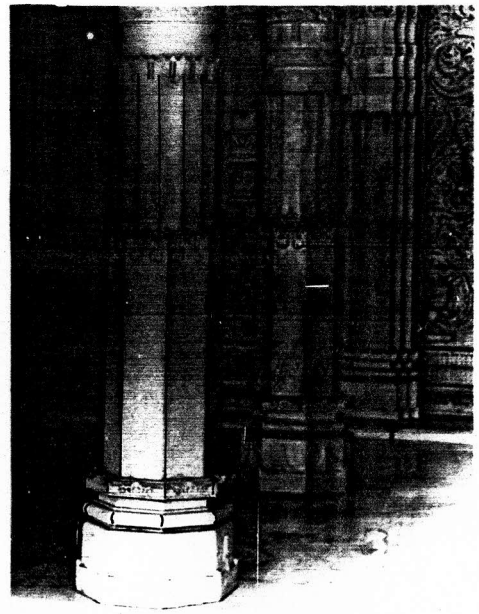


5. ADDITION OF DIFFERENT FORMS





6. MULTIPLICATION OF SIDES

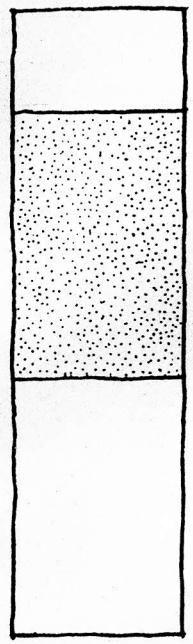


capital forms.

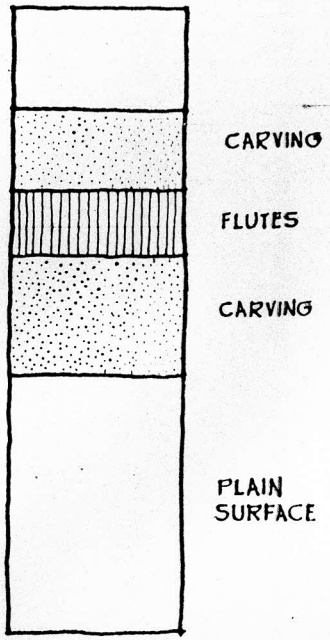
4. Origin and development of motifs.

Another interesting feature that comes to light through this study is the impact created when a large number of columns are viewed together. When repitition occurs, it serves to emphasise the direction created by the motifs and the forms of the columns as the viewer observes these from one end of the row. This can be seen at Karle caves where columns divide the nave from the aisle and act as direction givers in order to lead the viewer to the sacred dagoba at the end.

On the other hand, where the motifs and forms differ from pillar to pillar, as seen in the Kalleswara temple or Minakshi temple, it serves to enhance the feeling of awe and wonder that these spaces were meant to create.



1. BASIC FORM



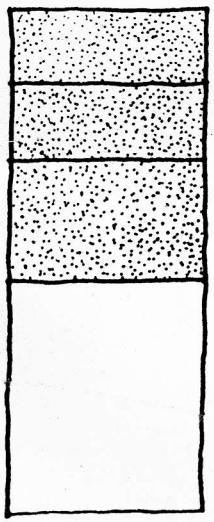
VARIATION

PILLAR IN CAVE 1, AJANTA

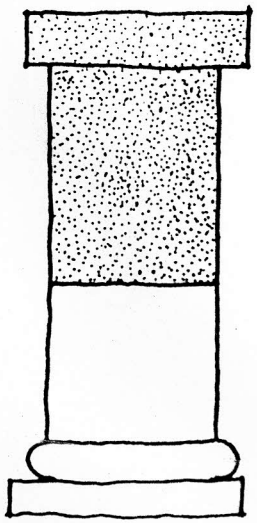
PILLAR AT GHAṆṬAŚÂLÂ

The following represent the basic forms and variations typical of each of the groups of columns that were classified and studied.

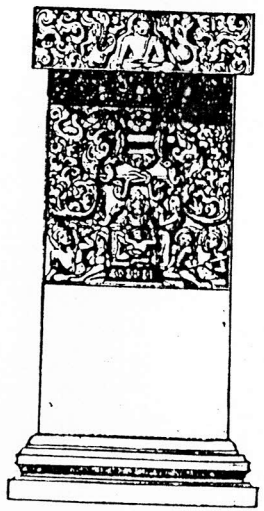
1. Simple square columns with decorative motifs, carvings and form changes restricted to central area belong to this group.



2. BASIC FORM

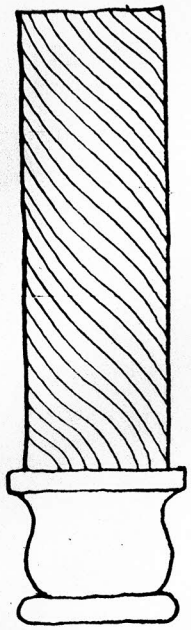


VARIATION



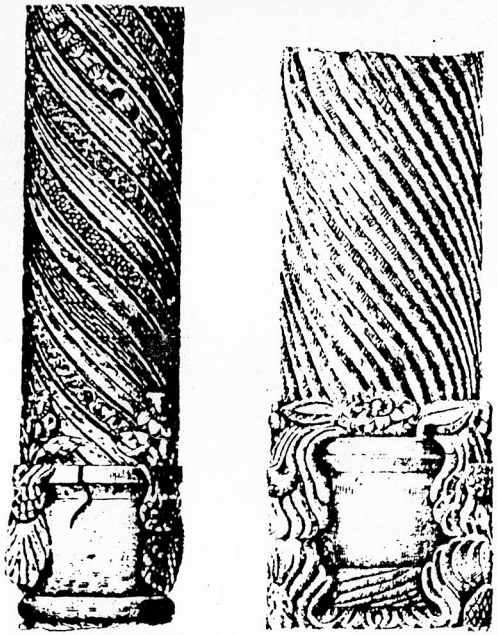
BRAHMANICAL PILLARS FROM DÂS AVATÂRA ELLORA

2. Simple square columns with decorative element on upper half. Harmony is achieved through simple division of decorative and plain surfaces. Another feature of this group is the continuous shaft, which remains unchanged from base to capital.



