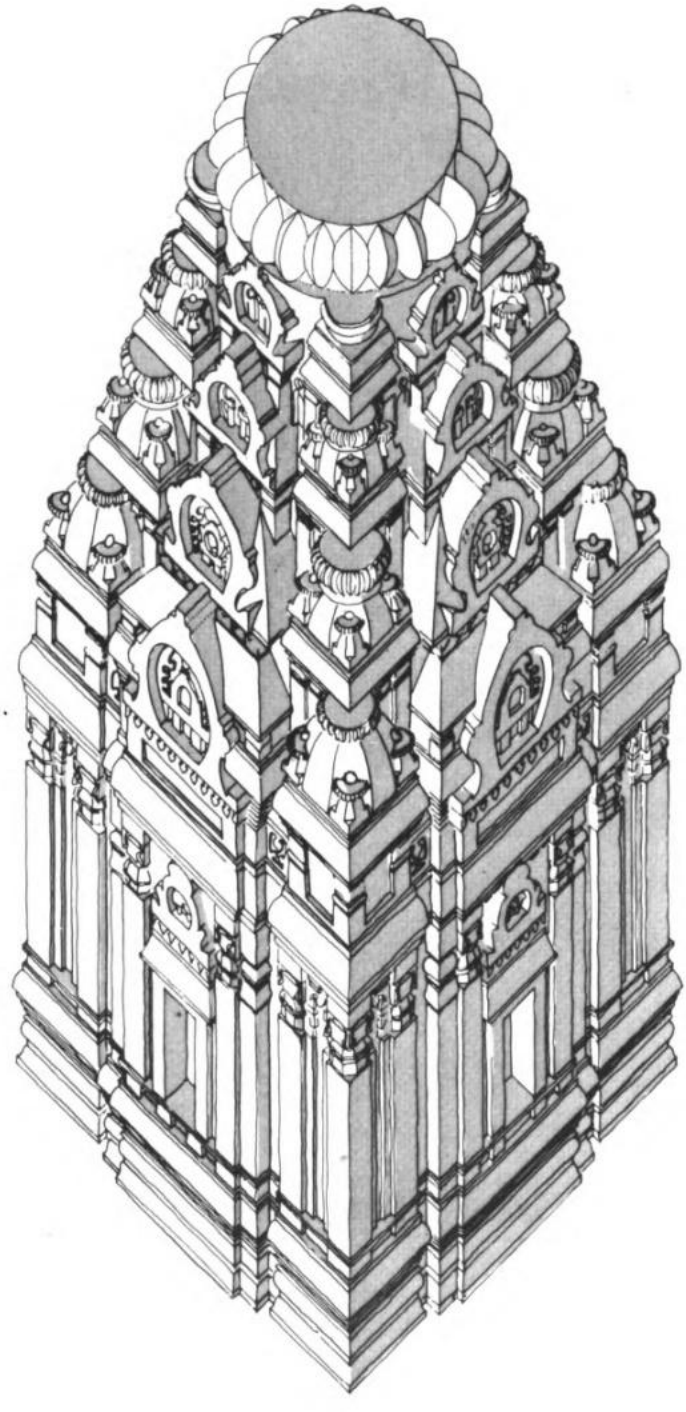
Essays in Early Indian Architecture



Frontispiece: Rājim, Rājīvalocana temple. Axonometric drawing (© Meister).

ANANDA K. COOMARASWAMY:

ESSAYS IN EARLY INDIAN ARCHITECTURE

Edited and with an Introduction by

Michael W. Meister

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Some idea of the appearance of such an ancient Indian university may be gathered from Hsüan Tsang's description. . . . 'One gate,' he says, 'opens into the great college, from which are separated eight other halls, standing in the middle of the monastery. The richly adorned towers, and the fairy-like turrets, like pointed hill-tops, are congregated together. The observatories seem to be lost in the mists of morning, and the upper rooms tower above the clouds. . . . All the outside courts, in which are the priests' chambers, are of four stages. The stages have dragon eaves; the pearl-red pillars, carved and ornamented, the richly adorned balustrades, and the roofs covered with tiles that reflect the light in a thousand shades, these things add to the beauty. . . .'

Coomaraswamy, *The Arts and Crafts of India and Ceylon,* Edinburgh, 1913, pp. 113-114.

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Abbreviations Commonly Used by Coomaraswamy

Āp.Gṛ.S.	*Āpastama Gṛhya Sūtra*
A.S.I., A.R.	Archaeological Survey of India, *Annual Report*
A.S.W.C.	Archaeological Survey of Western India
Cull.	*Cullavaga*
DhA.	*Dhammapada Aṭṭhakathā*
DHA	P. K. Acharya, *Dictionary of Hindu Architecture*
DhS.	Dharma Sūtra
DhsA.	*Atthasālinī*
Div.	*Divyāvadāna*
DN.	*Dīgha Nikāya*
H.I.I.S.	Coomaraswamy, *History of Indian and Indonesian Art*
H.O.S.	Harvard Oriental Series
IAT.	Coomaraswamy, *Indian Architectural Terms*
J.	*Jātaka* (Fausböll)
J.A.O.S.	*Journal of the American Oriental Society*
J.R.A.S.	*Journal of the Royal Asiatic Society*
KA.	*Kauṭilīya Arthaśāstra* (Bk II, Ch. 21 unless otherwise stated)
Mhv.	*Mahāvaṁsa*
Mv.	*Mahāvagga*
Mil.	*Milindapañha*
MN.	*Majjhima Nikāya*
MSA.	Coomaraswamy, *Mediæval Sinhalese Art*
MW. Skr. Dist.	Monier Monier-Williams, *A Sanskrit-English Dictionary*
PvA.	*Peṭhavatthu Aṭṭhakathā*
RV.	*Ṛg Veda*
Śāṅkh. Gṛ. S.	*Śāṇkhāyana Gṛhya Sūtra*
Śāṅkh. Śr. Śū.	*Śāṇkhāyana Śrauta Sūtra*
SN.	*Saṁyutta Nikāya*
S.B.E.	*Sacred Books of the East*
SV.	*Sumaṅgala Vilāsinī*
Vism.	*Visuddhi Magga*
VvA.	*Mahāvagga Aṭṭhakathā*

FOREWORD

This is the Fourth Volume in the Indira Gandhi National Centre for the Arts programme of reprinting the Collected Works of Ananda Kentish Coomaraswamy, thematically rearranged and re-edited. We had begun the series with the Selected Letters of Ananda K. Coomaraswamy. These were followed by two other volumes, entitled "What is Civilisation?" and "Time and Eternity." The Selected Letters had revealed the inner-being of this savant who believed in no theories or ideologies and no 'isms'. He had addressed himself to a vast number of his contemporaries: Scientists, Sanskritists, Writers and Religious thinkers. In the Second Volume, "What is Civilisation?," another facet of his personality was revealed. This time it was a man exploring the contours of the peaks and troughs of civilisation. Each essay was an exploration of the streams, valleys, of the extensive panoramas of mountain ranges of human civilisation. The staggering spectrum of Coomaraswamy's grasp in this volume was juxtaposed with the minute filigree work and precision of delving into the textual sources of the Hindu, Buddhist, Christian and Islamic traditions in respect of 'Time' (Third Volume — "Time and Eternity"). The quality of that writing employs the skills of a master ivory carver, a stone-setter who concretises vision through flawless technique. He delved into each term, each notion of Time in these diverse and yet related traditions only to prove that although we live in 'time' our deliverance lies in Eternity. Those familiar with Coomaraswamy's later writing, such as the concentrated precision of "Time and Eternity" and another volume soon to be released — "Spiritual Authority and Temporal Power" — sometimes do not give importance to the work of the early Coomaraswamy who, in fact, had physically traversed mountains, investigated material, particularly rocks as a geologist and had known the tools of the crafts of ivory and wood carving and of gems and jewellery. In the Fourth Volume, which comprises essays of Coomaraswamy on architecture, the skills of a craftsman, the disciplines of an archaeologist and of a geologist are evident, and the potential of an emerging metaphysician clear. In a great essay on Indian architecture, "The Symbolism of the Dome" included in Coomaraswamy's "Traditional Art and Symbolism" (*Selected Papers,* edited by Roger Lipsey). Coomaraswamy begins by asserting "The origin of any structural form can be considered either from an archaeological and technical or from a logical and aesthetic, or rather cognitive, point of view: in other words, either as fulfilling a function or as expressing a meaning. We hasten to add that these are logical, not real distinctions: function and significance coincide in the form of the work: however, we may ignore the one or the other in making use of the work as a thing essential to the active life of the body or dispositive to the contemplative life of the spirit." This assertion is the quintessence of Coomaraswamy's own life as one who looked at function and meaning, form and content, matter and spirit together. But the journey from the craftsman to the seer was gradual and imperceptive even if he worked as has been remarked in 'fiendish pace'. The essays presented in this volume reflect the self-imposed discipline of sifting through archaeological and textual data and making drawings. Never before had sculptural relief been used as evidence for re-constructing forms of Indian architecture. Fergusson had excavated. Burgess had written on construction. Jouveau-Dubreuil had described through a knowledge of the actual architecture and of personal contact with living *sthapatis,* but it was only

Coomaraswamy who went into the sculptural reliefs of Śuṅga, Kuṣāṇa, and Āndhra art to recreate elements of architectural form. The results illuminate facets hitherto undiscovered. Also (as unconventional at least for that time), was his approach to look at existing huts of the Indian countryside and relate them to temple types. Today, the method of culling out information from two dimensional or three dimensional visual imagery is accepted as is the employment of anthropological data to illuminate archaeological evidence. Coomaraswamy, imperceptibly, effortlessly, and through these essays had changed the course of the purely archaeological method in understanding early Indian architecture. The two essays here — (i) Cities and City gates; and (ii) Palaces — assume renewed significance not only for their content and for the important documentation of the windows, arches, doorways — a primary form of *Bodhi-gharas* — but also as pace-setters of a new art historical methodology.

Prof. Michael W. Meister's Introduction carefully points at this methodological transition and the significance of these articles.

Coomaraswamy's preoccupation with terms and terminology and textual sources is evident from his methodology in respect of terms relating to Time in the Third Volume of our series. In this volume, the same concern is reflected in the essay on Indian architectural terms. Here, Coomaraswamy was responding to P.K. Acharya's work on Indian architecture and a Dictionary of Hindu Architecture. Coomaraswamy comments on the terms included in the Dictionary, draws attention to others not included by P.K. Acharya, and gives his own interpretation, draws attention to primary sources especially the *Mahāvaṁsa*. This essay is an excellent example of Coomaraswamy's ability for razor-sharp response, almost combativeness, as also constructive illuminating criticism. Perhaps his unpublished papers may still reveal further reflection on these terms and perhaps even reinterpretation. In this essay, it is Coomaraswamy the skilled craftsman, the lexicographer, the investigator of textual terminology that comes to the fore. For example, one can speculate how a later Coomaraswamy would have interpreted the term 'Meru'. Here, he is content to draw attention to E.B. Havell's works on the Himalayas in Indian Art. The metaphysician Coomaraswamy may well have written a whole volume on the 'Meru'.

Each volume of Coomaraswamy reveals a different but related facet of the man — scholar, scientist, geologist, archaeologist, art historian, and metaphysician combine, all parts of a whole.

The IGNCA is deeply indebted to Dr. Rama Coomaraswamy for his graciousness, and grateful to Prof. Meister for his painstaking editing and his lucid and illuminating Introduction.

KAPILA VATSYAYAN

PREFACE

Michael W. Meister
University of Pennsylvania

Coomaraswamy took interest in the traditional practices of building in South Asia in his two early studies on *Mediæval Sinhalese Art* (1908) and *The Indian Craftsman* (1909). He gave these an excellent general frame in his handbook on *The Arts and Crafts of India and Ceylon* in 1913 and some further elaboration in his *History of Indian and Indonesian Art* in 1927.

The publication of P. K. Acharya's massive *Indian Architecture According to the Mānasāra-śilpaśāstra* (1928) and *A Dictionary of Hindu Architecture* (1927), however, helped further focus Coomaraswamy's attention on the availability of textual sources and the problems in establishing a general terminology. These he addressed in his review of Acharya's volumes in the *Journal of the American Oriental Society,* 48, entitled "Indian Architectural Terms" (1928), which we reprint below, pp. 72-99.

In Coomaraswamy's introduction to that essay, he wrote that Acharya was "too little, if at all, acquainted with the actual buildings" (below, p. 72). "Sculptures and buildings of this and earlier periods survive in thousands," Coomaraswamy wrote. For him, a scholar such as Jouveau-Dubreuil had "had the immense advantage of a thorough knowledge of the actual architecture, and of personal contact with living *sthapatis* able to explain the meaning of technical terms." Coomaraswamy also stated that "a very great deal of exact information about the early architecture [of India] can be gathered from the Śuṅga, Kuṣāṇa, and Āndhra reliefs" and admitted that "I have myself in preparation a work based on this early material, which can and necessarily will be very fully illustrated."

Coomaraswamy's series of essays on "Early Indian Architecture" began to appear in a new annual called *Eastern Art,* published by the fledgling College Art Association (from "Memorial Hall, Fairmount Park, Philadelphia") and edited by Langdon Warner and Horace H. F. Jayne. Part I, exploring "Cities and Citygates, etc.," appeared in *Eastern Art,* 2, in 1930 and concluded with a statement on the scope of Coomaraswamy's further planned essays (p. 16):

> Other articles in the present series will deal with tree temples (No. II of the series, printed below); houses and palaces; hermits' huts and domed shrines and early towers; windows, arches, and doorways; and pillars.

Part II, "Bodhi-gharas," Coomaraswamy included in the same issue of *Eastern Art.* Part III, on "Palaces," appeared in *Eastern Art,* 3, in 1931. Subsequent issues of the journal, however, were cancelled and the material that Coomaraswamy had already submitted was never returned. A carbon of the typescript for Part IV on "Huts and Related Temple Types," however, remained among Coomaraswamy's papers. These papers have now been deposited in the Princeton University library by Coomaraswamy's son, Dr. Rama Coomaraswamy, and from them I was able to prepare the edited and annotated version of Part IV that was first published in *Res* 15 in 1988.

Coomaraswamy often worked at a fiendish pace, and in this period he also was producing a series on "Early Indian Iconography" for *Eastern Art.* His essays clearly were "work in progress," rapidly recording the results of wide-ranging textual and visual explorations. The manuscript for Part IV, for example, covered both the "her-

mits' huts and domed shrines" that he had promised in his statement at the end of Part I, but not the "early towers" he also mentioned there.

Many of the drawings intended as part of the documentation for a separate discussion of "windows, arches, and doorways" he instead included at the end of Part III, "Palaces," in order to discuss the "development of the *gavākṣa*" and its transformation over time into a decorative "honeycomb" *jāla* design "of which the sources are no longer obvious" (p. 51, below). (This "arched window," he wrote, "appears in a fully developed type as a characteristic feature of early Indian architecture, and is perhaps its most distinctive feature.") What also could not have been obvious to most of his readers without a knowledge of Coomaraswamy's changing scholarly objectives was the need for so extensive a visual documentation to illustrate this brief published discussion. He ended Part III with the disclaimer that "the foregoing account of palaces *and windows* does not pretend to be exhaustive" (emphasis mine; p. 57), although he had, in fact, compacted two of his planned articles into the space of one.

No material survives of Coomaraswamy's intended article on pillars except, perhaps, that part of his discussion that he placed in "Early Indian Architecture: III. Palaces." He repeated there his promise that "the forms of early Indian columns will be discussed in a later article" (below, p. 37). Discouraged by the collapse of *Eastern Art* and the loss of the illustrative material for Part IV, Coomaraswamy also was moving rapidly toward a phase in his life where the dense entanglements of philosophic texts were to be his greatest obsession.[1]

His exploration of early architecture — both its imagery and terminology — had been an important methodological transition from the layering of his earlier archaeological and art-historical obsessions and the mental layerings of his later and more metaphysical work. These we can see in his exceptional essay on "The Symbolism of the Dome" in the *Indian Historical Quarterly,* 14 (1938) where he "propose[d] to ask rather *why* than *how*...."[2]

He returned to temple architecture only in the last year of his life in an essay entitled "An Indian Temple: The Kandarya Mahadeo" published in both *Art in America,* 35, and *Śilpi,* 2, in 1947.[3] This essay he had written in appreciation of the publication of Stella Kramrisch's *The Hindu Temple* (1946), which so successfully had been able to return the study of religious architecture in India to its metaphysical base.[4] His position by then had become primarily traditional and universal, seeking in all things a structural foundation. As he wrote in the essay:[5]

> We are thus brought back... to the concept of the three analogous — bodily, architectural, and cosmic — "houses" that the Spirit of Life inhabits and fills; and we recognize at the same time that the values of the oldest architectural symbolism are preserved in the latest buildings and serve to explain their use.

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[1] Roger Lipsey, *Coomaraswamy, His Life and Work,* Princeton: Princeton University Press, 1977; see also my review in *Journal of the American Oriental Society* 100 (1980): 151-154.

[2] Reprinted in *Coomaraswamy, 1: Selected Papers, Traditional Art and Symbolism,* ed. Roger Lipsey, Princeton: Princeton University Press, 1977, pp. 415-464. Coomaraswamy is addressing Eric Schroeder's statements in *A Survey of Persian Art,* VI, pp. 1005-1006, that "the square chamber is *obliged* to forsake its plan and strain forward to meet the round dome in which it must terminate" and that domes "appear to have been *destined* to symbolize the passage from unity to quadrature through the mediation of the triangle of the squinches" (Coomaraswamy's emphases).

[3] Ibid., pp. 3-10.

[4] Stella Kramrisch, *The Hindu Temple,* Calcutta: University of Calcutta Press, 1946, 2 vols. (reprinted Delhi: Motilal Banarsidass, 1976). See also my review in *Artibus Asiae* 62 (1980): 180-182.

[5] Op. cit., p. 8.

ACKNOWLEDGMENTS

I should like first to thank Dr. Rama Coomaraswamy for his continuing cooperation and encouragement in carrying this project through; Kapila Vatsyayan for her vision, energy and determination in forming the Indira Gandhi National Centre for the Arts and in defining its wide range of activity; and Francesco Pellizzi, for his gift of guidance.

Rama Coomaraswamy graciously lent original offprints from *Eastern Art* and the *Journal of the American Oriental Society,* from which this edition of "Early Indian Architecture, I-III" and "Indian Architectural Terms" has been made. He also gave me permission to use his father's unpublished manuscript of "Early Indian Architecture, IV: Huts and Related Temple Types" in Princeton's library to prepare the edited version I first published in *Res* 15 (1988). Staff members at Princeton's library were consistently helpful, at the right time and in the right ways.

Francesco Pellizzi, as editor of *Res,* — his "Journal of Anthropology and Aesthetics" — has shown great imagination in his support of a variety of academic and artistic endeavors. The "Conversation" with Joseph Rykwert that acts as an afterward to "Huts and Related Temple Types" owes much to a model established for the journal by him. I thank Joseph as well, who has been a fine colleague at the University of Pennsylvania and who participated in this endeavor with good humor and a deep respect for the range of Coomaraswamy's scholarship.

The fine drawings included in my Introductory essay, as well as the original watercolors, were made by a young architect, Robert DeJager, with whom it was both a pleasure and an intellectual stimulation to work.

I must thank Francesco Pellizzi, the editor of *Res;* its publisher, the Peabody Museum of Archaeology and Ethnology at Harvard University; and the President and Fellows of Harvard College for permission to reprint "Huts and Related Temple Types" and "Adam's House and Hermits' Huts" as they appeared in *Res* 15.

Lalit M. Gujral, Consultant at the Indira Gandhi National Centre for the Arts, has worked long hours and with dedication to see arrangements for this series through. Arun Mehta and Katey Cooper at Vakil and Sons, Bombay, took up the project, both as printers and friends, and have carried it forward as an act of bookmaking as much as business. Because of their great efforts, a sense of the high quality of the original printing comes through in this edition.

I had known for many years that Coomaraswamy's contributions to the understanding of India's earliest architecture were of a caliber to require their eventual reprinting as a unified volume. That a part of this work had never been printed in his lifetime made such a task even more important. John Rosenfield once took me when I was a young graduate student to Doña Louisa Coomaraswamy's apartment in Cambridge, Massachusetts, where she was working on Coomaraswamy's extensive annotated notes. To her, to John, and to all the many others who have given me help and inspiration in making this volume possible, may these pages return my thanks.

MICHAEL W. MEISTER

San Diego, California, May 1991

Introduction:

THE LANGUAGE AND PROCESS OF EARLY INDIAN ARCHITECTURE

Michael W. Meister

Architecture has meaning through the process of its making, as well as from the cultural system within which it is made. Early Indian architecture had a strong pragmatic basis, functional in its rhetoric, rooted in carpentry and other building crafts. The visual language of early Indian architecture was, in fact, rooted in this pragmatism. Wattle-and-daub huts with thatched domed roofs were used by forest dwellers; vaulted rectangular wooden shelters, also thatched or shingled, acted as village assemblies. Elevated urban palaces had upper storeys with cantilevered balconies supported by struts; lattice screens; and outer terraces with balustrades and small open pavilions. A distinctive type of wooden roofing using barrel-vaults and dormers gave to these Indian cities — in the images that have come down to us — an original appearance unique to the Indian subcontinent.

Ananda Kentish Coomaraswamy set out to document this urban language of form at its utilitarian and practical level in his "Early Indian Architecture" series of articles for *Eastern Art* — particularly Part I: "Cities and City-Gates" — much as he had sought out evidence for the surviving traditional architectural practices in Sri Lanka in his earlier monograph, *Mediæval Sinhalese Art* (1908).[1] He did so primarily by searching texts for descriptions and sculpted reliefs and murals for representations of ancient architecture.

Yet India's early thinkers also had long expressed a deep belief in the "iconicity" of the perceived world: its capacity to act, in Plato's terms, as the "shadow" of "real" forms. This medieval "realism" was also attractive to Coomaraswamy and to a large degree transformed his knowledge of the built environment. India's earliest architecture took not only the pragmatic forms of town and village but also those of a variety of highly charged symbolic monuments, such as free-standing pillars, mounds, and the tree-enclosures that Coomaraswamy discussed in his "Early Indian Architecture, Part II: Bodhi-gharas," that served iconic ends.

"Aśokan" Pillars and "So-called Bell" Capitals

In this regard, Coomaraswamy tucked away one of his major contributions to our understanding of early Indian architecture in the two brief notes he wrote for *The Indian Historical Quarterly* on the "Origin of the Lotus-capital" — that typical "so-called bell-" shaped capital of Maurya-period pillars.[2] Significantly, he began the first

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[1] Mediæval Sinhalese Art, a Monograph on Mediæval Sinhalese Art and Crafts, Mainly as Surviving in the Eighteenth Century with an Account of the Structure of Society and the Status of the Craftsman, Broad Campden, Gloucestershire: Essex House Press, 1908; Second Edition, New York: Pantheon Books, 1956.

[2] "Origin of the Lotus- (so called Bell-) Capital," *The Indian Historical Quarterly* 6 (1930): 373-375; "Origin of the Lotus-Capital," *The Indian Historical Quarterly* 7 (1931): 747-750

of these notes by distinguishing that "the problem... may be considered from two points of view: (1) that of morphology, and (2) that of significance."[3]

While other scholars had emphasized the formal decorative link between these capitals and Persepolitan prototypes, Coomaraswamy saw this borrowed form — as had the pillars' Mauryan craftsmen — in terms of the ripe lotus (fig. 1), its ripe seedpod acting, within the Indian system, as an appropriate pedestal to carry emblems of high power.[4] This significance Coomaraswamy traced to "the oldest Indian cosmology, that of water," where, he explained, "we meet at once with the idea that water is the source and support of all things, particularly the source of life, and the support of the earth."[5]

By separating the technology of carving from the cultural context within which this adapted form had been applied, Coomaraswamy was making a major statement about the iconic validity of these pillars as architecture. He did not, however, in this brief overview, place the pillars with any particularity into the historical context within which they were made. Thus the "significance" of the morphology was allowed to stand for the significance of the individual object.[6]

Morphology and the Symbolism of Architecture

Dan Sperber, in his study entitled *Rethinking Symbolism,* wrote that "by asserting that symbolism is a cognitive mechanism, I mean that it is an autonomous mechanism that, along side the perceptual and conceptual mechanisms, participates in the construction of knowledge and in the functioning of the memory."[7] This statement seems apt in discussing the transformation wrought by the translation of early urban architectural forms into stone architecture in India.

Much of what we know of the early phase of this architecture comes from Buddhist cave-excavations of the early centuries B.C. and A.D. These recreate free-standing assembly halls, at times with wooden rafters hung inside and wooden screens but with other details carved in stone (see Plates, pp. 39, 40, 42, below). Coomaraswamy used these excavations largely as if they were transparent sources for the wooden

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[3] In the "Origin of the Lotus Capital," however, Coomaraswamy admitted that "decorative variations on the simpler themes of the Plant style are fast developing in early Indian art, and such subordination of meaning to ornament is a part of a normal development that takes place in any art" (p. 748). Coomaraswamy's first article was in response to Achyuta Kumar Mitra, "A Bell-Capital from Bhuvaneśvara," *The Indian Historical Quarterly* 5 (1929): 693-699. His second was in answer to Mitra's reply: "Origin of the Bell-Capital," *The Indian Historical Quarterly* 7 (1931): 213-244.

[4] Coomaraswamy's discussion of the lotus-pedestal appeared first in "Early Indian Iconography, II: Śrī Laksmī" *Eastern Art* 1 (1929): 174-189. As pointed out by A.K. Mitra, "the resemblance of the bell-capital to the calyx of a flower reversed" had been pointed out as early as 1875 by Rajendralal Mitra ("Origin of the Bell-Capital," p. 213). Coomaraswamy's contribution was morphological: he made the connection between the lotus-capital and a succession of standards bearing a variety of emblems. He pointed out that "my theory... regards the lotus capital as simply the termination of a shaft, and not as a *cihna*" ("Origin of the Lotus-Capital," p. 748).

[5] "Origin of the Lotus- (so-called Bell-) Capital," p. 374. Coomaraswamy goes on to quote from the *Śatapatha Brāmaṇa* ("the lotus means the waters; thou art the back of the waters; this earth lies spread on the waters") and to state that: "Here the original significance of the lotus as representing the waters... is very clearly stated, and there is no need to invoke the later mystical ideas about a world lotus and *maṇḍalas*." See also John Irwin's more recent discussion of the topic: "'Aśokan' Pillars: A Reassessment of the Evidence," *The Burlington Magazine* 115 (1973): 706-720; "Part II: Structure," *The Burlington Magazine* 116 (1974): 712-727; "Part III: Capitals," *The Burlington Magazine* 117 (1975): 631-643; "Part IV: Symbolism," *The Burlington Magazine* 118 (1976): 734-753.

[6] Irwin, "'Aśokan Pillars," also tends to make the cosmological frame equivalent to each pillar's particular meaning.

[7] *Rethinking Symbolism* (Cambridge Studies in Social Anthropology), trans. Alice L. Morton, Cambridge: Cambridge University Press, 1975, pp. xi-xii.

palaces from which their architectural language seemed derived. He wrote of them in his *History of Indian and Indonesian Art* (1927) that:[8]

> These *caitya*-halls are excavated copies of wooden structural buildings as clearly appears in the literal imitation of timbered construction; occasionally wood was combined with stone, forming a screen of concentric ribs within the arch of the entrance, or applied to the stone ceiling to represent rafters, and in one or two cases part of the original woodwork has survived.

Such an estimate, however, might best fit the façade to the Mauryan-period Lomas Ṛṣi cave in Bihar, which replicates the construction of a small village thatched structure with great exactitude.

By the time of the Buddhist caves in the Western Ghats, on the other hand, the process of excavation had begun a development already that Coomaraswamy had characterized as "from the functional to the decorative" in reference to the elaboration of arched windows and their integration into a decorative web that was cast over the vertical bands of north-Indian temple-towers in later periods (below, p. 55; and Plates, pp. 52, 56-66).

I have instead written of this cave-temple period that:[9]

> Architects within this rock-cut tradition soon began to rearrange wooden forms, creating stone façades for excavations in ways that transformed carpentry sources into a viable decorative surface. Through clever manipulation of scale, they could make a façade suggest an almost unlimited range of constructed storeys. If such complex carved façades at first seem intended as substitutes for the labourious construction of a wooden original, they also came to represent a process of formal abbreviation and compaction that quickly became a source for architectural creativity in its own right. By the time stone temples began to be built in the fifth century A.D., such compaction of architectural form took on an elaborate and self-conscious symbolic vitality.

If the wood rafters hung from the interiors of some of these excavations represent almost the only carpentry surviving from ancient India, the way they have been integrated into the stone excavation had little to do with timber structuring. A variety of constructional expedients[10] were used to rest this heavy vaulting on stone ledges and to bind its mighty beams to their lithic frame. The shape of this inner vault and that of the façade screen did not need to correspond. And those who designed the surrounding stone façade, as with the façade of a Roman stage-set, could play a variety of games with scale to create an appropriate effect. The fluidity of the sculpted stone may have encouraged such play; it in any case provided the opportunity.

Stella Kramrisch has suggested a set of the conceptual mechanisms used by artisans to create the surface of a temple. These she has defined in the following way:[11]

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[8] *History of Indian and Indonesian Art*, New York: E. Weyhe, p. 28. Percy Brown, *Indian Architecture (Buddhist and Hindu Periods)*, Bombay: Taraporevala Sons & Co., 1942 (4th ed., 1959), takes the same tact.

[9] "Architecture: India, Introduction," *Grove Dictionary of Art*, London: Macmillan Publishers Limited (in press).

[10] James Fergusson had written instead of "constructive necessities," *History of Indian and Eastern Architecture* (1876), revised by James Burgess, 2 vols., London: J. Murray, 1910, vol. I, p. 325.

[11] "The Temple as Puruṣa," in *Studies in Indian Temple Architecture*, ed. Pramod Chandra, New Delhi: American Institute of Indian Studies, 1975, p. 43.

> All these shapes originally were functional parts of a structure. Embodied in the temple and on its walls they retain some of their functional meaning even though not fulfilling their original function.... The rules regulating the use of these and other motifs as parts of the... integument of the temple wall are: (1) diminution of the original shape in proportion to the size of the monument and further proportionally graded reductions...; (2) repetition or identical shapes either in the vertical or in the horizontal...; (3) splitting of one entire motif into parts; (4) super-imposition in the third dimension of one shape upon the other; (5) inscribing one motif or theme into a different kind of theme or motif; and (6) contraction of several themes juxtaposed and or superimposed, according to the above rules, into one complex new entity.

A grasp of the perceptual and conceptual aspects of this process, however, makes it even more important that we understand the cognitive aspects of this "complex new entity's" symbolic basis. "Symbolic interpretation," according to Sperber, "is not a matter of decoding, but an improvisation that rests on an implicit knowledge and obeys unconscious rules."[12] Thus the conception of the temple as shelter — whether as palace or hut — precedes the architectural form.

In addition to the utilitarian aspects of Coomaraswamy's "Early Indian Architecture," his essays provide an incomparable foundation for understanding the symbolic underpinnings of India's religious and secular architecture. Coomaraswamy himself found that carrying this dialogue between "morphology" and "significance" further was a difficult task.

His essay on "The Symbolism of the Dome" in 1938, for example, had very little to say on morphology at all.[13] In reviewing Heinrich Zimmer's *Kunstform und Yoga,* published in 1926, Coomaraswamy had written that:[14]

> No more valuable book for understanding of Indian art, the answering of the fundamental problem "Why is it what [it] is?", has yet been published.... No history of art, or of aesthetic theory, which does not take into account the Hindu point of view here so clearly expounded, can be regarded as at all complete.

It was in his 1930 note on "Pāli *kaṇṇikā:* Circular Roof-Plate"[15] written in the same period as the "Early Indian Architecture" essays that Coomaraswamy could take pleasure in declaring that "the present discovery of the roof-plate as a typical architectural device... is of considerable interest for the history of the dome in India." He felt obliged, of course, to continue that, "like other wooden methods of construction, it would naturally have been copied in stone."[16]

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[12] *Rethinking Symbolism,* p. xi.

[13] *Indian Historical Quarterly* 14 (1938): 1-56. Reprinted in *Coomaraswamy, 1: Selected Papers, Traditional Art and Symbolism,* ed. Roger Lipsey, Princeton: Princeton University Press, 1977, p. 415-464. He writes, p. 415: "The origin of any structural form can be considered either from an archaeological and technical or from a logical and aesthetic, or rather cognitive, point of view; in other words, either as fulfilling a function or as expressing a meaning. We hasten to add that these are logical, not real distinctions; function and significance coincide in the form of the work; however, we may ignore the one or the other in making use of the work as a thing essential to the active life of the body or dispositive to the contemplative life of the spirit."

[14] *Artibus Asiae* 4 (1930-32): 78-79. Cited in Heinrich Zimmer, *Artistic Form and Yoga in the Sacred Images of India,* trans. by Gerald Chapple and James B. Lawson, Princeton: Princeton University Press, 1984, pp. xviii-xix.

[15] *Journal of the American Oriental Society* 50 (1930): 238-243; reprinted in *Coomaraswamy 1: Selected Papers,* pp. 459-464.

[16] Ibid, p. 462.

In his 1938 essay, however, Coomaraswamy would write instead that "we are here mainly concerned with significance.... We propose to ask rather *why* than *how*."[17] Coomaraswamy's personal rush towards metaphysics was apparent in the change between these two essays, as it had also been in the haste by which he "cleared the decks" early in the 1930s of the vast accumulation of data he had collected on specific morphologies.

Fig. 1. Coomaraswamy's drawing of the lotus-pedestal.

Coomaraswamy and Temple-Form

The final problem with which Coomaraswamy concerned himself in "Early Indian Architecture: IV. Huts and Related Temple-Types," however, had been a morphological one: that of the formal sources for temple architecture. From the hermit's hut, Coomaraswamy felt that a "dome and cornice shrine" had evolved (below, p. 119) that was "still easily recognizable" in the development of Dravidian architecture.[18] Of temple architecture in northern India he wrote that "a slightly different treatment of the reduplicated dome and cornice, with far greater compression of parts, was at the same time giving rise... to the simpler forms of the Nāgara *śikhara*" (p. 119, below).

In his *History of Indian and Indonesian Art* (1927) he wrote that:[19]

> The original view propounded by Fergusson I believe to be the correct one. That is that the Nāgara spire, however elaborately developed, really represents a piling up of many superimposed storeys or roofs, much compressed. The key to this origin is the *āmalaka;* properly the crowning element of a tower, its appearance at the angles of successive courses shows that each of these corresponds in nature to a roof. Thus the Nāgara and Drāviḍa towers both originate in the same way.

In "Huts and Related Temple-Types," however, he concluded that "it is to be inferred that the whole scheme [of the Nāgara temple's *śikhara*] is developed from an original type of domed shrine surmounted by a single *āmalaka*" and went on to say that "we cannot pretend to offer here a complete solution to the *āmalaka* problem, that is, as to the actual origin of the form itself" (below, pp. 111-112).

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[17] Ibid., p. 415.

[18] He states that, following the temples at Māmallapuram, "it becomes unnecessary to emphasize the stylistic continuity in the southern development from this time onward."

[19] *History of Indian and Indonesian Art*, p. 83.

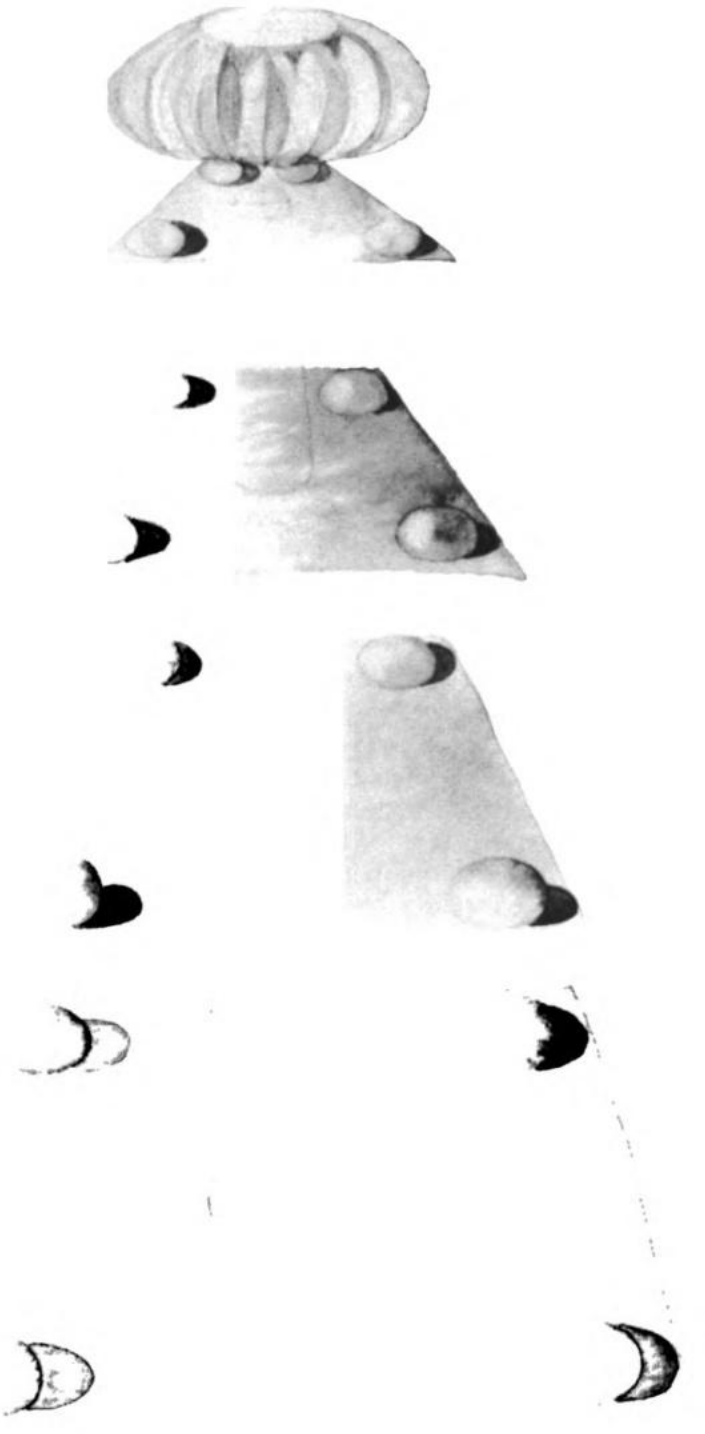

Fig. 2. Robert DeJager, Watercolor, "The Temple Stripped Bare" (© Meister).

"Early Indian Architecture" and the Question of Nāgara Origins

The "origin" of the Nāgara temple, however, goes back to Sperber's issue of the triadic relationship between conception, perception, and symbolism. From Vedic times to now, the lobed myrobalan (*āmala*) has been recognized as a significant and purifying medicinal fruit.[20] It could, like the lotus, cognatively "*re*present" the water cosmology Coomaraswamy had so ably restored to our present understanding in his other work (fig. 1). As capital of a pillar, as with the lotus-"bell" in the Mauryan period, this powerful seed-form stood "as" — not "for" — cosmic potentiality. Along the shaft of this world-axis, placed at the center of a temple (fig. 2), were strung "*bhumi*" levels — altars as well as worlds — like beads on a rosary.[21]

This is *one* of the "realities" that lies behind the form. To it could be added the sheltering concept of the monastic hut (the "*gandhakuṭī*"). Over it, architects eventually would cast the "shadow" forms of a palatial architecture appropriate for the temple's function as shelter for a manifesting divinity (figs. 3-6).[22]

Coomaraswamy's analysis of the formal language of early Indian architecture has made it much easier for us to read the palatial elements combined in a structure such as the seventh-century brick temple at Rajim in Madhya Pradesh shown in the Frontispiece (p. ii).[23] The barrel-vaults, hip-roofs, domed pavilions, and pillared walls compacted into this structure are familiar forms (figs. 3, 4). The square corner aediculae, like the *kūṭa* pavilions of a Dravidian shrine, signal the appropriateness of Coomaraswamy's conclusion that "Nāgara and Drāviḍa towers both originate in the same way."[24]

The significance of the morphology, however, is not sufficient to explain the symbolism of the object. Coomaraswamy's separation of morphology and significance does not go far enough. To end this discussion, then, I might accept Sperber's "possible hypothesis" that "the basic principles of the symbolic mechanism are not induced from experience but are, on the contrary, part of the innate mental equipment that makes experience possible."[25]

The Nāgara temple replaces palatial forms with what I have called "symbolic substitutes," making each monument, to steal the phrase, "a thousand points of [sacred] light." In place of the *kūṭas* of palace architecture, each aedicula *re*produces the temple and reduces it again to its symbolism of altar and pillar (fig. 5).[26] The final form of the Nāgara temple thus is as mysterious as it is powerful (fig. 6), weaving together (as had cave-temple façades) what is conceived, perceived, and symbolically understood.

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[20] The *āmalaka* is the fruit of the Emblic Myrobalan; *amala* can mean "spotless, stainless, clean, pure, shining." Sir Monier Monier-Williams, *A Sanskrit-English Dictionary*, Oxford: Oxford University Press, 1899.

[21] *Bhūmi* = earth, storey. For Śiva's conquering of the "three worlds" see Michael W. Meister, "Śiva's Forts in Central India: Temples in Dakṣiṇa Kosala and Their 'Dæmonic' Plans," in *Discourses on Śiva*, ed. Michael W. Meister, Philadelphia: University of Pennsylvania Press, 1984, pp. 119-143.

[22] Michael W. Meister, "On the Morphology of a Symbolic Architecture: India," *Res* 15 (1986): 33-50.

[23] See also Michael W. Meister, "Prāsāda as Palace: Kūṭina Origins of the Nāgara Temple," *Artibus Asiae* 49 (1989): 254-280.

[24] *History of Indian and Indonesian Art*, p. 83.

[25] *Rethinking Symbolism*, p. xii.

[26] Michael W. Meister, "De- and Re-constructing the Indian Temple," *Art Journal* 49 (1990): 395-400.

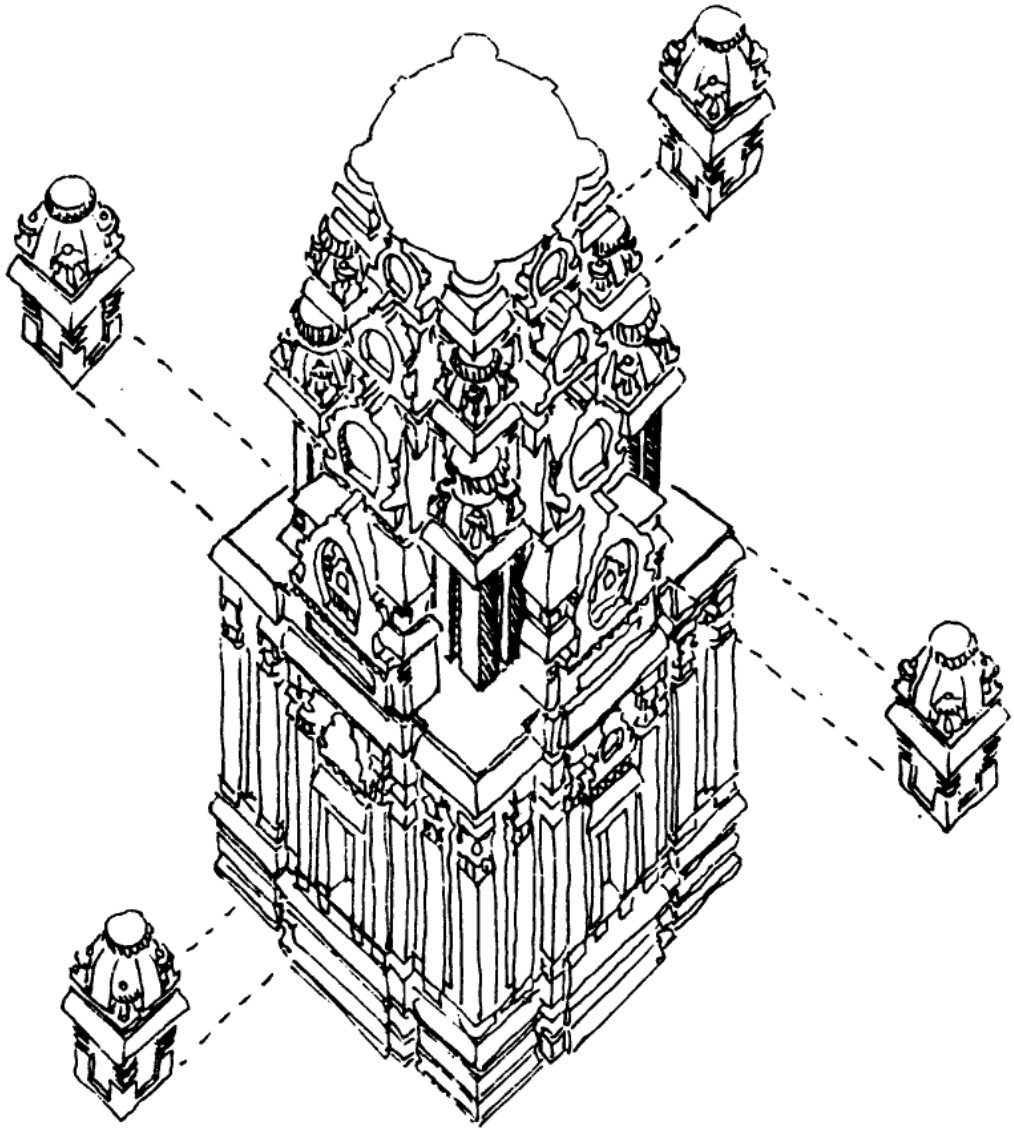

Fig. 3. Rājim, Rājīvalocana temple, separation of *kūṭas* (© Meister).

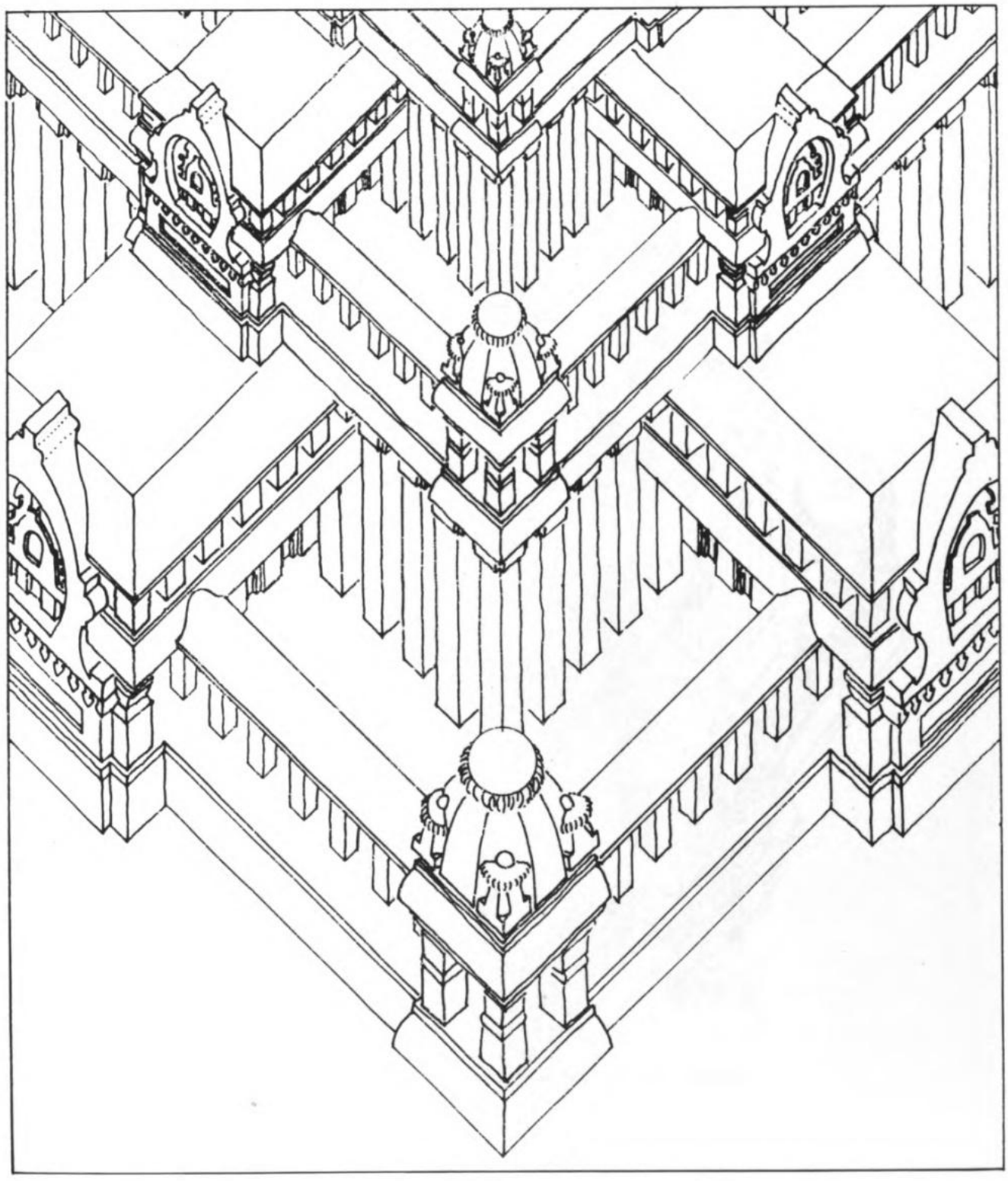

Fig. 4. Rājim, Rājīvalocana temple. Palatial structuring of the façade (© Meister).

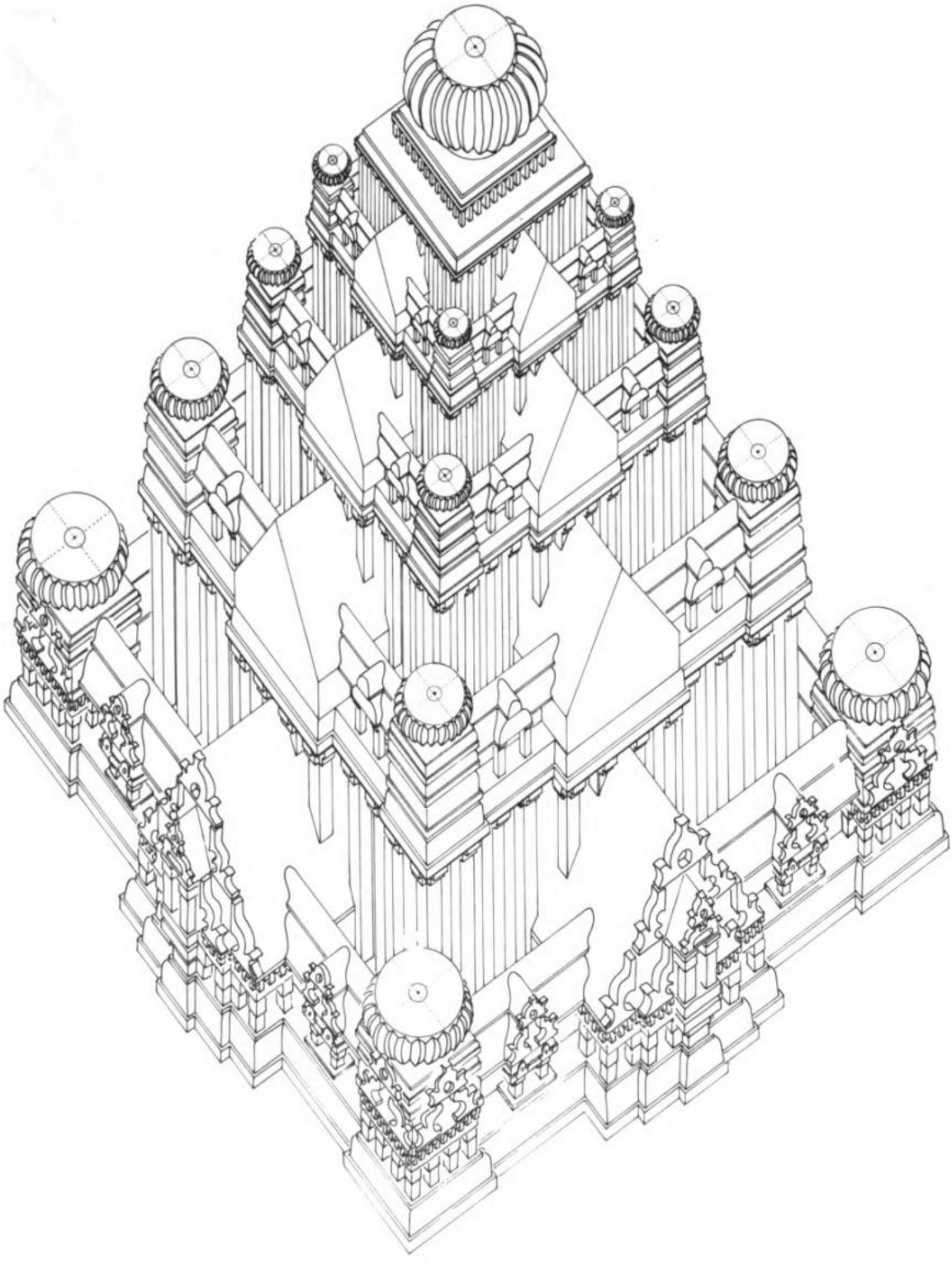

Fig. 5. Ālampur, Viśva Brahmā temple. Kūṭina implications of a Nāgara temple's façade (© Meister).

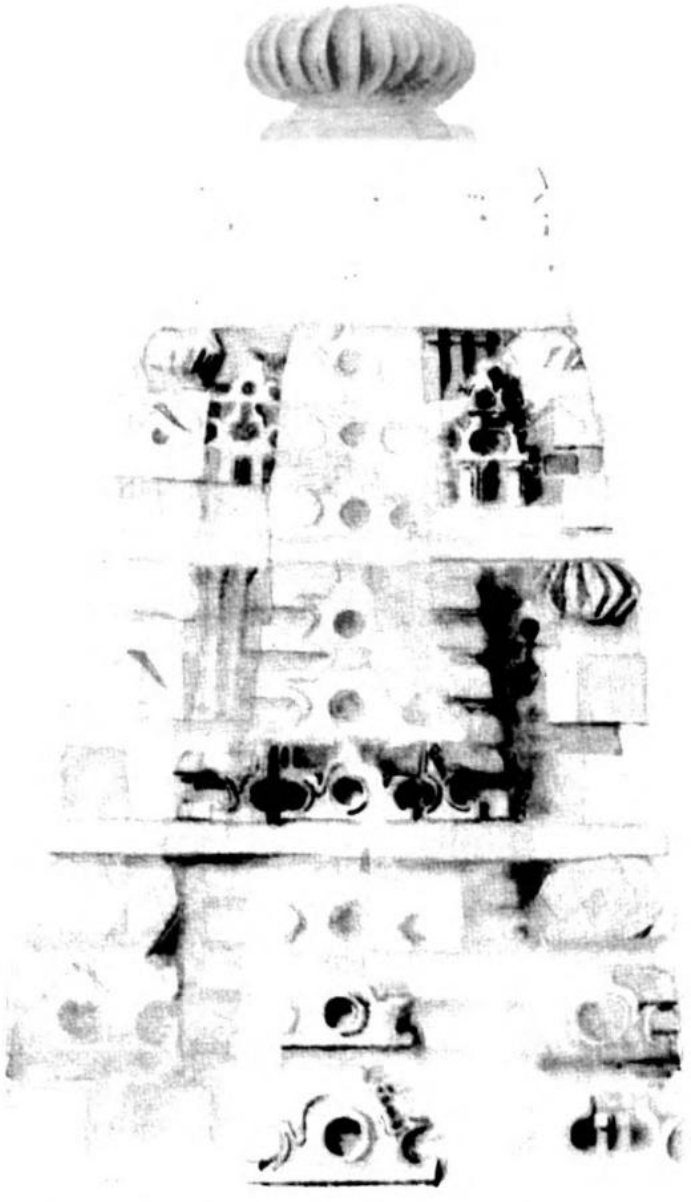

Fig. 6. Robert DeJager, watercolor of a Nāgara *śikhara* (© Meister).

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Early Indian Architecture

Parts 1 and 2

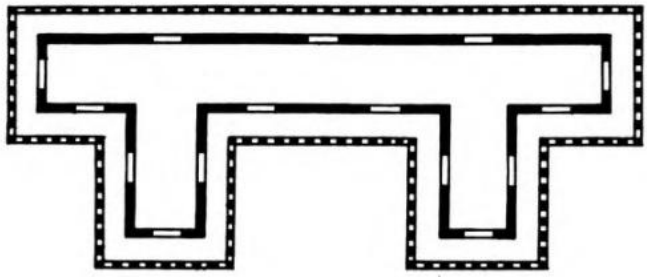

FIG. 1. UPPER STOREY (*uttamāgāra*)

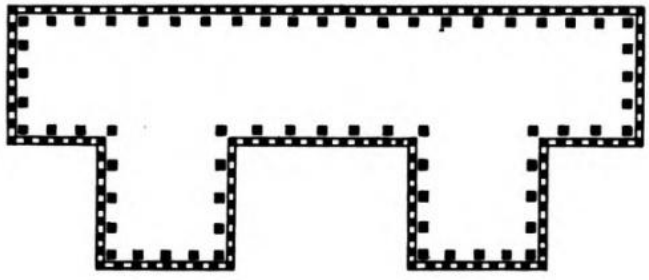

FIG. 2. SECOND STOREY (*ardhatala*)

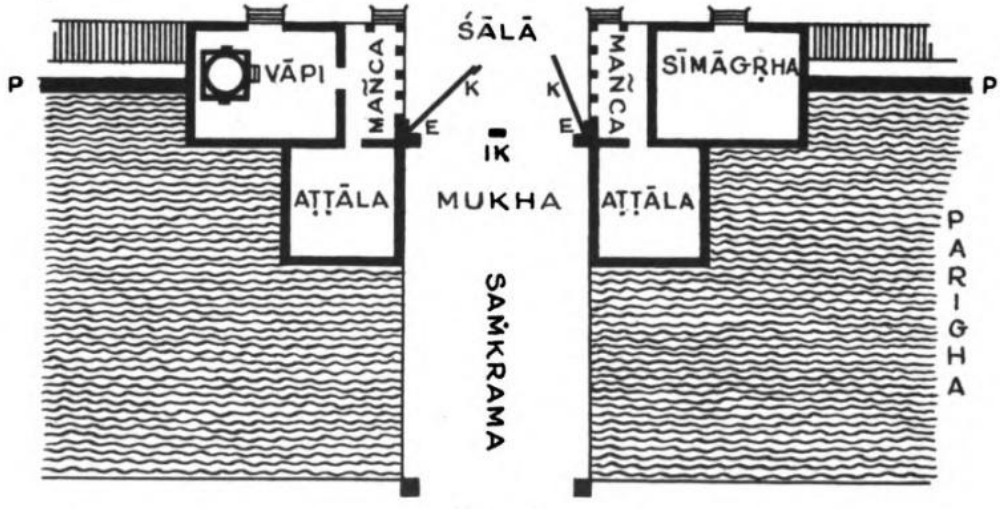

FIG. 3. GROUND FLOOR (*āditala*) WITH BRIDGE AND MOAT

Plans of a city gate (based on Kauṭilīya Arthaśāstra and early reliefs)

EARLY INDIAN ARCHITECTURE[1]

By ANANDA K. COOMARASWAMY

I. CITIES AND CITY-GATES, ETC.

The old Indian city is by no means to be regarded as a typically Brahmanical institution. Apart from the fact that we have remains of well-developed pre-Aryan cities in the Indus Valley sites,[2] and from the fact that the Vedas make occasional reference to the "cities of the Dasyus," it is to be observed that in the Brahmanical law books, which are very nearly, if not quite contemporary with the architectural period to be discussed below, cities are despised, and there are no ceremonies for urban life; the *Baudhāyana Dharma Sūtra*, II, 3, 6, 33, says "It is impossible for one to obtain salvation, who lives in a town covered with dust."

Flourishing cities nevertheless certainly existed in centuries preceding the Christian era. Megasthenes writing, about 300 B. C., described Pāṭaliputra as over nine miles in length. References to and descriptions of cities, and city organization in Buddhist literature, in KA., and in the Epics, and the representations in early Buddhist reliefs all suggest that in the Maurya period we have already to do, not with any new developments, but with the continuation of a long-established and familiar type of urban organization.

Some of the most detailed descriptions of cities are to be found in Mil. 1, 34, and 330 ff. The last of these, despite its length, may be quoted in full. "Just as the architect of a city, when he wants to build one, would first search out a pleasant spot of ground, with which no fault can be found, even, with no hills or gullies in it, free from rough ground, and rocks, not open to danger of attack. And then when he has made plain any rough places there may still be on it, he would clear it thoroughly of all stumps and stakes, and would proceed to build there a city fine and regular, measured out into quarters, with excavated moats and ramparts about it, with stout gate-houses and towers, with market-places, cross-roads, street-corners, and public squares, with cleanly and even main roads, with regular lines of open shops, well-provided with parks, gardens, lakes, lotus-ponds, and wells, adorned with many kinds of temples of the gods, free from every fault. And then, when the city stood there in all its glory, he would go away to some other land." There follows a long list of those who will inhabit such a city, nobles, soldiers, craftsmen, and of the foreigners who will resort to it: "all these coming to take up their residence there, and finding the new city to be regular, faultless, perfect, and pleasant, would know 'Able indeed must that architect have been by whom this city was built!' Just so . . . the Blessed One's City of Righteousness has righteousness for its rampart, and fear of sin for its moat, knowledge for its city-gate, zeal for the

[1]Mainly as referred to in the Pali literature and as represented in the reliefs of Bharhut, Sāñcī, and Amarāvatī. Terms are cited in Pali, Sanskrit, or Prakrit, according to their source. Where no particular text is cited, it is to be understood that the term is of very common occurrence, or that the sense is well known.

Abbreviations: Cull., *Cullavagga;* DhA., *Dhammapada Atthakathā;* DHA, Acharya, *Dictionary of Hindu architecture;* Div., *Divyāvadāna;* DN., *Dīgha Nikāya;* IAT., my *Indian architectural terms*, JAOS, vol. 48, 1928; J., *Jātaka* (Fausböll); KA., *Kauṭilīya Arthaśāstra* (Bk II, Ch. 21 unless otherwise stated); Mhv., *Mahāvaṁsa;* Mv., *Mahāvagga;* Mil., *Milindapañha*; MN., *Majjhima Nikāya;* MSA., my *Mediæval Sinhalese art;* PvA., *Petavatthu Atthakathā;* SBE., *Sacred Books of the East*

The *vaḍḍhakī*, *vaḍḍhakī* (Skt. *vardhakī*), architect, builder, carpenter (also shipwright, J. VI, 432), is by far the most important and oftenest mentioned of the craftsmen. Cf. Miln. 345. "When men see a pleasant city, they know by inference how great the *vaḍḍhakī* was." In J. II, 208, we have a Brāhmaṇavaḍḍhakī. Tools used by *vaḍḍhakīs* include adzes (*vāsi*, J. II, 18 and IV, 344); chisels (*nikhādana*, J. IV, 344), hammers (*muggara*, ib.), measuring line (*sutta, kāla sutta*, J. IV, 344 and VI, 332, pegged out with wooden pegs, *khāṇuka*, J. VI, 332); they work *sippānurūpena* "according to *silpa*-plans," perhaps a reference to *śilpa-śastras* (cf. *sippa, sippavant* in Pali Dictionaries). DHA rendering of *vardhakī* as "painter" is absurd. In Mhv. LXXXVIII, 106, 107, *itthikā-, cuṇṇa-, dāru-* and *silā-vaḍḍhakīs* are mentioned, i.e., bricklayers, plasterers, timberers (carpenters) and masons. While *vaḍḍhakī*, alone, is the carpenter as architect, we also get *tacchaka* as woodworker, Mil. 413.

[2]"The true creators of the city state were the Sumerians . . . the higher city civilisations of the Old World from the Mediterranean to India do form a great unity, and it seems possible to affirm their fundamental community alike in type and origin," Dawson, *The age of the gods*, pp. 117, 118. In other words, the city in Indian culture belongs to the "Early Asiatic" inheritance, and certainly cannot be regarded either as characteristically Aryan, or as a recent development in Maurya times.

FIG. 4. CITY OF KAPILAVATTHU

FIG. 5. CITY OF JETUTTARA (*Vessantara Jātaka*)

FIG. 6. CITY OF KUSINĀRĀ (WAR OF THE RELICS)

City gates, from Sāñcī

PLATE CXXIII. *Coomaraswamy: Early Indian Architecture*

gate-tower, faith for the pillars at its base, mindfulness for the guard, and wisdom for the palace, the Suttantas for the market place, the Abhidhamma for the public square, the Vinaya for its judgment hall, and constant self-possession for its street."[3]

Let us now assemble the available data in a more systematic way. Cities (*nagara*, *pura*) are built by city or master architects (*nagara-vaḍḍhakī*, *mahā-°*, Mil. 1, 2, 330; J. VI, 332), assisted by other carpenters (*vaḍḍhakī*, J. II, 18; IV, 153, 344; VI, 4, 27, etc.) and bricklayers (*iṭṭhaka-vaḍḍhakī*, Mhv. XXX, 5; J. VI, 333). All these live in villages, and are summoned when work is to be done. Of the carpenters in particular we learn that they lived in villages of their own, going up river to cut and fetch timber for town houses (J. II, 18; VI, 427). Eighteen guilds of craftsmen are employed in building a new city, and amongst these guilds (*seṇi*) are cited the aforesaid carpenters, the superior smiths (*kammāra*), workmen (*cammakāra*),[4] decorators and painters (*cittakāra*), "and others skilled in various crafts (*sippa*)" (J. VI, 427, cf. list of craftsmen in Mil. 331), who work according to the traditions of their craft (*sippānurūpena*, J. VI, 332).

The most conspicuous and necessary parts of a city are the moat (*pārikhā*) and rampart (*pākāra*), gates (*dvāra*, *gopura*), more specifically gate-houses (*dvāra-koṭṭhaka*), with their defense towers (*dvāra-aṭṭālaka*, *gopura-°*), other defense towers within and near, but not upon the rampart (*antaraṭṭāla*, J. II, 400), and the king's palace (*pāsāda*, *harmya*, *rāja-nivesana*, *vimāna*, etc.). Then there are other mansions (*nivesana*, *kūṭāgāra*) and houses (*geha*), temples (*devaṭṭhāna*, Mil. 92, 330; *koṣṭhaka*, a temple granary, KA., Ch. 25), granaries (*koṭṭha*, *koṭṭhaka*), resthouses or sarais (*sālā*, *puṇya-sālā*, J. I, 200 = *vissamana-sālā*, DhA. I, 269/270), halls and arenas for sport (*kīḷa-sālā*, *kīḷa-maṇḍala*, J. VI, 332/333 monasteries (*paṇṇa-sālā*), almonries (*dāna-sālā*, at city and palace gates, J. I, 262, IV, 402, VI, 97, 484, 487; *dānagga* "in hundreds," Mil. 2) elephant stables (*hatthi-sālā* J. VI, 432, etc.), shops (*āpaṇa*), bazaars (*antarāpaṇa*, Mil. 2), saloons, cook-shops, taverns, slaughterhouses (*pānāgara*, *odaniyā-ghara*, *soṇḍā*, *suṇā*, J. VI, 276, etc.).

There are parks (*uyyāna*, Mil. 34; J. III, 238, VI, 333), gardens (*ārāma*, Mil. 34) and flower-gardens (*pupphārāma*, DhA.. I, 270), lotus ponds and bathing tanks (*pokkhariṇi*, *nāhana-pokkhariṇi*, *nāhanodaka*, *udapāna*, *taḷāka*); sacred trees (*rukkha-cetiya*, often at the gates). There are main streets (*rāja-magga*, *mahā-patha*, *toraṇa-magga*, J. I, 199/200, III, 217, etc.), ordinary streets (*vīthi*, J. I, 89, and *antaravīthi*, J. I, 340), alleys and blind lanes (*patatthi*, *sandhi-bbūha*, J. III, 217), a main public square (*singhāṭaka*, Mil. 62; J. VI, 276), a market place (*caccara*, Mil. 332, meaning rather dubious), other squares and street crossings (*cattuka*, Mil. 34; J. I, 326 and 340; *sandhi*, Mil. 330). That some streets at least were exclusively inhabited by members of particular trades or castes, as in modern Indian cities, is indicated by J. VI, 485, *vessānaṁ vīthiyā*, *vessa-vithiyā*, "street of the Vaiśyas or merchants." Evidently the four main streets (*catumahāpatha*, J. I, 199/200) led direct from the gates to the central square (*singhāṭaka*) on which the palace abutted; for a city elder from the *singhāṭaka* can see a man coming from East, South, West or North (Mil. 62); a man proceeds directly from the city gate to the palace (J. VI, 412); and the *catumahāpathe*, as the place where a sarai is built (J. I, 200/201) is clearly equivalent to *singhāṭake*. A drain or sewer (*niddhamana*, *niddhamana-magga*, J. I, 425, 490) leads out of the city, and it is possible for a man to make his escape by it. Outside the city are suburbs (*nigama*, J. VI, 330), and rural villages (*yava-majjhaka-gāma*, J. VI, 330).

The city is laid out in quarters, *bhāgaso mitaṁ*, Mil. 1, J. VI, 46, etc. The plan is rectangular, usually square, with four gates, one in the middle of each wall, facing

[3]Based on the translation in SBE XXXVI, with verbal changes.

[4]*Cammakāra*, "leather-workers," but often apparently equivalent to *rathakāra*, wright or artisan generally, e.g., J. V, 174; PvA. 175. If *cammakāra*, as is not improbable, is equivalent to blacksmith or ironworker, this would be with reference to the use of leather bellows, cf. MSA., p. 194.

In J. VI, 432, sappers using leather sacks (*cammāluka*) dig earth and build ramparts; but the *cammakāra* are evidently craftsmen, not coolies.

FIG. 7. FROM AN ARCHITRAVE, MATHURĀ (CAT. I, 38)

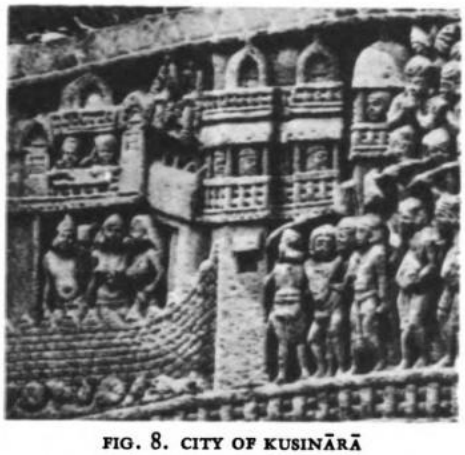

FIG. 8. CITY OF KUSINĀRĀ
(WAR OF THE RELICS)

FIG. 9. CITY OF JETUTTARA
(*Vessantara Jātaka*)

FIG. 10. CITY OF KOSALA

FIG. 11. CITY OF RĀJAGAHA

City gates, from Mathurā (Fig. 7) and Sāñcī (Figs. 8–11)

PLATE CXXIV. *Coomaraswamy: Early Indian Architecture*

the four quarters (J. I, 262; II, 171, 194; III, 129; IV, 83, 425; VI, 330, 347),[4] and as we have seen, four main streets led from these gates to the centre of the city. The gates are closed at night or in time of war (J. II, 412; VI, 406), and opened in the morning in time of peace. In the most general way the gates are called *dvāra*, or less often *gopura* (J. VI, 276, has the gloss *dvāra = gopura*); but more specifically, the term gate-house (*dvāra-koṭṭhaka*) is constantly employed. As the city is approached from without, the gate-house (also called *daḷha-gopura*, *daḷham-aṭṭāla-koṭṭha*, *daḷha-gopura-aṭṭāla-koṭṭha*) came into view, with its defense towers (*dvāra-aṭṭālaka*, *gopura-aṭṭālaka*)[5] on the city side of the moat.

The city is always surrounded by a moat or moats (*parikhā*, Skt. *paligha*) or at least a dry ditch. In the reliefs, the moat is indicated by growing lotuses, and in many cases the actual water is also shown; occasionally we see women from the city going down to the moat to fetch water, and in one case there is access on the city side through a little gate, so that the moat on the city side becomes effectively a *ghāṭ* (Fig. 4). In the texts, the water is usually taken for granted, but in J. VI, 432, a water-moat, *udaka-parikhā*, is specified. In Mil. I, the moat is "deep," *gambhīra*. In Mhv. XXV, 48, we find reference to a great triple moat, *timahāparikhā*; and the gloss to *utkiṇṇantara-parikhaṁ*, "deep excavated inner moat" of J. IV, 106, defines three successive external moats, *udaka-*, *kaddama-* and *sukha-parikhā*, one within the other, respectively a water moat, a mud moat, and a pleasure moat. J. VI, 276, has *parikhāyo*, moats, in the plural.

On the city side of the moat rises the wall (*pākāra*, Skt. *prākāra*), from a foundation or plinth (*vapra*)[7], which in the case of a dry ditch should perhaps be called a glacis. It is generally indicated in the reliefs that city walls are made of brick, but in one Sāñcī relief (Figs. A and 4), we find what is evidently a wooden wall of palisade construction,[8] and in this case the wall is continued along the edge of the bridge leading to the gateway; the *Uttarādhyayana Sūtra*, 30, 16 is authority for a *paṁśuprākāra*, earthen (laterite) wall, of a city. Mil. 1 has *paṇḍara-pākāra*, white wall.

Sometimes the wall is shown with reëntrant angles. It is finished off at the top either by a coping or more usually by battlements. In no case (single exception, Fig. 16), are towers on the walls represented, nor have I found any reference in the texts to the existence of such towers; defense towers are either the regular *dvāraṭṭāla* of the gate-houses, or free-standing towers (*antaraṭṭāla*) near the walls but within them (Figs. B, 6, 8, 11, etc.). The walls could be manned, having, no doubt, an inner gallery or pathway a little below the top, and approached by stairs as suggested in the plan (Fig. 3). The top (*matthaka*) of the wall was of some width: in J. VI, 275, Puṇṇaka's horse gallops along the *pākāra matthaka*.

The gate-house was approached by a bridge (*saṅkama*, Mil. 92, *saṁkrama*, KA) in the case of a water-moat, or earthen causeway (*pūrdvāri mṛtkūṭa*, *Śiśupālavadha*, III, 68, gloss) when the city was defended only by a dry ditch. Such a bridge or causeway seems to have been designated by the curious name of "elephant's nail" (*hastinakha*).[9] Such bridges, like thoroughfares, are public places, unsuited for serious talk (Mil. 92).

The traveller, crossing the bridge, and entering the city, passes between two

[4] But one Sāñcī relief (Fig. 6) shows two gates (one of unique form), not far apart in a single line of wall. Obviously, large cities must have had more than four gates; Pāṭaliputra, according to Megasthenes, had sixty-four. In Mhv. LXXXVIII, 116, the wall of Pulatthipura is circular: cf. representations of Ujjain in Jāina MSS., e.g. *Cat. Indian Collections, Boston*, Pt. IV, Pl. X (folio 75).

[5] In the *Uttarādhyayana Sūtra, ṭīkā*, IX, 18 (Charpentier, p. 314), gloss on *gopuraṭṭāla*, we have "the towers are military structures (*āyodhasthānāni*) connected with the rampart-house (*prākāraḥṣṭha*, presumably = *dvārakoṭṭhaka*).

[7] *Vapra* may be sometimes synonymous with *pākāra* (DHA, 534), but in KA XXIV we have *vaprasyopari prākāram*.

[8] Doubtless heavy planks laid horizontally and fastened by solid uprights. This type of construction is well seen in the conduit (*niddhamana*?) walls recently excavated at Pāṭaliputra (*Illustrated London News*, March 24, 1928, p. 477).

[9] "Elephant's nail," originally a kind of capital composed of addorsed elephants, their forefeet projecting beyond the abacus so as to make the toe-nails conspicuous when seen from below; secondly, a balcony or bridge supported by such a capital; finally, even a causeway substituted for such a bridge. See IAT, pp. 258, 259. (It was by an oversight (thinking of *kesara-nakha*) that I adduced *kesa-nakha* (which means hair and nail-paring relics) as a parallel here).

FIG. 12. CITY OF RĀJAGAHA(?)

FIG. 13. CITY OF BENARES
(*Chaddanta Jātaka*)

FIG. 14

FIG. 15. CITY OF KUSINĀRĀ
(PARTITION OF THE RELICS)

FIG. 16

FIG. 17

City gates, Sāñcī (Fig. 12) and Amarāvati (Figs. 13-17)

PLATE CXXV. *Coomaraswamy: Early Indian Architecture*

high towers, the *dvāra-aṭṭālaka*, *gopura-aṭṭālaka*; these are forwardly projecting members of the gate-house, towers of defense, to be manned in case of necessity (J. II, 217, and VI, 409, and as represented in the reliefs). In J. II, 244/5 we read of a king who ascends (*abhirūhitvā*) and again comes down from (*otaritvā*) a gate-tower; in all probability these towers contained the stairways which led to the upper floors (KA, Ch. 21, discussed below).

The main part of the gate-house is even or continuous (*prākāra-sama*, KA, and as seen in the reliefs), with the rampart on either side, and in the centre bridges the great hall (*sālā*) of the gate-house, and connects the two towers already mentioned; the two ends contiguous with the rampart extending to right and left of the forwardly projecting towers are similar to these in appearance, and form, in fact, two other towers of defence. The space between the projecting towers and immediately in front of the great gate-hall is the "mouth" (*mukha*,[10] KA, Ch. 21).

It is often clearly indicated in the reliefs that the whole basement of the gate-house is of brick. In any case, the basement wall is unbroken up to the level of the second storey, except that high up on the front face of each of the forward towers there is a small horizontal slit window; or more rarely a group of small square apertures; these loopholes probably served the double purpose of lighting the stairway inside, and of a post for archers. The ends of the supporting beams of the second or mezzanine floor (*ardha-tala*, KA) are generally clearly shown, projecting at the top of the basement wall. Probably with reference to its pavilion-like construction (*sthūṇāvabandha*, KA, Ch. 21) this second floor is designated *harmya* (*ib.*); a railing (*vedikā*), pillars (*thambha*) and cornice are always clearly shown. Above this is a top floor, supporting an attic-house or roof apartment (*uttamāgāra*, KA, Ch. 21), with brick walls, four gable window ends (*mahāvatapāna*) and thatched, barrel-vaulted roof (*chadana*), having its ridge (*kūṭa*), surmounted by finials (*ghaṭa* or *kalasa*, DhA, I, 414) on each gable and at intervals along the roof ridge. No doubt the barrel-vaulted roof was constructed as usual of curved rafters (*gopānasiyo*) resting against an internal roof-ridge (*kūṭa*, Mil. 38; DhA, I, 414), or if with apsidal ends, against circular or semi-circular roof plates (*kaṇṇikā*).[11] In J. VI, 125, the gateway of the Tāvatimsa heaven is called *citta-kūṭa-dvāra-koṭṭhaka* "gate-house of the painted (or decorated) roof-ridge." The same gate-house is set about with statues of Indra "as though guarded by tigers;" evidence, perhaps, that statues of a reigning king might be set up at a city gate.

The actual gateway, opened or closed as occasion required, consisted of a pair of heavy wooden panels (*kavāṭa*, Skt. *kapāṭa*), sometimes iron-bound or studded (*ayo-kammata-dvāra*, Mhv. XXV, 28) and turning on tenons above and below. The upper parts of these leaves closed against the top of the archway, (*toraṇaśiraḥ*, KA), the lower part against the heavy *indakhīla* (Skt. *indrakīla*) embedded in the ground between the pillars of the *torana*, and forming a low threshold.[12] The gate leaves are not often visible in the reliefs, but can be very clearly seen in Figs. A and 4 where a half-opened leaf partly conceals a soldier standing in the entrance; and in Figs. C and 6 we see the besiegers battering on the leaves of the door (cf. *kavāṭe thāpetvā*, "beat against the door panels", in this case, however, of a palace, J. IV, 182). Having regard to the necessity of providing passage for elephants with riders, we may suppose the dimensions of the gate aperture to have been something like twenty by eighteen feet, and many existing mediæval city or fort gateways are quite as large as this; and from this, some idea of the size of the whole gate-house can be deduced.

[10] *Mukha* = entrance, not as structure, but as space: cf. the *bahimukha*, entrance from without, of apartments (*thāna*) in a sarai (*sālā*), J. VI, 333.

[11] See my *Pali kaṇṇikā* = *circular roof-plate*, to appear in J.A.O.S., vol. 50.

[12] *Indakhīla*, in DhA, II, 180, 181, a symbol of stability. Generally, "threshold," e.g., Div. 250, 20; 365, I: *Mahāvastu*, I, 195, 16; I, 235, 12; I, 308, 7: *Madhyamikasūtravṛtti*, 199, 13. In J. I, 89, *indakhīle thito* "standing at the gate" (of Kapilavatthu). In DN. II, 254, we have *chetvā khīlaṃ* (v. l. *khīlaṃ*) *chetvā paligham inda-khīlaṃ ūhacca-m-aṇṇā* "all bars and bolts are hewn in twain, the threshold-stone dug up." Professor Clark informs me that *indakhīla* is rendered in Tibetan (e.g. *Mahāvyutpatti*, ed. Sakaki, 5582) by words meaning "threshold" or "steps at the threshold." *Khīla* alone = pillar (DN. II, 254), and *kīla* has this sense when *indrakīla* denotes "Indra's flagstaff" as in *Mahābhārata*, VI, 59, 122.

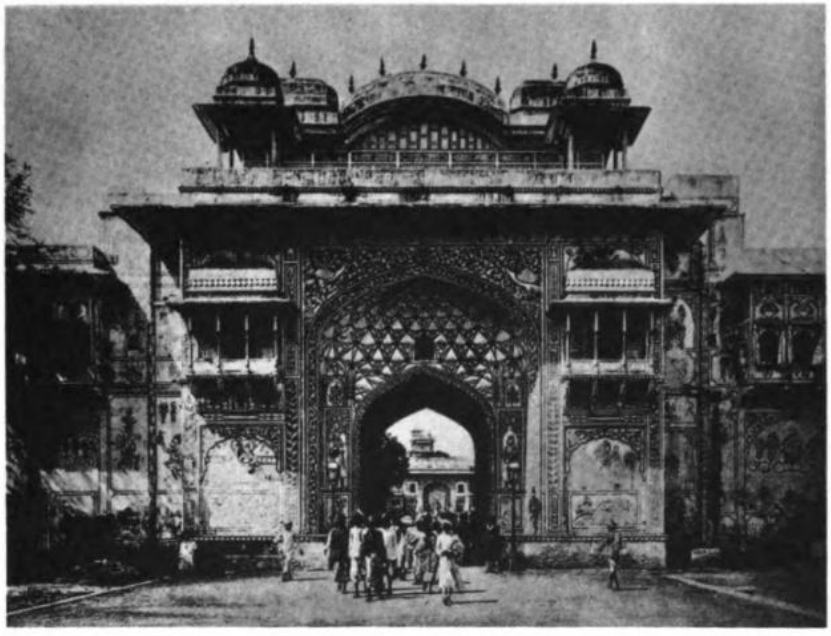

FIG. 18. JAIPUR, CITY GATE (AFTER REUTHER)

FIG. 19. BĪJĀPUR, FORTRESS GATE (AFTER REUTHER)

Later city and fortress gates.

The gate-leaves are framed at the sides by heavy jambs, usually called *esikā* (Mil. 332; J. II, 94/95 and VI, 276, glossed as *thambhas* set firmly in the ground) but the word *esikā* may include all the gateway pillars, that is the bolt post, jamb, and *toraṇa*-upright at each side (cf. Fig. 20). In J. VI, 276, *toraṇāni* is glossed *piṭṭha-saṁghāṭa* (the usual terms for jamb in the case of smaller doorways) but this must be regarded as a rather casual use of terms, not strictly correct: for the use of *toraṇāni* in the plural cf. Fig. 20. When closed, the gate-leaves are secured by one, or perhaps usually two (KA) heavy cross-bars (Pali *paligha*, Skt. *parigha*)[13] resting in slots in the bolt-posts immediately behind the jambs, for example *Buddhacarita*, V, 82, *guru-parigha-kapāṭa saṁvṛttā*, "the heavy bar and gate-leaves being closed." We also find mention of *aggalāni*, bolts, which are well known in connection with smaller doors; in J. VI, 276 and 483 the Commentator makes *aggalāni=dvāra-kavāṭāni*, but this again must be regarded as casual. In KA the fastenings of the *aṇidvāra* are called *hasti-parigha*. J. VI, 483 gives us *citraggala*, decorated bolt, and J. V, 169, *rajataggala*, silver bolt. When the gate is attacked by elephants, stress is laid on breaking down the *toraṇa* or *toraṇas*, breaking the *paligha*, and uprooting the *esikāni* (J. II, 94/95; DN. III; 14, 254).