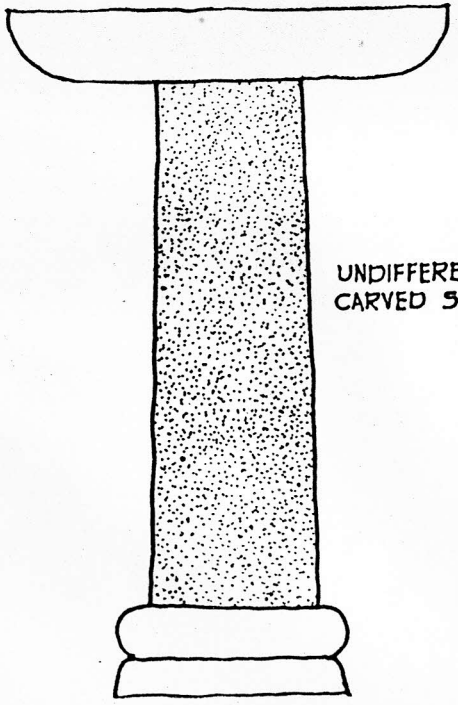
SPIRALS ALONG SHAFT LENGTH

3. BASIC FORM



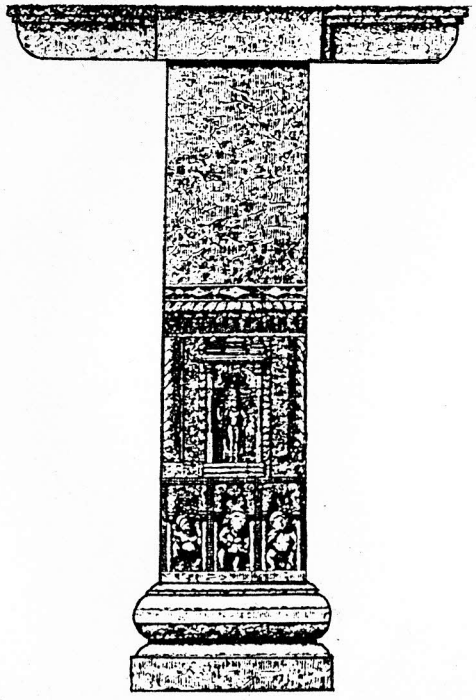
PILLARS AT KANKÂLÎ TÎLÂ, MATHURA

3. In this group of pillars, dynamism is achieved through upward moving spirals instead of the usual form changes.



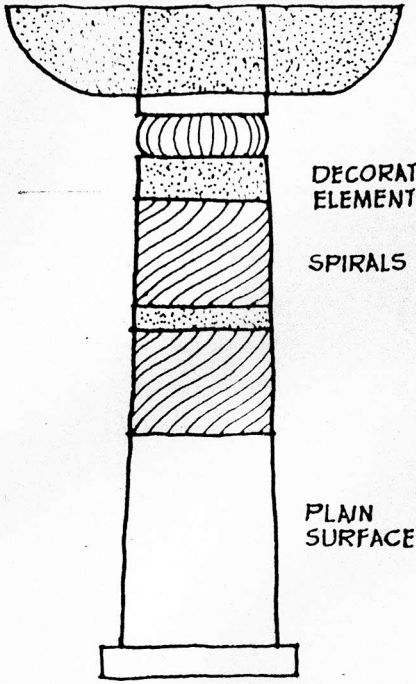
UNDIFFERENTIATED, CARVED SHAFT

4. BASIC FORM

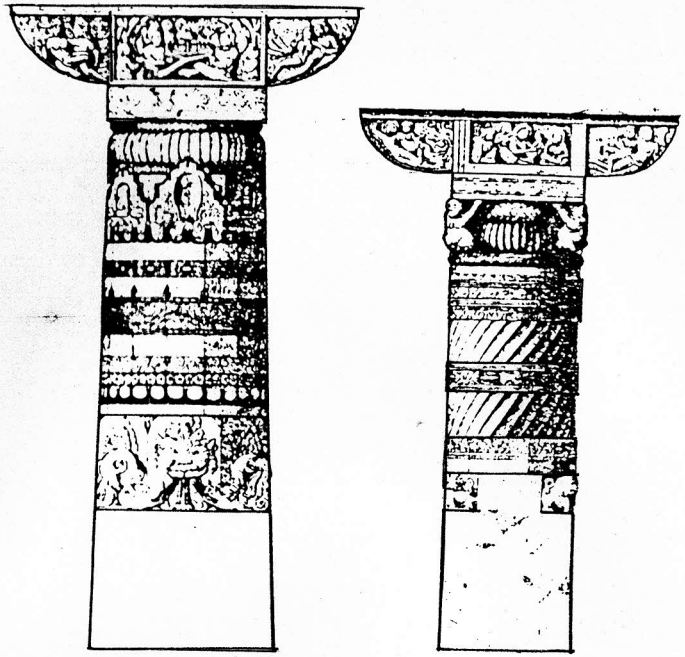


PILLAR AT KAILÂSA TEMPLE, ELLORA

4. Columns with carved and undifferentiated shaft length, large abacus above and moulded base, fall in this category. Base and abacus form are relatively devoid of decorative elements.

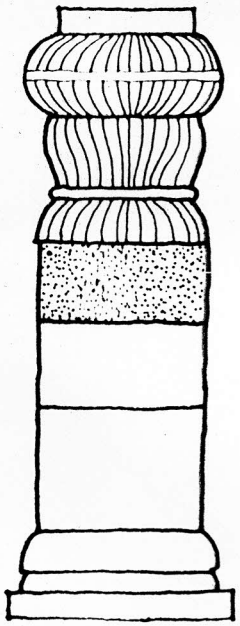


5. BASIC FORM

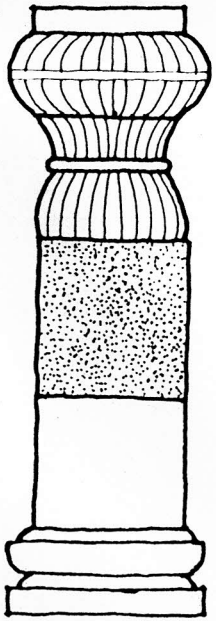


PILLARS FROM CAVE 1 & 2, AJANTA

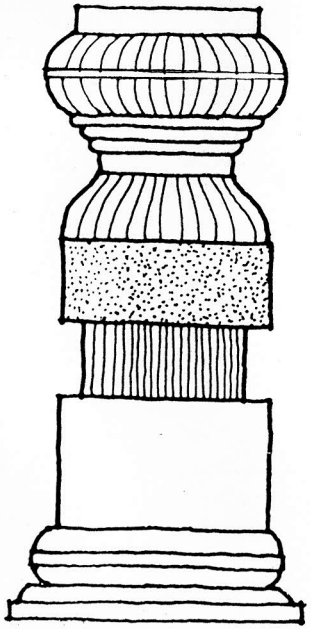
5. Pillars in this category have plain lower shafts and wide brackets with decorative carvings. They are generally wider at the base and tapering towards the upper end.



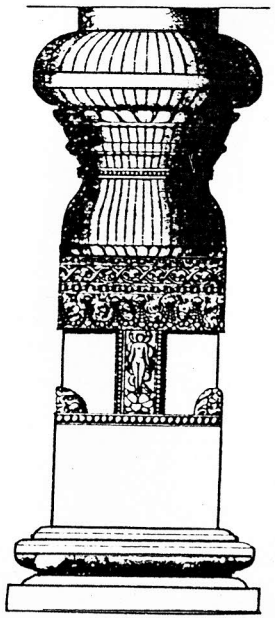
6. BASIC FORM



VARIATION 1

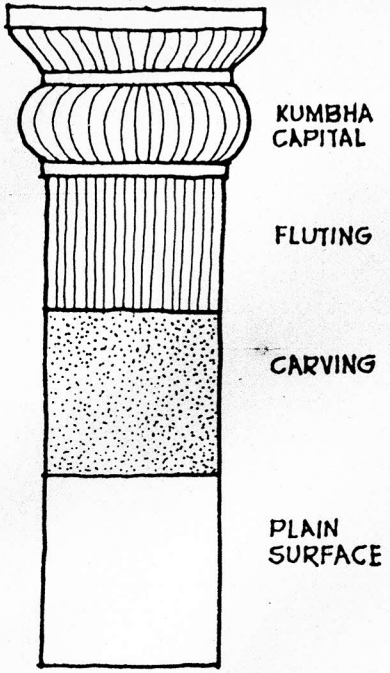


VARIATION 2

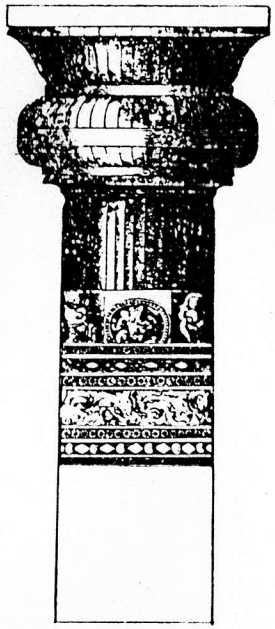


PILLAR FROM INDRA SABHA, ELLORA

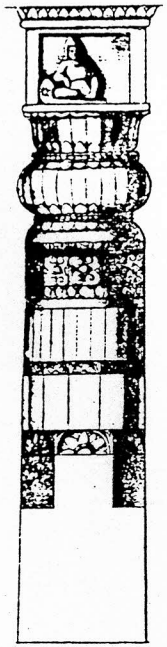
6. Columns belonging to this group have heavier and denser forms at their upper ends. A bulky, fluted capital is contrasted with a plain lower shaft and simple moulded base.