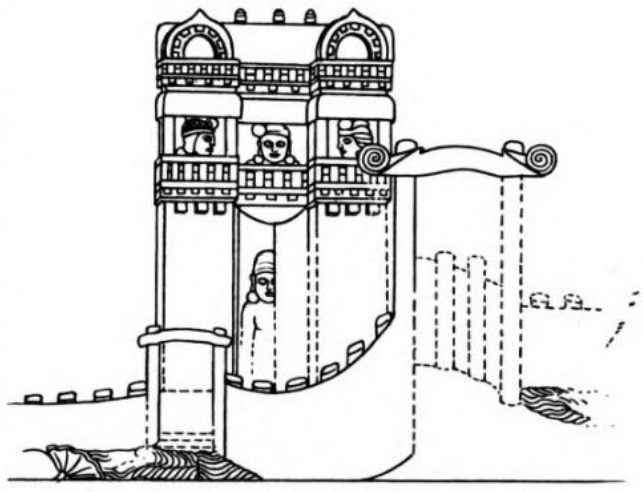

FIG. A. DIAGRAMMATIC SKETCH OF A GATE-HOUSE, MOAT, AND BRIDGE (SEE FIG. 4)

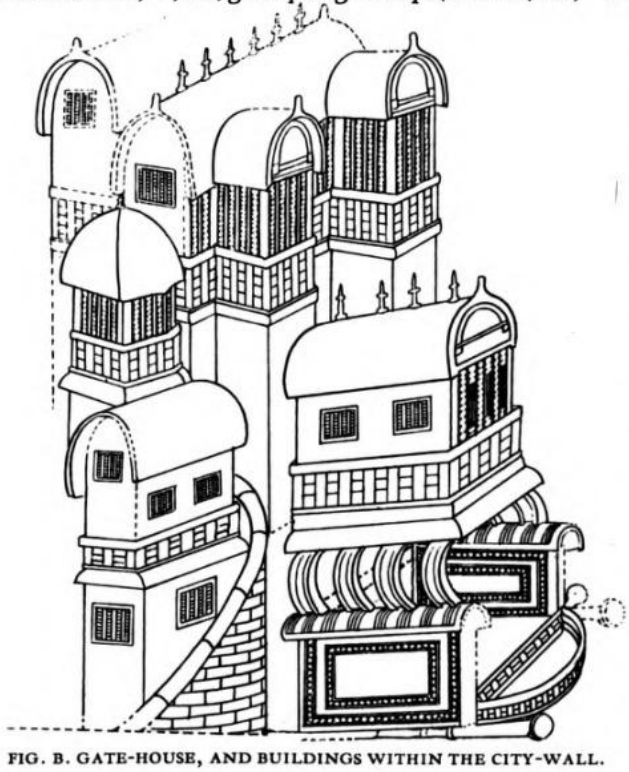

FIG. B. GATE-HOUSE, AND BUILDINGS WITHIN THE CITY-WALL. THE STRUCTURE IN FRONT TO RIGHT IS A MOVABLE VEHICLE, A KIND OF PALANKEEN. AMARĀVATĪ, MADRAS MUSEUM

Passing between the gate-posts (*esikāni*) under the arch (*toraṇa*) of the door, and between the two swinging door panels (*kavāṭa*) or when the great gates are closed, through the *cūḷa-* or *aṇidvāra* which opens through one of the large panels (J. VI, 391, 399, 401, and KA),[14] the traveller enters

[13] Pali *paligha* (=Skt. *parigha*) or *palikha* is always a cross-bar closing a gate, *parigha* (Skt. *paligha*) or *parikha* a moat. In J. II, 400, *parikhaṁ bhinditvā*, the sense requires *palikhaṁ*, and perhaps an emendation should be made.

[14] A smaller door cut in one of the large gate-leaves is a constant feature of mediæval gateways, and I have seen many examples. In J. VI, 406, the *cūḷa-dvāra* and *dvāra* (here= *kavāṭe*) of a city gate are contrasted; but *cūḷa-dvāra* is not exclusively a technical term for a door in a great gate, for in J. VI, 432, 460, *cūḷa* and *mahā-dvāras* are simply small and large doors of interior chambers. In the *Gobhila Gṛhya Sūtra*, IV, 7, 19–20 *aṇidvāra* is the back door of a house.

FIG. 20. CITY GATE DABHOI, GUJARĀT

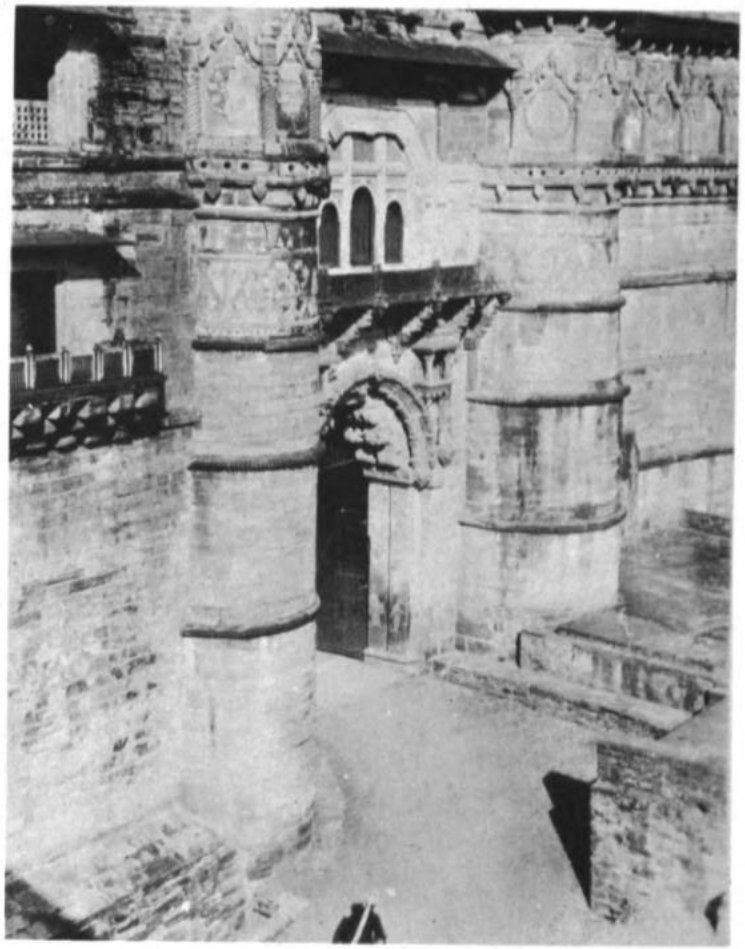

FIG. 21. FORTRESS GATE, GWĀLIAR

Later city and fortress gates.

PLATE CXXVII. *Coomaraswamy: Early Indian Architecture*

a large hall (*sālā*, KA, Ch. 21) roofed by the second storey (*ardha-tala*) of the actual gate-house. On either side of him are stone platforms (*pratimañcau*).

An integral part of the gate-house is the *toraṇa* (*varaparava gopura-toraṇa*, "splendid gate-arch," Mil. 1), or arch against which the gate-leaves close from within; the upper part of this arch being designated *toraṇa-sirahs* (KA) and the threshold *indakhīla*, Skt. *indrakīla* (see above). Such arches are easily recognizable in mediæval fortress gates, e.g. at Dabhoi, Fig. 20, and Gwālior, Fig. 21, but they cannot be made out at Sāñcī or Amarāvatī, where we can hardly ever see far enough into the *mukha* for the actual gateway to be visible. In one case, at Sāñcī (Figs. A and 4) there is evidently no such arch, but there is a kind of semi-circular door-stop at the top. At Bharhut, no representation of a city gate is preserved, but we have several illustrations of *dvāra-koṭṭhakas* of palace or temple enclosures (Cunningham, *Bharhut*, Pls. XVIII, XIX); these are of a simpler type, but large enough to admit an elephant and rider, and here a pointed arch of the kind elsewhere so familiar in the early art, is a conspicuous feature of the structure.

I cannot satisfactorily explain the "high *patthaṇḍilā*" with which a city *gopura* is provided, Mhv., LX, 3; the upper stories (cf. *tala* in KA) of the gate-house may be meant. Cf. Geiger, *Culavaṁsa*, trans. 1, 214; and MN, II, 155.

Quite distinct from the *toraṇa* of the actual gateway are the freestanding *toraṇas* which are frequently represented as situated at the bridge-end remote from the city; through these arches one must pass when entering or leaving the city, but it is obvious that they served an ornamental and honorific purpose, and had no value for defense. In function they differ in no way from the *toraṇas* elsewhere represented, or extant as at Sāñcī, as set up at the entrance to any sacred or honorable area or enclosure; and no doubt because they are taken for granted in this sense, and because they have no defensive value, we do not find them referred to in the literature.

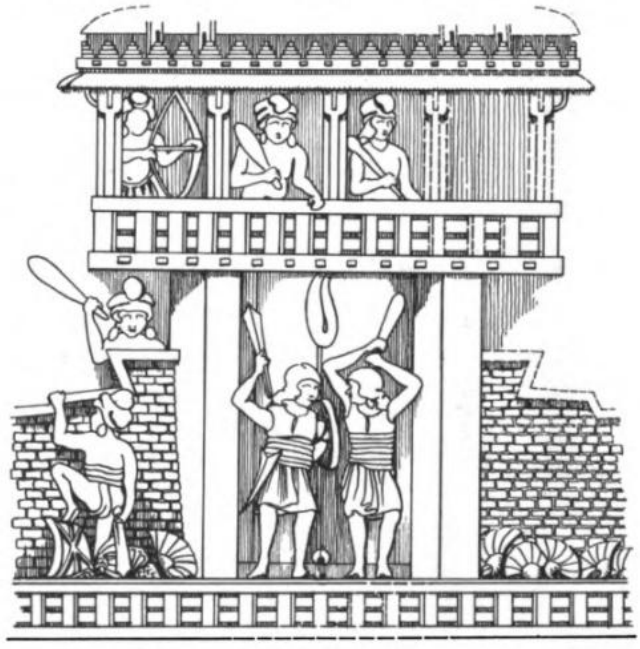

FIG. C. A SECOND TYPE OF CITY-GATE, REPRESENTED ONLY IN ONE RELIEF (SEE FIG. 6). SĀÑCĪ

KA describes the gate-house of a fort (*durga*), substantially identical with that of a fortified city (for *durga-nagara* cf. *Āghāṭa-durgge* in the colophon of a Jāina manuscript described on p. 237); the nomenclature has already been made use of above. The passage is full of difficulties; but as these can be, at least in part, resolved by comparison with the passages cited already, it will be desirable to offer here a new rendering of the greater part of it.

The text informs us that "the ground floor (*āditala*) has five divisions, a hall (*śālā*), well-room (*vāpī*), and boundary-house (*sīmāgṛha*), and two platforms (*mañcau*) opposite to each other and each a tenth part of the whole (area)." I take this to refer to the ground plan thought of as of the lower part of the main structure as seen from the city side, and represented in the accompanying diagram, Plate 1 (based on KA, the Pali texts, and the reliefs).

FIG. 22. BODHI-GHARA, BHARHUT

PLATE CXXVIII. *Coomaraswamy: Early Indian Architecture*

Here the "hall" is the large passageway through the gate-house, i.e., the covered space, on the city side of the gate-leaves, appropriately called a hall because it is roofed by the superstructure. The "platforms" are clearly the open rooms with floors at some height above the road level, right and left of the hall; such platforms occur in all mediæval and later city gates, and are really the guard-rooms occupied by the soldiers (*dovārika*) on duty. Then the outermost room on one side is the well-room, that on the other, the "boundary-house," *sīmāgṛha*, explained by the Commentator as *koṣṭhagṛha*. Now in J. II, 378, we find the *doṇamāpaka*, the receiver of the king's dues paid in rice, seated at the door of the *koṭṭhāgāra*, superintending the measuring of the king's rice which has been brought into the city. Presumably, the granary door (*koṭṭhaka-dvāra*) is closed: anyhow, when it comes on to rain, the officer runs into the *dvāra-koṭṭhaka*, i. e., probably into the open *śālā*.[15] "Boundary-house" and "storehouse" are thus both designations of that part of the gate-house used for the temporary storage of taxes paid in kind; and possibly these should also be identified with the *sulka-śālā* or toll-house which, as we know, existed at the city gate for the collection of octroi on goods brought into the city for sale.

The text continues: "Then there is a pillared (*sthūṇāvabandha*) pavilion (*harmya*) forming an elevated mezzanine floor (*ardhatala*) i.e., the second floor)." This is quite clear and corresponds exactly with many of the reliefs, e.g., Fig. 8, though the number of upper storeys may actually be one, two (as in KA), or three (cf. Fig. 9).

"Then there is an uppermost house (*uttamāgāra*) covering half the area (*vāstu*), or (in other words about) three-quarters the width (of the roof of the second story); this house has brick walls."

Here, too, the description suits the representations; and, generally speaking, nothing is commoner than such a roof-apartment, occupying the greater part of the flat roof of a building, but having a verandah space separating its walls from the railed parapet of the roof. The word *uttamāgāra* aptly describes such a roof-apartment.

"In the left (tower) there is a stairway turning rightwise, and in the other (tower) a stairway with concealed (or concealing) walls (*guḍhābhitti*)."

"The head (*śira*) of the gateway arch (*toraṇa*) measures two cubits. The two gate-panels (*kavāṭa*) occupy three-fifths (of the total width of the passage); there are two cross-bars (*parigha*) and an *indrakīla* of an ell's measure." The *indrakīla* is glossed as *kavāṭadhāranārtha pradāna*, and plausibly explained by Meyer as a kind of door-stop against which the folding panels meet below when they are closed.

"The accessory door (*aṇidvāra*) is five cubits in width and has four elephant cross-bars (*hasti-parigha*)." The position of the *aṇidvāra* and the exact significance of *hasti-parigha* are not clear; but perhaps what is meant is the small door generally to be found in one of the door panels, for use when the panels themselves are closed. Such a small square door might very well be said to have four *parighas* if we suppose the fastening to have been of the type illustrated in MSA., Fig. 82 (*daṇḍu-agula*).

"And for access an 'elephant's claw' (*hasti-nakha*) supporting a bridge (*saṁkrama*) level with the entrance (*mukha*); or an earthen embankment when there is no water (available for a moat)." I have shown elsewhere (IAT, pp. 258/259) that *hasti-nakha* is primarily a pillar with an elephant capital, and so-called because only the nails of the elephant's feet are visible to the observer from below. From the text above it is evident that the bridge over a moat was supported by such a pillar, and so perhaps in a derivative sense came also to be designated as a *hasti-nakha*; certainly Amara's gloss on *hasti-nakha* in *Śiśupālavadha*, III, 68, viz. *pūrdvāri mṛtkūṭaḥ*, shows that the

[15]For the use of the gate-hall in such a way, cf. J. VI, 514, where "the Bodhisattva did not enter the city, but sat down in the gate-hall (*nagara-dvāre nisīdi*):" and *Mṛcchakaṭikā*, III, 3, where a servant takes a nap in the *bahidvāra-śālā* (of the palace). For this typical use of gates in the East see Perrot et Chipiez, *La Perse*, II, pp. 69-72.

term had by his time come to denote the earthen embankment which formed a way down from the city gate to the open country beyond the ditch.

Finally, we have: "The gate-house (*gopura*) is to be made (accordingly), continuous with the rampart (*prākārasamam*), and built over the entrance (*mukhamavasthāpya*), and three parts of it form the 'lizard's mouth' (*godhāmukha*)." The last term presumably refers to the entrance itself, elsewhere simply called *mukha;* probably this "mouth" was also called "the lizard's mouth," just as we might call the gateway of a fortress "the lion's jaws": or *mukha* may apply to both the front and rear portions of the entrance.

Finally, it may be remarked that mediæval and even modern Indian architectural forms are directly derived from and often preserve the most characteristic features of the ancient forms. Some acquaintance, indeed, with a mediæval Indian fortress gateway is essential to a proper understanding of the description given in KA and discussed above; if, for example, one has passed through the iron-studded doors of a city or fortress gate-house still in use, or if the latter are closed, through the accessory door cut through one of the *kavāṭa* and noticed the guards seated on stone platforms (*cābutra*) right and left of the passage through the great hallway, the sense of the words *aṇidvāra* and *pratimañcau* becomes immediately evident. Or, as in Fig. 21, we may note how closely the whole construction of a modern gate-house may correspond to that represented in the ancient reliefs. I have not attempted to discuss the relationship of Indian city fortifications with Babylonian types, though analogies are evident (cf. the Ishtar gate of Babylon, Koldewey, *Das Ištartor*, Wiss D. O. G., No. 19, 1918).

Other articles in the present series will deal with tree temples (No. II of the series, printed below); houses and palaces; hermits' huts and domed shrines and early towers; windows, arches, and doorways; and pillars.

Description of the Illustrations

Plate I. Plans of a *dvāra-koṭṭhaka*, compiled from data cited in the text and from the reliefs; not to scale.

Fig. 1. *Uttamāgāra*. Fig. 2. *Ardhatala*. Fig. 3. *Āditala*. E = *esikānī:* IK = *indrakīla:* K = *kavāṭa:* P = *pākāra*. Thick black lines represent brick walls; small squares, pillars. The two pillars at the outer end of the *saṁkrama* are the *stambhas* of the free-standing *toraṇa* at the bridge end. The *stambhas* of the gateway *toraṇa* are included with the *esikānī*.

Plate. II. Three reliefs from Sāñcī:

Fig. 4. Kapilavatthu (The Great Renunciation, see Marshall, *Guide to Sanci*, p. 60). One of the *kavāṭa* is shown half open, and behind it stands a *dovārika* (or deity acting as such), half seen. The bridge is provided with a palisade parapet like the city wall. The *toraṇa* at the bridge end is clearly shown. Buildings within the city are seen above (beyond) the city wall, on the left. By a side door women have access to the moat and are fetching water. Sāñcī, east *toraṇa*. See also Fig. A.

Fig. 5. Jettutara (*Vessantara Jātaka*, see Marshall, *Guide*, p. 53). A woman is standing in the *mukha* of the gateway, between the two *aṭṭālakas*; another carrying a *bhiṁkāra* (*Jāt.* VI, 345) stands on what would be the bridge, if bridge and moat had been shown. Buildings within the city are seen above the city wall on the right, and above (beyond) the gate-house. Sāñcī, north *toraṇa*.

Fig. 6. Kusināra (War of the Relics, see Marshall, *Guide*, p. 49). Gate-house of usual type on the left, an armed soldier standing in the *mukha* between the *aṭṭālaka*. City

wall and moat, with attacking soldiers in centre. On the right a second gate of another type (see drawing, Fig. C). Within the city wall on the left, an *antaraṭṭāla*. Other buildings in the city are seen above the wall between the two gates. Sāñcī, south *toraṇa*. Cf. *Jātaka*, VI, 400 "When they were in the moat, attempting to destroy the wall, the men in the towers (*antaraṭṭālesu*) dealt havoc with arrows, javelins, spears, and so forth."

Plate. III. Mathurā and Sāñcī:

Fig. 7. (Kusinārā, War of the Relics ?), walled city with gate-house to right; the *kavāṭa* are indicated. Outside the city wall is an apsidal shrine (the only example anywhere illustrated in an old relief). Mathurā, perhaps first century A.D., I 38 in the Mathurā Museum, *Catalogue* p. 140.

Fig. 8. Kusinārā (War of the Relics, Marshall, *Guide*, p. 69). Army of the Mallas entering the city by the gate-house. Accessory defence tower (*antaraṭṭāla*) on the right. Immediately left of the gate-house, within the city, is a minor gateway of a common type. Sāñcī, west *toraṇa*.

Fig. 9. Jettutara (*Vessantara Jātaka*, Marshall, *Guide*, p. 54). Women with water jars are emerging from the *mukha* of the gate-house. Buildings within the city above (beyond) the wall and gate-house. Accessory defence tower within wall to right of gate-house (next to horse's head). The gate-house has two *harmya* storeys in place of the usual one, making four floors in all. Sāñcī, north *toraṇa*.

Fig. 10. Sāvatthi (?) (see Marshall, *Guide*, p. 59). A horseman is issuing from the *mukha*. Buildings are seen within the city above (beyond) the gate-house, on the left and city wall on the right. Sāñcī, north *toraṇa*.

Fig. 11. Rājagaha (see Marshall, *Guide*, p. 65). A chariot is emerging from the *mukha* of the gate-house. The city wall is seen as usual, to left of the gate-house (above the horses), but then turns abruptly upwards so that only the coping is visible, seen from above—an interesting and unusual consequence of the vertical projection. A building within the city is seen just above (beyond) the gate-house; and a small accessory defence tower just within the wall to the left of the gate-house. Sāñcī, east *toraṇa*.

Plate. IV. Sāñcī and Amarāvatī:

Fig. 12. Rājagaha ? (see Marshall, *Guide*, p. 60). King in chariot issuing from the *mukha* of a city gate; city wall to left. City or palace buildings within. Sāñcī, north *toraṇa*.

Fig. 13. *Chaḍḍanta Jātaka*. Men passing in and out of a city or palace gate-house, king seated in palace within. Part of city or palace wall seen below. Amarāvatī.

Fig. 14. Cortege issuing from a city or palace gate, king seated in palace within to left. No part of the wall is seen, but the free-standing *toraṇa* in front of the gate at the bridge end is seen (or possibly this *toraṇa* belongs to a sacred enclosure to right, which the king on horseback is about to visit). Amarāvatī.

Fig. 15. Kusinārā. Partition of the Buddha's relics. A Malla chieftain with a reliquary, on an elephant, emerging from the *mukha* of the gate-house of the city. Within the city, right, above, the division of the relics, below, dancers in honour of the relics. In the foreground an accessory defence tower, not as usual within, but forming a part of the wall, of which a small part is seen extending downwards to the right. Amarāvatī, Madras Museum.

Fig. 16. King on elephant issuing from the *mukha* of a city gate; the umbrella-bearer has just passed under the free-standing *toraṇa* at the bridge end. A small part of the wall is shown immediately below and to right of the horse. Amarāvatī.

FIG. 23. MATHURĀ

FIG. 24. BHARHUT

FIG. 25. BHARHUT

Bodhi-gharas, Mathurā and Bharhut

PLATE CXXIX. *Coomaraswamy: Early Indian Architecture*

Fig. 17. Story not identified: a woman thrown over a city wall, king seated in palace above. To the right is one tower of a gate-house, the rampart extending downwards from it to the lower margin. The second tower, to right, is not preserved. Amarāvatī, Madras Museum.

Plate V. Mediæval and modern city and fortress gate-houses:

Fig. 18. Jaipur, city gate. Note the three storeys, the middle one of *harmya* type, the upper a railed roof-apartment exactly corresponding to the *uttamāgāra* of the old gate-houses.

Fig. 19. Bījāpur: bridge, gateway, and two flanking towers. Both figures after Reuther, *Indische Paläste und Wohnhauser*.

Plate VI. Mediæval and modern city and fortress gate-houses.

Fig. 20. Gateway in city wall, Dabhoi. One open gate-leaf (*kavāṭa*) is seen to left in the middle of the *śālā*, between the two double *toraṇas:* at the base of the *kavāṭa* is seen the accessory door (*aṇidvāra, cūḷadvāra*) for the use of pedestrians when the *kavāṭa* are closed.

Fig. 21. Gwāliar, Hāthī Paur of Mān Siṅgh's palace, ca. 1500 A.D.; showing the two side towers, and the *toraṇa* of the gate-proper (the gate being open, one leaf is seen).

II. Bodhi-gharas

In a numerous series of representations of the Bodhi tree, from Bharhut, Mathurā, and Amarāvatī, and all dateable within the four centuries ca. 175 B.C. to 225 A.D., the tree with its accessories (*vajrāsana* and a symbol) is represented as surrounded by a two- or occasionally three-storeyed hypaethral temple. Such temples of the or any Bodhi-tree are referred to in the literature as *Bodhi-gharas* (*Mahāvaṃsa*, XXXVI, 31[16] and XXXVII, 15 and 31). Strictly speaking any Bodhi-tree, with or without a temple structure, is also a *rukkha-cetiya* or *caitya-vṛkṣa*, or tree-shrine; but these terms in the Buddhist literature seem to be reserved wholly or mainly for tree-shrines not specifically Buddhist.

More or less detailed references to the manner in which a Bodhi-tree was worshipped, and to Bodhi-gharas are found in various places. In the *Aśokāvadāna*, Aśoka, having vowed to pour upon the Bodhi-tree at Bodhgayā perfumed water from four thousand precious vessels "let make an enclosure surrounding the Bodhi-tree on all four sides, and mounting upon it," fulfilled his vow.[17] It is impossible to say certainly whether by "enclosure" a permanent Bodhi-ghara is to be understood; from the Chinese words employed we can only deduce that the structure was rather of the scaffolding type, made of wood and not of stone (it is obvious that all but one of the Bodhi-gharas here discussed and illustrated were actually wooden structures).

The Sanskrit form *caturdiśaṃ vāraṃ baddhvā svāyam eva ca vāram abhiruhya caturbhiḥ kumbhasahasrair bodhisnapanaṃ kṛtavān*, corresponding exactly to the rendering from the Chinese already given, occurs in the *Divyāvadāna*, p. 404. The editors, following Burnouf, render *vāraṃ* as "platform;" but "enclosure" would be preferable. Przyluski's suggestion of "bassin" to hold the water poured at the foot of the tree is untenable, since Aśoka mounted upon it: the enclosure must have been a sort of

[16]Here *Mahābodhighare pācīne* should be rendered "on the east side of the Great Temple of the Bodhi-tree," not as by Geiger, "in the eastern temple of the Great Bodhi-tree."

[17]Przyluski, J., *La légende de l'Empereur Aśoka*, 1923, pp.267, 433.

[18]In the *Divyāvadāna* version *baddhvā*, "tied" seems at first sight to support the idea of a temporary scaffolding: but it should be remembered that this constructional method was employed even in the case of permanent wooden buildings (see IAT, p. 265, *s. v. nāraca*, and also the *Rāmāyaṇa* passage cited by Cunningham, *Stupa of Bharhut*, p. 100).

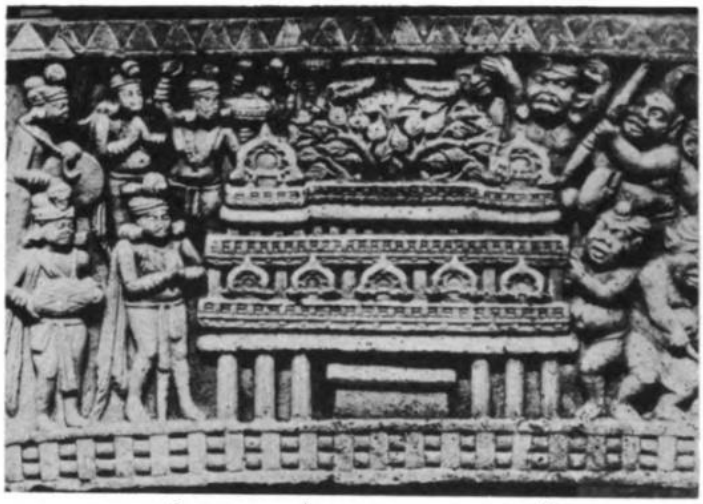

FIG. 26. VISIT OF AŚOKA AND ASSAULT OF MĀRA

FIG. 27. VISIT OF DEITIES

FIG. 28. VISIT OF AŚOKA

Bodhi-gharas, Sāñcī

PLATE CXXX. *Coomaraswamy: Early Indian Architecture*

gallery, and may have been a finished Bodhi-ghara.[18] All the Bodhi-gharas represented in the reliefs are in the same way essentially enclosing galleries, large and strong enough to bear the weight of several persons. As in the case of temples generally, so in our case of the tree-temples, it may be safely assumed that there existed a close relation between form and function—the structure was not merely honorific, but was adapted to requirements determined by the nature of the usual offices; for the actual lustration of a tree, only a high surrounding gallery could have served.

Whether or not the "enclosure" of the *Aśokāvadāna* was a permanent Bodhi-ghara there can be little doubt that in the second century B.C. the Bodhi-tree was already surrounded by a structural Bodhi-ghara, since it is so shown in reliefs at Bharhut and Sāñcī (Figures 22, 36, etc.); these reliefs are supposed to represent the Bodhi-ghara built by Aśoka, as indeed may actually have been the case. It may be this original Bodhi-ghara which is referred to in a Bodhgayā pillar inscription as the *rājapāsāda cetikā*;[19] and that it only ceased to exist in its original form (very likely restored or rebuilt as occasion required) when it was replaced, perhaps in the time of Huviṣka, anyhow not later than in the Gupta period, by the present "Great Gandha-kuṭi of the Vajrāsana.[20]" When this temple of the *vajrāsana* was built as a structure not open to the sky, the Bodhi-tree had of course to be moved, and there could have been no fundamental objection to this, since it is the position of the *vajrāsana*, rather than that of the tree, that is of cosmic significance. This new temple was built just after the time when the Buddha image had began to take its place as the principal cult object; the cult of the tree, though it has never been discontinued, thus lost its primary importance, and it is probably for this reason that the building of elaborate Bodhi-gharas seems to have ceased soon after the close of the second century, there being no representations of hypaethral temples subsequent to the late Āndhra reliefs.

The bestowing of royal consecration on a Bodhi-tree is several times mentioned in the *Mahāvaṁsa*, thus XVIII, 36, "Aśoka consecrated the Great Bodhi-tree as king of his realm." That this kind of consecration has been bestowed is perhaps to be understood whenever, as in Figures 22, 23, 26, etc. we see the tree surmounted by or provided with a *chatta* or royal umbrella.

In *Jātaka* No. 479 (*Jātaka*, IV, 229–236) the honouring of another Bodhi-tree, that planted by Ānanda at the Jetavana monastery in the Buddha's own life-time, is described in greater detail, and the ceremonies are called collectively a *Bodhi-maha*, or Festival of a Bodhi-tree. The king offers to this tree "eight hundred jars of scented water furnished with water-lilies, and a long row of full-vessels," worships the tree with music, wreaths, and cartloads of flowers, has an altar (*vajrāsana*) and a railing (*vedikā*) made of the seven precious substances, spreads golden sand in the courtyard (*aṅgana*) about the tree, and builds about the whole Wisdom-area (*Bodhi-maṇḍa*) an outer enclosing wall (*pākāra*) with a gate-house (*dvāra-koṭṭhaka*) again of the seven precious substances. Nothing is said about a Bodhi-ghara in this case.

The smoothing and sanding of the *aṅgana* or courtyard about a Bodhi-tree are also mentioned in *Mahāvaṁsa*, XXXV, 89 and XXXVI, 103; in the last place, the *vajrāsana* is spoken of as a *vedi*. In the *Mahāvaṁsa*, XLIX, 74, Aggabodhi IX has the "ruined temple (*ghara*) of the Prince of Trees newly and durably built and gilded."

A total number of eleven Bodhi-gharas is represented in the early reliefs—three at Bharhut, two at Mathurā, four at Sāñci, and two at Amarāvatī;[21] all these are reproduced on the accompanying plates. It may be that all these representations designate the original Bodhi-tree at Bodhgayā (Uruvelā of the early texts), and this may be taken for granted in most cases, though the point has little importance for present

[18]Cunningham, *Mahabodhi*, Pl. X, inscription No. 10: Bloch, *Notes on Bādh Gayā*, A. S. I., A. R., 1908–09, p. 147. The inscription is one of those of Kuraṁgī, queen of Indr-āgnimitra, and dateable about 100 B.C.

[19]Bloch, *Notes on Bādh Gayā*, A. S. I., A. R., 1908–09, p. 153.

[21]Those from Bharhut are now in the Indian Museum, Calcutta; one from Mathurā is in the Museum of Fine Arts, Boston, the other in the Archaeological Museum, Mathurā; those at Sāñci are *in situ*; those from Amarāvati are in the Government Museum, Madras.

FIG. 29. SĀÑCĪ

FIG. 30. AMARĀVATĪ

FIG. 32. AMARĀVATĪ

FIG. 31. MATHURĀ

Bodhi-gharas, Sāñcī, Mathurā, and Amarāvati

PLATE CXXXI. *Coomaraswamy: Early Indian Architecture*

purposes. It is not to be doubted that some of the countless memorial Bodhi-trees planted as cult objects elsewhere, like the one in Ceylon of which we have precise information in the *Mahāvaṁsa*, were provided with Bodhi-gharas; indeed, it is very probable that the whole cult and temple type of Buddhist "tree-worship" were taken over from the pre-existing and co-existing animistic practise. Even according to the Buddhist texts, the Bodhi-tree at Uruvelā was already, before the coming of the Bodhisattva, a sacred tree, the haunt of a Devatā, no doubt a Yakṣa, to whom offerings were made and from whom marriage and fertility boons might be expected. It is impossible that Buddhists should have themselves invented the details of a tree cult, which, whatever interpretation they put upon it, can easily be shown to have existed from a remote antiquity. If they were certainly not the first, for example, to hang wreaths and garlands on sacred trees, it is very possible that they were not the first to build tree-temples. Texts (cited in my *Yakṣas*, pp. 17 ff.) show that at least in many significant details, e.g. the use of umbrellas, the offering of flowers and scents, the spreading of sand, the building of enclosing walls, the honours paid to sacred trees haunted by Devatās were the same as those offered to Bodhi-trees. Moreover, the great variety of form of the Bodhi-gharas as seen in the reliefs, and the elaborate construction of even the earliest examples (Figure 22) are further proof of the antiquity of the type. The architectural style is further, in all cases, a purely Indian one, identical with that of contemporary secular building.

As already remarked, the main essentials of the special form common to all examples are determined by the nature of the case; the Bodhi-ghara is always a gallery surrounding the tree and *vajrāsana*, and necessarily open to the sky. Apparently the simplest form is represented by a cross-bar medallion relief from the Mathurā District, now in Boston (Figure 23). Here there are four outer corner pillars, and four inner pillars may be assumed, the ground plan being square. The eight pillars sloping slightly inwards, support a heavy timbered superstructure corbelled outwards, to form a flat gallery or promenade above, much wider than the basement itself; the flat surface of this aerial *padakkhiṇa* path supports no further construction: only an umbrella and banners are planted upon it. The whole structure seems to be built of a size only just sufficient to enclose the tree itself, and this seems to be confirmed by the fact that the *vajrāsana*, which has upon it three five-finger marks (*pañcaṅgulika*),[22] is seen outside and not within the structure. There is however an arched porch of the usual type, and some kind of symbol, perhaps a *ratna-traya*, is seen within; the faint suggestion of a seated Buddha figure is of course deceptive. The corbelled superstructure with its battlemented parapet belongs to an architectural type very characteristic at Bharhut (cf. Cunningham, *Stupa of Bharhut*, Pl. XXXI, 1) Bhājā (*hammiyas* of the monolithic stupas), and Sāñcī, and this fact, together with the inward slope of the pillars, suggests a date not later than the end of the second century B.C.

Of the Bharhut examples, dateable about 175 B.C., the most remarkable is that of the Prasenajit pillar, here Figure 22, with its inscription *Bhagavato Sakamunino Bodho*, "The Illumination of the Blessed Śākya-muni."

Bloch[23] supposed that this structure was supported on thirty-two pillars; Cunningham reckoned sixteen only, and drew accordingly a plan (*Mahābodhi*, Pl. II) incorporating the positions of a few pillar bases discovered in the foundations of the present Great Gandhakuṭi.

In my plan, Figure 37, the number of pillars is also taken as sixteen. The plan, on the left, is a ground plan, and shows eight of the pillars; on the right, it is a plan of the

[22] That *pañcaṅgulika* means "hand impression" and not "palmette" as suggested in IAT., p. 267, is proved by the following passages additional to those cited in IAT.: Cull V, 18; DhA. III, 374; J. I, 166 and 193, and VI, 42; Bhāsa, *Pratimānāṭaka*, III, 11 and 38; Bana, *Harṣacarita*, 63, 13 and 157, 1. The subject is fully treated by Vogel, *The sign of the Spread Hand or "Five-finger Token" (pañcaṅgulika) in Pali literature*, K. akad. van Wetenschapen, afd. *Letterkunde*, 5e Reeks, Deel IV, Amsterdam, 1919.

[23] Bloch, Th., *Notes on Bodh-gayā*, A. S. I., A. R., 1908–09. This author quite needlessly supposes that the pillars must have been of stone.

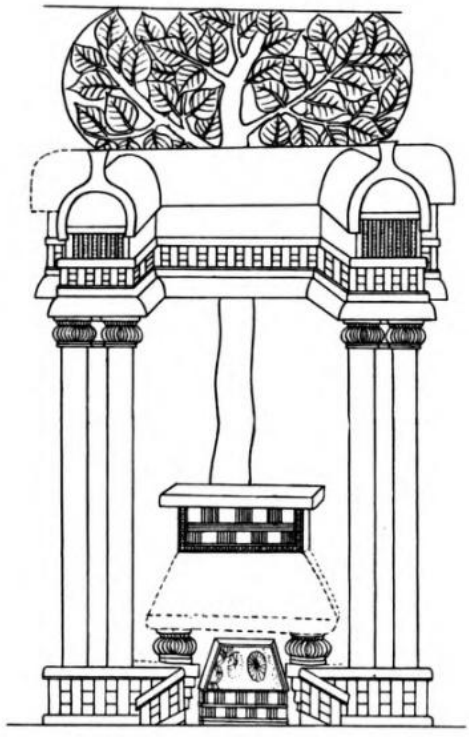

FIG. 33. DIAGRAM FROM FIG. 30

FIG. 34. RESTORATION OF FIG. 32

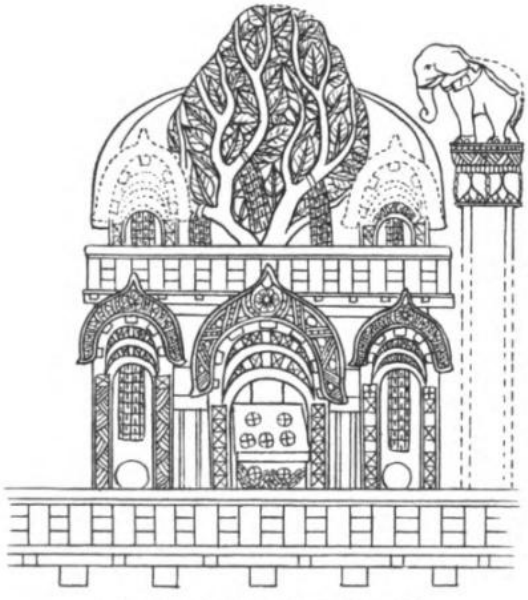

FIG. 35. DIAGRAM FROM FIG. 24

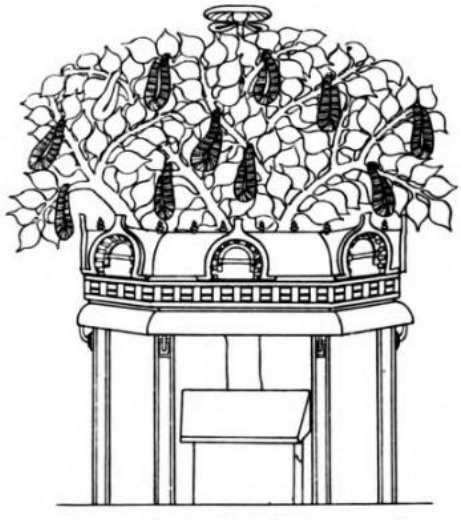

FIG. 36. DIAGRAM FROM FIG. 28

Bodhi-gharas, drawn and restored from the reliefs

PLATE CXXXII. *Coomaraswamy: Early Indian Architecture*

second storey, where we find upon a very familiar type of roof chamber or bungalow provided with numerous arched "French windows" (*mahā-vātapāna*) and a domed roof with finials. Within each window arch is seen a *chatta*. Female worshippers are seen on the balcony, between the walls of the roof chamber and the railed parapet (*vedikā*) of the gallery. Within, below, are seen the decorated trunk of the Bodhi-tree, flanked by two *ratna-traya* symbols on short pillars, and with the *vajrāsana*, supported on short columns, in front of it; the *vajrāsana* is covered with flowers, and there are four lay worshippers. It is assumed that here, as in all other cases, the *vajrāsana* is actually the central element of the plan; since it is the *vajrāsana* and not the tree which occupies the exact centre of the *Bodhi-maṇḍa* or Wisdom-area. Above, the head of the tree, decorated with wreaths and two *chattas*, rises within the circular gallery; it is worshipped, probably by two deities, and a pair of *supaṇṇas* flying towards it. Of these last, the one on the right bears a garland, the one on the left a leaf basket (*paṇṇa-pacchi* or *puṭa*) full of flowers, which he is casting one by one towards the tree. Below, on the right, external to the Bodhi-ghara, is a *dhaja-thabha* surmounted by an elephant holding a garland.

This standard example establishes the general type found elsewhere, though the plans and details vary. Another Bodhi-ghara at Bharhut, Figures 24 and 35, has evidently an apsidal plan (Figure 39), like that of the usual rock-cut *cetiva-gharas:* as before, the gallery supports a long roof chamber, but this terminates in *mahā-vātapānas* at each side, and does not continue across the front of the gallery.

As in the *cetiya-gharas* there are three entrances or porches, one central, and one corresponding to each aisle. Outside there is again a *dhaja-thabha* surmounted by an elephant.

In one other Bharhut relief, Figure 25, we have a unique case of a Bodhi-ghara seen from within; it is a square in plan, and what we see is only one of the four sides of the gallery and roof chamber with its windows, each with a projecting balcony; the courtyard (*aṅgana*) surrounding the tree and *vajrāsana*, and overlooked by the gallery, is filled with seated worshippers.[24] The central object in each of these "French windows" is a hanging garland, as also in the case of the two lateral porches.

Of the Sāñcī examples, one (Figure 28, drawn more clearly in Figure 36, and in ground and gallery plan, Figure 38) from the east *toraṇa*, lower architrave, front, forms the centre of a composition representing the visit of Aśoka, as alluded to above in a citation from the *Aśokāvadāna*. Aśoka himself is seen on the right, descending from his elephant, and followed by a queen. The structure, a little difficult to make out because of a fracture in the stone on the right side, is octagonal and supports a continuous roof chamber of the same plan and usual type. A heavy roll moulding or eaves runs round the whole structure immediately above the tops of the supporting pillars and below the gallery floor; the outer edge of these eaves is supported by brackets which spring from the pillars.

Another Sāñcī example, second panel on the left pillar, front face, of the same *toraṇa*, here Figure 27, is a type practically identical with the last, but rather more clearly represented and better preserved. Branches of the tree emerge from the outer windows of the roof chamber, and must be understood as passing also through the inner windows which are not visible.[25]

[24]Where, as in this case, the plan is square or rectangular, we have a building type exactly corresponding to that of an ordinary palace, for the term *mahāvātapana* cf. *Jātaka*, II, 21, where we have a reference to the great windows ("French windows," as I have called them here) overlooking the palace court (*rājaṅgana*).

Gavākṣa is used synonymously; so too is *sīhara-pañjara*, but here the projecting dormer as well as the actual dormer window is implied.

Architecturally and functionally these early balcony windows correspond to the modern *jharokhā*. In the *Hindī Śabda Sāgara*, *gavākṣa* is given in explanation of *jharokhā*.

Windows will be discussed more fully in a later article.

[25]Marshall, *Guide to Sanchi*, p. 65, associates with this panel the one above it, in which are seen two groups of persons separated by a horizontal band. In my opinion these are not deities looking on at the Illumination represented below. More probably (as suggested in Sir John Marshall's footnote) the upper panel represents the Great Miracle at Śrāvastī, and in this case the horizontal band must be the Buddha's *caṅkama*.

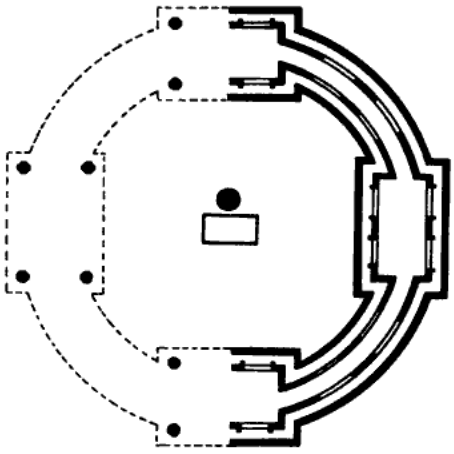

FIG. 37. PLAN OF FIG. 22

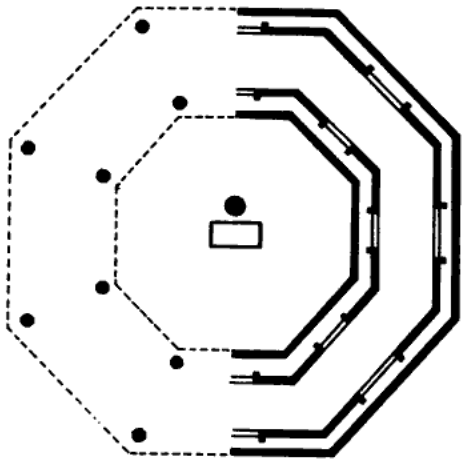

FIG. 38. PLAN OF FIGS. 28, 36

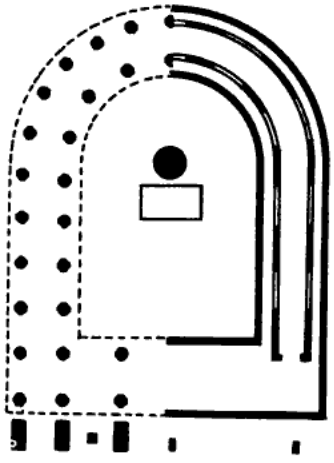

FIG. 39. PLAN OF FIGS. 24, 35

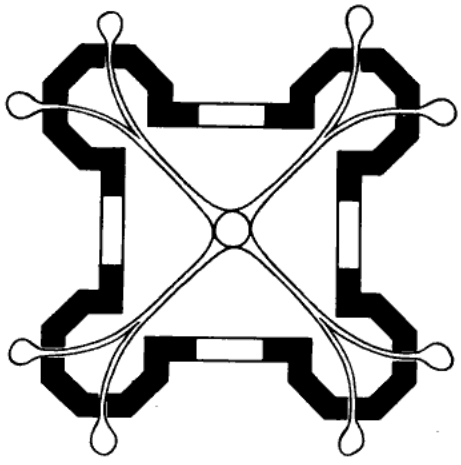

FIG. 40. PLAN OF FIG. 31

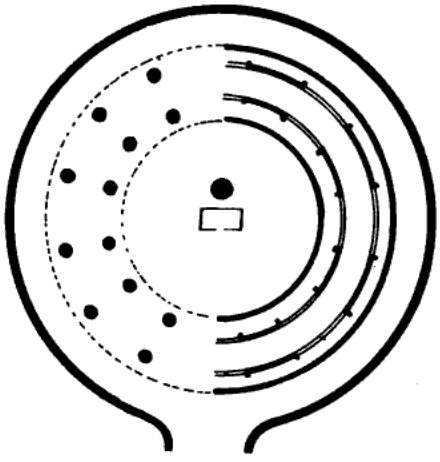

FIG. 41. PLAN OF FIG. 34

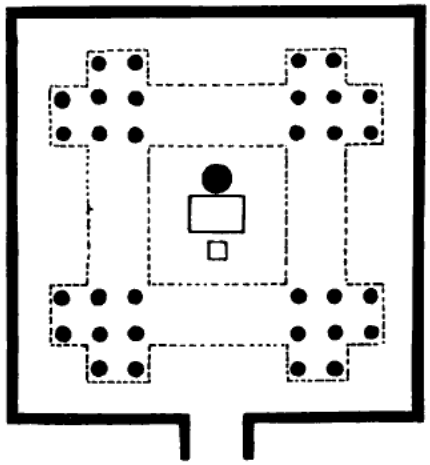

FIG. 42. PLAN OF FIGS. 30, 33

Bodhi-ghara plans

PLATE CXXXIII. *Coomaraswamy: Early Indian Architecture*

A third Sāñcī Bodhi-ghara, on the south *toraṇa*, left pillar, inner face, upper panel, here Figure 29, is an imposing circular structure, the gallery chamber having twelve windows, arranged in groups of three. The figures in the panel immediately below this may be those of Aśoka, two queens, and attendants.

The last Sāñcī example, from the west *toraṇa*, lower architrave, back, here Figure 26, is the most elaborate type anywhere represented. The scene combines, on the right, the Assault of Māra, and on the left the deities celebrating the Buddha's final victory. As remarked by Sir John Marshall, *Guide to Sanchi*, p. 69, the representation of Aśoka's Bodhi-ghara surrounding the tree is therefore in a sense an anachronism; perhaps it would be better to say that in this scene, three or even four separate events are combined, viz. the Assault of Māra, the visit of the deities, the Illumination, and the erection of Aśoka's temple. The latter is four-storeyed (three storeys besides the ground level); the uppermost storey is of the usual type, but as in the case of Figure 24 the uppermost gallery chamber ends in arched "French windows" at each side, and does not continue across the front, it must be assumed that the plan is apsidal. The two intermediate storeys are of open pillared construction, the lower only being provided with balcony windows. The ground plan would be not unlike that represented in Figure 39.

Of the two Amarāvatī examples, only one (Figure 30) is intact, and though poorly preserved can be readily interpreted (Figures 33, 42).[35] Here the gallery seems to be at an unusual height above the ground. It may be remarked that in no case is any means of access to the upper storeys indicated in the reliefs, but it is quite certain that the upper storeys were accessible (cf. the figures shown on the upper storey in Figure 22), and probable that they were used for circumambulation, though this could also have been done on the ground floor. It is perhaps worth while pointing out in this connection the parallel case of the secular *pāsāda*, mansion or palace, where the inhabited rooms are always on the second or other upper floor, and access is by means of a stair (e.g. J., III, 216, *sopāna*, and 239, *pāsādam abhirūhi*, etc.); in the representations of *pāsādas* we see persons on the upper storey balconies, but the stairway is never shown, as it would not be visible in an exterior view.

The second Amarāvatī example is a mere fragment (Figure 32), but what remains is well preserved and lends itself to a fairly complete restoration (Figure 34). The structure was evidently circular, with two storeys above the ground level. The tentative plan, Figure 41, cannot be very far removed from what would be inferable also in the case of the Sāñcī temple of Figure 29.

There remains one Bodhi-ghara (Figure 31) of unique form, occurring in a panel of an architrave from Mathurā, probably of early second century. This is evidently a walled structure; in the plan (Figure 40), drawn at the level of the lower protruding branches of the tree, it is assumed that there were doors on all four sides, but this may not have been the case, for this is evidently a protective, and not merely an honorific structure. The building seems to have been square, with octagonal corner towers; no other form satisfactorily explains the relief.

All known representations of Bodhi-gharas have now been illustrated and more or less successfully interpreted. The type is a very special one, and with all its variations of detail, of great interest; it occupies a logical place in a stylistically unified architectural tradition, and the present attempts at interpretation, together with such revisions and corrections as may be made later, must certainly throw some light on the building methods in general, as will appear when the secular domestic and palace architecture are subsequently discussed.

[35]For a discussion of the scene in which this representation appears see Rūpam, 38, 39, pp. 72, 73.

Plate VII.

Fig. 22. Circular *Bodhi-ghara* (see plan, Fig. 37). The whole represents the Great Enlightenment (inscription on the roof, *Bhagavato Saka-munino bodho*). Notice the umbrellas and garlands on the Bodhi-tree; umbrellas with garlands seen through the *mahāvātapāna* openings on the gallery level, and female figures standing on the gallery verandah; above, Supaṇṇas bringing flowers and garlands, and standing worshipping Devas, and below, lay worshippers, male and female; two *ratna-traya* symbols behind the altar, between them the decorated trunk of the Bodhi-tree; flower-offerings on the *vajrāsana*. Apparently two *tala* palms (omitted in the plan) are enclosed by the Bodhi-ghara, one on each side of the Bodhi-tree. The connected scenes below represent the Devas assembled in worship, Māra grieving at his defeat, etc. On the right, external to the Bodhi-ghara, and extending downward into the scene below, is a *dhaja-thabha* with an elephant capital (not shown in the plan). Bharhut, ca. 150–175 B.C. Indian Museum, Calcutta.

Plate VIII.

Fig. 23. Square *Bodhi-ghara*, with heavy corbelled roof-gallery. Umbrella and two banners on upper level, two banners at side; altar in front with *pañcangulikāni*. From a railing cross-bar medallion, Mathurā, second century B.C., Museum of Fine Arts, Boston.

Fig. 24. Apsidal *Bodhi-ghara* (see diagram, Fig. 35 and plan, Fig. 39), situated in a grove of similar trees. The three porches open into the nave and two aisles of the whole structure, which must have resembled in plan the ordinary rock-cut *cetiya-gharas* or caitya-halls. Through the central porch opening are seen the *vajrāsana* and trunk of the Bodhi-tree. On the right is a *dhaja-thabha* with an elephant capital. Four lay worshippers, or perhaps the Four Regents or Mahārājas. Bharhut, 150–175 B.C. Indian Museum, Calcutta.

Fig. 25. Interior court (*angana*) of a square *Bodhi-ghara*, showing, above, the inner side of the gallery (the two side pillars and architrave with battlement and lotus motifs are not a part of the scene). In the centre of the court are the Bodhi-tree, and *vajrāsana* with an umbrella. Two Supaṇṇas are bringing flower offerings in *paṇṇa-pacchis*, and casting them toward the tree (an act of worship). In the court-yard, round the tree, are seated twenty-seven male persons, probably Devas. Bharhut, as before.

Plate IX.

Fig. 26. Apsidal *Bodhi-ghara* with three upper storeys. To the right, the Assault of Māra, to the left, Visit of the Devas, the whole scene representing the Great Enlightenment (cf. Marshall, *Guide to Sanchi*, p. 69). Sāñcī, west *toraṇa*, in situ, ca. 50–75 B.C.

Fig. 27. Octagonal *Bodhi-ghara* (cf. plan Fig. 38), situated in a grove of mango and other fruit trees. Cf. Marshall, *Guide*, p. 65. Sāñcī, east *toraṇa*, in situ, ca. 75–100 B.C.

Fig. 28. Octagonal *Bodhi-ghara* (see diagram, Fig. 36, and plan, Fig. 38). Supaṇṇas with offerings above, worshipping Devas, perhaps the Four Regents, below. *Ratna-traya* symbol on the *vajrāsana*. Cf. Marshall, *Guide*, p. 61. Sāñcī, east *toraṇa*, lower architrave, in situ, ca. 75–100 B.C.

Plate X.

Fig. 29. Circular *Bodhi-ghara*. Three *ratna-traya* symbols on the *vajrāsana*. Cf. Marshall, *Guide*, pp. 50, 51. Sāñcī, south *toraṇa*, left pillar, in situ, ca. 100 B.C.

Fig. 30. Square *Bodhi-ghara* (see diagram, Fig. 33, and plan, Fig. 42), with tall slender pillars. Amarāvatī, ca. 200 A.D. Madras Museum.

Fig. 31. Square, walled, *Bodhi-ghara* (see plan, Fig. 40). Visit of Aśoka? From a Kusāna architrave, Mathurā, ca. 100–150 A.D. M-3 in the Mathurā Museum.

Fig. 32. Fragment of a circular *Bodhi-ghara* (see restoration Fig. 34, and plan, Fig. 41). Amarāvatī, first (?) century A.D. Madras Museum.

Plate XI.

Figs. 33–36. Diagrams of *Bodhi-gharas*, in part restored.

Plate XII.

Figs. 37–42. Plans of *Bodhi-gharas*, deduced from the reliefs.

Early Indian Architecture

Part 3

FIG. 1. BHARHUT

FIG. 4. BHARHUT

FIG. 5. SĀÑCĪ

FIG. 2. BHARHUT

FIG. 3. BHARHUT

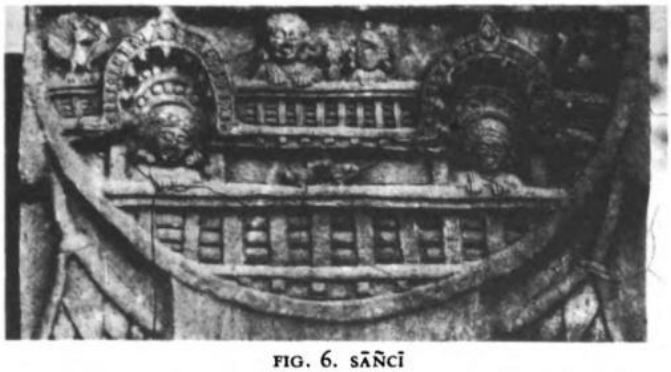

FIG. 6. SĀÑCĪ

PLATE XCII. *Coomaraswamy: Early Indian Architecture*

EARLY INDIAN ARCHITECTURE[1]: III. PALACES

"*Nivesanaṁ te deva māpessāmāti*," DN., II, 180

By ANANDA K. COOMARASWAMY

Sanskrit *prāsāda*, Pali *pāsāda*, Prakrit *pāsāya*, is constantly employed to designate a mansion, typically of several storeys. More often than not the word denotes a palace or other pretentious dwelling; but elsewhere also a monastery or temple. The term applies always to an entire structure, not to a single storey or terrace. Here we shall consider the *prāsāda* primarily as a king's palace or the mansion of a wealthy merchant; but since we are concerned more with the structure than with the special usage, the data met with in connection with monastery or other *prāsādas* will not be excluded.[2]

Synonyms of *pāsāda* as palace are *nivesa-pāsāda* (J., III, 216), *rāja-bhavana* (J., VI, 456), *rāja-geha* (J., VI, 412), *rāja-nivesana* (J., IV, 182; VI, 428, 432, 455), *rañño-nivesa* (J., VI, 428, 429), *vāsa-ghara* (*Paryuṣanā Kalpa Sūtra*, 32), *antepura* (see below), and *vimāna* (J., VI, 117). The first and last two of these terms always refer to single buildings, the others sometimes seem to imply the idea of the palace in a wider sense, as a group of buildings in a precinct all enclosed by the outer wall (*pākāra*); and *vimāna* usually means a palace of the gods, e.g., Mhv., XXVI, 9, 10, 13, where the Lohapāsāda is to be built "like" a palace of the gods, or aerial palace, *dibba-vimāna* or *ākāsaṭṭha-vimāna*. The king's palace, or rather the palace wall and gate-house, would seem to have faced onto the central city square, its exit facing down one of the main streets toward one of the city gates (J., VI, 412; Mil., 62; *Eastern Art*, II, p. 211); but we also find *rāja-nivesanāni* in the plural, and it will be recalled that Prince Siddhârtha had three palaces for use at different times of the year, and the circumstances of the story are such that all three must have been within the city walls, and perhaps within the walls of his father's palace precinct as well. In J., VI, 429, the queen mother has her own separate *nivesa*; in Mhv., LXVII, 26, the palace of a crown prince is designated *yuvarājaṭṭha*. On the other hand, in J., IV, 470, the crown prince has his chamber (*sayana-gabbha*), also spoken of as *upa-ṭṭhāna* (? annex),[3] in his father's palace (*antepura*); and being given to meditation, the prince has made for himself a meditation chamber, *jhānâgāra*, in the *antepura* (*ib.* 469): cf. J., VI, 45, where a king lives alone as a monk, in the upper palace. The *antepura*, literally "inner town" (DN., II, 174; J., II, 125, etc.) is applied to the king's palace as a whole, as appears from J., VI, 455, 456, where *antepura*, *rāja-nivesana*, and *rāja-bhavana* are used alternatively, and means the harem, only to the extent and in the sense that the king's living quarters are as a matter of course a zenana. The king was no doubt served and attended entirely by women, and references to the presence of women, queens, princesses, and other ladies, collectively *antepurikā*, DhA., 403 (the *nāri-vara-gana* of J., VI, 121), are common in the literature.[4] The *antepura*, also called *ārakkha-ṭṭhāna*, "guarded quarters" (J., V, 374) was however provided with male guards (*antepura-pālaka*, J., VI, 455); in J., I, 62, Channa sleeps at his master's door, and there is nothing to show that the palace guards were ever eunuchs (*varisadhara*); who are mentioned with but not as harem keepers; *sovidalla*, in *Karpūramañjarī*,

[1]See Part I, *Cities and City Gates*, and Part II, *Bodhighara*, in *Eastern Art*, II, 1930. References as *ib.*, also SV. = *Sumaṅgala Vilāsinī*, DhsA. = *Atthasālinī*, and Visṁ. = *Visuddhi Magga*.

[2]Early references to *prāsāda* as temple include Śāṅkh. Śr. Sū., 16, 18, 13–17 (roof, walls and windows are mentioned); Patañjali, 2, 2, 34, "the *prāsāda* of Dhanapati, Rāma, and Keśava; and *Pañcatantra*, Bk. 1, story 1, 27 ff., *prāsāda-śṛṅga-dāruni*, "timbering of the roof (of a *devâyatana*). For later *prāsāda*-temples see the *Matsya Purāṇa*, chs. 267, 268. In Mhv., LXXII, 244, the term *pāsāda* designates a four-storeyed structure, manned by archers, within a stockade. In Visṁ., 41, a *pāsāda* is said to be unsuitable as a monastic residence; but this is contradicted by Cull., VI, 14, 1 and actual practise.

[3]Cf. Cull., VI, 3, 5, *upa-ṭṭhāna-sālā*, "refectory."

[4]For those admitted to the palace see J., VI, 43, 121, 301 and *Sāhityadarpana*, §81. For a vivid description of the interior of a palace on a festive occasion, see *Harṣacarita*, 157–159. In J. IV, 317, many concubines, chosen by the queen, because the king had no son, dwell in the palace.

FIG. 7. SĀÑCĪ

FIG. 8. SĀÑCĪ

FIG. 9. SĀÑCĪ

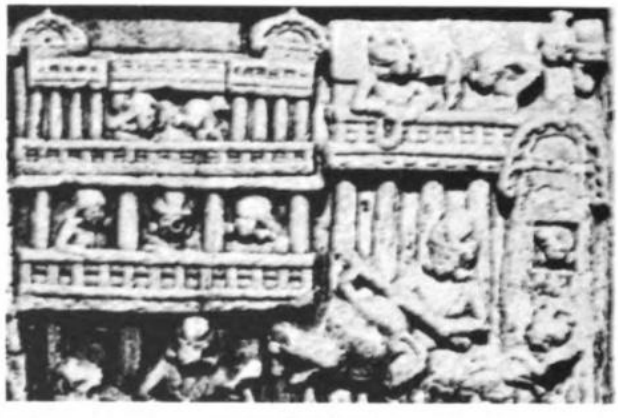

FIG. 10. SĀÑCĪ

III, 34, 8;·in DhA., I, 221 and J., VI, 510 we have instances of ladies' rooms being locked on the outside. In J., VI, 455, the *antepura* has been ravaged, and the guards, dwarfs (often seen in the reliefs as attendants on royal ladies), and hunchbacks have been bound and hung to the *nāga-dantas*, or ivory clothes pegs which were set in the walls of living rooms.[5] Sanskrit *stryagāra*, "women's apartments," is analogous to *antepura*, but has more definitely the sense of "womenfolk," "household," "family," or "harem," e.g., the larger *Sukhāvatīvyūha*, 41. In DhsA., 279/80 a king is asleep in bed; a shampooer is at work on his feet, there is a doorkeeper at the door, and three guards standing between the king and the bedroom door.

A private or blind street led to the outer or main gate in the wall of the palace, and was called *antara-vīthi*, "inner street;" thus, J., IV, 63, a man having been to wait upon the king "was walking to and fro in the (hall of the) seventh *dvāra-koṭṭhaka*, and looking along the *antara-vīthi*," and in J., V, 64, a man, opening the *sīhapañjara* of a private mansion, stretches forth his hand and points to a boy standing in the *antara-vīthi* beside the *pāsāda-dvāra*.

The palace was surrounded by an outer wall (*pākāra*, J., IV, 229; V, 213, etc.) having a main gate, or perhaps four gates, one on each side of the rectangle of the palace enclosure. That the *bahi-dvāra-koṭṭhaka* or "outer gate-house" lay at some distance from the actual palace is clearly seen in Cull., VI, 21, 2 and J., IV, 20, where the king meets an honoured guest at the outer gate, and conducts him to the palace. We also find the term *rāja-dvāra* or "king's gate," J., I, 340, 341; III, 239, and VI, 428, or as we might render it, "sublime porte."[6] The hall of this gate, the *bahi-dvāra-sālā* of *Mṛcchakaṭikā*, III, 3, like that of the city gate, was a place of congregation, and here men "sat at the rich man's door," or an honoured guest was met. For the king's gate in this sense see J., I, 341, "in the king's presence, at the king's gate, and in the council hall and judgment hall," and J., VI, 333, "seated in public or private streets, at street crossings, in the king's gate, or the like places." "Like places" would include also the bridges (Mil., 92) over moats, and the courtyard within the palace enclosure (J. III, 456). In SN., I, 77, the Buddha is guest in a *pāsāda*, and in the evening resorts to the *bahi-dvāra-koṭṭhaka*, where he sees the passers-by. In Div., 300, a *bhava-cakra* is painted in the hall of a *dvāra-koṣṭhaka*, so that it may be seen by the Brahman householders. In DhsA., 281, we find blind and crippled beggars sitting in the hall of a city gate (*nagara-dvāre sālāyaṁ nisīdiṁsu*). In Vism., 304, a juggler performs in the king's gate, *rājadvāra*.

Passing through the outer gate, one entered the royal courtyard, or in pretentious palaces, the outermost of a series of courtyards. The designation is *aṅgana* or *rājaṅgana* (T., IV, 215, etc.); but *Mṛcchakaṭikā*, IV, 30, has *paoṭṭha* (=*prakoṣṭha*) in the same sense. In this court or courts, accessible to the public (J.,III, 456), were to be found various buildings such as stables,[7] judgment hall, gardens and tanks and so forth, and most likely also the royal temple or chapels; in general, the area was available for spectacles or reviews of all sorts. That the judgment hall was close to the door of the palace appears from DN., II, 174, since the Celestial Wheel "stops in front of the judgment hall (*aṭṭa-karaṇa-pamukhe*) at the entrance to the palace (*raññō . . . antepura-dvāre*), and lights up the palace (*antepura*);" similarly J., VI, 131, where the judgment hall (*vinicchaya-ṭṭhāna*) is evidently in the *rājaṅgana*, since a man passes it on his way to visit the king. J., VI, 381 speaks of a *bhaṭṭammaṇa*, a trough for food (alms?) at the door of a palace. Finally, we come to the king's living palace, the *rāja-nivesana* in the narrow sense of the words, the *antepura*, or inner city, most often styled a *pāsāda*.

[5] Cf. Cull., V, 11, 7, and V, 16, 2 (*makara-danta*), and J., VI, 382. (*nāga-danta* clothes pegs in a *gabbha* of the *upari-pāsāda*). In all probability clothes were also hung on rods (*vaṁsa*) and lines (*rajju*) or laid in shelved wall-niches (*paṁca-paṭṭika*), as these devices were permitted to monks (in the *udapāna-sāla*, Cull., V, 16, 2).

[6] Cf. *Eastern Art*, II, p. 221, note, and J., VI, 514, *nagara-dvāra-nisīdi*, "sat down in the hall of the city gate."

[7] In J., I, 175, a royal chariot is left in the *rājaṅgana*, instead of being put away in the stables. J., II, 325, has *ākāsaṅgana*, "open courtyard."

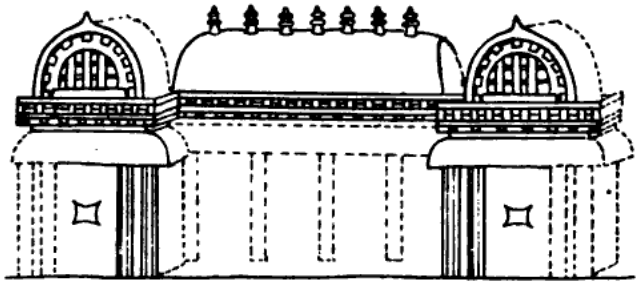

FIG. 11. SĀÑCĪ

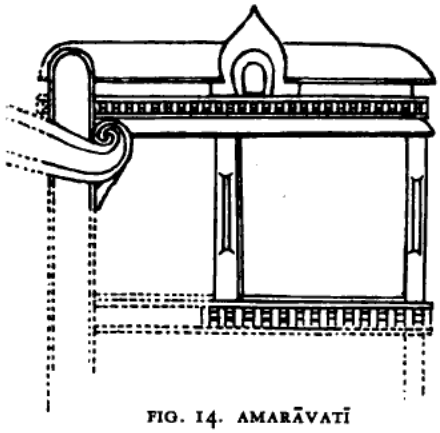

FIG. 14. AMARĀVATĪ

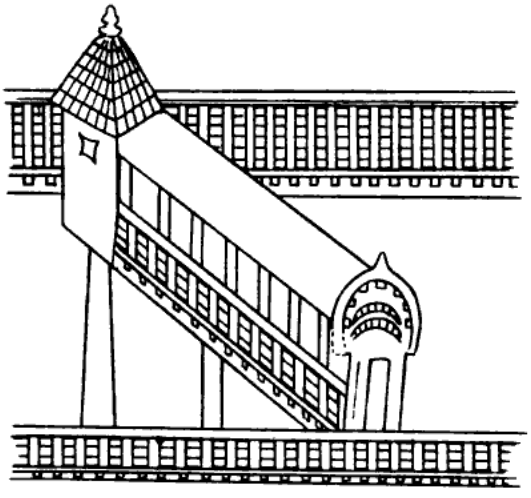

FIG. 12. MATHURĀ

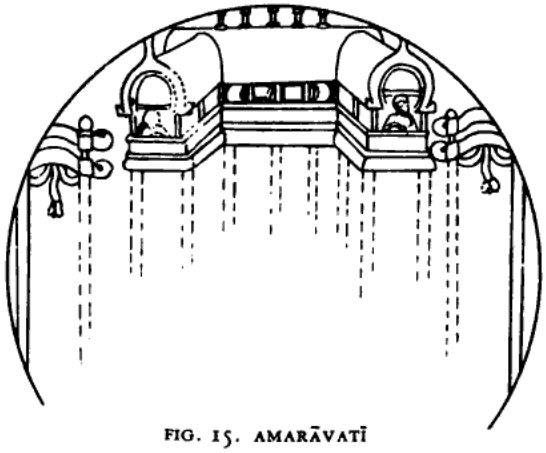

FIG. 15. AMARĀVATĪ

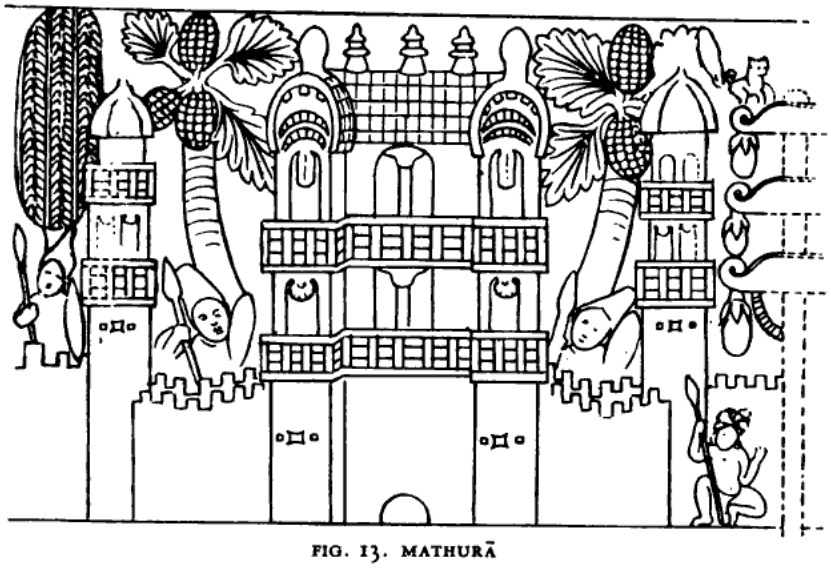

FIG. 13. MATHURĀ

PLATE XCIV. *Coomaraswamy: Early Indian Architecture*

The *pāsāda* was built on a solid foundation or basement (*vatthu*, DN., II, 181, where it is made of bricks of four precious materials, and extends to a height three times that of a man's reach, cf. *vatthuka*, basement, in Cull., VI, 3, 6). Either on the ground, or generally on this basement, stood the pillars of the lower palace.

The constructive elements of a palace are listed at some length in DhsA., 107, as follows: "Just as in a palace (*pāsāda*) a pillar (*thambha*) is a strong support to the rest of the construction, just as the joists (*tulā*), jambs or ties (*saṁghāṭa*), girths (*bhittipāda*, cf. J., IV, 318), roof-ridges (*kūṭa*) and rafters (*gopānasi*), bondings of the walls (*pakkhapāsa*), and brackets (*mukhavaṭṭi*) are bound to and supported by the pillar, so. . ." The rendering of the two last terms, which have not been met with elsewhere, is tentative. Cf. Vism., 320, *thambha*, *talā*, *saṁghāṭa*, *kūṭa*, *gopānasi*; here one should read *tulā* for *talā*. *Ib.*, 108, the *bhitti*, *thambha*, and *sopāna* of a pleasant dwelling.

A *pāsāda* is always spoken of as supported by pillars (*thūṇa*, *thambha*, Skr. *sthūṇa*, *stambha*); special palaces are even spoken of as thousand-pillared, *sahassa-thambha* (J., V, 169; VI, 173), while in DN., II, 181, the Palace of Righteousness of the Great King of Glory is said to have eighty-four thousand pillars. The Lohapāsāda (monastery) at Anurādhapura might well have been called thousand-pillared, and here the forest of stone pillars which supported the wooden superstructure, more than once burnt down, is still extant. Remains of another great monastery at Anurādhapura, the Ratana Pāsāda, built in the third century A.D. and rebuilt in the eighth "like a second Vejayanta" (Mhv., XXXVI, 7 and XLVIII, 136) have been excavated; there survives a brick platform, about 120 by 90 feet in area, faced with granite, and a few of the great stone pillars, 22 feet in height (of which 6 feet was embedded in the brick *vatthu*), are still standing out of a number which must have amounted to nearly seven hundred.[8] In J., VI, 173, the "well-cut octagonal columns" (*aṭṭhaṁsā sukatā thambhā*), so typical of early Indian architecture, are specifically mentioned. The pillars, of course, rest on, or rather, in the foundations or structural basement, and support the *upari-pāsāda*. In other cases wooden pillars were supported by stone bases as a protection against white ants; thus, in Vism., 354, we find carpenters setting up *thambhas* on such bases (*pāsāṇa-udukkhalaka*) and fastening them with a kind of cement (*silesa*). Mansions in cities are often actually represented as supported by octagonal columns, forming an open pillared ground floor (*Eastern Art*, II, p. 212, Figure 10, right, and Figure 11, upper centre—here Figure 10). But no doubt the ground floor was generally enclosed by brick walls, perhaps recessed so as to leave a pillared verandah (cf. Figures 2 and 20), like that of so many excavated or structural façades. On a festival day the palace walls were marked with auspicious signs, *hatthatthādi*, J., VI, 42, cf. *piṭṭapañcaṅgula*, *Harṣacarita*, 63, and 157, both = *pañcaṅgulika*, marks of the spread hand. References to the external painted decoration of palace walls are rather frequent, but still more frequent are those to the shining white plastered surface, cf. *dhavala-hara*, "White House," *Sanatkumāracarita* 548. 599 and 608.

Before leaving the subject of pillars (the forms of early Indian columns will be discussed in a later article) the occasional references to *pāsādas* supported by a single column must be mentioned. Thus, in J., I, 441,[9] IV, 79,[10] and IV, 153, we have *eka-tthūṇaka* and *eka-tthambhaka pāsādas*, and these are regarded as rare or remarkable by contrast with the usual palace supported by many columns (*bahu-tthambhaka*, J., IV, 153), or, on account of their relative inaccessibility, as places of special security. In the Jāina story of Udāyaṇa, a merchant has a pleasure palace similarly constructed (*ekka-thambhaṁ pāsāyaṁ*).[11] Remembering that a *pāsāda*, although usually

[8] Mem. A. S. Ceylon, I, 192.

[9] Here the English translators speak erroneously of the single pillar as "supporting the roof," for which there is no justification in the text.

[10] Here the translators, thinking of function rather than form, or possibly supposing that the whole *pāsāda* had the shape of a column, render "round-tower."

[11] Jacobi, H., *Ausgewählte Erzählungen*, p. 28.

an imposing structure, need not always have been such, and that in any case the superstructure was always built of wood, there is nothing inconceivable about the erection of a "palace" supported by a single pillar, hewn from a tree of unusual size. If such structures seemed remarkable to Indian authors, this is after all no more than a modern writer has said of a little temple of this kind (Figure 36) still standing at Hanoi, "chef d'œuvre d'habilité du charpentier, Le Mot-Cot, ou Pagode de la Colonne, ainsi nommée parce qu'elle est entièrement portée par un gros tronc d'arbre."[12] But this was in any case an exceptional type; the normal *pāsāda* must have been supported by at least four columns, and usually by a very much larger number of columns.

The weight of each storey must have been supported by pillars resting on the floor below; in the case of a *dvāra-koṭṭhaka* we have already seen that the *ardha-tala* was *sthūṇāvabandha*, while the *uttamāgāra* on the top floor, supporting no further weight, was merely brick-walled. In several illustrations, pillars on upper storeys are seen (Figures 8, 10, 13); but the use of pillars on upper storeys is also clearly evidenced by the representations of interior scenes on railing pillars (Figures 42, 43) where the panels, always representing the interior of a *gabbha* or *kūṭāgāra* in the *upari pāsāda*, are framed by a *vedikā* below (=parapet of the *ālinda*), pillars (*thambha*) at the sides, their capitals supporting a roof or cornice above, provided with windows.

Palace doors, such as there must have been when the ground floor was enclosed, are clearly referred to in J., VI, 182, where "Big Blackie" beats against the panels (*kavāṭa*) while the king takes refuge within, as also happens in J., VI, 456. In J., V, 64 and VI, 200 we have *pāsāda-dvāra*, in J., VI, 455, *rāja-nivesana . . . dvāra*, in J., IV, 319, *vimāna-dvāra*, and in DN., II, 174, *raññō . . . antepura-dvāra*. The *bandhanāgāra* of the larger *Sukhāvatīvyūha*, 41, has four doors and four stairs. A guard, *dovārikā*, stands at the *pāsāda-dvāra*, J., VI, 200.

The *pāsāda* has one, or more often many storeys (*bhūmika*, *bhūmaka* or *tala*, perhaps also *niyyūha*) and is described accordingly as *eka-bhūmika*, *dvi-bhūmika*, *ti-bhūmika*, and so on up to *nava-bhūmika*, i.e., one-, two-, etc., up to nine-storeyed (J., I, 58, 89, 304; IV, 105, 378, 379; VI, 382; DhA., I, 239; Mhv., XXVII, 4, 15, 25; *aneka-bhūmi*, "with innumerable storeys," occurs in Mhv., XLVIII, 136); a mansion of three storeys was perhaps most usual, cf. Figures 1, 9, 13. The main floor is often referred to as the *mahā-tala* (J., I, 62, 304; IV, 130; VI, 103, 221, etc.), sometimes as the best floor, *vara-tala* (J., I, 60; IV, 105). This main floor was always an upper, perhaps always the top floor, e.g., in J., I, 60, where Kisā Gotamī goes up onto the *upari-pāsāda-vara-tala* and thence looks down onto the city streets, and J., IV, 105, where it is the "best floor" of a seven-storeyed *pāsāda*; in J., I, 62, *pāsāda-tala* is used synonymously with *mahā-tala* and could be simply rendered "upstairs." DhA., I, 239 has *upari-tala*, top floor of a seven-storeyed palace. The only literal designation of "top floor" is *ākāsa-tala* ("sky floor") in Buddhaghosa's commentary on Cull., VI, 1, 2 and VI, 3, 3; also in SnA., 87 (but *gagana-tala*, J., VI, 242, is "aerial pathway," not a palace floor). The terms *ādi-tala*, ground floor, *ardha-tala*, mezzanine floor, and *tṛta-tala*, third floor, met with in KA., Ch. 21, in connection with gate-houses, would doubtless be applicable to the case of any other storeyed building such as a *pāsāda*. In DhsA., 210, the lowest storey of a four-storeyed *pāsāda* is called the *heṭṭhima-tala*. In the *Ṛtusaṁhāra*, I, 3, *harmya-tala* is used as equivalent to *upari-tala*, *ākāsa-tala*, etc. It should be understood that in most cases each successive storey of a *pāsāda* was smaller in superficial area than the one below it, like the upper parts of modern sky-scrapers under the zoning laws in New York, and this explains how there could be on each floor, as well as on the "sky-floor," numerous chambers (*kūṭāgāra*, *sīhapañjara*, *harmya*, etc.), each with a separate roof;

[12]Maspero, H., *L'Indochine*, I, pp. 195, 196, and Fig. 137.

FIG. 16. KONDĀNE

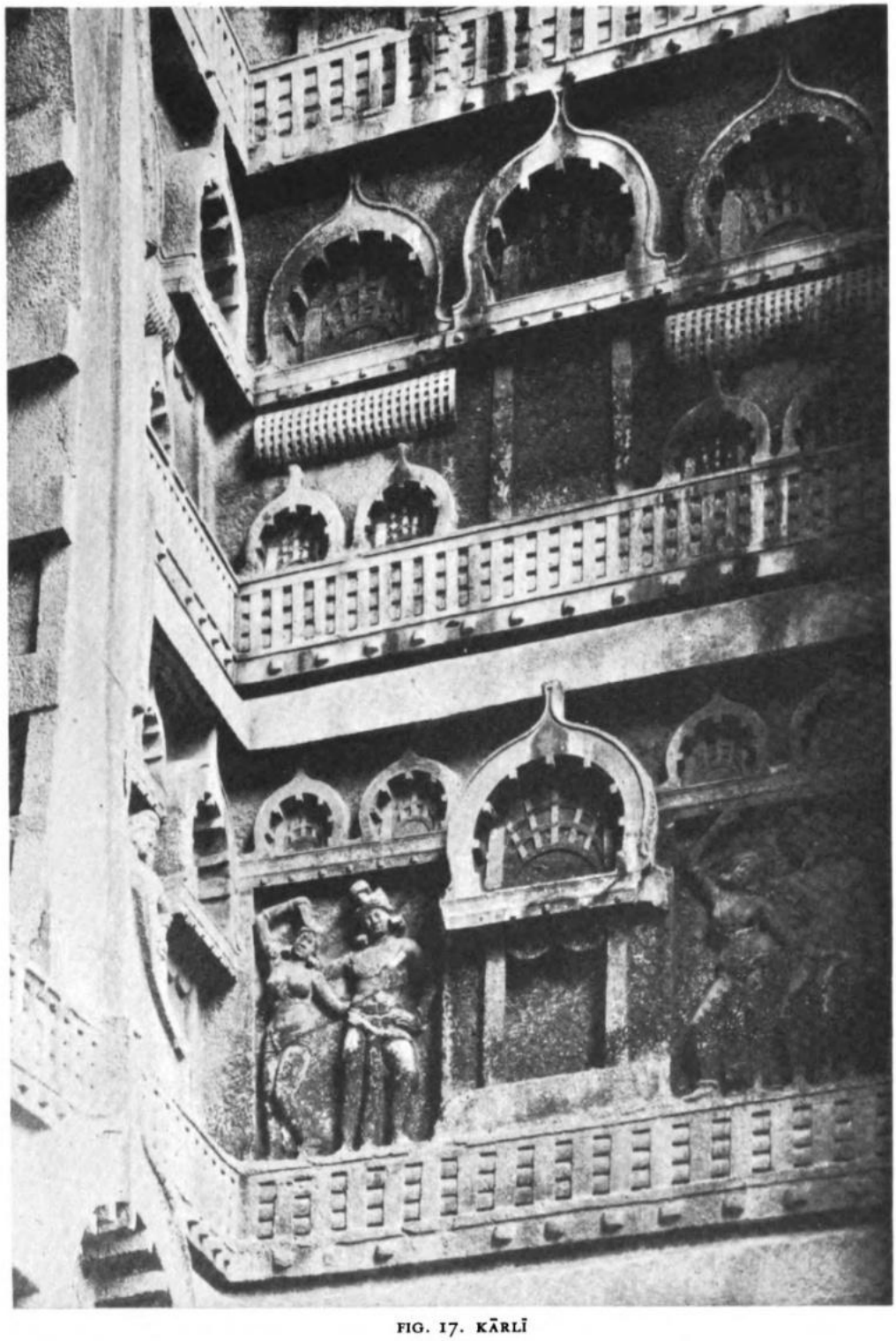

FIG. 17. KĀRLĪ

cf. the appearance presented by some of the *rathas* at Māmallapuram (Pl. IX), by Akbar's tomb at Sikandra, and by the Panch Maḥall at Fatḥpur Sīkrī.

The general appearance presented by the façade of a *pāsāda* can be best understood, however, from that of the façades of the various buddhist *cetiya-gharas*, e.g., at Kārlī, Beḍsā, Kondivte, Kondāne, Bhājā and Nāsik, (Figures 16–18) and those of the Jāina monasteries in Oṛissā; the Oṛissā inscriptions,[13] indeed, in which we find the words *koṭhā* and *pāsāda* used to denote respectively the internal cells and external part of the excavated *vihāras*, assure us that the cave façades really present the appearance of palace fronts. It might be legitimate to go even farther, and to presume that the main feature of the lower part of a palace was a great pillared hall, like the apsidal *cetiya-ghara* halls, but used for purposes of state; the living apartments, accessible only by stairs, being built around and above, as indicated by the cave façades themselves and by all the texts or the ground floor plan may have been like that of an excavated *vihāra*, with chambers surrounding a large central space, in which perhaps was the stairway.

The palace consisted of two clearly distinguished parts, the *heṭṭha-pāsāda* or lower palace, and the *upari-pāsāda* or upper floors (J., I, 175, 348, etc.), reached by stairs (*sopāna*, passim, *mahā-sopāna*, J., VI, 428). Where the palace had a high basement, there would also be external stairs, and these are clearly implied in J., VI, 428, where the Bodhisattva "goes up into the palace," and then only stands *sopāna-pāda-mūle* "at the foot of the (inner) stairs," and that these last are actually the inner stairs is shown by the fact that the tunnel by which the women were later abducted opened at this very place, at the foot of the palace stairs. The short outer stairs by which one ascended the basement must have been provided with a moonstone or semi-circular lower step of stone, and a balustrade on each side, of the kind known as *hasti-hasta*, for which I believe the Pali equivalent is *ālambana-bāhu* (not to be identified with *vedikā*), authorized for monks in the case of the steps leading onto the parapet of a well, Cull., V, 16, 2. At the Ratana Pāsāda, Anurādhapura (see Mem. A. S. Ceylon, I), in a line with the outer basement steps, were found interior pillars of gradually increasing height, which Burrows and Hocart both thought to have been the supports of the internal stair leading to the upper floors.

The pillars of the Ratana Pāsāda, Anurādhapura, seem to have been arranged so as to provide a variety of room spaces on the ground floor, and in any case it may be assumed that here were situated kitchens (*mahānasa;? pacanāgāra*, Āp. Gṛ. S., Comm.), wells (*upadāna*),[14] hot bathrooms (*jaṇṭāghara*), and the like offices, since these adjuncts of secular luxury were permitted in monasteries (Cull., V, 14, etc.); these imply drainage, and we find a drain (*nidhamana*) referred to in connection with a palace in J., I, 175, where it is surmised that pariah dogs have entered by the drain, though this is said to have been impossible. The floors of the ground floor would be of brick, stone, or wood. References to inlaid (*kuṭṭima*) palace floors are not uncommon in Sanskrit literature, e. g. in *Harṣacarita*, 157. In Vism., 143 we have *sudhātala*, whitewashed or plastered floor of a terrace.

Only the upper floors were occupied as living apartments (J., III, 122–5, etc.), though we learn that the king's thoroughbred dogs were kept upstairs in the *upari-pāsāda* (J., I, 175). The texts do not speak of entering or leaving a palace, but always of going up into or coming down from it (J., I, 61, 179, 348, 351; III, 239; IV, 105, 125, 130, 215; V, 64, etc.), and this means going upstairs to or downstairs from the upper floors. As interior structures, the stairways are not visible in ordinary representations, but Figure 12 shows a covered passage or stair which seems to lead

[13] Barua, B., *Old Brahmi inscriptions* . . ., 1929, p. 82, note 1, and pp. 94, 298.