7. BASIC FORM

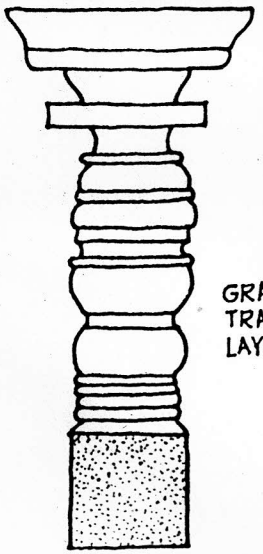


PILLAR IN RAMEŚVARA TEMPLE, ELLORA

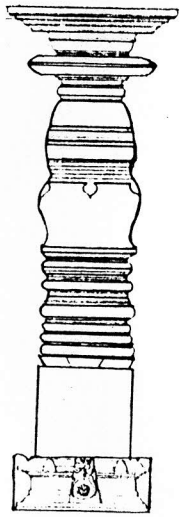


PILLAR IN CAVE 17, AJANTA

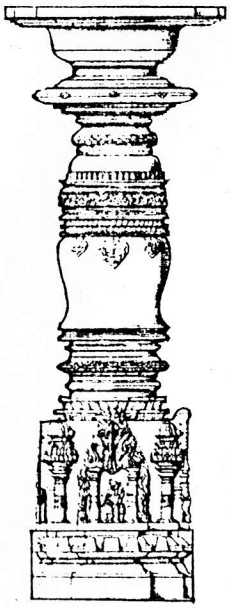
7. The basic elements remain the same as in group six. except that the capital is substituted by a kumbha form.



8. BASIC FORM

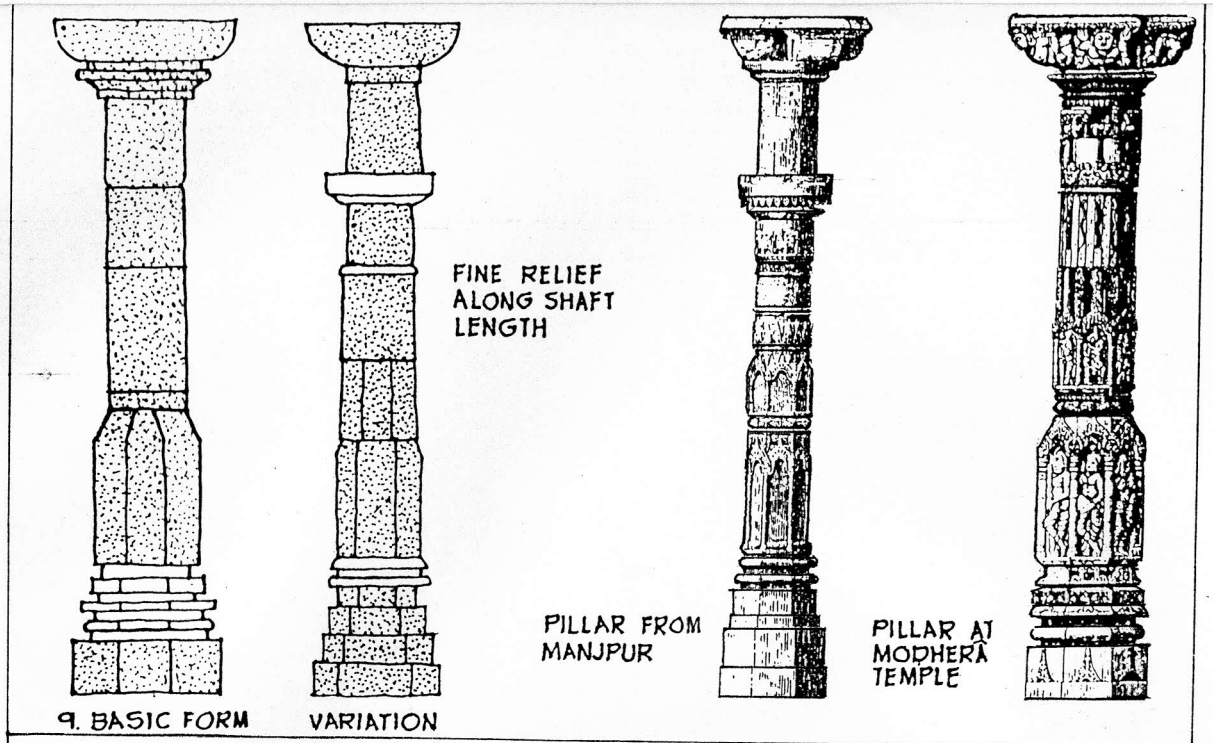


PILLAR IN MALLIKĀRJUNA TEMPLE

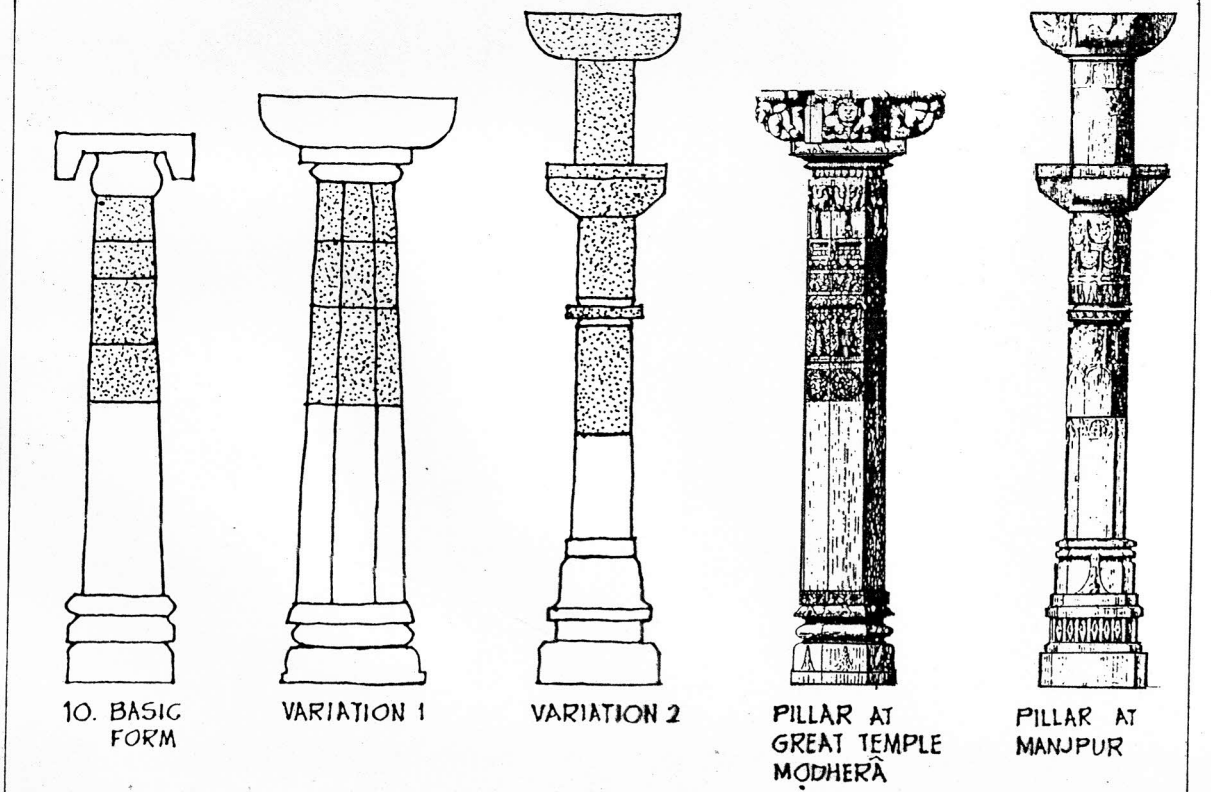


PILLAR FROM KATTĒŚVARA TEMPLE

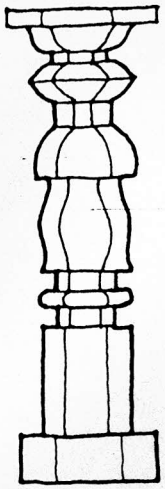
8. Here a gradual, smooth flowing form is achieved by a layering of several bands and circular forms. The bases are characterised by rigid forms, thus offering a contrast to shaft forms.