[14] As to the possibility of there being underground chambers used for coolness and as bathrooms, cf. the rock cut chambers under the palace fort at Uparkoṭ, Junāgaṛh (Burgess, A. S. W. I., 1876, p. 142 f.). I feel sure, too, that *bhūmi-ghara-saṁkhepena pokkharani* of DA., I, 260 represents what would now be called a *baoli*; but this was in a garden, not a part of a palace.

FIG. 18. BHĀJĀ

FIG. 19. BEḌSĀ

FIG. 20. JUNNĀR

PLATE XCVII. *Coomaraswamy: Early Indian Architecture*

from one part of a palace to another. The texts often refer to the foot of the stairs *sopāna-pāda-mūla*, J., III, 216; VI, 428, 429, or *dhura-sopāna*, J., IV, 265, 266), and the head of the stairs (*sopāna-sīsa*, J., IV, 265, 266; VI, 430, or *sopāna-matthaka*, J., III, 216). The steps or planks of the stairs are *sopāna-kaliṅgara*, Cull., V, 21, 2. In DN., II, 181, 182, the stairs of the Palace of Righteousness are said to be twenty-four in number; a triple stairway is described in J., IV, 265, 266, and though this Saṁkassa stairway was a miraculous creation, it is likely enough that such stairways were actually made (for representations of the Saṁkassa stairs, see Cunningham, *Stupa of Bharhut*, Pl. XVII, and my *History of Indian and Indonesian Art*, Figure 104). Stairs were provided with balustrades (*vedikā*), having uprights (*thambha*, *thaba*), cross-bars (*sūci*), and hand-rail or coping (*uṇhīsa*), like other "railings" (DN., II, 181, 182).

The ordinary designation of the separate rooms in a *pāsāda* is *gabbha*;[15] the king's own chamber, *siri-gabbha* (J., IV, 105, on the *vara-tala*, etc.), contains the royal couch, *siri-sayana* (for the supposed origin of this term see J., III, 264). *Ṭhāna*, *vasana-ṭṭhāna* (J., I, 62; VI, 332, 333, etc.) is either chamber, apartment, or "suite;" *upa-ṭṭhāna*, as suggested above, may be "annex," or a less important room. More specific designations of palace rooms are *kūṭāgāra*, *sīhapañjara*, *hammiya*, and *canda-sālā*, all of which are outside chambers, i.e., self-contained roofed apartments on the topmost or other open floors. The term *kūṭāgāra*, especially when combined with *-sālā*, may sometimes mean an entire building with a peaked roof, the "gabled mansion" of Pali translators; but I am not convinced of this;" and usually, the *kūṭāgāra* is a self-contained and separately roofed pavilion on any storey of a *pāsāda*, either a gabled pent-house on the roof (in DhA., I, 414, the *pāsāda-kūṭa* is the roof-ridge of a palace, designed to bear sixty water-pot finials, *udaka-ghaṭa*), or more often a gabled chamber on other storeys, e.g., J., VI, 120, where a *vimāna* is adorned with "countless *kūṭāgāras*," MN., I, 253, where there are seven hundred *kūṭāgāras* on each *niyyūha* of the *pāsāda*, and Mhv., Ch. XXVII, where the Loha-pāsāda has a hundred *kūṭāgāras* to each storey, *ib.*, LXXVIII, 49, where a three-storeyed *pāsāda* built for a monk is "adorned with *kūṭāgāras*," and *ib.* 53, 54, where a five-storeyed *patimāgeha*, image-house, or temple, has *kūṭāgāras*, *guhās* (Cull., VI, 1, 2 shows that *guhā* need not be a cave), *gabbhas*, and *sālās*; in DN., II, 182, a *kūṭāgāra* is a chamber in the Palace of Righteousness; in SN., II, 103, the rising sun shines through the eastern window (*vātapāna*) of a *kūṭāgāra-sālā* and falls on its western wall; in J., VI, 510, a *kūṭāgāra*, evidently of a palace, is said to be a safe bolted (*phusitaggale*) sleeping (*sayitvāna*) room, cf. DhA., I, 221, where the *gabbhas* of the *antepurikā* have doors fastened from outside by a key (*yantaka*). In J., II, 326, a king seals (*lāñchetvā*) the door of his daughter's sleeping room, and sets a guard (*ārakkhaṁ katvā*). In Cull., VI, 1, 2, Comm., a *pāsāda* is explained as a long building of several storeys; or if with a *kūṭāgāra* on the "sky-floor," then the term *hammiya* (=*harmya*) is applicable; in Cull., VI, 3, 3, Comm., we are told that a *kūṭāgāra* on the sky-floor is itself a *hammiya* (cf. the *harmikā* as a little structure on the top of a stūpa), and this would agree with *Raghuvaṁśa*, XIX, 39, where king Agnivarṇa sleeps with his concubines in the *savitāna*[16] *harmya*, evidently on the roof; but in the *Vikramacarita*

[15] In Cull., VI, 3, 3, *gabbhas* are said to include (1) *sivikā-gabbha*, (2) *nāḷikā-gabbha*, and (3) *hammiga-gabbha*. Buddhaghosa says the first of these is a "square room," but the name suggests a comparison with elaborate *sivikās* such as that illustrated in Fig. 25. The second is defined by Buddhaghosa as a long chamber, two in breadth by three in length. The third is said to be either a *kūṭāgāra gabbha* or a *mudaṇḍacchadana-gabbha* (Acharya has *mudaṇucchādana-*) on the topmost storey (*ākāsa-tala*, "sky-floor"); I suggest *mṛ(d)daṇḍacchadana* which might be rendered "having a handsome timber and clay roof." *Dīpagabbha* in J., VI, 460, seems to be a lamp niche provided with doors. *Pakuṭṭa* (=Skr. *prakoṣṭha*, Prakrit *paoṭṭha*) of Cull., VI, 3, 5, is glossed by Buddhaghosa as a *pariyāgāra* all round a *gabbha*, thus perhaps some kind of verandah or colonnade; but in *Mṛcchakaṭikā*, IV, 30, where a mansion has eight *paoṭṭhas* one has to suppose something on a larger scale, viz., a succession of courts, each within the other, and each with its own wall and gate house, as in a modern South Indian *vimāna*. In Aśoka's Edicts, *gabbhāgāra*=*gabbha*=private room in a palace.

[16] Cull., VI, 3, 4, proves that *vitāna* means a ceiling cloth; cf. *cela-vitāna*, J. I, 178, II, 289; Vism., 108, etc., but the more general sense of ceiling or canopy is also found (J., 40, 57, 62 and 83), particular fabrics being designated as *sumana-paṭṭa*, "jasmine-flowered," and *suvaṇṇa-paṭa*, "of cloth of gold."

In J., II, 291, a king's *vātagharā-gabbha* is described as having a scented floor, as hung with scented garlands, with a golden star-spangled ceiling-cloth (*cela-vitāna*), "as though surrounded on all sides by a pictured curtain (*cittasāṇi*)." *Ib.*, 328, we have *sāṇiantarena*, "from behind a curtain;" but *ib.*, 88 and 104, *sāṇi-pākāra* and *paṭṭa-sāṇi* as screens or curtains placed round a tree, out of doors.

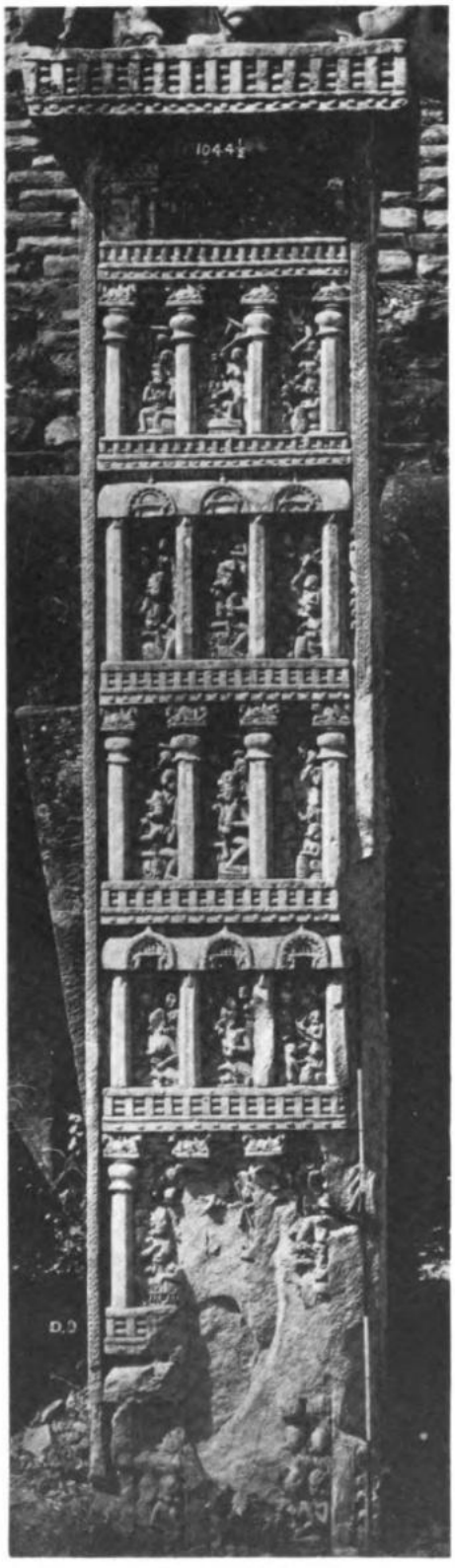

FIG. 21. SĀÑCĪ

FIG. 22. MATHURĀ

(HOS., vol. 26, p. 258), the term *harmya* is applied to an entire and elaborate palace, where we should expect to find *prāsāda* used. All references and representations considered, it may be inferred that a *kūṭâgāra* is a chamber with walls, analogous to the *uttamâgāra* of a *dvārakoṭṭhaka*, and having a ridged, barrel-vaulted, or domed roof; and that a *hammiya* is an open pillared pavilion with a flat or domed roof. Another designation of a roof chamber is *canda-sālā*, "moon-room," Mhv., LXXIV, Skr. *candra sālā*, e. g. *Harṣacarita* 140, used as a sleeping room and decorated with *sālā-bhañjikā* figures.

The *kūṭâgāras*, either from their elevated position, or because of their high roofs, are thought of as "soaring" (*varocita*, J., VI, 121). As to the actual roofs, it is clear from DhA., I, 414, Mil., 38, from the *Ayakūṭa Jātaka* (J., III, 146), from the discussion in *Pali kaṇṇikā = circular roof-plate*, in J. A. O. S., vol. 50, 1930, from the representations in reliefs, and especially from the SV passage quoted in my note[17] infra, that the *kūṭâgāra* roof was composed of rafters (*gopānasi*), meeting at the *kūṭa* above, or at the *kaṇṇikā* or circular *kūṭa* required by domed or apsidal forms. The simile "As all the rafters (*gopānasiyo*) of a *kūṭâgāra* go upwards to the *kūṭa* . . ." of Miln., 38, SN., II, 262, III, 155, etc., occurs also in DhsA., 118, preceded by "As the *kaṇṇikā* of a *kūṭâgāra*, because it binds together the other parts (sc. *gopānasiyo*) of the construction, is foremost (*pamukha*). . ." from which it is clear, what has already been deduced, that *kūṭa* and *kaṇṇikā*, characteristic of the roof of a *kūṭâgāra* are both equally roof-plates, against which rest the top of the rafters (the *kūṭa* being usually a long beam forming the ridge, the *kaṇṇikā* circular). The correspondence of *kūṭa* and *kaṇṇikā* appears also from a comparison of Vv., 158 with VvA., 304; and Vism., 413 speaks of the *kaṇṇikā* of a *kūṭâgāra*. So also in SN., V, 228 we have "Just as the *kūṭa* of a *kūṭâgāra*, so long as it is not set up, so long there is no resting place for the rafters (*gopānasiyo*)." Most of the reliefs show the barrel-vaulted and apsidal types for which curved rafters are required, while the pointed roof requiring straight rafters seems to be rare. In J., VI, 117 a *dibba-vimāna* is said to be *pañca-thūpa*, with five tops, and the commentary, equating *vimāna* with *pāsāda*, says that *pañca-thūpa* implies "having five *kūṭâgāras*" (on the topmost floor); cf. *thūpika*, Mhv., XXXI, 13 (see IAT., p. 271). The earlier usages of *stūpa* [RV., I, 24, 7 and VII, 2, 1, "top" or "point"; *Viṣṇo (ḥ) stūpo* or *stupo*, "hair knot of Viṣṇu," *passim;* Śāṅkh. Gṛ. S., III, 3, 7 *śrī stūpo dharma sthūnarājo* "fortune the peak, law the kingpost" (of a house)] show that the primary significance of the word is "top," not necessarily "dome," and certainly not "mound." The original meaning long survived in architectural terminology. The words *śṛṅga* (of a *prāsāda*) in the *Pañcatantra*, Bk. I, story 1, and *sihara* in Kharāvela's Hāthī Gumphā inscription may likewise refer to the roofs of *kūṭâgāras*, and in any case cannot be taken as evidence for high towers like the mediæval *śikharas* (cf. *śikhara* as the "top" of a wall, in *Harṣacarita*, 157, and as palace roof, *ib.* 140.) The actual roof (*chadana*) was either thatched with leaves (*paṇṇa*) or grass or reeds (*tṛṇa*), or covered with tiles (*giñjaka*, Mhv., LXXXVIII, 97, *giñjakā vasathā*, D., II, 205, and Figure 13), or perhaps covered with skins (cf. Cull., V, 16, 2; IAT., p. 266, and perhaps the *deva-sabhā* roof at Sāñcī, Marshall, *Guide to Sanchi*, Pl. VI, a). Different kinds of thatch patterns are mentioned in SV., 1, 43; see J. A. O. S., Vol. 50, p. 240. For *vāna-laṭhī* as part of a roof, see J. J. Meyer, *Kāuṭilīya Arthaśāstra*, p. 264. In SN., V, 152, the lower part of a *kūṭâgāra* is designated *heṭṭhima-ghara*, the upper part *upari-ghara*. *Kaṇṇāvalī*, "coping of roof tiles," occurs in Barnett, *Antagaḍa Dasāo*, pp. 116, 131. In the *Saddharmapuṇḍarīka*, XVI, 36, the abodes of the Bodhisattvas (in the palaces of heaven) are called *kūṭâgāras*.

[17] In SV., I, 309 *kaṇṇikaṁ yojetvā thambhānaṁ upari kūṭâgāra-śāla-saṁkhepena deva-vimāna-sadisaṁ pāsādaṁ*, the building as a whole is called as usual *pāsāda:* what is described is the completion of the penthouse on the roof, which would be the last part of the work to be done. *Thambānaṁ upari*, above the pillars, is simply equivalent to the *upari-pāsāda*, but the phrase suggests a building of only two storeys. It is clear that *kūṭâgāra* does not exclude the idea of a domed or barrel-vaulted apsidal roof. The Vism., 634 *dvikuḍḍa-geha* or *dvikuṭṭa-geha* (evidently for *dvikūṭa*) must mean a mansion with two *kuṭâgāras* on the upper storey. J. I, 292 has *kaṇṇakaṇṇehi* with the sense "from top (to bottom)" of a house (*geha, pāsāda*).

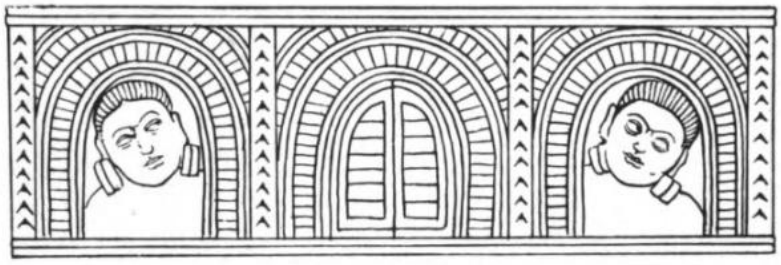

FIG. 23. MATHURĀ

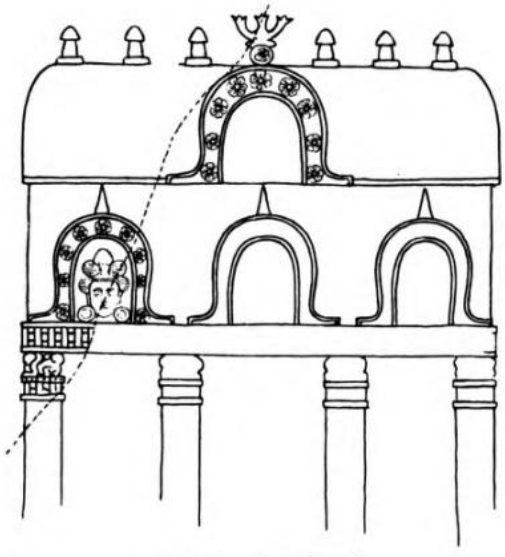

FIG. 24. AMARĀVATĪ

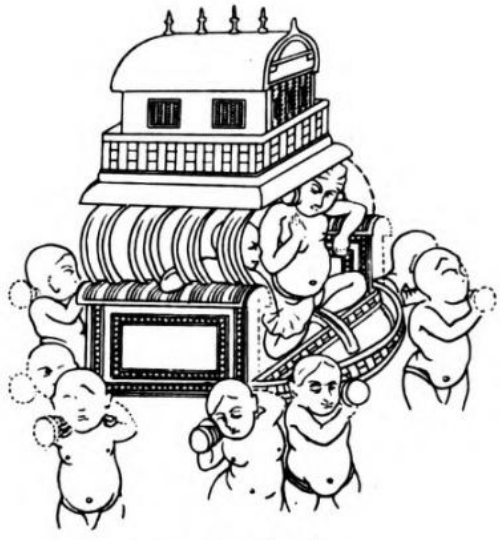

FIG. 25. AMARĀVATĪ

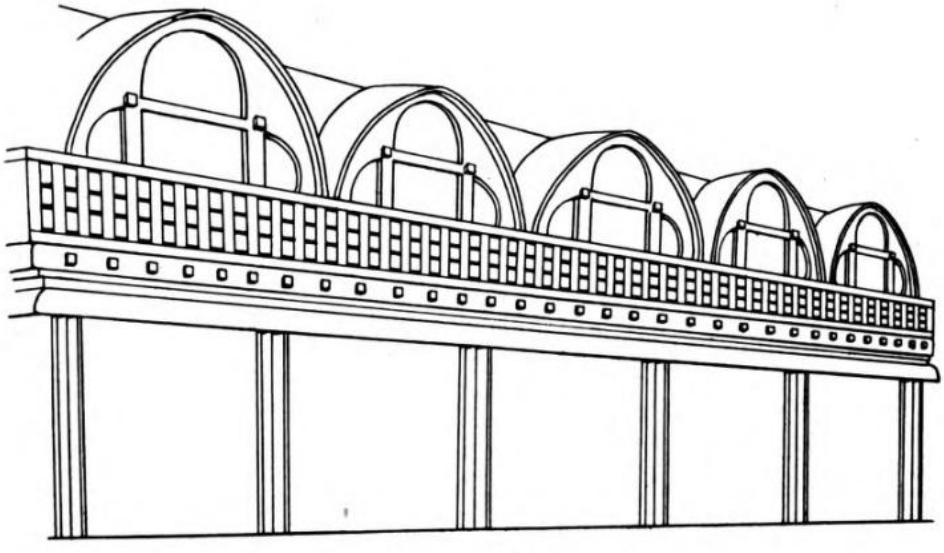

FIG. 26. KĀṬHIĀWĀṚ

G. H. Hodson, *Languages, Literature and Religion of Nepal and Tibet*, p. 49, says that in Nepal, *kūṭâgāra* is used to designate a temple as distinguished from a *stūpa*.

A second commonly occurring designation of what might be a self-contained and separately roofed apartment on the roof or other open floor is *sīhapañjara*, literally perhaps "roofed dove-cot" (*sīha* perhaps representing *sihara* = *śikhara* rather than *siṃha*); the type and word correspond to Tamil *pañcaram*, see Jouveau-Dubreuil, *Archéologie du Sud de l'Inde.*, Figures 24, 28 and p. 55, where it is pointed out that the attic storey (our "sky-floor") of a *vimāna* consists of little *pañcarams*, each with its own basement, railing, windows, and roof.[18] In DhA., III, 88, the *sīhapañjara* (of a private *geha*) used by a rich man to display himself to the public (cf. Figure 2), is said to have cost 100,000 pieces. Other references to *sīhapañjara* will be found below in connection with windows, since the effective meaning seems to be "bay-window" rather than an entire room. In Vism., 593, *pañjara* has the related sense of "wagon-vault."

That the palace apartments were, as might be expected, provided with doors is shown by DhA., I, 221 and J., I, 61, 62 (*sirigabbha* and *gabbha dvāra*; Channa sleeps with his head on the threshold, *ummāra*); J., VI, 510 and DN., II, 183, *kūṭâgāra dvāra*; J., VI, 455, *ratanaghara dvāra*, also the Amarāvatī representation of Queen Māyā's dream (Burgess, *Buddhist stūpas of Jaggayyapeṭa and Amarāvatī*, Pl. XXVIII, 1, here Figure 41); DhsA., 279-80; and J., VI, 510 and DhA., I, 221, cited above.

What is a *niyyūha* (Skr. *niryūha*)? Two passages cited above in connection with *kūṭâgāra*, taken together seem to show that *niyyūha* = *tala*, "floor" or "storey." There is nothing in J., II, 334, SV., I, 284, the larger *Sukhāvatīvyūha*, 41, or the inscription at Ajaṇṭā, Cave XVI,[19] to contradict this.

The apartments on each floor are in most cases set back from the *vedikā*-parapet so as to provide an exterior terrace, deck or balcony (*ālinda;* in *Harṣacarita*, 157, we find *ālinda* as outer terraces where the goldsmiths sit at their work). *Ālinda* may be described as that part of any *tala* which is external to the *kūṭâgaras* or other chambers on that *tala*; Cull., VI, 14, 1, a *pāsāda* has such an *ālinda*, supported by *hatthi-nakhaka* pillars (explained and illustrated, IAT., p. 258, here Figure 19); in J., VI, 429, a queen mother's palace gate-house has an *ālinda*; in Cull., VI, 3, 5, an *ālinda* is permitted for monastic buildings, and Buddhaghosa's gloss is *pamukha*, a word which may be given the general sense of porch or verandah.[20] *Ālindas* being open to public view (cf. Figure 8, Queen Māyā sleeping) could be screened by movable curtains (*saṃsaraṇa-* and *ugghaṭaṇa-kiṭika*, Cull., VI, 3, 5). Where there was no *ālinda*, and consequently the roofing elements were not recessed, the timbered eaves (*osaraka*) projecting beyond the wall (cf. modern *chajja*) sheltered the floor below (Buddhaghosa, Comm., on Cull., VI, 3, 5, but as indicated by J., III, 446, where a dying man is laid under the eaves and is visible to passers-by, the reference is probably to the ground floor and to houses less pretentious than palaces, which would always have their *ālindas*).

Now as to windows, which play such a large part in early Indian architecture: the most general term is Skr. and Pali *vātâyana*, Pali *vātapāna*, Prakrit *vāḍa*, "air-passage." No doubt this word covered all kinds of windows, but since there is rarely any occasion to refer to windows other than those which could be opened or closed at will, *vātâyana* is generally equivalent to *gavâkṣa*, Prakrit *gavekkha*, "ox-eye," arched above and with a horizontal sill below, and provided with shutters. However, as this word is not represented in Pali, and does not occur in Sanskrit before the early *kāvya* period, it may not have come into use until the arched window developed the more nearly circular form of a bull's-eye, which took place by a gradual approximation

[18] In Mhv., LXXVIII, 56, a twelve-storeyed *uposatha-ghara* is provided with a *pañjara-geha*.

[19] Burgess and Indraji, *Inscriptions from the Cave Temples of Western India*, 1880, p. 70.

[20] Cf. *aṭṭa-karaṇa-pamukhe*, "in front of the judgment hall," DN., II, 174.

of the springs of the arch, during the Kuṣāna period. Hence we cannot without possibility of anachronism use the term *gavākṣa* for the early "chaitya windows," although this last term ought to be rejected, because the arched windows are no more peculiar to *cetiya-gharas* than they are to palaces. But in the Gupta period, when these windows had come into use as mere ornaments, they can be called *gavākṣas*, and the term so used is equivalent to Tamil *kūḍu*, "nest." Functional windows were still used; in fact, formally, functionally, and etymologically *gavākṣa* = modern *jharokhā* (the *Hindī Śabda Sāgara* derives from onomatopoetic *jhara jhara*, the sound of wind, plus *gāukha* = *gavākṣa*).

The term *sīhapañjara* constantly used in Pali literature in connection with windows on upper storeys, is more difficult; the word seems to mean literally "lion-cage," and it should be equivalent to Tamil *pañcaram*, which means a little pavilion on the topmost or other open floor of a *pāsāda* or *vimāna* (see p. 195). The *pañjara* was perhaps so called because of its latticed walls, cf. Figure 16. But in Pali usage the *sīhapañjara*, like the *vātapāna*, is always something to be opened or closed; at the same time it differs from *vātapāna* inasmuch as the whole space or structure behind the window, as well as the window itself, is implied. Hence we must think of the *sīhapañjara* as a balcony or bay window, perhaps a French window opening down to floor level, forming the projecting part or end of a *kūṭāgāra* on the topmost or other open floor. It will be observed in the reliefs that people looking out of such windows are only seen from the waist up, and this is because the *vedikā* (railing all round the *tala*) hides the lower parts of the bodies. That a *sīhapañjara* is really the windowed bay of a *kūṭāgāra* is clearly supported by J., VI, 111, where we have an apsaras who is seated on a couch in the *kūṭāgāra* of a *deva-vimāna* and at the same time looking out of the open *sīhapañjara*, and implied in J., III, 498, where the queen, after taking her bath, lies down on a couch and opens the *sīhapañjara* so that the breeze may reach her, and J., IV, 319, where the *sīhapañjara* is part of the queen's apartment (*vāsāgāra*).

However designated, the windows and bay windows were used (1) for light and ventilation (in Cull., VI, 2, 2, *vihāras* without windows are said to be stuffy and unhealthy), (2) to look out of, or from which to show oneself to the public, and (3) to enter or emerge from, either from or onto the *tala* external to the chamber, or from or into the air in the case of persons gifted with miraculous powers of flight. Examples follow: J., I, 89, "threw open the *sīhapañjaras* in the two- and three-storeyed *pāsādas*;" J., II, 21, the *mahāvātapānas* overlooking the *rājaṅgana* are thrown open; J., II, 274, III, 498, and IV, 319, a man flies out of or into a *sīhapañjara*; J., V, 64, a man opens the *sīhapañjara* of a mansion and looks out into the private street, seeing a boy beside the door below; J., V, 217, *vātapāne thatvā*, "standing in a window;" J., VI, 103 and 221, a king with his ministers stands to look at the full moon from an open *sīhapañjara* on the *mahā-tala*; *Buddhacarita*, III, 19, people look out of a *vātāyana*, and VIII, 14, women crowd to the rows of windows, *gavākṣa-mālāḥ*; *Mālavikāgnimitra*, in Act IV, people look in at a *gavākṣa*, which is unusual, as the windows are normally always on upper storeys, but perhaps the people are standing on the terraces (*tala*) outside the chambers; *Kumārasambhava*, VII, 58–60, women look through the lattice (*jalāntara-proṣita-dṛṣṭir*) of *gavākṣas*, also called *vātāyanas*, cf. J., II, 273, *vātapānantarena disvā*, "spying from inside the window;" in the *Mṛcchakaṭikā*, Act IV, water coolers are hung in the *gavekkhas*; *Raghuvaṁśa*, XIX, 7, where the luxurious Agnivarṇa indeed shows himself to the people from an open *gavākṣas*, as duty requires, but is too lazy to show more than his feet.

Generally speaking, the windows seem to have been provided with shutters made like door leaves but perforated in different styles. In J., II, 274, the *kavāṭa*, leaves, of a *mahāvātapāna-dvāra* are referred to in Mil., 55, a *jālā-vātapāna*, latticed window, is thrown open. Some kinds of grille or lattice are mentioned in Cull., V, 2, 2, viz.,

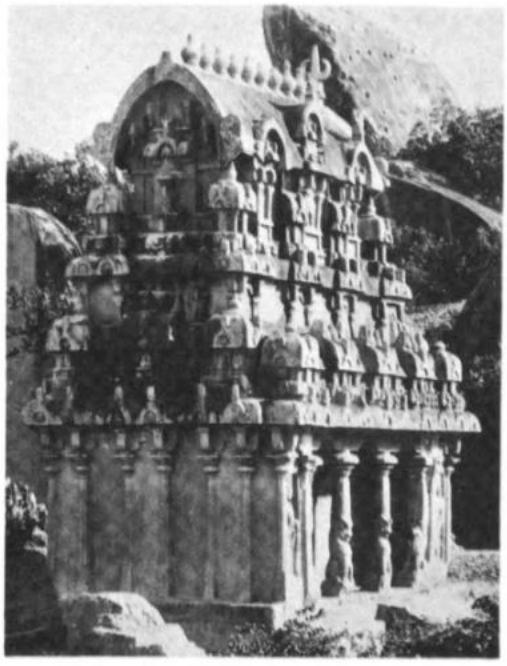

FIG. 27. MĀMALLAPURAM

FIG. 28. MĀMALLAPURAM

FIG. 29. MĀMALLAPURAM

FIG. 30. MĀMALLAPURAM

PLATE C. *Coomaraswamy: Early Indian Architecture*

FIG. 31. AMARĀVATĪ

FIG. 32. MĀMALLAPURAM

FIG. 33. POLONNĀRUVA

PLATE CI. *Coomaraswamy: Early Indian Architecture*

vedikā vātapāna, with a rail pattern grille (often represented in the reliefs), *jāla-vātapāna*, latticed, literally "net," window, and *salāka vātapāna*, probably a window with upright turned pillars (Buddhaghosa glosses *salāka* as *thambhaka*, a "little pillar"). The reliefs show that grilles of this kind were used, not only for the arched shuttered windows which alone have been discussed above, but also for the square or rectangular windows which were not constructed to open (ancient examples at Bhājā, Figure 51, Naḍsūr (Figures 52, 53), and Kondivte, modern examples, MSA., Pl. IX, Figures 2 and 3). For various kinds of blinds or curtains which could be rolled up, and called *cakkalika* or *bhisī*, see Cull., VI, 2, 2 and VI, 19 (SBE., XX, 163, etc.): cf. Figure 48, centre.

An *uddha chiddaka vātapāna* seems to be a blind window with an opening above, too high to look out of (DhA., I, 211). The *kucchiya* of a *kūṭāgāra* is something outside the window, on, or in which a bird perches, in J., VI, 420: perhaps under the overhanging eaves.

Materials: It is shown beyond doubt by the references and the reliefs that the material chiefly employed in the construction of many-storeyed *pāsādas* was in the first place timber, used in any case for the roofs and windows, the stairs, floors, and in most cases for the supporting pillars; brick, sometimes used for walls, which however seem often to have been made of wood lattice when not required to support any weight; and stone, in rare instances for the pillars of the ground floor and facing of the basement. The numerous cases in which palaces of the gods are said to be made of the seven precious materials or gems, need not be taken too seriously. Other materials, rather often mentioned, are *veḷuriya*, *phaḷika*, and *manosilā*, generally rendered as "beryl," "crystal," and "vermilion." But these materials are referred to in such a way that one gets the impression that the phrasing is not merely fanciful, and a more intelligible meaning can perhaps be found. In the case of *phaḷika* or *phaḷa*, Skr. *sphaṭika* (e.g., *phaḷikāsu*, J., VI, 119, glossed *phaḷika-bhittisu*; *phaḷika-bhitti*, Mhv., XXIX, 10 and VvA., 35 and 160; *phaḷika-pāsāda* and *-vātapāna*, J., III, 250; *veḷuriya-phaḷa-santhata-pāsāda*, J., VI, 279, "veneered with *veḷuriya* and *phaḷika*") the meaning "marble" is probable. Marble or limestone was abundant and was employed as a building material at an early date in Veṇgī and in Ceylon, whereas crystal could never have been obtained in masses large enough for such purposes. Moreover, in the inscription dated Saṁvat 1201 (A.D., 1144), of Vimala's Ādinātha temple at Dilwāṛā, the material of the temple, which is made of marble and still extant, is spoken of as *sphaṭika* (Jacobi, *Sanatkumāracarita*, p. 10, note 4). However, it is possible that the term was also applied to a white crystalline sandstone. As to *veḷuriya* (e.g., *veḷuriyāsu* = *veḷuriya-bhittisu*, J., VI, 120), I suppose that any hard, dark stone, like the South Indian charnockite, may have been meant. *Manosilā*, while certainly vermilion pigment in some cases, is certainly a stone in J., I, 232, *manosilā-tala*, a stone to stand on when bathing; and similarly when we find *manosilā-vaṇṇa*, "of vermilion hue" applied to a *pākāra* of a house, I suspect that a red sandstone like that of Mathurā or Sīkrī is intended.

In SN., IV, 186, a *kūṭāgāra* or *kūṭāgāra-sālā* when its walls have been newly smeared with thick clay and whitewashed is not liable to be burnt by fire applied externally; thus the structure, as already indicated, is of wood, but we learn that the walls of the chambers above were typically of wattle and daub construction, not of brick.

Development of the *gavākṣa*: The arched window appears in a fully developed type as a characteristic feature of early Indian architecture, and is perhaps its most distinctive feature; what are probably more primitive prototypes still survive in Toda hut architecture. We have seen that the windows, in addition to serving for light and ventilation, were designed and used either for looking out of, or for showing oneself to the public (Figure 61, etc.); and these uses both in custom and in literary allusions have survived to the present day, the Mughal *jharokhā*-portrait, and

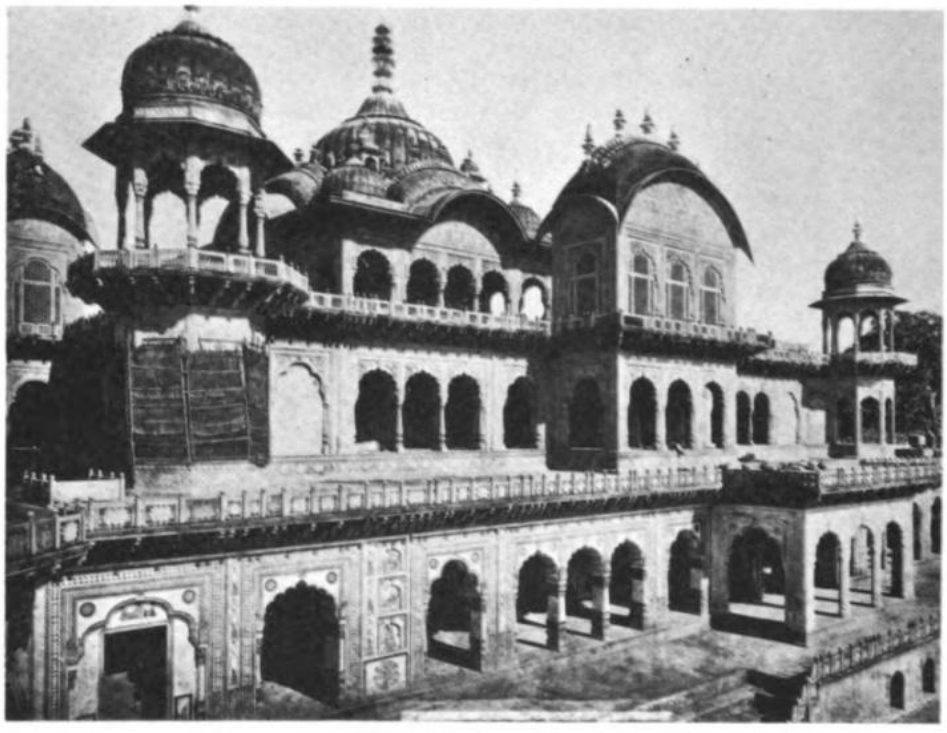

FIG. 34. GOVARDHANA

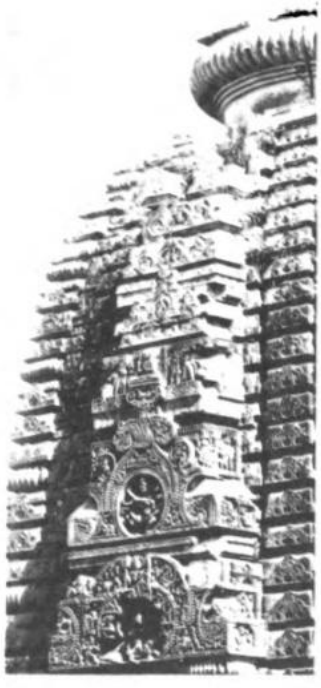

FIG. 35. BHUVANEŚVARA

FIG. 36. HANOI

PLATE CII. *Coomaraswamy: Early Indian Architecture*

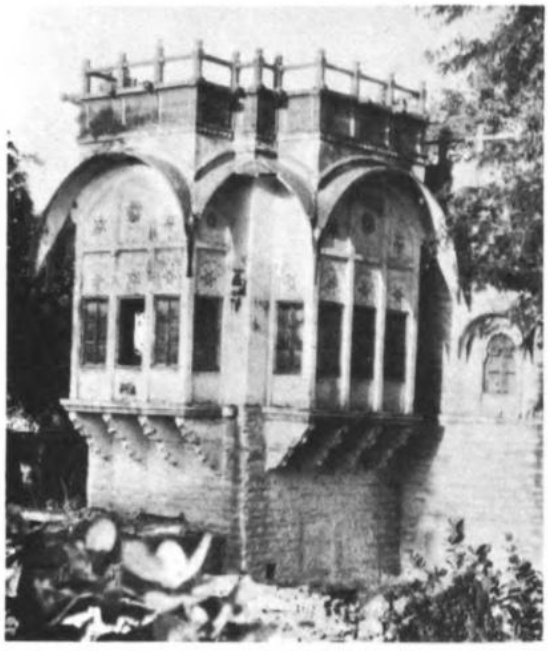

FIG. 37. JODHPUR

FIG. 38. JODHPUR

FIG. 39. JAIPUR

FIG. 40. GWĀLIAR

PLATE CIII. *Coomaraswamy: Early Indian Architecture*

FIG. 41. AMARĀVATĪ

FIG. 42. BODHGAYĀ

FIG. 43. MATHURĀ

PLATE CIV. *Coomaraswamy: Early Indian Architecture*

such instances as are afforded by *Rajput painting*, Pl. LI, affording modern illustrations of the use, and such passages as *Buddhacarita* III, 13, 14 and *Raghuvaṁśa*, VII, 5–12, where houses are said to be decked as if with flowers by the women's faces at the windows, examples of the allusions.

The earlier arched windows are the simplest, with a later gradual elaboration. As was pointed out by Jouveau-Dubreuil (*Archéologie du Sud de l'Inde*, p. 61) the development follows a very regular course, so that it can be used as a key to the dating of monuments. There is at first a simple peak (Figures 2, 56, 61), then a finial (Figure 62), then commonly a *śirivaccha* symbol (Figure 68), then the peak is flattened out into a spade-like form (Figures 65, 69, 71) with lateral pendants which gradually acquire a foliar character, and finally the "spade" is occupied by a *kīrttimukha* (Figure 64), which becomes a fully developed *makara-vaktra* with foliage proceeding from the jaws (Figure 71). The latter form, with the sides of the arch rising from *makaras* in profile constitutes the *makara-toraṇa* often employed as an independent screen or niche behind an image.

At the same time, a development took place in another direction, from the functional to the decorative. There are two main phases of this decorative development. In the first, the arrangement of *gavākṣas* along a cornice moulding representing a roof-unit is retained, but the windows are not functional, but blind; and as this development went on side by side with the decorative reduplication of vertically compressed roof units in the building up of tower forms, we arrive at the familiar mediæval *śikhara* (Figure 35), composed of successive superimposed cornices or mouldings ornamented by vestigial *gavākṣas*, which are known in Southern India as *kūḍu*.[21] Finally, the *gavākṣas* appear even on basement mouldings. Almost invariably the decorative *gavākṣas* or *kūḍus* bespeak their origin, not only by their form and disposition, but also inasmuch as they function as niches from which there looks out a face or whole figure (more rarely, architectural motives are introduced), (Figures 57, 63, 69). According to Jouveau Dubreuil, *Dravidian Architecture*, p. 12, such faces are called *gandharva-mukha*. Very aptly, in *Mṛcchakaṭikā*, IV, 28, such faces, called "face-moons," on the upper storeys of Vasantasena's palace, are said to "seem to gaze down upon Ujjayinī." Before long, too, the arched niche acquires also an independent status, and forms a regular setting for figures of deities represented in reliefs on walls or architraves, and now indeed has far more the character of an arch (*toraṇa*) than of a window. This development can be traced back at least to the Kuṣāna period (Vogel, *Cat. Arch. Museum, Muttra*, Pl. IV), and it is highly interesting that before long a cusped form is developed. However, it must be pointed out that one of the commonest niche forms, that of a trefoil arch, is derived directly from such schematic representations of *cetiya-gharas*, seen in front elevation, as are found, for example, at Bharhut (Cunningham, *Stūpa of Bharhut*, Pl. IX); these forms already in Græco-Buddhist art have acquired the niche character, and the type is first extensively developed in Kashmir and the Panjab. The development of the many-cusped form has also been effected by, or may have been directly induced, or deduced from (1) the structural beam ends which are always clearly shown within the arch of an early *gavākṣa* (Figure 62) and/or (2) the more elaborate development of the similar beams in gable arches, as seen, for example, at Māmallapuram (Figure 32). However this may be, it is certain that from some or all of these sources a curved horse-shoe arch with many internal cusps must have been developed not long after the Gupta period, and that elaborate forms are to be met as early as the eighth century in Java, and also in Burma. Some of these forms,

[21]The origin of the mediaeval *śikhara* is correctly explained by Parmentier, *Architectures hindoues*, in Études Asiatiques, 1925, except that it is *prāsāda* rather than *saṅghārāma* that should be cited as prototype; in fact, the word *prāsāda* is applicable to a temple from first to last and this usage corresponds to the well-known conception of the temple a "god-house" (*deva-gha*, etc.), where "god-monastery" would have no logic. The monastery is originally a collection of *pariṣa-śālās*, then a series of chambers grouped round a central courtyard, and only later and exceptionally a *prāsāda* of many stories, like a palace.

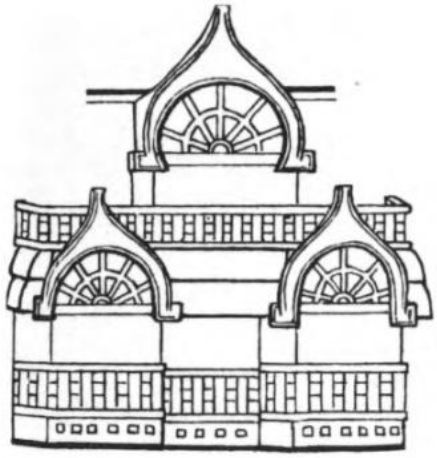

FIG. 44. AMARĀVATĪ

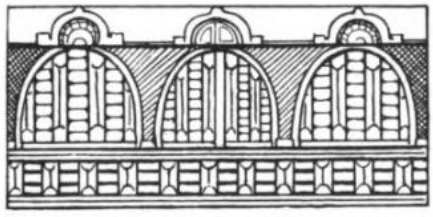

FIG. 45. MATHURĀ

FIG. 46. MATHURĀ

FIG. 47. MATHURĀ

FIG. 48. MATHURĀ

FIG. 49. MATHURĀ

FIG. 50. MATHURĀ

PLATE CV. *Coomaraswamy: Early Indian Architecture*

as they survive in later Indian Muhammedan architecture, e.g., at Gauṛ (Figures 83, 84), bear clear traces of their origin, and should not be regarded as of western Islamic origin (cf. IAT., p. 254, discussion of the *piyālidār mihrāb*).