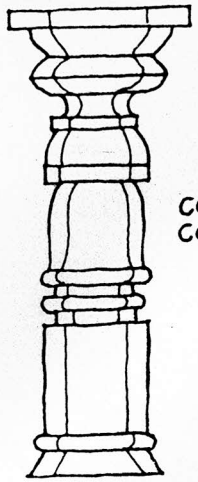
9. Pillars in this group are slender with fragmented shafts and relatively unadorned bases. Fine relief work is seen throughout length of shaft. The points of fragmentation are sharp and defined.



10. The columns are slender with upper part of shaft fragmented and decorated. The bases are simple and stepped from which commence the lower unadorned shafts.

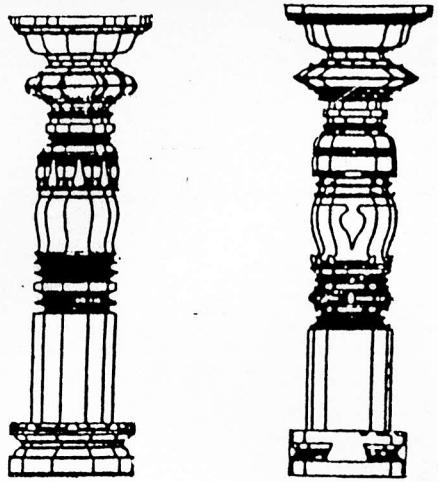


11. BASIC FORM



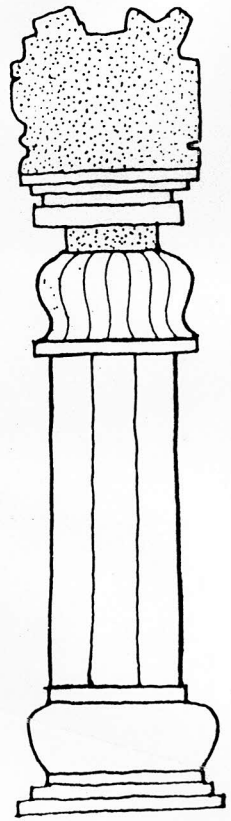
VARIATION

CONTINUOUS CONTOURING

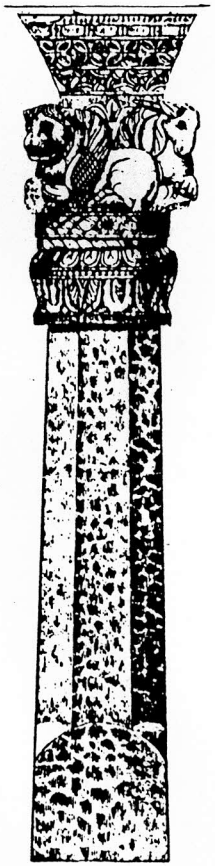


PILLARS FROM KALLÊŚVARA TEMPLE, BÂGALI

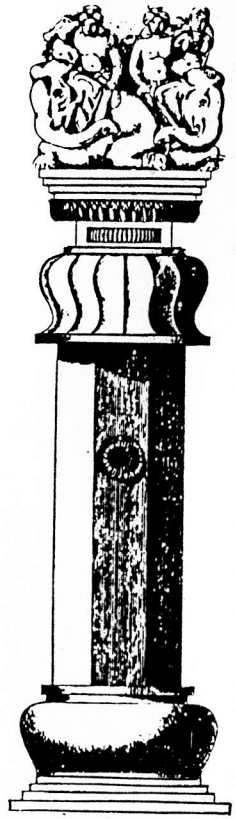
11. Pillars belonging to this group, are characterised by fluting or contouring that continues through the mouldings and form transitions along the entire column height.



12. BASIC FORM



PILLAR AT KANKÂLÎ TÎLÂ MATHURA



PILLAR FROM KARLE CAVES

12. These pillars have animal forms on the brackets with undecorated octagonal shafts and are sometimes seen with a kumbha base. They are unique in that their base, shaft, capital and abacus forms are completely different from one another.

EVOLUTION OF FORMS

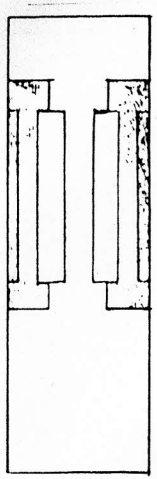
In addition to basic forms, a development of forms from simple to complex within a group can be observed. The evolution could take place in several ways. These may be as follows:

1. A fully development form in the last stage of development, only the vestiges of which are visible in the earlier columns.

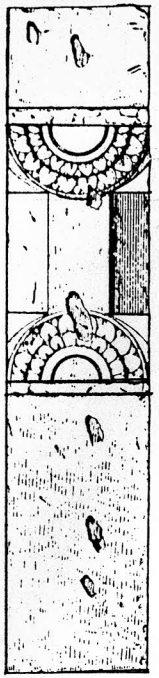
2. Development of increased density of form, either by greater fragmentation, rapid form transitions, or extensive contouring through the height of the column.

3. Increased number of sides, resulting in complex forms.

The following are some examples of evolution of form in the column.



1. PILLAR IN CAVE 1, MAHAD

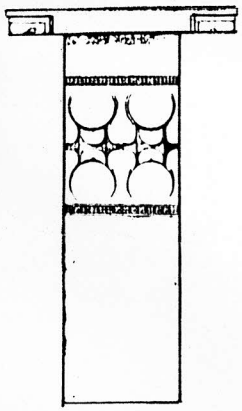


2. BUDDHIST PILLAR AT GHAṆṬAŚĀLĀ

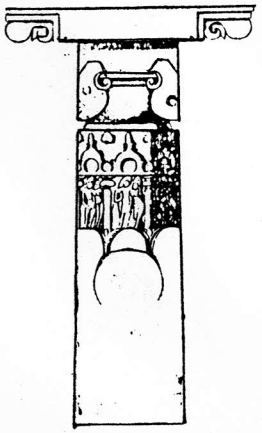
3. PILLAR IN CAVE 1, AJANTA

4. PILLAR IN CAVE 2, AJANTA

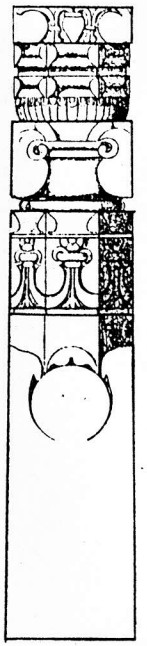
1. In this group, evolution can be seen through a gradual increase of density of carved surfaces. surfaces.