A second decorative development of the *gavākṣa* form has not, I think, been noticed before now. To begin with, it may be observed that the lower and upper parts of the *gavākṣa* in decorative use gradually tend to be separated (Figures 59, 72, 74); combined with this, we find also a vertical displacement of parts which leads ultimately to a honeycomb design of which the sources are no longer obvious. This honeycomb motive is already well developed in the later Early Cāḷukya style (Figure 77) and thereafter attains even greater complication (Figures 75, 76, 78).

The foregoing account of palaces and windows does not pretend to be exhaustive; more material could and should be accumulated from the Epics, from the *kāvya* literature, and from archæological sources. The palace architecture represented in the paintings of Ajaṇṭā requires a special study, for which the present discussion will provide introductory material. I have not discussed the subject of paintings on palace walls, and the use of statuary in palaces.

Description of the Illustrations

Plate XCII

Fig. 1. The Vejayanta Pāsāda (so inscribed); i.e., the palace of Indra, here a *ti-bhūmika ākāsaṭṭha-* or *dibba-vimāna*. Bharhut, ca. 175 B.C.

Fig. 2. A *dvi-bhūmika pāsāda*, with princes seated in the *vātapānas* of the *kūṭágāra*, three finials and two birds are seen on the *kūṭa*. The windows seem to be flush with the *vedikā* of the upper storey. A small latticed window is seen in the wall of the *kūṭágāra*, between the windows. The pillars of the lower storey have lotus (so-called "bell") capitals, and are *aṭṭhaṁsā katā* below. Bharhut, ca. 175 B.C. Cf. Fig. 61.

Fig. 3. The *upari-pāsāda* of another palace, with *ālinda* (?) between the windows. Here the space between the recessed *kūṭágāra* walls and windows, and the *vedikā*, is more evident. Peacocks are perched on the *ālinda*. Bharhut, ca. 175 B.C.

Fig. 4. A *dvi-bhūmika ākāsaṭṭha-* or *dibba-vimāna*, showing deities between the pillars of the *sthūnāvabandha harmya* on the upper storey, and the same deities standing in the *aṅgana below*. Only one pillar of the lower storey is seen, on the right. In front on the left the *dvāra-koṭṭhaka* from which the *aṅgana* is reached; small latticed windows light its side rooms. Bharhut, ca. 175 B.C.

Fig. 5. Upper storeys of a *ti-bhūmika geha* in a city, the pillars of the lower storey being just visible below. A procession is passing through the street on the right. Sāñcī, north *toraṇa*, 100–50 B.C.

Fig. 6. A *ti-bhūmika pāsāda* or *geha* in a city, with *kūṭágára* above. The second floor is so planned as to leave an ample balcony space between the side and rear structure; two women standing or seated here lean on a cloth, hung over the *vedikā*. On the right a minor gateway of the kind generally seen dividing interior courtyards one from another. A part of the city wall is seen below. Sāñcī, west *toraṇa*, ca. 50 B.C.

Plate XCIII

Fig. 7. *Pāsādas* or *gehas* in a city, separated by streets; the palisaded city wall and moat are seen below. Sāñcī, east *toraṇa*, ca. 100 B.C.

Fig. 8. *Pāsāda* of King Suddhodana, father of the Buddha, with the Dream of Māyā, who lies sleeping on the *dvi-tala*, sheltered by the *osaraka* (?) of the third storey; the White Elephant descending on the right, this scene, though an anachronism in the whole composition, serves to identify the city as Kapilavatthu. To the

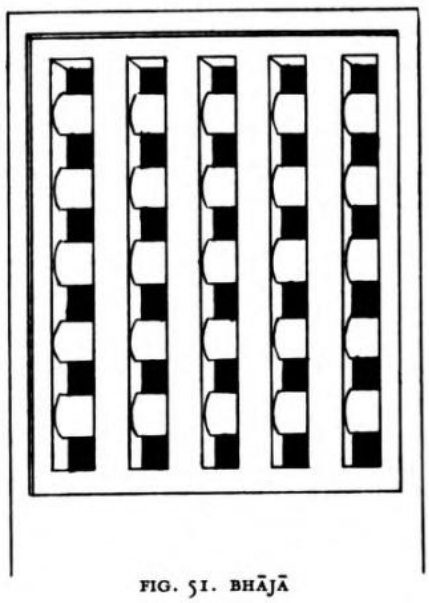

FIG. 51. BHĀJĀ

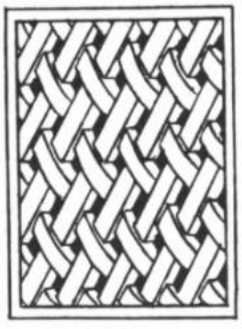

FIG. 52. NAḌSŪR

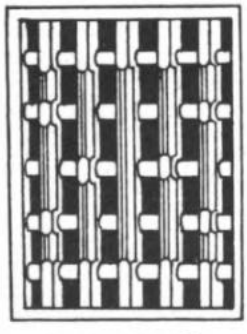

FIG. 53. NAḌSŪR

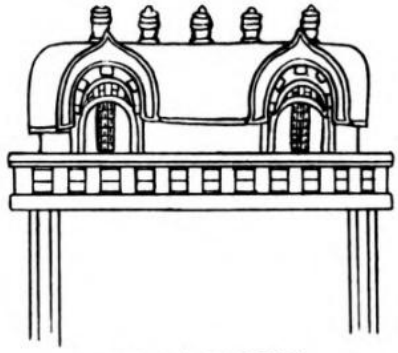

FIG. 54. BHARHUT

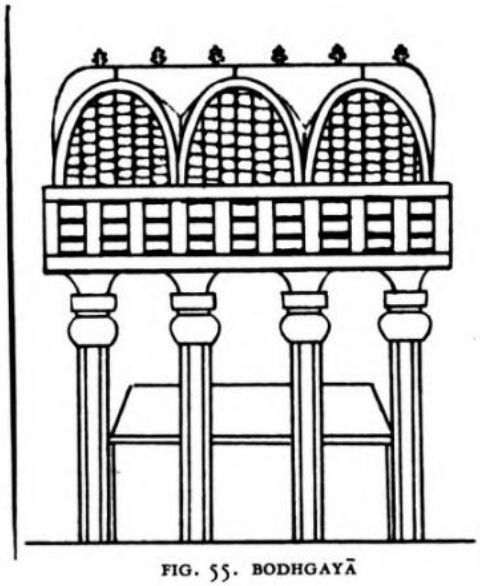

FIG. 55. BODHGAYĀ

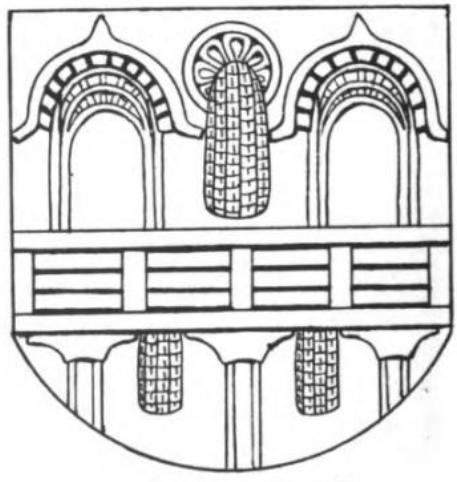

FIG. 56. BODHGAYĀ

PLATE CVI. *Coomaraswamy: Early Indian Architecture*

left of Queen Māyā's head on the same *tala* is a defensible tower, perhaps a treasury. A *kūṭāgāra* is seen on the top floor or *ākāsa-tala*, with a bird perched on the *vedikā*. On the right are two other mansions; procession in the streets between. Sāñcī, east *toraṇa*, ca. 100 B.C.

Fig. 9. A *ti-bhūmika pāsāda*: *antepurikā* within, the king seated in the garden outside. Sāñcī, west *toraṇa*, ca. 50 B.C.

Fig. 10. On the left a *catu-bhūmika*, on the right a *dvi-bhūmika pāsāda* or *geha*, with a street procession. The pillars of the lower storeys are clearly seen. Sāñcī, east *toraṇa*, ca. 100 B.C.

Plate XCIV

Fig. 11. *Dvi-bhūmika ākāsaṭṭha pāsāda* of Brahmā, or perhaps the upper part of a *ti-bhūmika pāsāda*, cf. Fig. 6; in any case a court or floor space is enclosed by the two side and rear structures forming a *tri-śālaka*(?) house. Sāñcī, east *toraṇa*, ca. 100 B.C.

[Vararuci, cited in MW. Skr. Dict., gives *pakṣa-ghna*, "barring one side," as applicable to a *tri-śālaka* house, which is open toward the west; presumably such as the examples illustrated here and in Fig. 6.]

Fig. 12. Stairway or sloping passage leading to the upper floors of a palace (exterior of same is shown in the panel below, here Fig. 13; the higher storeys in the panels above not here illustrated). Second panel of a stele, for the whole of which see Fig. 22 and Vogel, J. Ph., *Cat. Arch. Mus., Mathura*, Pl. XX: Kuṣāna, second to third century, A.D.

Fig. 13. Pleasure palace in a park, the façade continuous with the *pākāra*. Defence towers (*aṭṭālaka*) to right and left, guards within and without, with entrances between the continuous wall and a short outer wall. On the right a part of a *toraṇa* which must have stood in front of the main entrance to the park. The palace itself is three-storeyed, and the *kūṭāgāra* or *uttamāgāra* has a tiled roof. First panel of the same stele as Fig. 12 (I, 11 in the Mathurā Museum). See also Fig. 22.

Fig. 14. Part of a palace (?). Amarāvatī, ca. 200 A.D.

Fig. 15. Two-storeyed *pāsāda* overlooking an *aṇgana*, entered through a *toraṇa* on each side. Amarāvatī, ca. 200 A.D.

Plate XCV

Fig. 16. Part of the *pāsāda*-façade at Kondāne, showing three storeys above the ground floor, and on the right, part of the window arch of the great *cetiya-ghara*. On the upper storeys the lattice walls are noteworthy, also the brackets on the top storey, at the left. Late first century, B.C.

Plate XCVI

Fig. 17. *Pāsāda*-façade at the right end of the verandah of the *sela-cetiya-ghara* at Kārlī, showing the second, third, and part of the fourth storeys, with *vātapānas* and *mahā-vātapānas*. On the third storey observe the curved lattices below the upper windows. First century A.D.

Plate XCVII

Fig. 18. *Pāsāda*-façade at Bhājā, showing three storeys, with interior *gabbhas* on the ground floor and second storey. Second century B.C.

Fig. 19. Exterior of *sela-cetiya-ghara* at Beḍsā, showing *ālinda* above; a *hatthi-nakhaka* pillar on the left. In Cull., VI, 14, 1, a *pāsāda* having a *hatthi-nakhaka ālinda* is a permitted monastic residence; Buddhaghosa explains as *hatthi-kumbha patiṭṭhita*, "supported on elephant's frontal globes," but the technical term "elephant-nail"

FIG. 57. AJAṆṬĀ

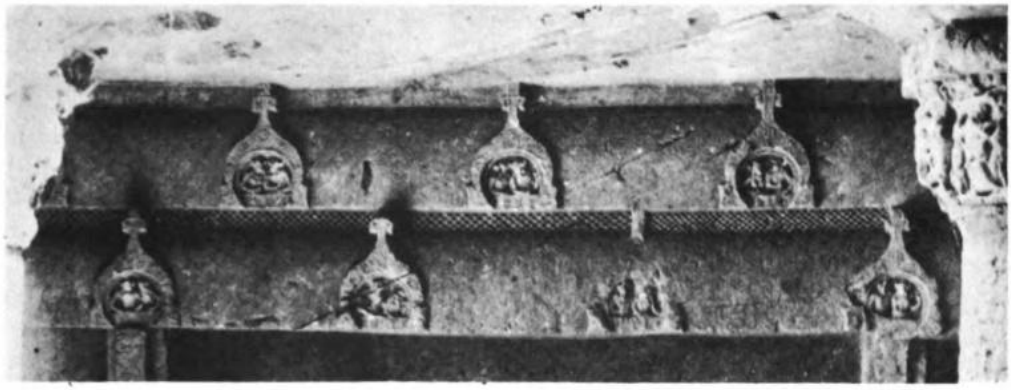

FIG. 58. KĀṬHIĀWĀṚ

FIG. 59. SĀRNĀTH

FIG. 60. SĀRNĀTH

PLATE CVII. *Coomaraswamy: Early Indian Architecture*

is evidently derived from the projection of the elephant's feet beyond the abacus, making the nails conspicuous when seen from below. End of first century B.C.

Fig. 20. Monastery verandah and *ālinda* at Junnār (Gaṇesra group, No. 7). Early first century A.D.

Plate XCVIII.

Fig. 21. The Six Kāmāvacaraka Devalokas, each "represented by the storey of a palace, the front of which is divided by pillars into three bays" (Marshall, *Guide to Sanchi*, p. 63); however, the trees at the back of each scene suggest that these are verandahs of garden pavilions, rather than successive storeys of one *pāsāda*. Above, immediately below the *vedikā*-abacus, is Brahmaloka, represented by the palace of Brahmā, of the same type as Figs. 6 and 11. Sāñcī, east *toraṇa*, right pillar, ca. 100 B.C.

Fig. 22. A pleasure palace in a park (see drawing, Figs. 12, 13, and description above; in the second panel, a stairway leading to the *upari-pāsāda*, seen in the two upper panels. Mathurā, I, 11, in the Mathurā Museum; Kuṣāna, second century A.D.

Plate XCIX.

Fig. 23. Detail from the back of "Stacey's pillar," Mathurā, representing the windows of one storey of a palace. Indian Museum, Calcutta.

Fig. 24. A three-storeyed building, probably a *patimāgeha* of *pāsāda* type. Restored from a fragment. Amarāvatī, first century A.D. (?)

Fig. 25. *Sivikā*, from which may be inferred the general character of a *sivikā-gabbha*, see p. 191, note 15. From an Amarāvatī coping relief, Burgess, *Buddhist stūpas of Amarāvatī and Jaggayyapeṭa*, Pl. XXI; Rūpam 38, 39, pp. 72, 73; and *Early Indian Architecture*, Pt. I, Fig. B. Ca. 200 A.D.

Fig. 26. *Pāsāda*-façade of a monastery, viz., the Ebhal Maṇḍapa, Talaja, Kāṭhiāwāṛ, partly restored. *Osaraka* (?) below the *vedikā* of the second storey. Early first century B.C.

Plate C.

Fig. 27. Monolithic temple of *pāsāda* type, viz., the Gaṇeśa Ratha at Māmallapuram. Seventh century.

Fig. 28. Monolithic temple of *pāsāda* type, viz., the Arjuna Ratha at Māmallapuram. Seventh century.

Fig. 29. Monolithic temple of *pāsāda* type, viz., the Bhīma Ratha at Māmallapuram. Seventh century.

Fig. 30. Structural temple of *pāsāda* type, viz., the "Shore temple" at Māmallapuram. Eighth century.

In all, notice the storeys successively diminished in size, the *pañjarams*, each separately roofed, along the margin of each floor, and the *gavākṣas* reduced to decorative *kūḍus* along the cornices (*kabodam*). The ground floor is pillared and walled, leaving an open porch. In Figs. 27 and 29 the large barrel-roofed "*kūṭāgāra*" clearly represents the main chamber, the *siri-gabbha*, on the top or "best" floor, the "sky-floor."

Plate CI.

Fig. 31. *Antepurikā* leaning from palace balconies, probably *sīhapañjaras*; in the street below, Buddha and the maddened elephant. Amarāvatī, ca. 200 A.D.

Fig. 32. End of the "*kūṭāgāra*" of the Bhīma Ratha, Māmallapuram (see Fig. 29), showing opening, and end beams developed into cusps or pendants supported by brackets.

FIG. 61. BHARHUT

FIG. 63. BHITARGAOṄ

FIG. 64. SIRPUR

FIG. 62. SĀÑCĪ

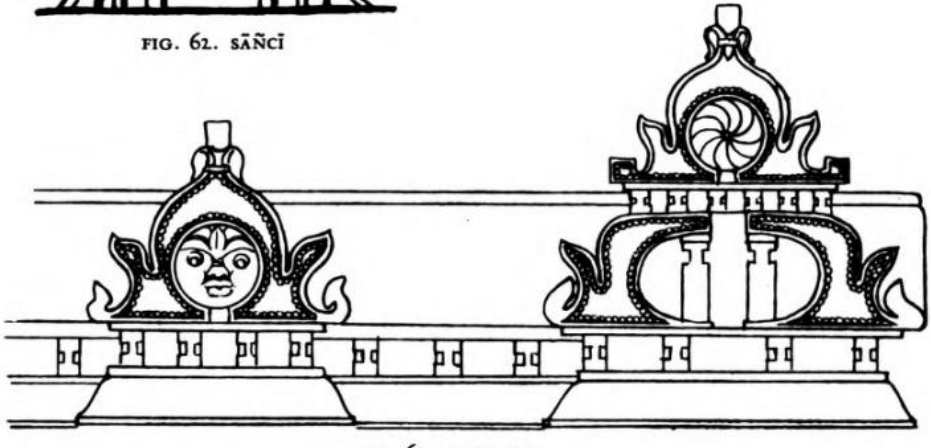

FIG. 65. DEOGAṚH

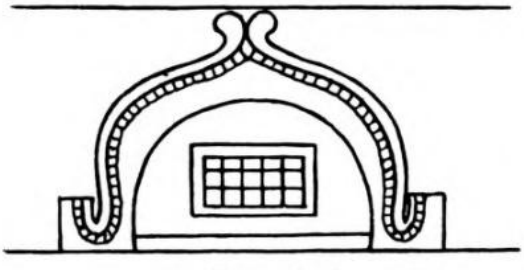

FIG. 66. MATHURĀ

FIG. 67. PATNA DISTRICT

PLATE CVIII. *Coomaraswamy: Early Indian Architectue*

Fig. 33. The Sat-Mahal-Pāsāda, Polonnāruva; brick, with an external stair; of brick, with marks of external timbering no longer extant. Twelfth century.

Plate CII

Fig. 34. Modern structural palace at Govardhana, near Mathurā, showing the basement, extended terraces (*tala*), each with its railing (corresponding to the old *vedikā*), and open pillared and lattice-walled or windowed chambers corresponding to *hammiyas* and *kūṭāgāras* or *pañjaras*. The ancient palace type is here preserved with stylistic, but without formal changes.

Fig. 35. Part of the *śikhara* of the Paraśurāmeśvara temple, Bhuvaneśvara showing the decoration of each cornice by gavaksa niches, angle *āmalakas* on every fifth "floor," and *āmalaka* crowning the whole.

Fig. 36. The Môt-Côt at Hanoi (see p. 200).

Plate CIII

Fig. 37. Part of a palace, near Jodhpur, Rajputana, with shuttered windows and overhanging *chajja*, the third floor, above being a flat, railed, roof; in the wall, on the right, a shuttered *jharokhā*.

Fig. 38. Façade of the palace at Jodhpur, with the "*rājaṅgana*" below, a walled first floor, and other storeys provided with latticed balconies ("*sīhapañjaras*").

Fig. 39. A merchant's house, of similar type, Jaipur, ca. 1700 A.D.

Fig. 40. Merchants' houses, of similar type, but less pretentious, Lashkar, Gwāliar; eighteenth and nineteenth centuries.

Plate CIV Interior palace scenes.

Fig. 41. Two palace chambers. On the left, Queen Māyā in her chamber, maidens sleeping, four guardian deities watching, a two-leaved door, half open, at the back. This room, separated by a wall from that on the right, where King Suddhodana is hearing the interpretation of the queen's dream. Amarāvatī, ca. 200 A.D.

Fig. 42. Man, and woman lightly clad, a maidservant watching from behind a curtain hung by rings to a rod and forming a screen (*sāṇi-pākāra*, J., I, 57); garlands suspended from the ceiling. Not a rare motif, but perhaps here an illustration of the Hārita Jātaka, No. 431, J., III, 498, where the curtain (*sāṇi*) is specially mentioned. Bodhgayā, ca. 100 B.C.

Fig. 43. Panel of a railing pillar, J., 7, in the Mathurā Museum, showing a quail fight; cf. *Mṛcchakaṭikā*, IV, 29, where, in a palace "quails are being egged on to fight." Kuṣāna, second or third century A.D.

Plate CV

Fig. 44. Two upper storeys of a *pāsāda*. From a fragmentary relief, Amarāvatī, ca. 200 A.D.

Fig. 45. Upper storey of a *pāsāda*; the large windows are of the *vedikā* type (see p. 199). From the railing pillar B 95, Lucknow Museum, from Mathurā; Kuṣāna.

Fig. 46. An upper storey of a *pāsāda*; the central window has *vedikā* shutters, and the recessed wall of the whole *kūṭāgāra* is similarly constructed. The roof element is doubled. From the railing pillar J 4 in the Mathurā Museum; Kuṣāna.

Fig. 47. An upper storey of a *pāsāda*, with external pillars; the central arched French window is partly open; the recessed wall of the *kūṭāgāra* is pierced by two square latticed windows (*jāla-vātapāna*); the roof seems to be tiled. From a railing pillar from Mathurā (Bhūtesar Mound), Indian Museum, Calcutta. Kuṣāna, second century A.D.

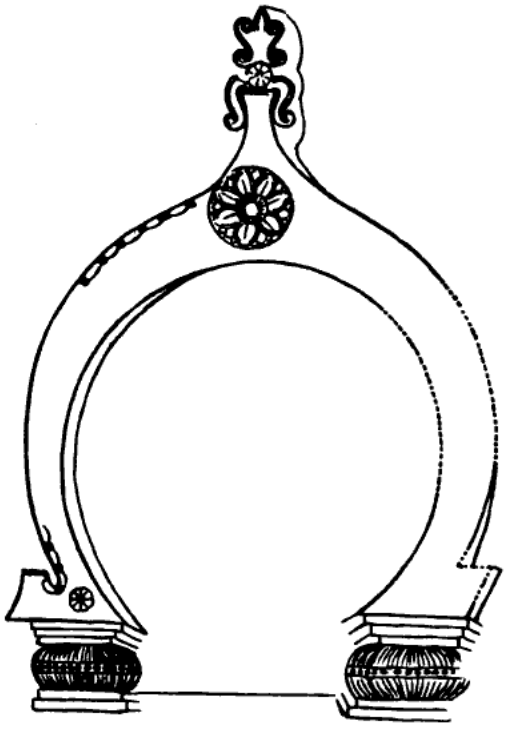

FIG. 68. AMARĀVATĪ

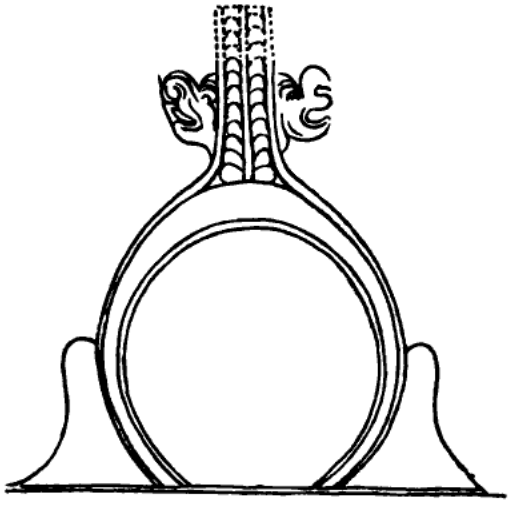

FIG. 70. BĀDĀMĪ

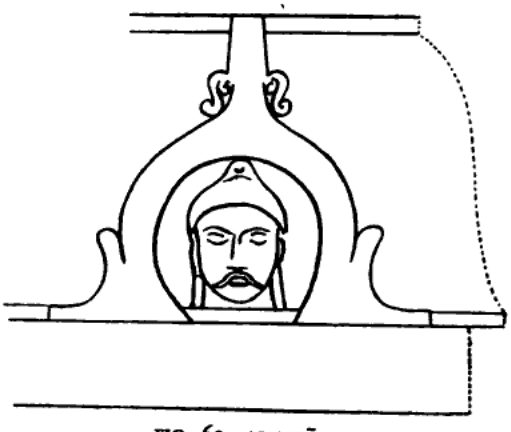

FIG. 69. AJAṆṬĀ

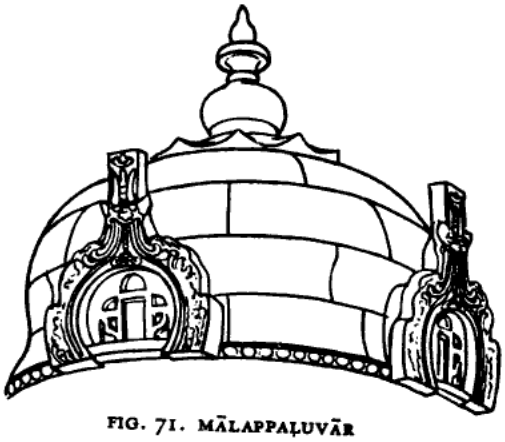

FIG. 71. MĀLAPPAḶUVĀR

PLATE CIX. *Coomaraswamy: Early Indian Architecture*

Fig. 48. An upper storey of a *pāsāda* showing two arched windows with shutters (*kavāṭa*) of *vedikā* type, and a central window with a rolled blind (*cakkali*). Same source as Fig. 47.

Fig. 49. An upper storey of a *pāsāda*, the central arched window with shutters partly open; on each side, a latticed window in the *kūṭāgāra* wall. Railing pillar from Mathurā, in the Lucknow Museum.

Fig. 50. A two-storeyed façade, with central *dvāra-koṭṭhaka*. From the Kaṭrā Mound, Mathurā, M 1 in the Mathurā Museum. Kuṣāna, first century A.D. (?)

Plate CVI.

Fig. 51. *Vedikā-vātapāna*, verandah, Bhājā Vihāra, monolithic, second century B.C.

Fig. 52. *Jāla-vātapāna*, and Fig. 53, *vedikā-vātapāna*, monolithic, from the *vihāra* at Naḍsūr, first century B.C.

Fig. 54. Two-storeyed *pāsāda*, Bharhut, ca. 175 B.C. (Cunningham, Pl. XXV, 4, rectified).

Figs. 55, 56. Two *pāsāda*-like structures, probably temples, from the Bodhgayā railing, ca. 100 B.C., restored. In Fig. 56, the central lotus with hanging garland, though actually external to the roof, possibly represents the *kaṇṇikā* within.

Plate CVII. Cornices and architraves representing roof-elements.

Fig. 57. Cornice (*kapota*, ancient *osaraka*?) with *gavākṣas* and outlooking *gandharva-mukhas*. Ajaṇṭā, Cave XIX, façade, sixth century.

Fig. 58. Double cornice (monolithic), representing two storeys, with *gavākṣas* and *gandharva-mukhas*, Uparkoṭ, Junāgaṛh, Kāṭhiāwāṛ, sixth century (Burgess, A. S. W. I., 1876, p. 142f.).

Fig. 59. Part of an architrave from Sārnāth, showing *gavākṣa* niches, the upper and lower parts separated. The Gupta form of *kīrttimukha*, which does not appear earlier in architecture, crowning the *gavākṣa* arch, is seen on the upper left. Sixth century.

Fig. 60. Architrave from Sārnāth, the upper part only, representing a palace storey. Here the upper moulded cornice clearly = roof, the recessed latticed wall with arched windows being seen below.

Plate CVIII.

Fig. 61. Prince seated in the *mahā-vātapāna* of a *kūṭāgāra* on the second storey of a *pāsāda*; on the right is seen a small latticed window in the wall of the *kūṭāgāra*, above, two finials and a bird perched on the *kūṭa*. Bharhut (same as Fig. 2), ca. 175 B.C.

Fig. 62. Similar *vātapāna* of a palace at Sāñcī (detail from Fig. 2), showing beam ends within the arch (origin of later cusped arch ?) and architectural front resembling the façade of a *cetiya-ghara*. Ca. 100 B.C.

Fig. 63. *Gavākṣa*-niche in brick, Bhitargāoṇ, fifth–sixth century.

Fig. 64. Decorative *gavākṣa*, with *kīrttimukha*, and internal bracketed cusps. Lakṣmaṇeśvara temple, Sirpur, seventh–eighth century.

Fig. 65. Detail of door lintel, early Gupta, Deogaṛh. Showing on the right separation of the parts of the *gavākṣa*, and the spade-like development of the crest. Fifth century.

Fig. 66. Arch containing rectangular lattice; on a roof-element, from the Āmohinī relief, from Mathurā, ca. A.D. 14, now in the Lucknow Museum (for the whole see Bachhofer, *Early Indian Sculpture*, Pl. 74).

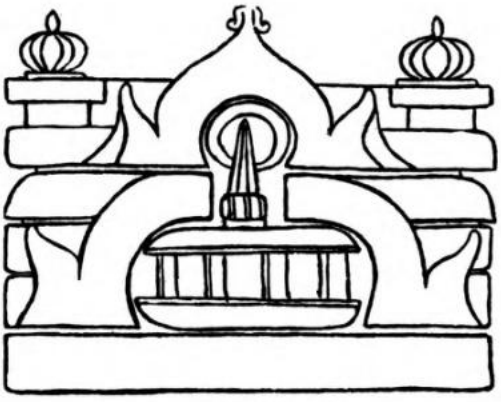

FIG. 72. NAGARĪ

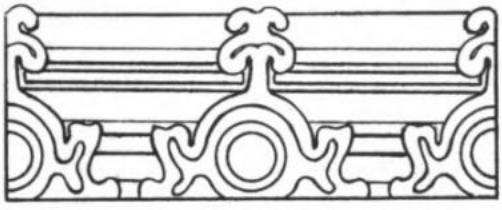

FIG. 73. BODHGAYĀ

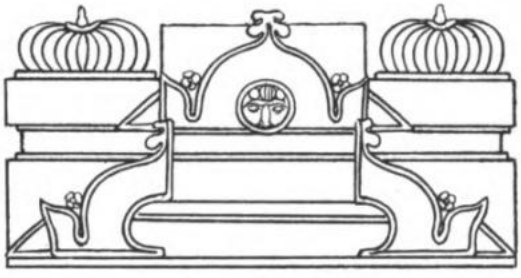

FIG. 74. KHILCIPURA

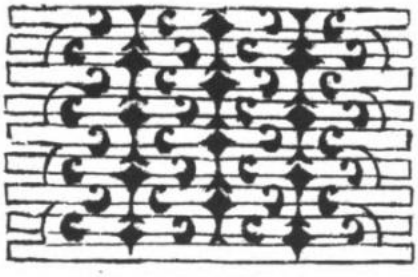

FIG. 75. KURARI

FIG. 76. DEOGAṚH

FIG. 77. PAṬṬADKAL

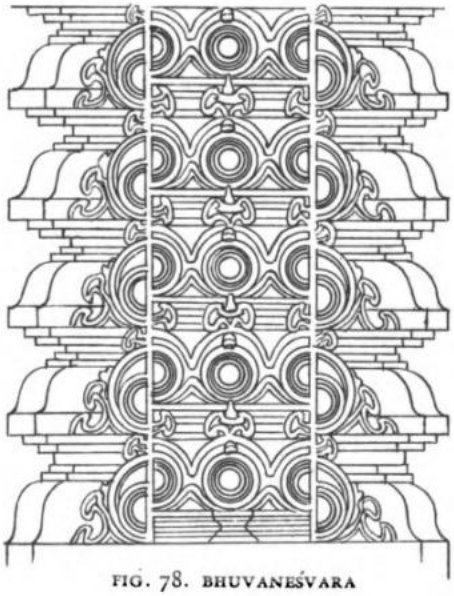

FIG. 78. BHUVANEŚVARA

PLATE CX. *Coomaraswamy: Early Indian Architecture*

Fig. 67. Detail from an early mediæval door lintel from the Patna District, showing a decorative development of the *gavâkṣa*.

Plate CIX

Fig. 68. *Gavâkṣa*-niche, the original enshrining a *śālabhañjikā* figure. Amarāvatī, ca. 200 A. D. For the original see Burgess, *loc. cit.*, Pl. XLIX, 7, cf. XLIV, 5.

Fig. 69. Detail of Fig. 57.

Fig. 70. *Gavâkṣa*-niche from Cave II, Bādāmī, late sixth century.

Fig. 71. Dome of the Coleśvara chapel of the Agastyeśvara temple at Mālappaluvār, Trichinopoly District. Eleventh century. The *gavâkṣa*-niches are now crowned by *kīrttimukha* in the shape of fully evolved full-face *makaras*, with vegetative forms hanging from the jaws. Internally there is an architectural form, developed from an earlier type such as that of Fig. 62. Note incidentally the bulbous dome, inverted lotus crowning, and water-pot finial. For a much earlier example of the same type of construction cf. H. I. I. A., Fig. 145.

Plate CX

Fig. 72. Roofing element, *gavâkṣa* with separation of upper and lower parts. From a door jamb, Nagarī, ca. sixth century.

Fig. 73. Roofing element from one of the late Gupta railing pillars, Bodhgayā; the *gavâkṣas* reduced to a circle.

Fig. 74. Similar to Fig. 72. From a *toraṇa* post, Khilcipura, now in the fort at Maṇḍasor. See A. S. I., A. R., 1925–6, LXIX. Sixth century.

Fig. 75. Decorative form derived from the *gavâkṣa* by displacement of the upper and lower parts, and repetition, from the *śikhara* of a temple at Kurari, Fatehpur District. Mediæval.

Fig. 76. Another less complex *gavâkṣa* motif, from the mediæval temple at Deogaṛh.

Fig. 77. Similar but earlier form above a niche, Pāpanātha temple, Paṭṭadkal. Eighth century.

Fig. 78. Similar but more complex form from the Mukteśvara temple, Bhuvaneśvara. Tenth century.

Plate CXI

Fig. 79. From Poḷonnāruva, Ceylon, over the seated stone Buddha at the Gal Vihāra. Twelfth century.

Fig. 80. From the Kalyāṇeśvarī temple, Burdwān. Fourteenth century (?).

Fig. 81. From Borobuḍur, late eighth century. The arch is crowned by a *kīrttimukha* head (Javanese *kāla-makara*).

Fig. 82. From the Sūḷamaṇi temple at Pagān, Burma, A.D. 1183. (A. S. I., A. R., 1922–3, Pl. XXIII).

Fig. 83. From a *maṭha* at Khodlā, near Khulna, in brick, sixteenth century (see A. S. I., A. R., 1921–2, Pl. XXVII and p. 76).

Fig. 84. From the Sona Masjid, Gauṛ, sixteenth century; the *kīrttimukha* resolved into a palmette, but very clearly recognizable.

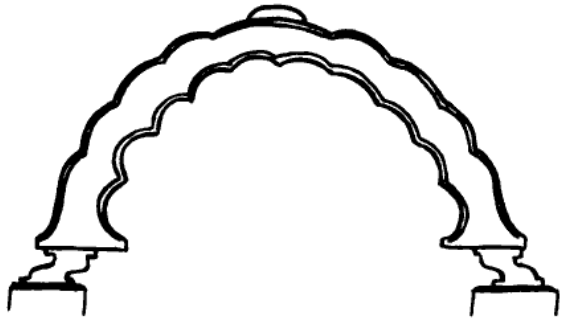

FIG. 79. POḶONNĀRUVA

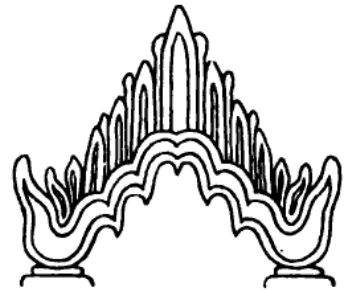

FIG. 82. PAGĀN

FIG. 80. BURDWĀN

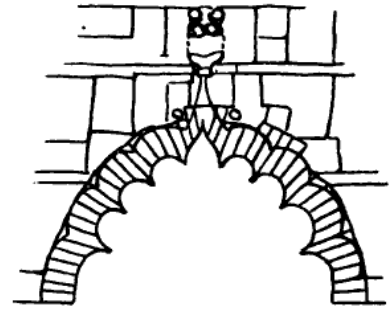

FIG. 83. KHODLĀ

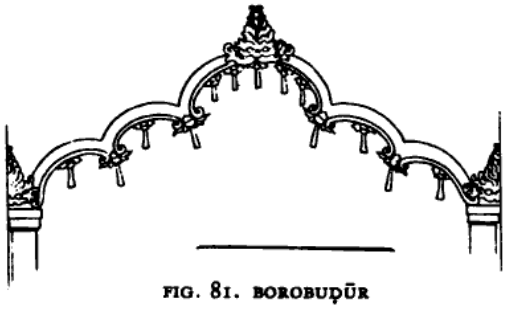

FIG. 81. BOROBUḌŪR

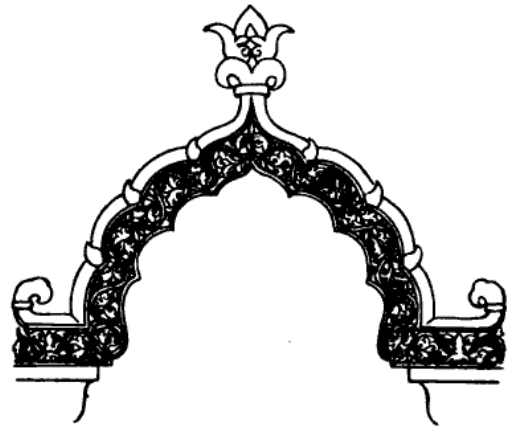

FIG. 84. GAUṚ

PLATE CXI. *Coomaraswamy: Early Indian Architecture*

ADDENDA AND CORRIGENDA
EARLY INDIAN ARCHITECTURE

Part I

P. 213, J., IV, 106, for *sukha-parikhā* read *sukkha-parikhā*, dry moat (*sukkha* = Skr, *śuṣka*).

In DN. II, 170–171, the city of the Great King of Glory has seven ramparts and four gates (*dvāra*) each with seven *esikāni*, three or four times the height of a man.

Some data on the city as described in the *Mahābhārata* will be found in Hopkins, E. W., *Position of the ruling caste in India*, J.A.O.S., vol. XIII, pp. 174-9.

Part II

In Mhv., LI, 54, while the carpenters are building the *ghara* of the *dumarāja* (Prince of Trees, i.e., Bodhi-tree), a branch of the tree, striking against a beam (*vaṁsa*) seems likely to break; however, the branch bends upwards so as to allow the *ghara* to be built.

Mhv. XXXVIII, 56, a festival of the bathing of the Bodhi-tree, when sixteen bronze "bath maidens" are prepared.

Geiger, *Cūlavaṁsa*, tr., p. 32, has a note stating that modern *bōgē* is a chapel beside the tree.

The term *bodhi-rukha-pāsāda* in a Nāgār junikoṇḍa inscription (Ep. Ind., XX, pp. 10, 22) is probably synonymous with a *bodhi-ghara* of two or more storeys.

P. 227, line 20, add as footnote to "cosmic significance":

> The term *vajirâsana* does not appear in Pali texts, and *bodhimaṇḍa* only in late canonical and post-canonical books. The cosmic significance of the *bodhimaṇḍa*, or "Wisdom area", asserted by Hsüan Tsang is alluded to in J., IV, 233, *and Mahābodhi-vaṁsa*, 79, where it is said to be *pathavi-nābhi*, "navel of the earth".

line 31, after honouring, read: (*pūjā*)

Indian Architectural Terms

INDIAN ARCHITECTURAL TERMS

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ACHARYA, P. K., *Indian Architecture According to the Mānasāra-śilpaśāstra*, pp. iv, 268, index: *A Dictionary of Hindu Architecture*, pp. xx, 861, index. Both printed in Allahābād, published by the OXFORD UNIVERSITY PRESS, and without date (1927 or 1928).

These two volumes, the latter especially, are monumental works, and will be indispensable to every student of Indian architecture and *realia*. Only those who work along these lines will realise the great labour involved in the preparation of such books, especially when they are almost the first of their kind; the serious study of the Indian *śilpa-śāstras* has been too long delayed, and a warm welcome may be extended to the Professor's undertaking. The author, nevertheless, has neglected a good deal of work that has been done in this field; surprising omissions in the references, for example, are Rao, *Tālamāna*, Jouveau-Dubreuil, *Archéologie du Sud de l'Inde*, and texts such as the *Viṣṇudharmottara* and *Śilparatna*. Moreover the author is too little, if at all, acquainted with the actual buildings; otherwise, indeed, he could not have remarked that the buildings and sculptures of the time when the text of the *Mānasāra* was composed "have all been destroyed," overlooking the fact that sculptures and buildings of this and earlier periods survive in thousands, and that a very great deal of exact information about the early architecture can be gathered from the Śuṅga, Kuṣāna, and Āndhra reliefs. I have myself in preparation a work based on this early material, which can and necessarily will be very fully illustrated. Jouveau-Dubreuil had the immense advantage of a thorough knowledge of the actual architecture, and of personal contact with living *sthapatis* able to explain the meaning of technical terms; without these qualifications Professor Acharya has attempted an almost impossible task, for here book-learning, however profound, is insufficient.

The following notes, however, are meant to be a further contribution to the subject and an acknowledgment of the value of what the Professor has already accomplished, rather than further criticism.

As of most general interest I would call attention to the items *Ābhāsa, Candra-śālā, Hasti-nakha, Kuṭāgāra, Likh, Liṅga, Nārāca, Tulā.* I should also like to emphasize the fact that a study of the early use of the words which later appear as established technical terms in the *Śilpa-śāstras* is of great value for the study of architectural history. There is still very much to be accomplished in this direction.

Ābhāsa: together with *ardha-citra* and *citrābhāsa* are completely misunderstood. Neither of these is a material, but as explained by Śrīkumāra, *Śilparatna*, Ch. 64, vv. 2-6 (see my translation in the *Sir Ashutosh Mookerjee Memorial Volume*), and by Rao, *Elements of Hindu Iconography*, I, p. 52, citing the *Suprabhedāgama*, a method. Both the *Mānasāra* and *Suprabhedāgama* as cited by the Professor himself are perfectly clear on the point; as the matter is important, I quote the latter:

Sarvāvayava-saṁpūrṇaṁ dṛśyaṁ tac citram ucyate
Ardhāvayava-saṁdṛśyam ardha-citraṁ caiva ca (sic).
Paṭe bhittau ca yo(al) likhyaṁ[1] *citrābhāsam ihocyate* (sic).

The mistake about *ābhāsa* has led to the extraordinary view (*Dict.* p. 65, l. 3) that *ālekhya* is also a material. *Citra*, in fact is divided into *citra, ardha-citra*, and *citrābhāsa*, respectively sculpture in the round, reliefs, and painting. In *Indian Architecture*, p. 70, in the same connection *sarvāṅgadṛśyamāna*, rendered "quite transparent," really means "in which all the parts of the body are visible." Of course, there are many cases where *citra* by itself is used to mean painting, but some of these need critical examination; for example *citrāṇi maṇḍalāni* of *Cullavagga*, V, 9, 2 does not mean "painted circular linings," as rendered in *S. B. E.*, XX, but simply "carved bowl-rests."