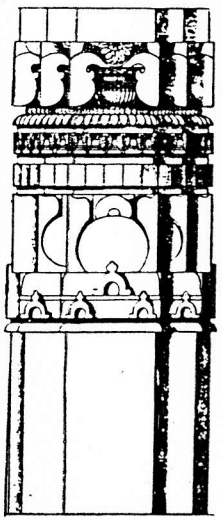
1. PILLAR IN DON THĀL, ELLORA



2. PILLAR IN CAVE 9, ELLORA



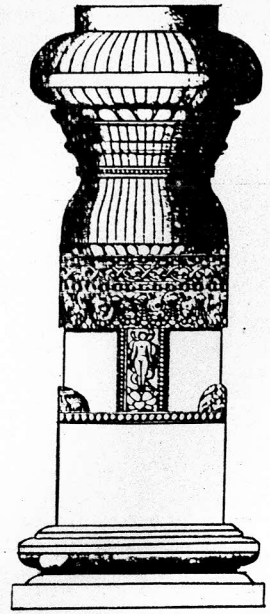
3. PILLAR IN VIŚVAKARMA CAVE, ELLORA



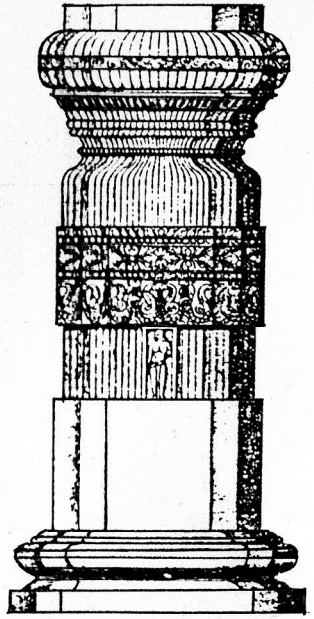
4. PILLAR IN CAVE 17, ELLORA

2. The Chaitya motif in a simple form in the first pillar, is carried and extended over the increased number of sides in the last pillar. The simple capital which appears in the second pillar, is also used in a rising degree of complexity in the third and fourth pillars.

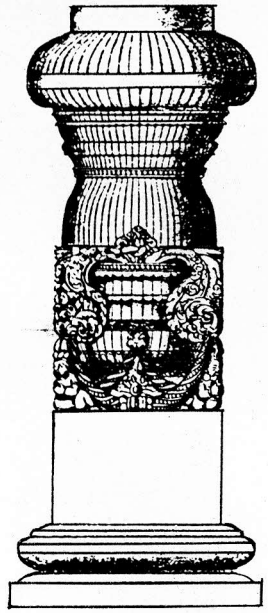
1. PILLAR IN INDRA SABHA, ELLORA



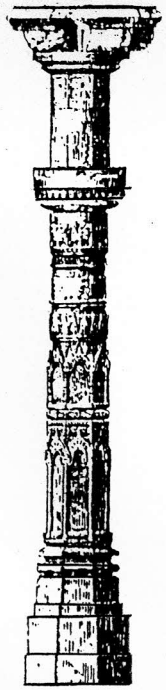
2. PILLAR IN CENTRAL HALL - INDRA SABHA



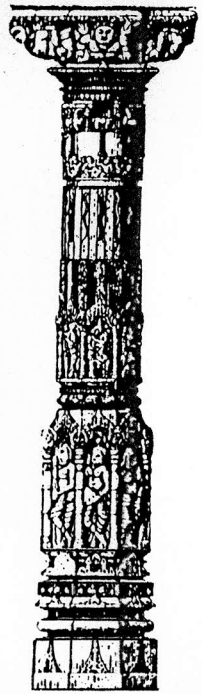
3. PILLAR IN UPPER FLOOR OF INDRA SABHA



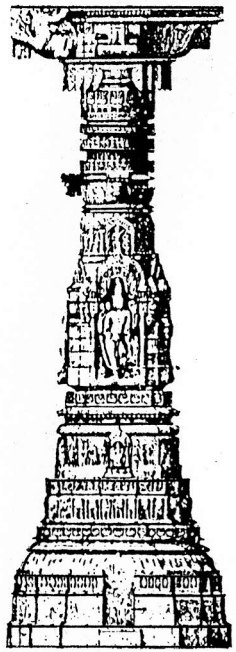
4. PILLAR IN CENTRAL HALL - INDRA SABHA



PILLAR AT MANJPUR



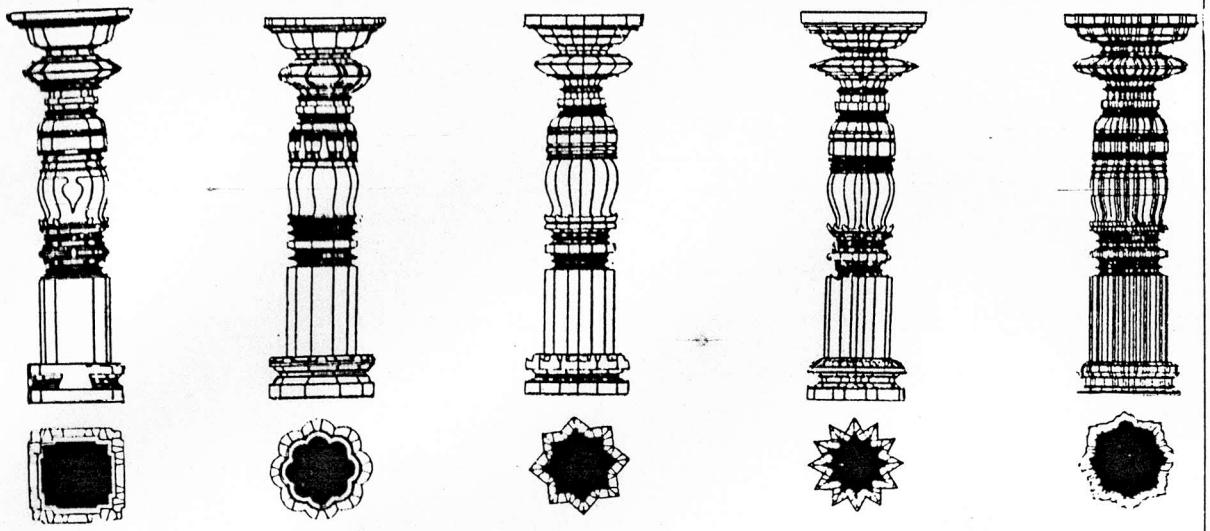
PILLAR AT GREAT TEMPLE, MODHERA



COLUMN FROM KIRTI STAMBHA, VADNAGAR

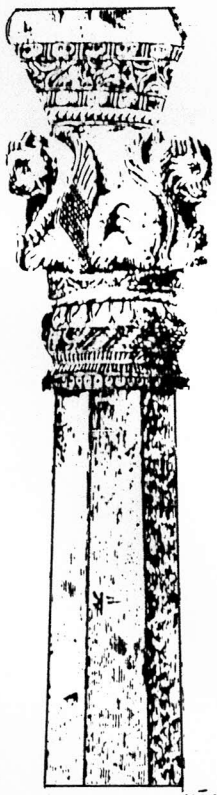
3. Evolution is seen in the decorative band which starts to extend downwards through a central panel in the second pillar and finally leads to a richly carved decorative band in the fourth pillar.

4. In this case, the slender column acquires bulk as it reaches the final stage by addition from base upwards.

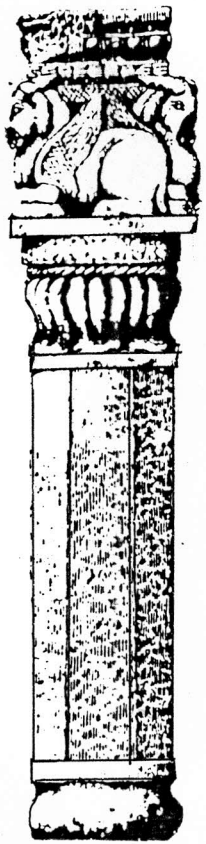


PILLARS IN THE MAHAMANDAPA
KALLÊŚVARA TEMPLE, BÂGALI

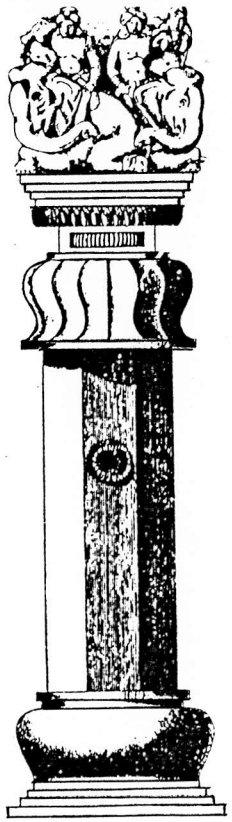
5. Evolution can be traced through a constant increase in the number of flutings.



PILLAR AT KANKĀLĪ
TĪLĀ, MATHURA

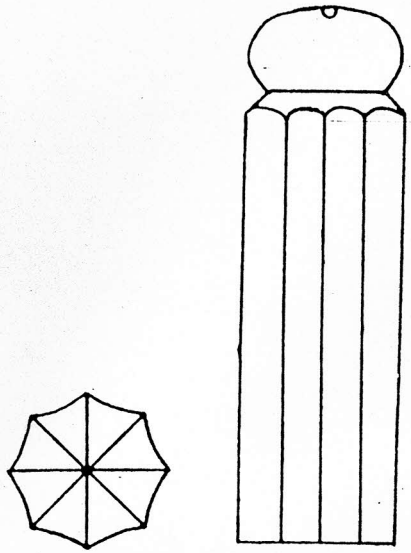


PILLAR AT
KANKALĪ TĪLĀ
MATHURA

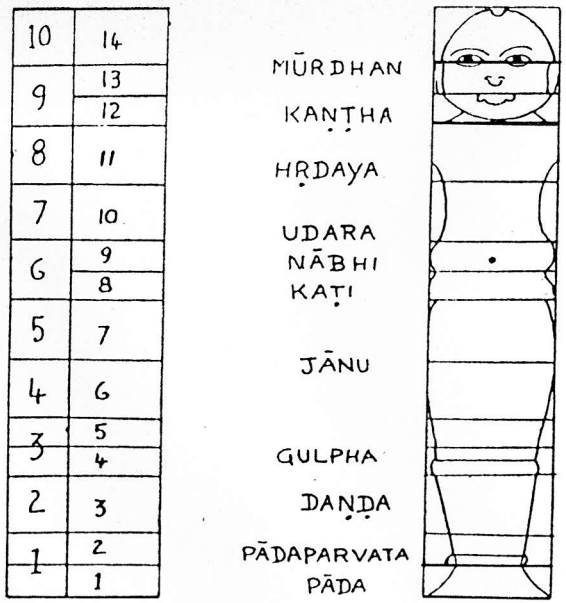


PILLAR AT KARLE
CAVES

6. In this case, evolution is achieved by addition of the kumbha and the detached bracket and capital in gradual steps:



AṢṬĀṂŚA YUPA



PURUṢA DERIVED FROM YŪPA

SIGNIFICANCE OF YŪPA

According to the Vāstusūtra Upaniṣad, all pillars are derived from the 'world pillar' or **yūpa**, which is the link between vedic symbology and image making. The yūpa is originally the sacrificial pole erected to the east of the sacrificial hall for tying the victim of the sacrifice.

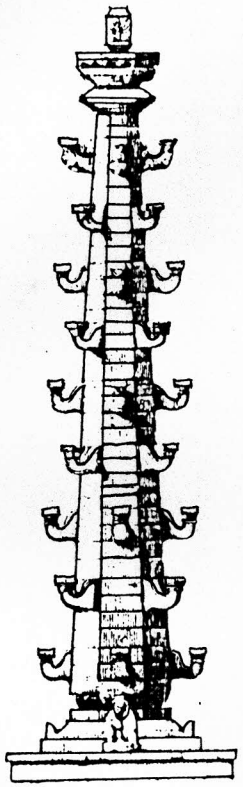
In its simplest form, it consists of a straight wooden post either cylindrical, octagonal or sixteen sided, crowned by a spherical or hemispherical head. The spherical head is said to symbolise the earth or **viśva** (universe), the straight part represents action or creation - **karma**. The joining of the two produces **viśva karman**, the creator of the universe.

At the same time, the yūpa incorporates and illustrates the fundamental principles of line and circle, the knowledge of which the sthapaka must have, since they are the constituents of all viable forms of the universe.

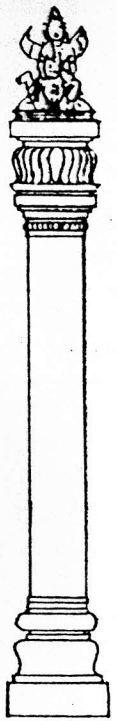
There are several classes of yūpas. The yūpa whose shaft has eight sides is erected at the beginning of a work of construction of a temple. A yūpa of sixteen divisions is used for Visnu sacrifice.

The yūpa is also said to contain the image of man or **puruṣa**. The complete form of the purusa (human form or image), can be built in height of ten parts according to the same divisions as exist in the yūpa as shown in the diagram. In this way, the image of puruṣa, becomes visible to the eye in the ten compartments.

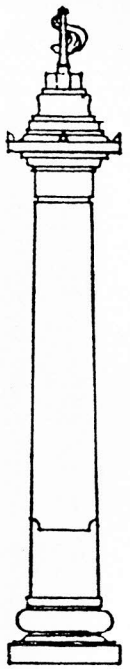
Just as the yūpa was considered to be the pillar upholding the universe, so also we come acrosspillars which stood as symbols



DĪPA
STAMBHA



GARUḌA
STAMBHA



DHVAJA
STAMBHA

for the thought or idea they propagated.