Ādhāra: add the meaning, "reservoir," *Arthaśāstra*, III. 8 (Meyer).

Adhiṣṭhāna, plinth: Mukherji, *Report on the Antiquities of the District of Lalitpur*, 1899, describes and illustrates the various parts and mouldings. A few diagrams of this kind would have greatly enhanced the value of the *Dictionary*.

Ajira: a courtyard, see Geiger, *Mahāvaṁsa*, Ch. XXXV, 3 and transl., p. 246.

Alambana-bāha: the balustrade, *vedikā*, of a stairway, *sopānā*, *Cullavagga*, V, 11. Cf. *hasti-hasta*. *Alambana, per se*, is the plinth of a railing or balustrade.

Ālekhya: not in the *Dictionary*. See above under *ābhāsa*. The working drawing, on cloth, for the Lohapāsāda is thus designated in the *Mahāvaṁsa*, Ch. XXVII, 10. *Ālekhya-sthāna* is a space left in a manuscript for the subsequent insertion of an illustration.

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[1] ? *yal lekhyaṁ*.

Ālinda: balcony, gallery. *Cullavagga*, VI, 3, 5, glossed *pamukha* = *pramukha: ib.* VI, 14, 1, described as *hatthi-nakhakaṁ*, see *hatthi-nakha.* In *Mahāvaṁsa*, XXV, 3, the rendering of *ālinda* as "terrace in front of a house door" (Geiger, *Mahāvaṁsa*, p. 246, note 2) seems very questionable.

Āmalaka: not in the *Dictionary*, though discussed in the other volume, p. 179, where *kalaśa*, "vase" (finial) is misrendered "dome."

Not in the *Mānasāra*, and the suggested equivalent *mūrdhni-iṣṭaka* seems a little questionable. I doubt if an example as finial could be cited before the Gupta period, when it can be seen on the reduced edifices of the Sārnāth lintel (Sahni, *Catalogue*, pls. XV-XXVI); but these imply an already well-established tradition. The form is already employed architecturally in connection with pilasters represented at Amarāvatī. In *Cullavagga*, VI, 2, 4 a kind of chair is termed *āmalaka-vaṇṭika-piṭhaṁ*, and this is glossed by Buddhaghosa as "having large *āmalaka*-formed feet attached to the back." The translation "many feet" of *S. B. E.* XX, 165, cited by Acharya without comment, can hardly be justified, though Buddhaghosa's *bahupāda* suggests it at first sight. Amongst the countless representations of chairs and couches in Indian art of all periods I cannot think of a single example with more than four legs.

Aṅgana: applied to the enclosure surrounding a stūpa, i. e. the circumambulation-platform between the stūpa and its railing, *Dhammapada Atthakathā*, 290 (Bk. 21, Story 1, Burlingame, H. O. S., vol. 30, p. 175).

Aṇidvāra: Arthaśāstra, II, 3, and III, 8. Meyer renders "sidedoor," Shamasastry "front door." In III, 8, the latter meaning would seem to be indicated, as only one door is mentioned, and the window above it is referred to. In the early reliefs we see no side doors to ordinary houses, while there is generally a window above the single (front) door.

Aratni: add references to *Kauṭilīya Arthaśāstra*, II, 20, with a table of measurements practically identical with that of the *Mānasāra.* In *Arthaśāstra* II, 5, the rain gauge (s. v. *kuṇḍa* below) is to be an *aratni* in width, i. e. 2 spans (*vitasti*) or 24 *aṅgulas.*

Argala: Pali *aggala*, Simhalese *agula*, a bolt. See under *dvāra*, below.

Arghya: not in the *Dictionary.* In *Mahāvaṁsa*, XXX, 92, Geiger's rendering of *agghiya* as "arches" is impossible. *Agghiya-pantī* may be rows of garlands or swags, a common enough ornament, or more likely rows of vessels of some kind; *phaḷikagghiya* must be a crystal dish or platter, as it has four corners in which are placed heaps (*rāsiyo*) of gold, gems, or pearls—but more likely we should understand *phalak-agghiya* and translate as "wooden offering table" or "altar." In any case "four corners" has no meaning in connection with any sort of known *toraṇa. Agghika* of *Mhv.* XXXIV, 73 is more doubtful,

perhaps here equivalent to altars or reredos (Siṁh. *vahal-kaḍ*). See also *agghiya*, *agghika* in P. T. S. Pali Dictionary.

Āryaka-stambha: not in the *Dictionary:* but see under *āveṣanin*, below, and *Dictionary*, p. 669.

Āsandī, a throne, seat: *Atharva Veda*, XV, 3 (see Whitney, in *H. O. S.*, Vol. VIII), where the various parts are named; the description suggests the types still seen at Amarāvatī.

A detailed nomenclature of seats will be found in *Cullavagga*, VI, 2. Cf. *ib.*, VI, 14, also *Brahmajāla Sutta*, (*Dialogues*, I, p. 11, note 4).

Pace S. B. E. XVII, p. 27, it is by no means demonstrable from *Jātaka* I, 108, that *āsandi* means "cushion"; Cowell's "couch" is undoubtedly correct, and this is the sense everywhere else. To suppose a chair or couch placed in a cart presents no difficulty.

Aṭṭāla: watch-towers or gate-towers, *Milindapañha*, V, 4. *Gopuraṭṭhā*, *Mahāvaṁsa*, XXV, 30. *Gopuraṭṭālaga*, *Uttarādhyayanasūtram*, IX, 18, Charpentier, pp. 97, 314.

Avasaraka: osaraka (Pāli) (? that which sheds water) overhanging eaves (of a building without verandahs, *anālinda*), *Cullavagga*, VI, 3, 5: glossed as *chadana-pamukhaṁ*, "projecting from the roof." *Osārake*, "under the eaves," *i. e.* outside the house, *Jātaka*, 111, 446. Cf. modern *chajja*.

Āveṣaṇin: not in the *Dictionary*; architect, foreman. Inscription on Sāñcī south *toraṇa*, "Gift of Ānanda, son of Vāsiṣṭhi, *āvesaṇin* (rendered "foreman of the artisans") of Rāja Śrī Śātakarṇi" (Marshall, *Guide to Sanci*, p. 48). *Āyaka* (*āryaka*)-*stambhas* dedicated by Siddhārtha son of Nāgacanda, both *āvesaṇins* (Burgess, *Notes on the Amaravati Stupa*, p. 56); *āvesa* is stated to mean a workshop, atelier.

Ayas: not in the *Dictionary*. This word is always used for iron (see *loha*, below). *Mahāvaṁsa*, XXV, 28, *ayo-kammata-dvāra*, "iron studded gate" (of a city); *ib.*, 30, *ayo-gulaṁ*, "iron balls"; *ib.*, XXIX, 8, *ayo-jāla*, an iron trellis used in the foundations of a stūpa. Reference might have been made to the iron pillars at Delhi and Dhar, and the use of iron in building at Koṇārak.

Bodhi-ghara, mahābodhi-ghara: temples of the Bodhi-tree, presumably like the many examples illustrated in the early reliefs. No doubt a pre-Buddhist form, preserved in connection with the cult of the Bodhi tree. See *Mahāvaṁsa*, XXXVI, 55, XXXVII, 31, etc.; in the former place provided with a sand court, *vālikātala; ib.*, XXXV, 89 *aṅgana*. Also called a *maṇḍapa*, *ib.*, XVIII, 63.

Bodhi-maṇḍa(*la*): is treated as synonymous with *vajrāsana*, but is really the special area within which the *vajrāsana* is established; see Hsüan Tsang as cited by Watters, II, 114, 115.

Candra (*-śālā*), etc.: some useful material is contributed towards a solution of the problem of the proper designation of the so-called "caitya-window" (dormer or attic window, gable, etc.), one of the

commonest and most distinctive motifs recognizable in Indian architecture from first to last. "Caitya-window" is unsatisfactory, as the form is by no means peculiar to, nor can it have been originally devised expressly for caitya-halls; the gable form is derived from that of an ordinary barrel-vaulted house end. *Toraṇa* is perhaps correct in so far as the window is actually an arch, *vātāyana* in so far as it is a window, but neither is sufficiently specific. The problem is a little complicated by the fact that we have to do both with arched windows actually admitting air to upper chambers, dormers, or attics, with real internal space, and also with similar forms used decoratively and placed in series on cornices or similarly used in friezes; but the various architectural forms, complete figures, or heads (see also *gandharva-mukha* and *gṛha*) which appear framed in the niche formed by the window-arch prove that the idea of an opening to internal space is always present. The best established word is Tamil *kūḍu* (Jouveau-Dubreuil, *passim*), but there seems to be no similar word in Sanskrit; *kūḍu* means nest, and it applies both to the window as an ornament, and to actual pavilions (*karṇa-kūḍu*, Jouveau-Dubreuil, *Dravidian Architecture*, fig. 4). The proper term in Sanskrit seems to be *candra-śālā* (see *s. v.* in the *Dictionary*), meaning either a gabled chamber on or above the *kapota* (for which *candra* is given as a synonym), or the gable window itself. In the last case *candra-śālā* should really be an abbreviation of *candra-śālā-vātāyana*, and this seems to be the most explicit designation: "gable-window" is probably the best English phrase, German *dachfenster*.

A number of passages seem to show also that *gavākṣa* may be synonymous with *candra-śālā-vātāyana*. Thus in *Raghuvaṁśa*, VII, 11, the *gavākṣas* are crowded with the faces of beautiful young women looking out, and *ib.* XIX, 7, Agnivarman is visible to his subjects only to the extent of his feet hanging down from the *gavākṣa*. The modern vernacular equivalent is of course *jharokhā*.

The many-cusped arch, known to modern Musalman masons as *piyālidār mihrāb*, and familiar in Rajput, Mughal, and modern Indian architecture, is a development of the "horse-shoe" arch (gable window) which has rightly been regarded as of Indian, pre-Muhammadan invention (Rivoira, *Moslem Architecture*, p. 110 f); every stage in the evolution can be followed. Cusped arches are found already in Java by the eighth century (Borobuḍur); there is an excellent example at the Gal Vihārē, Poḷonnāruva, Ceylon. It would take too much space to treat this interesting subject at length here, but it is worth while to note that Mukherji, *Antiquities of the Lalitpur District*, I, p. 9, gives the Indian terminology; the "parts of the so-called Saracenic (five-foiled) arch, are all Hindu." These names are, for the spring of the arch, *nāga* (cf. *nāga-bandha* in the sense of chamfer-stop); for the foils or cups, *kaṭora;* and for the top, *oākkā* (? = *cūlikā*, q. v. in *Dictionary*).

Caṅkrama: cloister, monk's walk, at first perhaps only paved, later roofed and railed (*Cullavagga*, V, 14, 2, 3). *Caṅkamana-sālā*, "hall in a cloister," *Cullavagga*, V, 14, 2 and *Mahāvagga*, III, 5.

Cetiya-ghara: in *Mahāvaṁsa*, XXXI, 29, and 60, 61, *cetiya-ghara* is a structure built over a stūpa, *thūpaṁ tassopari gharaṁ*. Some have seen evidence of such a structure in the still standing tall pillars surrounding the Thūpārāma Dāgaba at Anurādhapura, and this interpretation seems to be plausible, especially as the pillars are provided with tenons above. An actual example of a stūpa with a roof over it, supported by four pillars, can be seen at Gaḍalādeniya, near Kandy, Ceylon. The old caitya-halls are also, of course, *cetiya-gharas*, and of these there existed also many structural examples.

"Thūpaghara . . . is simply a house over a tope" (Hocart, A. M., *Ceylon Journ. Science, G.*, Vol. I, p. 145).

Channavīra: some description might have been given of this very common ornament, found from pre-Mauryan times to the present day. See Rao, *Elements of Hindu Iconography*, I, p. xxxi, and *M. F. A. Bulletin*, No. 152, p. 90. The *channavīra* passes over both shoulders and both hips, crossing and fastening in the middle of the breast and middle of the back; it is worn by deities and men, male and female, and occurs also in Java.

Citra: art, ornament, sculpture, painting, see above under *ābhāsa*. *Citra, citra-karma* do not always mean painting. Some places where the word occurs and has been so translated need reëxamination; for example, *Cullavagga*, V, 9, 2, *citrāṇi maṇḍalāni* does not mean "painted circular linings," but rather "carved bowl-rests." Some references should be given to *citra-sabhā, citra-śāla* which are of very common occurrence in the sense "painted hall or chamber." The *citta-sabhā* of Jacobi, *Ausgewählte Erzählungen*, p. 39, has a high tower (*uttunga sihara*). Description of a *citta-sabhā* cited from the *Uttarādhyayana Sūtra*, Meyer, *Hindu Tales*, p. 174. *Cittāgāra*, in *Sutta Vibhaṅga*, II, 298.

Cūlikā: as something at the top must be connected with *cūḍā*. But in *Mānasāra*, L. 301, (*Dict.*, p. 197), *lamba-hāram api cūlikādibhiḥ, cūlikā* must be "bodice," and synonymous with *coḷaka*.

Daraninavami-śilā: not in the *Dictionary*. A square stone (or rarely bronze) slab or box divided into nine compartments in which are placed symbols connected with water, the whole being laid below the foundations of a temple or below an image (*A. S. I., A. R.*, 1903-04, p. 98, note). This object is known in Ceylon as a *yantra-gala*, where several examples have been found (Parker, *Ancient Ceylon*, pp. 298, 658; *Mem. Colombo Museum*, Series A, I, p. 25).

Deva-kula: in the *Avadāna-śataka* (Feer, p. 98), used of a temple of Nārāyaṇa. See also *A. S. I., A. R.*, 1911-12, p. 124. *Devakula* of

the Nāga Dadhikarṇa, Mathurā inscription, Lüders' List, No. 63. Inscription of Loṇāśobhikā on Mathurā *āyāgapaṭa*, see *VI Int. Congr. Orientalists*, III, p. 143.

Dhavala, whitening: applied to a plastered or other surface, *Śilparatna*, Ch. 64. *Dhavala-hara*, a "White House," palace, Haribhadra, *Sanatkumāracarita*, 548, 599, 608.

Drupada: a post, *Ṛg Veda*, 3, 32, 33. The whole passage is very doubtful, but apparently two horses are compared to carved figures of some kind (brackets?) upon a wooden post.

Dvāra: the parts of a door are listed in *Cullavagga*, V, 14, 3, also *ib.* VI, 2 (not quite correctly translated in *S. B. E.*, XX, p. 106), as follows: *kavāṭa*, the leaves; *piṭṭhasaṁghāṭa*[3] (= Sanskrit *prasthāsaṁghāṭikā*, "upstanding pair"), the door-posts; *udukhallika*, threshold; *uttarapāsaka*, lintel; *aggalavaṭṭi*, bolt-post; *kapi-sīsaka*, bolt (-handle); *sūcika*, the pin or part of the *kapi-sīsa* which fits into the socket in the bolt-post (cf. *sūci* = cross-bar of a *vedikā*); *ghaṭikā*, apparently the slot in the bolt-post just referred to; *tālacchiddā*, key-hole; *āviñchanacchidda*, string-hole; *āviñchana-rajju*, string for pulling the leaves to from outside preparatory to locking. Some of these terms occur elsewhere; with reference to a passage in the *Mahāparinibbāna Sutta* where Ānanda leans against the *kapi-sīsaka* Buddhaghosa is certainly right in glossing *kapi-sīsaka* as *aggala*, for the Siṁhalese *agula* is big enough to lean against (see my *Mediaeval Sinhalese Art*, figs. 80-82, for illustrations, *ib.* p. 133, for the Sinhalese terminology). As in so many other cases the terms are perfectly comprehensible when the objects have been seen as represented in relief, or in use, and when the modern technical terms are known.

As correctly observed in *S. B. E.*, XX, p. 160, *dvāra* is "doorway," "aperture," always with reference to outer doors or gates of any building, or of a city, while *kavāṭa* means the leaves of a door, the door itself.

See also under *gṛha*, and cf. Robert Knox's description of the palace of Rāja Siṁha II, "stately Gates, two-leaved . . . with their posts, excellently carved."

Bahi-duāla-sālā = *bahir-dvāra-śālā*, "outer room," "gate chamber," *Mṛcchakaṭika*, III, 3.

From RV. I, 51, 14 we get *duryo yūpaḥ* for the door posts, from RV. I, 113, 14 *ātā* for the door leaves, and from RV. III. 61. 4 a thong (*syūman*) fastening.

Dvāra-bāhā: door posts, *Mahāvaṁsa*, XXV, 38: *ayo-dvāra, ayo-kammata-dvāra, ib.* XXV, 28, 29, 32.

Dvāra-koṭṭhaka, gate house: *cittakūṭa dvāra-koṭṭhaka*, etc., "a gate-house

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[3] See S. B. E. XX, p. 105, note 2.

with a decorated peak, and surrounded by statues of Indra, as though guarded by tigers," *Jātaka*, VI, 125: cf. *Dhammapada Atthakathā*, Bk. 2, story 7.

For *koṭṭhaka* see also *Cullavagga*, V, 14, 4 and VI, 3, 10; *Jātaka*, I, 351 and II, 431; and Meyer, *Arthaśāstra*, p. 75, note 5 (in the sense of "shrine"). *Koṭṭhaka* is usually "gatehouse," but *piṭṭhi-koṭṭhaka* is "back-room" in *Dhammapada Atthakathā*, II, 19.

In *Jātaka* I, 227, *dvāra-koṭṭhaka* is, as usual, gate-house, not as interpreted in S. B. E. XVII, 219, 'mansion' (the 'mansion' is *ghara* and it has seven *dvāra-koṭṭhakas*).

Gāirikā: red chalk. *Cullavagga*, V, 11, 6, *geruka*, red coloring for walls. Medium red color, *Śilparatna*, Ch. 64, 117. Brown, *Indian painting under the Mughals*, p. 124 (used in preparing the *lekhanī* or pencil). Used as rouge, *Karpūramañjarī*, III, 18, see H. O. S., Vol. 4, note on p. 268. As a pigment, *dhātu-rāga*, *Meghadūta*, 102. *Geruka*, *Cullavagga*, V, 11, 6, VI, 3, 1, and VI, 17, 1. *Mahāvagga*, VII, 11, 2.

Gaṇḍa-bheraṇḍa: insufficiently explained by the cross-reference to *stambha*. The two-headed eagle, a gigantic bird of prey, is first found in India on a Jaina stūpa base at Sirkap (Marshall, *Guide to Taxila*, p. 74). In mediaeval art two forms appear, analogous to those of garuḍas, one with a human body and two bird heads, the other entirely bird. Connected especially with the kings of Vijayanagar, and appearing on their coins, carrying elephants in its claws. Other examples at Śriśāilam (*A. S. I., A. R., Southern Circle*, 1917-18); remarkable panels at Koramaṅgala and Belūr, Cāḷukyan (*Mysore A. S. Rep.*, 1920, and Narasimachar, *Keśava temple at Belūr*, p. 8). A common motif in south Indian jewellery. In Ceylon, see my *Mediaeval Sinhalese art*, p. 85. Cf. also *hatthilinga-sakuṇa*, *Dhammapada Atthakathā*, 1, 164. Further references will appear in the Boston *Catalogue of Mughal Paintings*.

Gandha-kuṭi, see *s. v. Kuṭi*.

Gandharva-mukha: designation of the busts or faces framed in the openings of *kūḍu*, *candra-śālā-vātāyana*, or *gavākṣa*, gable windows (Jouveau-Dubreuil, *Dravidian Architecture*, p. 12). Cf. *canda-muha*, *s. v. candra-śālā*.

Gavākṣa: see *Candra*, *Gandharva-mukha*, *Gṛha*, and *Harmya*.

Gṛha, *ghara*, *āgāra*, *geha*, etc.: there is an excellent description of Vasantasenā's house (*geha*, *bhavana*) in the *Mṛcchakaṭika*, IV, 30, seq. There are eight courts (*paoṭṭhā* = *prakoṣṭha*);[8] above the outer door (*geha-dvāra*) is an ivory *toraṇa*, supported by *toraṇa-dharaṇa-thambha*, and stretching up its head (*sīsa*) towards the sky; at each side are festival jars (*maṅgala-kalasa*)—"Yes, Vasantasenā's house is a beautiful thing." In the first court are *pāsāda-panti*, rows of pavilions, having stairways (*sobāṇa*), and crystal windows (*phaṭi-*

[8] Pāli *pakuṭṭa*, Cullavagga VI, 3, 5 is rendered "inner verandahs" in S. B. E., XX, p. 175.

vāḍa = *sphaṭika-vātāyana*) with moon-faces (*muhe-cande*), or probably "faces on the *candra*," i. e. *gandharva-mukhas* framed in the *candra-śālā-vātāyanas* ornamenting the roll-cornice, for which the description "seeming to look down upon Ujjayinī" would be very appropriate. In the third court are courtezans carrying pictures painted in many colors, *vivīhavaṇṇi-āvalitta citraphala* = *vividhavarṇikāvalipta citra-phalaka*. In the fourth court, where music and dancing take place, there are water-coolers (*salila-gagario* = *salilagargarayaḥ*) hanging from the ox-eye windows (*gavekkha* = *gavākṣa*).

Tisalā's palace in the *Kalpa Sūtra*, 32, is a *vāsa-ghara*, dwelling place; it is *sacitta-kamme*, decorated with pictures, and *ulloya-cittiya*, has a canopy of painted cloth (cf. Pāli *ulloka*).

Milindapañha, II, 1, 13 has "As all the rafters of the roof of a house go up to the apex, slope towards it, are joined together at it."

The famous triumph song of the Buddha (*Nidānakathā*, *Jātaka*, 1, 76 = *Dhammapada*, 154) has "Broken are all thy beams (*phāsuka*), the housetop (*gaha-kūṭa*) shattered": the housebuilder is *gaha-kāraka*.

See also *Bodhighara*, *Cetiyaghara*, *Cittāgāra*, *Dhavala*, *Kūṭāgāra*, *Samudrāgāra*, *Santhāgāra*.

Harmya: ramyaṁ harmyam, a beautiful palace, *Vikrama Carita* (Edgerton, text and transl. in *H. O. S.* 26, p. 258, and 27, p. 239) has the following parts: *mūlapratiṣṭhāna*, basement; *bhitti-stambha-dvāra-toraṇa*, walls, pillars, doorways and arches; *śālabhañjikā*, statues; *prāṅgaṇa*, courts; *kapāṭa*, folding doors; *parigha*, door-bars;[4] *valabhī*, roofs; *viṭaṅka*, cornices; *nāga-danta*, pegs; *mattavāraṇa*, turrets; *gavākṣa*, ox-eye windows; *sopāna*, stairs; *nandyāvartādi-gṛha*, pavilions (?) (see *Dictionary*, s. v.). *Harmikā*, the little square structure on the top of a stūpa (*Divyāvadāna*). A cross reference to *rāja-harmya* should be given in the *Dictionary*.

Harmya, dwelling, *Atharva Veda*, XVIII, 4, 55; RV. I, 121, 1, I, 166, 4, VII, 56, 16, etc.

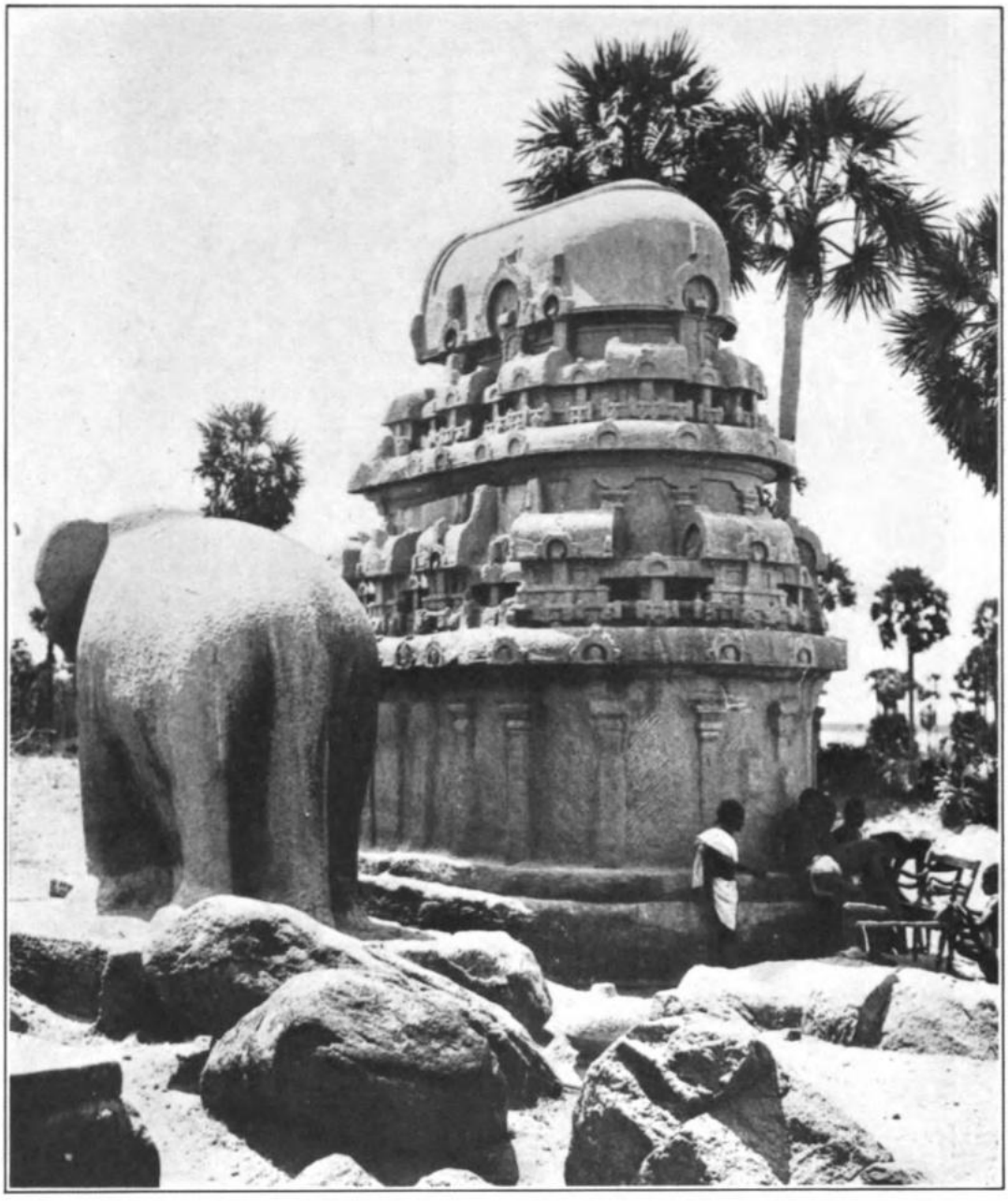
Savitāna-harmya, *Raghuvaṁśa*, XIX, 39, "palace with an awning"; or perhaps *vitāna* = modern *chajja*.

Hasti-hasta, gaja-hasta: amongst innumerable examples might be cited one at Nārāyaṇpur, Burgess, A. S. W. I., III, pl. XXXI, 3. Elephant-trunk balustrades in Ceylon are *ęt-hoṇḍa-vęl*, with the same sense as *hasti-hasta*.

Hasti-nakha: literally "elephant's nail." In *Cullavagga*, VI, 14, 1 a *pāsāda* having an *ālinda* (balcony, gallery), qualified as *hatthi-nakhakaṁ*, is a permitted monastic residence. According to Buddhaghosa's gloss this means *hatthi-kumbha patiṭṭhitaṁ*, literally "supported on elephants' frontal globes," and so to be rendered "supported by pillars having elephant capitals"; and this is plausible enough,

[4] But see *Parikhā*, usually, and perhaps here also, a moat.

Entrance of *sela-cetiya-ghara* at Beḍsā:
hasti-nakha column on left supporting *ālinda*.



RATHA OF NAKULA AND SAHADEVA, MĀMALLAPURAM.

Hasti-pṛṣṭha construction (cf. back of elephant on left): shows also *pañjaras*, and *kapotas* with *kūḍus*.

as pillars with elephant capitals, supporting galleries and upper storeys, are highly characteristic of early Indian architecture. It is true that one hesitates to accept *nakha* in any other sense than that of "nail" or "claw." But it is possible to retain the interpretation "elephant capital" without supposing that *nakha* = *kumbha*, for in fact the observer, standing at the foot of such columns, e. g. at Beḍsā (see accompanying Plate), and looking upwards, sees nothing of the actual capital, except the under sides and nails of the fore feet of the elephants, which project beyond the edge of the abacus, and this may well have given rise to the term "elephant's nail" as applied to elephant capitals.

On the other hand, *hasti-nakha* occurring in the *Śiśupālavadha*, III. 68, *śanairaniyanta rayāpatanto rathāḥ kṣitiṁ hastinakhāt . . . turaṅgaiḥ*, "the swift chariots are slowly brought down from the *hastinakha* to earth by the horses," seems to refer to a place or structure on the rampart. Amara's gloss is *pūrdvāri mṛtkūṭaḥ* "a *kūṭa* made of earth at the city gate."

The word also occurs in *Kauṭilīya Arthaśāstra*, p. 53 of Shamasastry, the Dictionary citing only Shamasastry's translation *s. v. gṛha-vinyāsa*. Here too, *hasti-nakhas* are connected with the gate and rampart of a fort. Meyer's version, p. 71, given here with slight modification, is much to be preferred: "For access, an 'Elephant's nail,' level with the opening of the gateway, and a drawbridge (*saṁkramaḥ saṁhāryo*); or in case there is no water (for a moat), a causeway made of earth." The *hasti-nakha* is here then presumably a pillar with an elephant capital, standing in the moat, to receive the drawbridge when the latter is let down upon it, or pushed out onto it.[5] It is not impossible that the term *hasti-nakha*, by an extension of the original and strict meaning, had come to be applied also to the drawbridge itself, and even to the causeway.

The *Śiśupālavadha* passage would then imply simply the bringing of the chariots across the drawbridge, or, as understood by Amara, across the causeway of earth which takes its place when there is no water; and thence onto the solid ground.

Cf. *Keśanakha-stūpa*, s. v. *Stūpa*, not explained (Feer, *Avadāna Śataka*, p. 487), but possibly with some reference to a lion capital.

Hasti-prākāra, see *Prākāra*.

Hasti-pṛṣṭha, *gaja-pṛṣṭha:* this appropriate name is applied to the buildings with apsidal structures, common in Pallava, Coḷa, and later Dravidian work (see accompanying Plate). The reference on p. 159 to *Indian Antiquary* XII should be corrected to XL. On p. 398 *hasti-pṛṣṭha* single-storeyed buildings are said to have an "oval steeple"; read instead "apsidal roof." The Professor elsewhere often refers to oval buildings, perhaps meaning apsidal; an oval plan is unknown to Indian architecture.

[5] Or, if we read *asaṁhāryo*, then supporting a fixed bridge.

Jantāghara: hot bath room, *Mahāvaṁsa*, XV, 31, not in the *Dictionary*, though described without citation of the term, *Indian Architecture*, p. 14. *S. B. E.* XIII, p. 157, note 2. *Cullavagga*, V, 14, 3 and VIII, 8, 1; *Mahāvagga*, 1. 25, 12-13.

Kaḍaṅkara, Pāli *kaḷiṅgarā:* plank of a stairway, *sopāna*, *Cullavagga*, V, 21, 2.

Kalā: no reference to the *kalās*; see Venkatasubbiah, A., *The Kalās*, Madras, 1911, and *do*, with E. Müller, in J. R. A. S., 1914. The lists include such items as *nagaramāṇam*, *vatthunivesam*, *dārukriyā*, etc.

Kalābhara: artist, expert. According to the *Gautama Dharma-sūtra*, VI, 16, the *kalābhara* who is five years older than oneself should be greeted with respect as *bhoḥ* or *bhavan*. Haradatta explains *kalābhara* as one who lives by the *kalās*, i. e. the knowledge of music, painting, leaf-cutting and the like.

Kañcuka: kañcukaṁ . . . silāmayaṁ of *Mahāvaṁsa*, XXXIII, 25, is evidently rightly translated by Geiger as "a mantling made of stone" (for the Khandhathūpa). This must be the correct designation for the "casing" and "casing slabs" of archaeologists.

Kapota: should be translated "roll-cornice," "larmier." It is the main cornice of a building, derived from the edge of the thatch and the primitive drip-stone cut above cave dwellings to prevent the rain from running in. The synonyms of *kapota*, *candra*, *lupā*, *gopāna*, are significant; see *candra-śālā*. The rendering of *kapota* by "spout" should be avoided. As *pālikā* is abacus, *kapota-pālikā* should be a fillet above the *kapota*. Kern is undoubtedly right in rejecting the meaning "dove-cot," so also in the case of *viṭaṅka*. *Mṛcchakaṭika*, I, 51 has *kavālapa-viṭaṅka*, glossed *kapota-pālikā uparigṛha* and translated in *H. O. S.* "dove-cot"; "dove-ridge" would be better. In reliefs, birds are commonly represented as perched on roofs and mouldings. Utpala's definition of *kapota-pālikā* quoted on p. 111 of the *Dictionary*, amounting to "corbel-ended timbers above the *kapota*" is quite intelligible, as these being seen end on, and coming between the top of the *kapota*, and the bottom of the next member above (as often represented in the early reliefs), are related to the *kapota* precisely as the abacus is related to the rest of the capital below it and the entablature above it.

Kappiya-bhūmi: not in the *Dictionary*. "Outhouse site," *Mahāvagga*, VI, 33, 2 = *S. B. E.*, XVII, p. 119.

Karmāra, Pāli *kammāra*, *Mahāvagga* 1, 48 etc., Sinhalese *kammālar:* not in the *Dictionary*. Artisan, smith, etc. *Kammāra-bhaṇḍu*, workers in metals, *Mahāvagga*, I, 48, 1. Highly esteemed by king and people, *Jātaka*, III, 281. The viceroy of Kṛṣṇarāya of Vijayanagar exempted *kaṇmāḷars* from taxation (*A. S. I., A. R.*, 1908-09, p. 184). Prakrit *kamāra*, see Charpentier, *Uttarādhyayanasūtram*, p. 351. See also my *Indian Craftsman*, and *Mediaeval Sinhalese Art*. *Kammāra-sālā*, smithy.

Karṇa-kīla, "the ear rod, fastened with iron (nails), along the sides of a house, and according to which the house is to be built," *Arthaśāstra*, III, 8. Probably the frame-work of four beams which rests on stone supports, cf. *Mediaeval Sinhalese Art*, Pl. VII, fig. 7, at the level of the man's waist.

Kaṭaka: add, a position of the fingers used in dancing, and seen in the hands of images holding flowers. See Rao, *Elements of Hindu Iconography*, I, p. 16; and *Mirror of Gesture*, p. 31. In this sense, synonymous with *siṁhakarṇa*.

Kaṭi-sūtra: in the sense of girdle, *Cullavagga* V, 2, 1. Technical terms for special forms, *ib.* V, 29, 2.

Keyūra: armlet, cf. *kāyura* in *Cullavagga*, IV, 2, 1, S. B. E. XX, p. 69.

Khaṇḍa, door (the actual leaf or leaves), *Arthaśāstra*, III, 8. Meyer makes it a single leaf. Shamasastry renders as equivalent to *kavāṭa;* the choice depends on the meaning assigned to *aṇidvāra* in the same passage. The door in any case would open inwards, hence Meyer's rendering with reference to the obstruction of space between two houses cannot be quite correct.

Kiñcikkha-pāsāṇa: *Mahavaṁsa*, XXXIV, 69, stones apparently used as paving slabs round a stūpa, probably so called as being very smooth (cf. Skt. *kiñjalka*, filaments of a lotus). Childers gives the form *kiñjakkha-pāsāṇa*.

Kiṅkini-jālaya: network of bells adorning a *vedikā*, *Mahāvaṁsa*, XXVII, 16. Often seen on Bharhut and other early rail-copings.

Kīrti-vaktra: add synonymns *kīrti-mukha*, *makara(ḥ)-vaktra*, *makara-patra*, *siṁha-mukha;* and Sinhalese *kibiḥi*, and *kāla-makara* of Dutch archaeologists. The inclusion of the term in the *Mānasāra* shows that the text cannot antedate the Gupta period, for the *makara* face as the crowning element of a *toraṇa* is not developed before that time at the earliest, the crowning element in earlier types being plain or having the form of a *triśūla* or *śrīvatsa*.

Kośa-gṛha, store room, treasury: has triple underground cellar with many chambers, amongst which is a *devatā-vidhāna*, or chapel, with images of the Vāstu-devatā, Kubera, etc., *Arthaśāstra*, II, 5.

Koṣṭhāgāra: a pair of storehouses are referred to by this name in the Sohgaura plaque inscription, and illustrated on the same plaque (Fleet, in *JRAS*, 1907). They are described as *trigarbha*, having three rooms; Fleet discusses this at length, but it is evident from the illustrations that these rooms are on three storeys, for the storehouses are represented as small three-storeyed pavilions; it is true that the roof of the top storey is "out of the picture," but its supporting pillars can be clearly seen. For another use of *garbha* as designating chambers of a many-storeyed building see under *Prāsāda*, the Lohapāsāda. See also *prakoṣṭha*, *s. v. gṛha*, *dvāra-koṭṭhaka*, and *kuṇḍa*.

Kūdu, see *s. v. candra-śālā.*

Kumbha (and *kalaśa*): I cannot see any evidence in the texts cited to justify the translation "cupola." The jar in question has actually always the form of a jar, and is placed *above* the dome, cupola, spire, *āmalaka*, roof-ridge, or whatever otherwise forms the top of a building. *Kumbha* also = temples of an elephant, see *s. v. hasti-nakha.*

Kuṇḍa: a bowl used as a rain-gauge (*varṣamāna*) and placed in front of a granary (*koṣṭhāgāra*) (Kauṭilya, *Arthaśāstra*, II, 5).

Kuṇḍikā: should be equated with *kamaṇḍalu* (not in the *Dictionary*) and explained as the water-pot carried by Brahmanical hermits and Buddhist monks, and provided with two openings, one a funnel at the side for filling, the other at the top of the neck, which is also the handle. Many examples have been found on Indian Buddhist monastic sites. The *kuṇḍikā* is carried only by deities of ascetic type especially Brahmā and Śiva, and by *ṛṣis*, and should not be confused with the *amṛta-kalaśa*, which has only one opening, and is carried by other deities, especially Indra and Maitreya. A full discussion of the Indian and Chinese forms by the present writer and F. S. Kershaw will appear in *Artibus Asiae.*

Kūtāgāra: regarding the *kūṭāgāra-sālā* in the *Mahāli Sutta* of the *Digha Nikāya*, Buddhaghosa, *Sumaṅgala-Vilāsinī*, p. 309, has the following, which I quote here from a letter received from Mrs. Rhys Davids: "In that wood they established a Saṁgha-park. There, having joined the *kaṇṇikā* (ear-thing, corner of the upper storey) of the pillars (*thambha*, lit. supports) above by the *saṁkhepa* (holding together, fastening together) of the *kūṭāgāra-sālā*, they made the *pāsāda* (terraced or balconied mansion) like to a mansion of devas. With reference to this the Saṁgha-park was known as the Kūṭāgāra-sālā." Here, cf. *saṁkhepa* with *kṣepaṇa* in the sense of cornice; but I suspect a reference to brackets connecting pillars and *kaṇṇikā* (the *Dictionary* has *karṇikā* = upper part of the entablature); such brackets are very frequently represented in the early reliefs (Bharhut and Sāñcī). Acharya's Index has no entry under "bracket," but there must have been a word or words in use for so common a structural feature.

Geiger's "balconied windows" for *kūṭāgāra* in *Mahāvaṁsa*, Ch. XXVII, is scarcely satisfactory; the *pāsāda* of nine storeys has 100 *kūṭāgāras* on each storey, and little pavilions, *pañjara* or (*candra*) *-śālā* seem to be meant, such as are very common in Pallava architecture; e. g. at Māmallapuram, and cf. Jouveau-Dubreuil, *Dravidian Architecture*, fig. 4. The pavilion occupied by the Bodhisattva while in his mother's womb is called a *kūṭāgāra* (*Lalita Vistara*, Ch. VII).

As Pāli *paṇṇa-kuṭi* and *paṇṇa-sālā* are synonymous designations of hermits huts, and as these are always single-storeyed cells, it follows that *kūṭa-śālā* need not be a room on the top of a building.

I am inclined to suppose that *kūṭāgāra* generally means simply "a

house with a finial (or finials)." Cf. *kūṭa*, "finial" (vase) in inscriptions cited in *Diot.*, p. 708. *Gaha-kūṭa*, *Jātaka*, I, 76. In Ceylon in the eighteenth century the use of such finials was permitted only in the case of devāles, vihāres, resthouses, and the houses of chiefs of Disāwa or higher rank. On this analogy the ultimate meaning of *kūṭāgāra* would be "honorable building." In all the early reliefs, palaces, city gates, temples, etc., are duly provided with finials, while village houses lack them.

Kuṭi: not in the Dictionary as a separate word, but cf. *gandha-kuṭi*.

In the *Śūlagava* (= *Iśānabali*) ritual of the *Gṛhya Sūtras* (citations in Arbmann, *Rudra*, pp. 104 ff.) *kuṭi* = *āyatana* in the sense of shrines erected for Īśāna, Miḍhuṣī and Jayanta.

Under *gandhakuṭi* add: see full discussion in *A. S. I., A. R.*, 1906-07, pp. 97-99, with *mūlagandhakuṭi* and *śailagandhakuṭi* cited from *Sārnāth* inscriptions. Reference should also be made to the Sāñcī relief, north *toraṇa*, left pillar, front, second panel, showing the Jetavana garden with the Gandhakuṭi, Kosambakuṭi, and Karorikuṭi (Marshall, *Guide to Sanchi*, p. 58), "the three favourite residences of the Buddha." Further references: Kern, *Manual of Indian Buddhism*, p. 28; Cunningham, *A. S. I., Reports*, XI, pp. 80 ff.; Sahni and Vogel, *Sarnath Catalogue*, p. 19, 211; Grünwedel, *Buddhist Art in India*, p. 16.

In the *Maṇimekhalai* the small temple of Campāpatī, patron deity of Puhār, is called a *guṭikā*.

Kappiya-kuṭi, vacca-kuṭi, Cullavagga, VI, 4, 10.

Lepa: medium, glue, should be distinguished from *sudhā*, plaster. *Vajra-lepa*, "adamantine medium," actually glue, see recipe in the *Śilparatna*, Ch. 64 (my translation in *Sir Ashutosh Mookerjee Memorial Volume*); *Mediaeval Sinhalese Art*, pp. 118, 119. Cf. *Uttara Rāmacarita*, III, 40.

Sudhā-lepya, plaster and paint, Bodhgayā, 6th-7th century inscription, *A. S. I., A. R.*, 1908-09, p. 154.