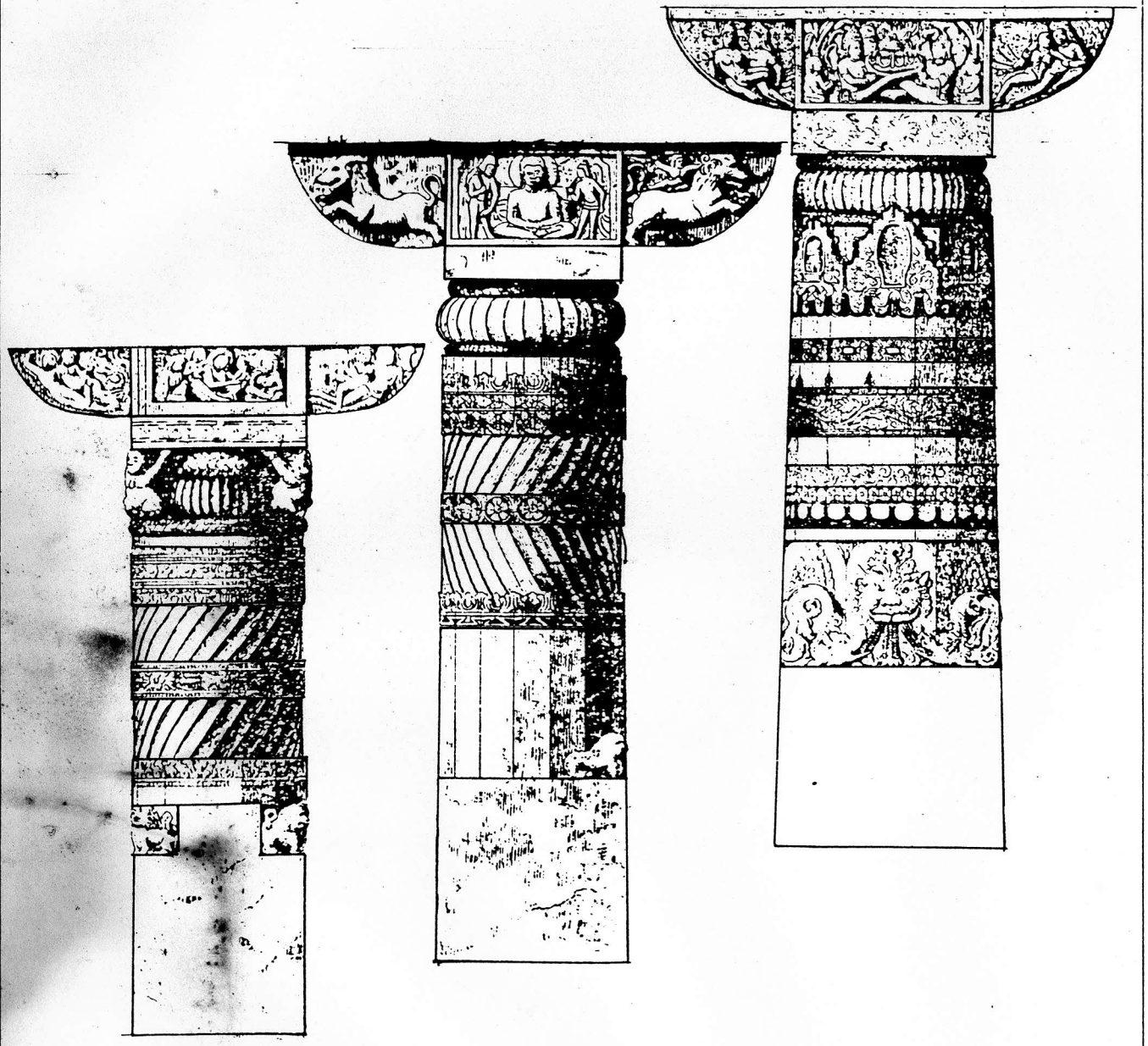
In the vedic period, a **sthūṇa** (pillar) is stated to have been set up on the grave. On top of these memorial pillars, seats were constructed for the departed souls.It is believed that these sthunas were the forerunners of the Buddhist column.

Similarly, the Buddhists also had pillars which were employed to bear inscriptions on their shafts with emblems or animal figures on their capital.

With the Jains, the columns were generally **dīpa** stambhas or lamp bearing pillars. The Vaishnava pillars were **garuḍa** stambhas as they generally bore statues of garuda or **hanūman.**

On the other hand, the Śaiva pillars were **dhvaja** stambhas or flagstaffs.

EXAMPLES



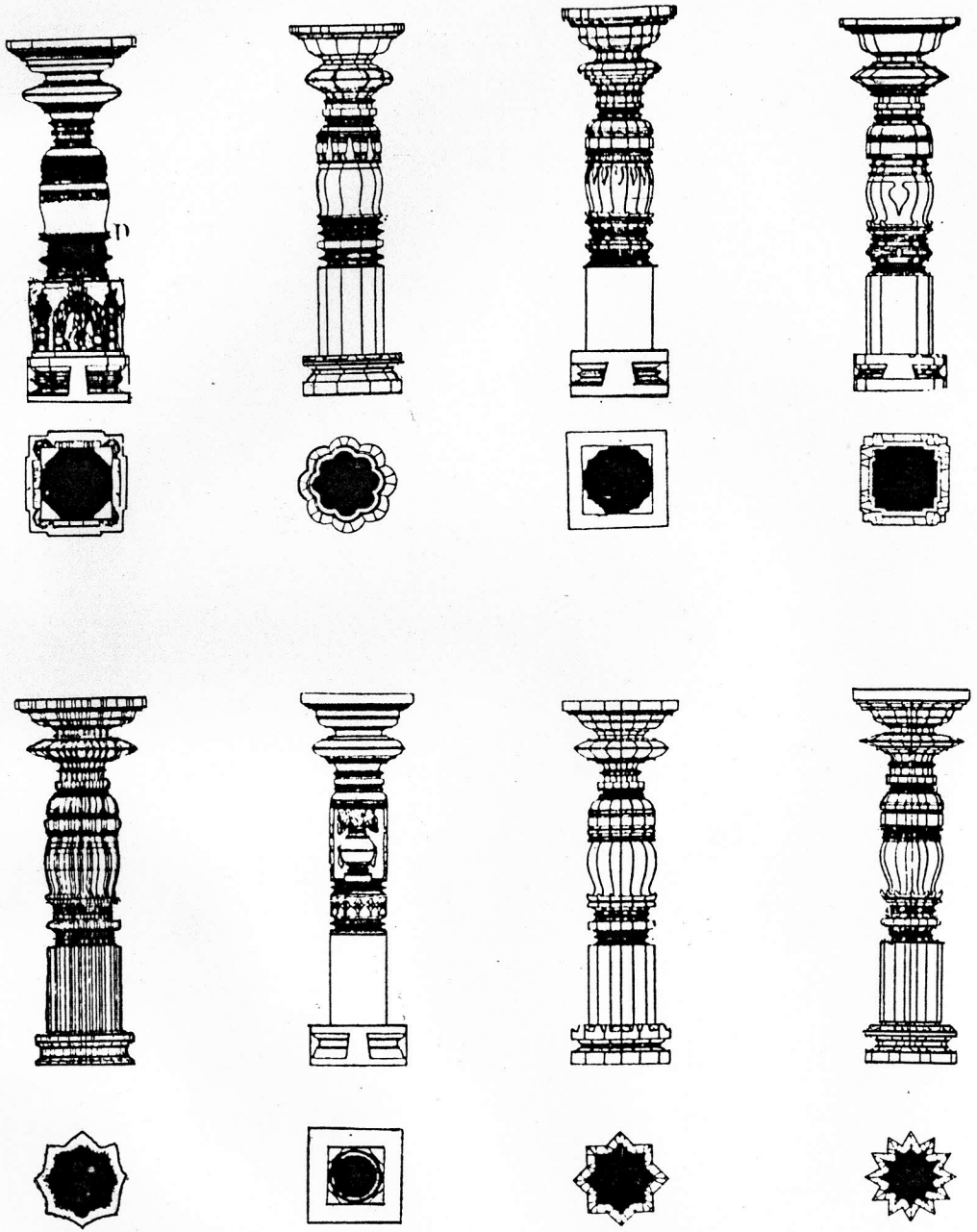
PILLARS FROM CAVES 1 & 2,
AJANTA

PILLARS AT AJANTA CAVES

These three pillars belonging to the Ajanta caves are remarkable for their combination of carvings and fluted forms. Though columns 2 and 3 belong to the same cave, a variety of surface treatment and form is seen. The second pillar has in the centre of the abacus two **nagas,** supporting with their hands and tails a relic casket, while a third shows Buddha in the **jñâna mudra.**

In the first column we can see that the shaft at its baseis a square, then changing into an octagon, but not abruptly - the passage from one to the other being broken by four figures. Instead of continuing the usual system of again cutting off the angles to produce a sixteen sided polygon, the shaft here is adorned by spiral flutes.

A gradual evolution can be seen in the capital where the first column is surrounded by figures, breaks free and expands to the full width in the second column, and finally emerges as a full fleged form with independent identity in the third column.

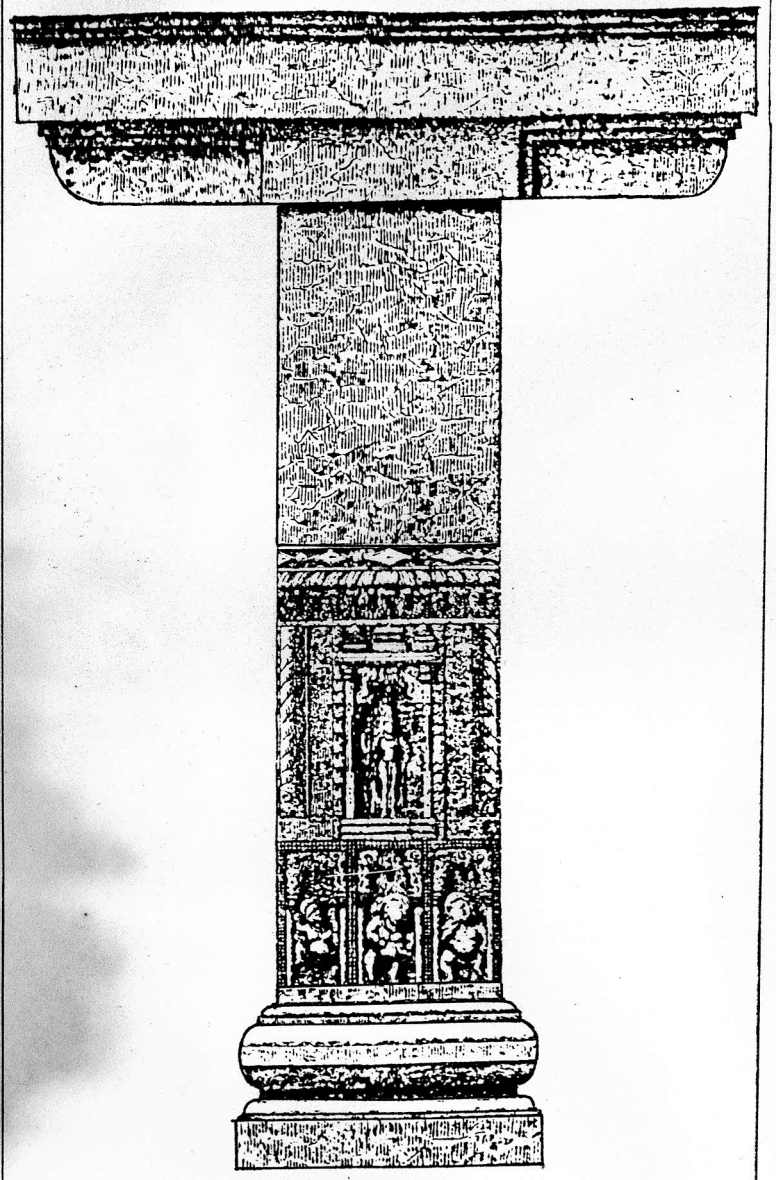


PILLARS IN THE MAHAMANDAPA, KALLÊSVARA TEMPLE, BÂGALI

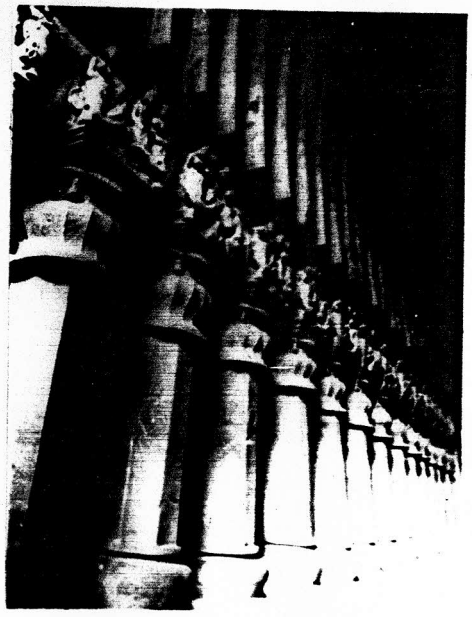
PILLAR AT KALLÊŚWARA TEMPLE-BÂGALI

The Chalukyan pillars from the mahamandapa of Kallêśvara temple, Bâgali, are interesting in that though they are similar in general design, they differ from each other in details. In the mahamandapa, these columns are arranged so as to give the appearance of diversity in form, but harmony throughout. It can be observed that the style of contouring is adopted in almost all examples, but slight alteration in moulding and proportion is sufficient to give each and original character.

The greatest variety is achieved by the form of the plan. Sometimes it is continued right up from the base to the capital. In others, the different forms of square, circle and octagon are embodied in the same pier.



PILLAR AT KAILÂSA TEMPLE ELLORA



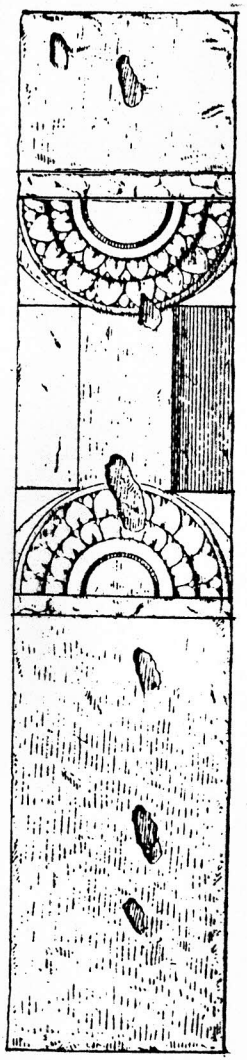
PILLAR AT KARLE CAVES

PILLAR AT KAILÂSA TEMPLE-ELLORA

This column is striking for its simplicity brought about by a balance between the carved and plain surfaces. Above a moulded base, the lower half of the square shaft on the side which faces the open court is carved below with three **gaṇas** in relief within small ornamented panels. Above in a central panel is a human figure, with a **triśula** in its hand. An extended plain bracket surmounts the shaft under an architrave.

PILLARS AT KARLE CAVES

The pillars forming a collonade are 37 in number and are closely set, so that the space between each is but little more than the width of the column itself. The pillars are a good example of effect created by incorporation of forms that are unrelated to each other - the kumbha at the base, the octagonal shaft, lotus shaped capital, finished off above by a fine group of sculptured statuary. The forms are similar and create a rhythm, but there is sufficient variation in their design to prevent monotony as they merge themselves into a kind of sculptured frieze.



PILLAR AT JALATĒŚVARA TEMPLE, GHAṆṬĀŚĀLĀ

PILLAR AT JALATĒŚVARA TEMPLE-GHAṆṬAŚÂLÂ

This pier belongs to the Jalatēśvara temple. It is interesting to note the the top and bottom of this pillar are oblong and the centre of the shaft a flat octagon. Curved chamfers join the angle splays with the corners of the upper and lower rectangular portions of the pier.

On the two broad faces, above and under the octagon, are semicircular lotus discs. which help to bridge the transition between the oblong and octagonal part of the shaft. The semi circular discs are Buddhist in style.

BIBLIOGRAPHY

Acharya P.K. — Archtecture of Mansara
Oxford University Press.

Encyclopedia of Hindu Architecture
J.K.Publishing House, Bhopal.

Hindu Architecture-India and Abroad
Oxford University Press.

Baumer B.
Boner A.
Sharma S. — Vastusutra Upanisad-The Essence of Form in Sacred Art
Motilal Banarsidass, Varanasi.

Burgess J. — Report on the Ellora Caves, Brahmanical and Jaina Caves in Western India
Indological Book House,Varanasi.

Report on the Buddhist Cave Temples and their Inscriptions
Bharatiya Publishing House.

Antiquities of Belgaum and Kaladgi
Indological Book House.

Pereira J. — Elements of Indian Architecture
Motilal Banarsidass,Varanasi.

Rea A. — Chalukyan Architecture-Examples from the Ballari District, Madras Presidency
Indological Book House.

South Indian Buddhist Antiquities
Indological Book House,Varanasi.

Smith V.A. — Jain Stupas and other Antiquities of Mathura
Indological Book House, Varanasi.