Likh: additional to the common meanings is that of "turning" (wood, etc.). *S. B. E.*, XX, 78, note 3, is wrong in supposing that turning was unknown to ancient India. Metal, wood, and ivory are all turned at the present-day by means of hand-power devices quite unlike the European lathe (see *Mediaeval Sinhalese Art*, Pl. VI, fig. 4, for ivory, and remarks *ib.* p. 141); turned stone pillars are highly characteristic of Cāḷukyan architecture (cf. Rea, *Chalukyan Architecture*, p. 5); and turning is certainly involved in the manufacture of many objects represented in early reliefs. It is significant that the Sinhalese name of the grooved spindle used in turning is *liyana kanda*, and the word *liyana* corresponds to *likhitum* used in *Cullavagga*, V, 8, 1 and V, 9, 2 with reference to turned wooden bowls and bowl-rests. A meaning, "to turn wood, etc." should therefore be given in Pali and Sanskrit dictionaries under *likh*. *S. B. E., loc. cit.*, trying

to escape the meaning "turning" goes so far as to speak of using an adze on metal; a comical idea, if regarded from the standpoint of practical craft.

Another reference to turning will be found in the *Mahāsatipaṭṭhāna Suttanta* (*D. N.* II, 291 = *Dialogues*, 2, p. 328), "even as a skilful turner (*bhamakāra*)"; the simile, ("drawing his string out at length," etc.), implies the actually surviving Sinhalese technique.

Steatite boxes "turned on the lathe," found at Bhīṭā and assigned to the eighth century B. C., are described in *A. S. I., A. R.*, 1911-12, pp. 43, 93. For some other references to early turned objects see *Rūpam*, 32, pp. 122-123.

Liṅga: the following references are of interest in connection with the Deva-Rāja cult in Java and Cambodia: Simpson, in *JRAS*, 1888 cites numerous instances and regular practice of erecting lingams over the burial places of dead sannyāsis. In *A. S. I., Southern Circle*, 1911-12, p. 5 "sannyāsins are not cremated, but buried, linga shrines or brindāvana being raised to mark the spot." *Ib.* 1915-16, p. 34, quoting *S. I. Ep.*, 1914, "In the case of Sannyāsins . . . a raised masonry platform is sometimes set up over the place of burial, on which a tulsi plant is grown, or a stone lingam is set up as though to proclaim to the world that the body buried below has attained to the sacred form of Śiva-linga." E. Carpenter, *Light from the East, being Letters . . . by the Hon. P. Arunachalam*, 1927, p. 63, quoting a letter from the latter regarding the tomb of his guru, "On the site where his body is interred is a lingam to which the worship is offered as to the Master." For the Deva-Rāja cult and its supposed South Indian origin see F. D. K. Bosch, "Het Linga-heiligdom van Dinaja," *Tijdschr. T. L. en Volkenkunde*, LIV, 1924.

Loha: is not iron, but brass or copper, bronze, etc. I do not think that any example of an Indian image made of iron could be cited. The roofing of the Lohapāsāda (*Mahāvaṁsa*, Ch. XXVII) was of copper or bronze. In *Mahāvaṁsa*, XXIX, 11, *loha-paṭṭa* is a sheet of copper used in the foundations of a stūpa, but we find *ib.* 12, *ayo-jāla* when an iron trellis is designated. One of the most important architectural references to *loha* is Mahendravarman I's inscription at Maṇḍagapattu (Jouveau-Dubreuil, *Conjeevaram Inscription of Mahendravarman I*, Pondicherry, 1919); here brick, timber, *loha*, and mortar are mentioned as customary building materials. Copper nails are common finds on ancient sites. Other examples of *loha* will be found in the *Dictionary* under *ābhāsa* (!). Cf. also Siṁhalese *pas-lo*, an alloy of five metals.

Loṣṭa: the use of *loṣṭa*, probably slag, in preparing a *kiṭṭa-lekhanī*, should be noted (*Śilparatna*, Ch. 64).

Makara-toraṇa: hardly an arch "marked" with a *makara*, but one springing from two *makaras*, and usually crowned by a full-faced *makara* or *makarī*.

Mañca: cf. *taṅkita mañca*, stone couch, the altar of a *yakkhacetiya*, viz. the *bhavana* of the Yakkha Suciloma (*Saṁyutta Nikāya*, X, 3, P. T. S., ed. p. 207), glossed *pāsāna-mañca*, thus synonymous with *śilā-paṭṭa*, see my *Yakṣas*, p. 20, note 3 (*veyaḍḍi*).

See also *S. B. E.*, XX, 87, note 2, *ib.*, 168, note 3; and 278, note 3; *Mahāvaṁsa*, XXVII, 39. Also Geiger, *Mahāvaṁsa*, translation, p. 204, note 3; the text has *bodhiṁ ussīsakaṁ . . . sayanaṁ* but this means the *vajrāsana* at the foot of the Bodhi tree (the description is of the Māradharṣaṇa), certainly not the Parinibbāṇa mañca. *Heṭṭhāmañca, Jātaka*, 1, 197, probably the earthen bench outside a hut. *Mañcaṭṭhāna*, space for a couch, *Cullavagga*, VI, 11, 3 (Commentary). Cf. s. v. *Paṭṭa, Sthāna* and *Vedikā*. *Re S. B. E.*, XX, 278, note 3, I see no reason why the *paṭipādaka* of a *mañca* should not be fixed legs; no ancient representations or modern examples have trestles. The only trestles occur in connection with tables (*hatthapīṭha* of *Sumaṅgala Vilāsinī*, II, 20, text 1, 163, and as seen on early reliefs) and modern *daṇḍāsana* (*Mediaeval Sinhalese Art*, Pl. X, 1). *Pīṭha* of the Cullavagga may include both *hattha pīṭha* and *pāda°*, tables and footstools, hardly "chairs."

The fact that *mañca* and *pīṭha* were cleaned by beating does not prove that they were stuffed or upholstered: the actual support may have been made then as now of plaited cane or plaited webbing and anyone who has had experience of such beds will realise that they frequently need airing and beating.

Meru: reference should be given to E. B. Havell, *The Himalayas in Indian Art*, and W. Foy, "Indische Kultbauten als Symbole des Götterbergs," *Festschrift Ernst Windisch*, 1914.

Nāga-bandha: is said to be a kind of window, and this would evidently be a perforated window with a design of entwined serpents; there are some in the early Cāḷukyan temples, and one more modern is illustrated in the Victoria and Albert Museum, *List of Acquisitions*, 1926, fig. 74. Cf. Siṁhalese *nāga-dangaya*. But *nāga-bandha* also means both in Ceylon and in southern India, the stop of a chamfer (*Mediaeval Sinhalese Art*, pp. 88, 129, and Jouveau-Dubreuil, *Dravidian Architecture*, pp. 10, 25, 42 and fig. 17); this stop often approximates in shape to a cobra's hood. Cf. *nāga, s. v. candra-śālā*.

Nagara: add reference to the detailed description of a city in *Milindapañha*, V, 4 (also *ib.* I, 2 and II, 1, 9); the terms *nagara-vaḍḍhakī, daḷha-gopura, gopur-aṭṭāla, koṭṭhaka, devaṭṭhāna* occur. Another good description of a city is cited in Barnett, *Antagaḍa Dasāo*, p. 1, from the *Aupapātika Sūtra*.

Nāgara: the meaning "secular" as contrasted with *satya*, "sacred," *vaiṇika*, "lyrical," and *miśra*, "mixed," should be cited from the *Viṣṇudharmottara*, in relation to painting.

Nārāca,. etc.: the *Dictionary* has only "a road running east." In the

Sthānānga Sūtra[6] we have *vajja-risaha-naraya-saṅghayaṇe* = *vajra-ṛṣabha-nārāca-saṅghayaṇe*, meaning "with joints firmly knit as if by mortise, collar, and pin." Hoernle, *Uvāsagadasāo* cites Abhayadeva's Sanskrit commentary, according to which *vajja* = *kīlika*, *risaha* = *pariveṣṭana paṭṭa* or encircling collar, *nārāya* = *ubhayato-markaṭa-bandha* or double tenon and mortise joint, and *saṅghayaṇa* = scarf-joint, five kinds being enumerated (for illustration of one see *Mediaeval Sinhalese Art*, fig. 75). One would have thought that *vajja* simply meant "firmly." As regards *pariveṣṭana paṭṭa* cf. *Mahāvagga*, V, 11, "Now at that time the Vihāras were bound together by thongs of skin," explained by Buddhaghosa (cited *S. B. E.*, XVII, p. 31) as referring to the tying together of *bhitti-daṇḍakādi* "wall posts, etc." This would seem to have been natural in the case of the wattle and daub walls of the simple *paṇṇa-sālās;* but we do also find early pillars decorated with designs of interlacing ropes or thongs which may be vestigial ornament, and the roof of the shrine of the Turban-relic at Sāñcī (south gate, left pillar, inner face) is bound by crossing ligatures which could only be described as *pariveṣṭana paṭṭa*. *Atharva Veda*, IX, 3 refers to the parts of a house that are knotted and tied (*naddha*). A house (*śālā*) with grass sides has beams (*vaṁśa*), ties (*nahana*) and binding (*prāṇāha*), clamps (*saṁdaṁśa*) and "*paladas*" and "*pariṣvañjalaya*." See also *Upamit.*

Cf. *Mediaeval Sinhalese Art*, p. 114, "Nails were not used in ordinary building, but everything was fastened with rattans and other jungle ropes." This refers to modern village practise.

Nayanonmīlana: p. 88 in *Indian Architecture:* my detailed account of the *netra-maṅgalya* ceremony should be cited, *Mediaeval Sinhalese Art*, p. 70 f.

Pāduka: should be cited also in the sense of sacred footprints, used as a symbol (*Śrīpāda*, *Viṣṇupāda*, etc.). The *vacca-pāduka* of a latrine are also of interest, see *S. B. E.*, XVII, p. 24; good examples have been found on monastery sites in Anurādhapura. Cf. *vacca-kuṭi*. Numerous lavatory sites are illustrated in Mem. A. S. C., Vol. 1.

Pālikā: should be translated "abacus," with references to Tamil *palagaī* Jouveau-Dubreuil, *Dravidian Architecture*, pp. 10, 25, 42, and fig. 17. See also *kapota* (*-pālikā*).

Pāṁśu: not in the *Dictionary*. Not translated where it occurs as a permissible building material, Buddhaghosa, Comm. on *Cullavagga*, VI, 1, 2, cited *S. B. E.* XIII, 174; the other permitted materials being brick, stone, and wood. *Paṁsu*, taking all its uses into consideration, should here be rendered "laterite," a common building material especially in Ceylon. In *Mahāvaṁsa* XXX, 7-9, where *paṁsu* is used in making bricks, the word is rendered "sand" by Geiger; but "de-

[6] Benares edition, p. 413a, cited by Hoernle, *Uvāsagadasāo*, II, Appendix, p. 45.

composed rock," "grit," would be preferable. True sand (*vālikā*) would need only sifting, not crushing and grinding as well. In rendering such words some regard must be had both to practical considerations and to the materials actually available in a given locality. In the tropics the country rock decomposes either into true laterite (Sinhalese "cabook") which is soft when cut, but hardens on exposure; or into a friable sandy grit; both of these have their use in building. Of course, there are many places where *paṁsu* means simply earth, dust, refuse, etc., cf. *paṁsu-kūla*, rags from a dust-heap. See also *śarkara*, s. v. in *Dict.* and under *ābhāsa*.

Pañcāṅgula: hattha-bhitti of *Cullavagga*, VI, 2, 7 explained by Buddhaghosa as *pañcaṅgula bhitti: pañcaṅgulika-pantikā*, *Mahāvaṁsa*, XXXII, 4; *pancangulitale*, *Aupapātika Sūtra*, § 2. Possibly colored impressions of the human hand such as one not uncommonly sees on house walls, more likely a five-foliate design such as the palmettes which are so characteristic of early Indian decoration. In all the above passage we have to do with ornament applied to walls or to cloth. Cf. the "three-finger ornament" of Annandale, N., *Plant and animal designs . . . of an Uriya village*, Mem. A. S. B., VIII, 4, fig. 2.

Pañjara, which has, like *candra-śāla-vātāyana*, the double significance of "attic" and "dormer window" (see Jouveau-Dubreuil, *passim*), occurs in the latter sense in *Jātaka*, III, 379, "looking down from an open window (*vaṭasīhapañjarena*)." Cf. *Mahāvaṁsa*, XXVII, 16.

Ratha-pañjara, the body of a carriage, *Jātaka* II, 172, IV, 60.

Parikhā: Mahāvaṁsa, XXV, 48 *timahāparikha*, "having a great triple moat." See also under *Harmya*.

Paṭṭa: no reference to the meaning "frontlet," except that under *vira-paṭṭa* we find "front-plate." In the story of Udayana, Jacobi, *Ausgewählte Erzählungen*, p. 32, a *sovaṇṇo paṭṭo* is used to cover the brand on a man's forehead and is contrasted with *mauḍa*, a turban or crown. In Ceylon the gold forehead plate used in investitures is called a *nalal-paṭa*, those thus honored being known as *paṭṭa-beṇḍi*. In *Prabandhacintāmaṇi* we get *paṭṭa-hastin*, state elephant; now elephants do not wear turbans, but do wear jewelled bands round the temples. In *Bṛhatsaṁhitā* the section on *paṭṭas*, which are not worn by those of the highest rank, seems to imply the meaning frontlet. Even *Mahāvaṁsa*, XXIII, 38, *dukūlapaṭṭena veṭhayitvā* may refer only to the tying on of a fillet, though "turban" seems plausible. No reference to *paṭṭa* in the sense of stone slab, etc. See *Mālavikāgnimitra*, III, 79 (*silāpaṭṭaaṁ*), and Hoernle, *Uvāsagadasāo*, II, p. 107; *sthala* (*sthāla*) as synonym, *Mālavikāgnimitra*, IV, 132. *Loha-*, and *sajjhu- paṭṭa*, sheets of copper and silver, *Mahāvaṁsa*, XXIX, 11-12. *Pāṭika*, stone slab at the foot of the steps, *Mahāvaṁsa*, XXXI, 61; other terms current in Ceylon for "moonstones" are *handa-kaḍa pahana* (= *candra-khaṇḍa pāśāṇa*), and *iri-handa gala* (= *sūrya-*

candra kala). *Ūrdhva-paṭṭa*, "stela," should also be noted. *Yoga-paṭṭa* is the braid used by hermits to support the knee when seated on the ground. *Cullavagga*, V, 11, *pañca-paṭika*, perhaps a "cupboard with five shelves." See also under *nārāca*.

Phalaka: commonly a panel for painting on. Add: *appasena°*, a board to lean against, when seated on a couch to protect the walls, *Cullavagga*, VI, 20, 2, and VIII, 1, 4. *Phalakattharasayana*, a wooden bed, *Jātaka*, 1, 304. A kind of cloth, *Mahāvagga*, VIII, 28, 2 (see note in *S. B. E.*, XVII, 246), and *Cullavagga*, V, 29, 3. See also s. v. *Arghya* and *Pralamba*.

Prākāra: an important reference is misplaced under *prāsāda*, *Dictionary*, p. 419. The Besnagar inscription (*Mem. A. S. I.*, No. 4, pp. 128, 129) should be cited (*pūjā-silā-pākāra*); also Khāravela's inscription at the Hāthigumphā, Udayagiri. The *Mahāvaṁsa*, XXV, 30, has *ucca-pākāra*, rampart; ib. XXXIII, 5, *hatthi-pākāra* in the sense of the basement retaining wall of the platform of a stūpa, with the foreparts of elephants projecting in relief (see also Parker, *Ancient Ceylon*, p. 284). *Cullavagga*, V, 14, 3 and elsewhere has *iṭṭha-*, *silā-*, and *dāru- pākāras*. Other references, *Mysore A. S. Reports*, 1913-14, pp. 8, 14 and 1919-20, pp. 2, 3, 5. In *Kauṭilīya Arthaśāstra*, 53, "rampart" rather than "parapets." *Pākāra* = wall round a park, Buddhaghosa, *Sumaṅgala Vilāsini*, I, p. 41.

Pralamba (*-phalaka*)*:* reference should be made to the illustration of a *pralamba-phalaka*, fig. 94 in my *Mediaeval Sinhalese Art*, and the full explanation of its use there given according to the *Sāriputra*, as the *Bimbamāna* (see *Dictionary*, p. 768) is called in Ceylon.

Pramāṇa: the single meaning given, "measurement of breadth" is insufficient. *Pramāṇa* in the sense of "ideal proportion" appropriate to various types is one of the *ṣaḍaṅga* of painting, given in Yaśodhara's Commentary on the *Kāmasūtra*. See also Masson-Oursel, "Une connexion dans Festhétique et la philosophie de l'Inde, La notion de Pramāṇa," *Revue des arts asiatiques*, II, 1925 (translated in *Rūpam*, No. 27/28). *Pramāṇa* = land area specified in grants, see Thakur in *Sir Ashutosh Mookerjee Memorial Volume*, 1928, p. 80.

Prāsāda: No reference to the Bharhut relief with inscription *Vijayanta pāsāda*, the only early *prāsāda* identified as such by a contemporary inscription; it is a three-storeyed palace (see *HIIA*, fig. 43); we possess so few positive identifications of this kind that none should be omitted. The Lohapāsāda described in *Mahāvaṁsa*, Ch. XXVII, was an *uposatha* house of nine storeys each with 100 *kūṭāgāras* "provided with *vedikās*, and it contained 1000 chambers (*gabbha*). It was covered with plates of copper, and thence came its name" (*ib.* XXVII, 42); it was of wood, as it was later burnt down (*ib.* XXXIII), and rebuilt with only five storeys; the stone pillars on which the superstructure was erected are still standing at Anurādhapura. The Sat-

mahal-pāsāda at Poḷonnāruva should also be mentioned (*HIIA.* fig. 287). See also under *gṛha.*

Puṇya-śālā, -gṛha: not in the *Dictionary.* Both have been thought to refer to temples, but the meaning *dharmaśālā* is far more probable, as pointed out by Hopkins, *Epic Mythology,* p. 71 (*ib.,* 70-73 contains a very valuable discussion of images and temples as referred to in the Epics).

Raṅga, raṅga-bhūmi, nāṭya śālā, prekṣa-gṛha, etc.: not in the *Dictionary.* No citation in the *Dictionary* of the *Nāṭya-śāstra,* where the construction of theatres is described at some length, with much use of technical architectural terms. A *raṅga-bhūmi,* stage, set up, *Mahāvaṁsa,* XXXI, 82. *Raṅga, Jātaka* II, 152.

Rathakāra: "car-maker," carpenter, not in the *Dictionary.* A Śūdra, but connected with Vedic sacrifices; a *snātaka* may accept food from one (*Baudhāyana DhS.,* I, 3, 5 = *S. B. E.,* XIV, 159). Much information on the social position of craftsmen and related subjects is given in my *Indian Craftsman,* apparently unknown to the author: see also *karmāra* and *āveṣaṇin,* above, and *rūpakāra,* below. *Rathakāra* in inscription of Virūpākṣa I, *A. S. I., A. R., Southern Circle, Epigraphy,* 1915, p. 106.

Rūpakāra: sculptor, not in the *Dictionary.* But the Śilpin Rāmadeva, son of the *rūpakāra* Suhaka, inscription at Dhar, *A. S. I., A. R.,* 1903-04, p. 240, is cited under Rāmadeva. Reference should be given to Śivamitra, a *śela-rūpakāra* of Mathurā, mediaeval inscription at Śrāvastī, *A. S. I., A. R.,* 1908-09, p. 133. For Buddha-rakkhita, a *rūpakāraka,* see Cunningham, *Bharhut,* inscription No. 42.

Sabhā: the Bharhut relief with inscription *Sudhammā Deva-sabhā,* a pillared circular shrine with cornice and dome is not cited (*HIIA,* fig. 43). See also *Saṁyutta Nikāya,* XI, 3, 5 = *Kindred Sayings,* I, p. 307, and *Dīgha Nikāya,* II, 207-209.

In *Jātaka* VI, 127, the Sudhammā-sabhā of Indra has octagonal columns (*aṭṭhaṁsa sukatā thambhā*). The description of the heavenly *sabhās* in Mbh. II, 6-11, is altogether vague.

Sahasra-liṅga: not a "group" of a thousand phalli, but one *lingam* with a thousand facets, representing a thousand liṅgas. A good example at Śrīśailam, *A. S. I., Southern Circle,* 1917-18, Pl. V.

Samudrāgāra: a summer house by a lake, *Mālavikāgnimitra,* Act IV. *Samuddavihāra,* a monastery on a river-bank, *Mahāvaṁsa,* XXXIV, 90. *Samuddapaṇṇa-sālāya, ib.* XIX, 26, a hall built on the sea-shore. Cf. the pavilions on the bund at Ajmer, and the island palaces at Udaipur.

Santhāgāra: "mote-hall," with a central pillar (*majjhima-ṭṭhambaṁ*), *Dīgha Nikāya,* III, 209 = S. B. B., IV, 202.

Śilpa: in the Atharva Veda, a "work of art" (Bloomfield, *Atharva Veda,* p. 70).

Śilpa-śāstra: Hsüan Tsang's reference to five *vidyās*, of which the *Śilpa-sthāna-vidyā* is one, is important as proving the existence of technical works on *śilpa* in his day (Beal, Records, I, p. 78). The much earlier *Śulva Sūtras* are effectively *Śilpa-Śāstras*, though not actually so designated.

Śivikā-garbha, sivikā-gabbha: an inner room shaped like a palankeen, *Cullavagga*, VI, 3, 3. Glossed by Buddhaghosa as *caturassa*, four-sided. What may be meant may be gathered from the elaborate *sivikās* represented in Amarāvatī reliefs, where their design is quite architectural (Burgess, *Buddhist stupas of Amaravati and Jaggayyapeta*, Pl. XI, 2 and p. 55, and Pl. XI, 1).

Sopāna: see s. v. *ālamba-bāha, harmya, hasti-hasta, kaḍaṅkara, paṭṭa.*

Śreṇi: that painters were organised in guilds is apparent from Jacobi, *Ausgewählte Erzählungen in Māhārāṣṭrī*, p. 49, where the painter Cittaṅgaya, "working in the king's *citta-sabhā*" belongs to a *seṇi* of *cittagaras*. It is of interest that his daughter Kanyamañjarī also paints. See also list of 18 guilds in *Jātaka*, VI, 22: other references *s. v. seṇi* in P. T. S. Pali Dictionary.

Śrīvatsa (sirivaccha): also characteristic for Mahāvīra. The cruciform flower is the later form only; in the Kuṣāna period it is what numismatists have called a nāga or shield symbol (good illustration on a coin, Rapson, *Coins of the Andhra Dynasty*, pl. VIII, 207, reverse, and on Mahāvīra's breast, Smith, *Jaina Stupa of Mathurā*, pl. XCI, right); the development of the early form into the later can be traced. Also cf. Hopkins, *Epic Mythology*, p. 205.

Sthāna: the sense of pose, stance, is not given. Five *sthānas* (frontal, three-quarter, profile, etc.) are defined in the *Śilparatna*, Ch. 64, and thirteen in the *Viṣṇudharmottara* (see translation by S. Kramrisch, 2d edition, 1928). *Mahāsthāna*, sacred area, inscription of Mahīpāla. Saṁvat 1083, *A. S. I., A. R.*, 1906-07, p. 99: *Nāgendrasya . . . . Dadhikarṇṇasya sthāne silāpaṭṭo*, Mathura inscription Lüders' List 85, Ep. Ind. I, 390, no. 18, cited Mem. A. S. I., Vol. 5.

Stūpa: no description of the component parts is given: they are *sopāna, aṇḍa, medhi* or *garbha, harmikā, yaṣṭi, chattrāvali, varṣa-sthāla* or *amṛta-kalaśa*. There should be mention of the synonym *dāgaba* (*dhātu-garbha*), and of *eḍūka* and *jāluka* by which names Buddhist relic shrines are referred to in the *Mahābhārata* (3, 190, 65 and 67). The detailed description of a stūpa in the *Divyāvadāna*, p. 244, summarised by Foucher' *L'Art gréco-bouddhique* . . . I, p. 96, and the detailed account of the building of a stūpa in *Mahāvaṁsa*, Chs. XXVIII, *seq.* should be referred to; also the full account in Parker, *Ancient Ceylon*. The latter quotes a Sanskritic-Pali text defining the shapes and proportions of *dāgabas*, from the *Waiddyānta-pota* (or *Vāijayantaya*) a *śilpa-śāstra* well known in Ceylon, but not mentioned in the Dictionary. The *Avadāna Śataka* mentions three kinds of *stūpas—gandhastūpa, keśanakhastūpa*, and *stūpa*—the latter being

the regular *dhātu-stūpa* for funerary relics. The *Dhammapada Aṭṭhakathā*, XXI, 1-290, *H. O. S.*, Vol. 30, p. 175, has a *thūpa* built over the body of a Brahman's son who had become a Buddhist monk. Were stūpas ever erected by others than Buddhists or Jainas? In Kāśyapa's Conversion at Sāñcī (east gate, left pillar, inner face, third panel) a railed stūpa forms part of the Jaṭila *ārāma:* so also at Amarāvatī, Fergusson, *Tree and Serpent Worship*, Pl. LXXXVI.

Stūpikā: oetvāsise kirīṭaṁ viya kanakamayaṁ thūpikaṁ ca yojetvā (*Attanaguluvaṁsa*, Alwis, IX, 7). Dome of a palace, *Mahāvaṁsa*, XXXI, 13, with above reference (Geiger).

Cf. *silāthūpaka*, *Mahāvaṁsa*, XXXIII, 24, "a little stone stūpa," probably actually the stūpa of H. I. I. A., fig. 292. But the usual meaning of *stūpikā* (as given in *Dict.*), is "dome." I do not think this terminology implies a derivation of the dome from the stūpa, but only a resemblance of form. Granting the recognized resemblance, however, the point is of interest in connection with the origin of the bulbous dome, for many early stūpas are markedly bulbous. Some Pallava temples have bulbous domes, and even the dome of H. I. I. A. fig., *ca.* 200 A. D. almost exactly follows the shape of the slightly swelling *aṇḍa* of the stūpa of *ib.* fig. 146.

Śulka-śālā: a toll-house, *Divyāvadāna*, 275, *seq. Śulka-sthāna*, *Artha-śāstra*, II, 3.

Tāla-māna: here reference should be made to many published accounts, e. g. Rao, *Tālamāna*, my *Mediaeval Sinhalese Art*, Ganguly, *Orissa and her Remains*. On pp. 230, 233, what part of the body is the "hiccough?"

Tṛṇacchadana, Pali *tiṇa-cchadana:* "thatch," *Cullavagga*, *passim*. In *Atharva Veda*, IX, 10, 11, the thatch is called a thousand-eyed net stretched out like an *opaśa* on the parting (*viṣuvant*, here = ridge-pole). See also *Upamit*.

Tulā: the meaning "well-sweep" should be added (*Cullavagga*, V, 16, 2); two other means of raising water are mentioned, *loc. cit.*, viz. *karaka-ṭaṅka* literally "pot-edge" or "pot-ridge," probably the "Persian" water-wheel, and *cakkavaṭṭaka*, wheel and axle. All three are still in common use.

But is *karaka-ṭaṅka* really distinct from *kara-kaṭaka*, a hand wheel for drawing water?

Upamit, etc.: RV. I, 59, 4 and IV, 5, 1; AV, IX, 3, 1. See Bloomfield, *Atharva Veda*, II, 185, 195; Whitney, *Atharva Veda*, 525; Zimmer, *Altindisches Leben*, Ch. V; etc.

The whole terminology of the *śālā* is difficult, but the rendering of *upamit* as (sloping) buttress (by Bloomfield and by Zimmer) is extremely implausible and almost certainly an error. I suggest *upamit* = plinth or pillar base; such bases were probably, as at the present day, of stone, as a protection against white ants.[1] Then *pratimit*

[1] Cf. *Mediaeval Sinhalese Art*, p. 129, fig. 72, and pl. VII, fig. 7, "Wooden pillars often rest on a stone base as a protection against white ants."

(= *sthāṇa*) are the main upright wooden pillars (corner pillars) set up on the *upamit; parimit*, the horizontal beams of the framework, connecting with the *pratimit* by means of mortices or dovetails (*saṁdaṁśa*);[8] *pakṣa*, perhaps the wall plates; *vaṁśa*, the bamboo rafters. The roof (*chanda*) is thatched with straw or reeds (*tṛṇa*): the cut ends of the reeds may have given rise to the designation "thousand eyed" of AV. IX, 3, 8. *Palada* (bundles of grass or reeds, according to Zimmer) and *pariṣvañjalaya* I cannot explain.

The *śikyāni*, ropes "tied within for enjoyment," may have served as partitions, to be hung with cloths so as to divide the interior into separate rooms; the Sinhalese *piliveḷa* is used in this way, and I remember to have seen an ornamental example carried by a party of travellers for use in a public resthouse to secure privacy.

Vajrāsana: "diamond throne," though well-established, not a good rendering; "adamantine throne" would be better. See E. Senart, "Vajrapāni dans les sculptures du Gandhara," *Congr. Int. Orientalistes, Alger*, 1905, Vol. I, p. 129. *Bodhi-pallaṁka* in the *Nidānakathā, Jātaka*, I, 75, is an interesting synonym. The Buddha's *āsana* at the Gal Vihārē, Poḷonnāruva, Ceylon, is decorated with actual *vajras*, but this probably represents a late interpretation of the term; I know no other instance. See also *Bodhi-maṇḍa* and *Mañca*.

Vāna-laṭhi, rafters or reepers? As a protection against the rain, the *vānalaṭhī* (of a house, *gṛha*) are to be covered over with straw (*kaṭa*, here thatch rather than straw mats), *Arthaśāstra*, III, 8. Cf. *Yaṭṭhi-vana*.

Vapra: in *Kauṭilīya Arthaśāstra*, 51, 52, *vaprasyopari prākāraṁ;* "glacis" rather than "rampart," which latter rises above the *vapra*.

Vardhaki: I cannot think of any case where the *vardhaki*, Pali *vaḍḍhaki*, is specifically a painter. The usual meaning is architect, artisan. Cf. *nagara-vaḍḍhaki*, the architect of a city, *Milindapañha*, II, 1, 9. In *Mahāvaṁsa*, XXX, 5, the 500 *iṭṭhakā-vaḍḍhakī* are certainly not all "master-builders" as rendered by Geiger, but rather brickmakers or bricklayers; even the *vaḍḍhaki* who is their spokesman, *ib.*, 12 is hardly more than *primus inter pares*. *Vaḍḍhaī*, architect, one of the 14 'jewels' of a Cakravartin, *Uttarādhyayanasūtra* commentary, cited Charpentier, p. 321. Numerous designations of craftsmen will be found in the *śatapatha Brāhmaṇa* list of symbolic victims of the Puruṣamedha (*S. B. E.*, XLIV, 413-417).

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[8] *Mediaeval Sinhalese Art, loc. cit.* (p. 129), "where the whole building rests on low stone pillars, the wood pillars are mortised into huge beams forming the framework of the floor."

Vedic *parimit* and Sanskrit *karṇa-kīla* seem to designate such foundation beams; Vedic *pakṣa* and Sanskrit *karṇikā* the wall plates forming the framework of the roof. Where we have to do with a colonnade rather than a wall, *karṇikā* is of course 'entablature.'

Vardhamāna: add "powder-box," one of the *aṣṭamaṅgala* of the Jains. Early illustrations, Smith, *Jain Stupa of Mathura*, pl. VII; later, Hüttemann, "Miniaturen zum Jinacarita," *Baessler Archiv.*, 1913, fig. 1. *Vardhamāna-gṛha, Uttarādhyayanasūtra*, IX, 24.

Vastra-nip(y)a: is not "a jar-shaped ornament of a column," but the knotted band or ribbon which so often encircles the *pūrṇa-kumbha* which forms the base or capital of a column, and the Mānasāra text cited (*kumbha-madhye*, etc.) is perfectly explicit on this point, "and in the middle of the pot (i. e. round the belly) let there be added a colored band of cloth as a protection." This use of a string or band as protecting charm or "fence" is of course well known in many other connections.

Vāstu, add the meaning "real estate" (Meyer, "Liegenschaft"): "*Vāstu* includes houses, fields, groves, bridges (or *ghāṭs*, *setu-bandha*), ponds, and reservoirs," *Arthaśāstra*, III, 8.

Vātāyana: the *Dictionary* citations show that in the *śilpa-śāstras* types of *vātāyana* are differentiated by preceding qualifying adjectives denoting the pattern of the grille or openwork screen. In the light of this fact, and of the varieties of windows represented in reliefs and the types still in common use, the three designations in *Cullavagga*, VI, 2, 2 are perfectly intelligible: *vedikā vātapāna* is a window with a rail-pattern grille; *jāla-vātapāna* is one with a trellis grille, lattice; *salāka vātapāna*, one provided with upright turned pillars or bars (not "slips of wood"). Buddhaghosa glosses *salāka* as *thambaka*. For turning, *s. v. likh.*

Vedī, vedikā, etc.: *veiyā* of Jacobi, *Ausgewählte Erzählungen*, p. 49, must be marriage pavilion rather than balcony, as marriages always take place in special temporary pavilions erected *ad hoc*.

In the common sense of railing, the *Mahāsudassana Sutta*, I, 60, gives the component parts, viz. *stambha* (uprights), *sūci* (cross-bar), *uṣṇīṣa* (coping), and these words often occur in Prakrit forms in the early inscriptions: also plinth, *ālambana*. In *Mahāvaṁsa*, XXXV, 2, *muddhavedī* is the railing of the *harmikā*, *pādavedī* the railing on the basement level of a *stūpa; ib.* XXXVI, 52 and 103 has *pāsāṇa-* and *silā-vedī*, "stone railing" (round the Bodhi-tree) rather than "stone terrace" as interpreted by Geiger, p. 296.

Mahāvaṁsa, XXXII, 4, *vedikā* represented in a painting. *Ālambabāha*, the *vedikā* of a *sopāna*, *Cullavagga*, V, 11, 6 etc. See also *kiṅkini-jālaya*. Cross references to *p(r)ākāra* and *bhitti*, should be given; cf. *bhitti-vedikā* of *Mālavikāgnimitra*, V, 1, where it is built round an *aśoka* tree.

The very curious use of *vedikā* to mean a mode of sitting (*āsana*) is noted by Charpentier, *Uttarādhyayanasūtram*, p. 371.

Vidyut-latā: Pali, *vijjul-latā*, *Mahāvaṁsa*, XXX, 96, the Commentary having *megha-latā nāma vijju-kumāriyo*, "the cloud-vines called lightning maidens." Real lightnings are evidently intended, not mere zigzag lines as rendered by Geiger. Representations of clouds and lightning are very characteristic of Indian painting; certain rooms in the old palace at Bikanir, entirely decorated with a frieze of clouds, lightning, and falling rain may be cited (see my *Rajput Painting*, Pl. VII). The form *vijju-kumāriyo* is interesting, as the lightning is similarly always feminine in relation to clouds in rhetoric, and cf. *Yajur Veda*, IV, 1, 11, *Jātaka*, V, 407 and *Mṛcchakaṭika*, V, 46.

Vimāna: reference should be made to the long and excellent discussion of this word in the P. T. S. *Pali Dictionary*.

Viṇā: as this word and also *karuṇa-viṇā* are separately rendered "flute," there can hardly be a misprint; the proper word is, of course, lute. Two forms are found in the early reliefs, one like a harp, the other like a Japanese *biwa*. So far as I know the southern *viṇā* with two large gourds as sounding boxes can be seen first in the paintings at Elūra. The parts of a *viṇā* are named in *Milindapañha*, II, 3, 5; see also P. T. S. Pali Dictionary s. v.

Historical Architects, add:

Ānanda, son of Vāsiṣṭhī, as above, *s. v. āveṣaṇin.*

Balaka, pupil of Kaṇha, maker of a *śālikā* at Kondaṇe, and one of the earliest craftsmen known to us by name (Burgess, *Report on the Buddhist Cave Temples*, 1883, p. 9).

Bammoja, western Cāḷukya inscription. Bammoja was "a clever architect of the Kali age; the master of the 64 arts and sciences; clever builder of the 64 varieties of mansions, and the inventor (?) of the four types of buildings called Nāgara, Kāliṅga, Drāviḍa, and Vesara" (*A. S. I., A. R.*, 1914-15, Pt. I, p. 29), The description of Kāliṅga as a style is cited in the *Dictionary* from the *Mānasāra*.

Dīpā, builder of the Caumukh temple at Rāṇpur; belonged to the Sompura class of Brahman architects, whose ancestor is said to have built the temple of Somnāth-Mahādeva at Prabhās-Paṭṭan. The Sompuras, not mentioned in the *Dictionary*, are said to have built many temples in Gujarat, to have been at Ābu, and to possess MSS. on architecture. One, Nannā-khummā, was in charge of repairs at Rāṇpur; another, Keval-Rām constructed temples at Ahor (D. R. Bhandarkar, "Chaumukh Temple at Rāṇpur," *A. S. I., A. R.*, 1907-08).

Jaita, etc.: an inscription on the window of the second storey of Rāṇa Kumbha's *kīrtistambha* at Chitor (A. D. 1440-49) mentions the architect of the building, and his two sons Napa and Puñja. On the fifth storey are effigies of the two last, and a third son, Pama.

Another inscription at Chitor mentions the fourth son, Balrāja. See *A. S. I., A. R.*, 1920-21, p. 34.

Sidatha (Siddhārtha), son of Nāgacana, as above, *s. v. āveṣaṇin.*

Śivamitra, as above, *s. v. rūpakāra.*

Mallikārjuna Chinnappa, builder of the Vīrabhadra temple at Chikkaballāpur, Mysore, died 1860; there is a tomb (*gaddige*) in a building to right of the temple.

Treatises on architecture:

Bimbamāna: known in Ceylon as *Sāriputra.* Add reference to translated passages in my *Mediaeval Sinhalese Art.*

Early Indian Architecture

Part 4

Early Indian architecture: IV. Huts and related temple types

Edited with a preface by Michael W. Meister
Afterword by Michael W. Meister and Joseph Rykwert

ANANDA K. COOMARASWAMY

Preface

Ananda Kentish Coomaraswamy (1877–1947) was born of a Sinhalese father and British mother, raised and educated in Great Britain, and trained as a geologist and botanist. He revisited Ceylon around 1903, and his work on the geology of his native island in that period led to the establishment of a Mineralogical Survey for Ceylon. Close to crafts movements in England and influenced by the thinking of William Morris concerning the "unity between art, craft and labour," in Joseph Rykwert's words, Coomaraswamy undertook an extensive ethnographic survey of surviving arts and crafts guilds in Ceylon at that time, leading to his first major publication, Mediaeval Sinhalese Art, a Monograph on Mediaeval Sinhalese Arts and Crafts, Mainly as Surviving in the Eighteenth Century with an Account of the Structure of Society and the Status of the Craftsman *(Broad Campden, 1908),*[1] *followed in 1909 by a collection of* Essays in National Idealism *and a volume on* The Indian Craftsman.[2] *After several trips to India that increased his contacts but offered no professional base, and after problems with conscription laws in England (he seems to have registered as a conscientious objector during the First World War), he settled in the United States, where he served as curator of Indian art at the Museum of Fine Arts, Boston, from 1917 until his death in 1947.*[3]

Science and idealism combined in his methodology, leading him eventually from close studies of the strata of textual, visual, and experiential evidence to a

1. Published in a limited, handcrafted edition by Essex House Press and reprinted commercially only in 1956, with the support of the Sri Lankan government.

2. Columbo: Columbo Apothecaries Co., Ltd.; London: Probsthain.

3. Roger Lipsey, Coomaraswamy, His Life and Work, *Princeton, 1977;* Lipsey, ed., Coomaraswamy, Selected Papers, *2 vols., Princeton, 1977. Reviewed by Joseph Rykwert,* Religion *9 (1979): 104–115. Reviewed by Michael W. Meister,* Journal of the American Oriental Society *100 (1980): 151–154.*

Portrait of Ananda Coomaraswamy by Arnold Ronnebeck, 1929. Collection of the Denver Art Museum (1929.6). Photography courtesy The Denver Art Museum. This bust represents Coomaraswamy at about the time he was working on "Early Indian Architecture" and other works "in transition."

metaphysics rich in "alternative formulations," as Roger Lipsey puts it.[4] His essays on "Early Indian Architecture" come from a period in the late 1920s and early 1930s of high productivity but of transition, as if all the data available to scientific seriation were being put in place as a foundation for later speculation.[5] This primarily art-historical work includes the six parts of his Catalogue of Indian Art in the Boston Museum of Fine Arts, published between 1924 and 1930, his History of Indian and Indonesian Art, published in 1927, Yakṣas, parts 1 (1928) and 2 (1931),[6] and "Indian Architectural Terms," published in the Journal of the American Oriental Society in 1928.[7] Seven essays on significant art-historical issues also from this period were collected as The Transformation of Nature in Art in 1934; at the beginning of one of these, "The Origin and Use of Images in Iṇdia," he cites fondly from T. A. G. Rao's Elements of Hindu Iconography that "it may be said that images are to the Hindu worshipper what diagrams are to the geometrician."[8]

Lipsey compares the " 'murderous overwork,' in Rhys Davids' phrase" of many of Coomaraswamy's later writings to an " 'intellectual preparation' for spiritual initiation,"[9] yet it also seems to me a reflection of his training as a geologist and botanist. Homologies between strata of soil, species, texts, beliefs, and images were inherent in his interpretive thinking. The labour of his youth prepared him for the thinking of his old age.

In the three published parts of "Early Indian Architecture," Coomaraswamy densely documents textual references and images from stone reliefs of early Indian "Cities and City-Gates" (pt. I), "Bodhi-Gharas" (the hypaethral shrines of early India enclosing objects of high sanctity—whether trees and altars, images, or symbolically potent constructions such as the stūpa) (pt. II), and "Palaces" (pt. III). Part IV, which was never published, completed his survey of early evidence for architectural forms by looking at "Huts and Related Temple-Types"—a significant movement away from documentation toward the "deep description" of his later metaphysical analyses.

In his "Early Indian Architecture," Coomaraswamy provided a foundation for the discussion of Indian urbanism and its architectural language that no work since has supplanted; he also laid a groundwork—never fully explicit—for understanding the means by which the morphology of later Indian temples had been rooted in both the symbolic and the formal language of early Indian architecture.[10] His rush to completion in this work can be seen in the extensive series of drawings he provides in part III, showing the integration of the typical Indian dormer-window type into a decorative surface for the later temple; this particularly important contribution plays little part in his text's discussion of Indian palatial structures and receives hardly cursory explanation in his description of plates.[11]

"Early Indian Architecture" provided a foundation for discussing India's architectural language—formal as well as symbolic—first by documenting the reality of early Indian urban and vernacular forms of the first few centuries B.C. and A.D., then by relating these to the great symbolic monuments of Hindu worship, built centuries later, that constitute the major portion of our image of Indian architecture. To do so, he intertwined visual and textual evidence. The former survives primarily in the form of small-scale narrative relief-carvings on Buddhist stūpas of the first centuries B.C. and A.D.—which often show village scenes as well as cityscapes that reflect a developed, expressive, indigenous wooden architecture—and as Buddhist rock-cut monastic halls that mimic and essentially preserve wooden forms (the oldest surviving carpentry in India is the wooden beams and vaulting within some of these caves). Technical terminology Coomaraswamy culled from wide-ranging reading in Sanskrit, Prakrit, and Buddhist Pali texts, often interpreting the words he found there by reference to forms he knew from reliefs. His sensitivity to evidence he found for the craft of

4. Lipsey, Coomaraswamy, His Life and Work, pp. 191–192, 199; Lipsey (p. 191) cites a translation by Coomaraswamy of a passage in which the Buddha describes his method of teaching: "When the analytical factors of the meaning have been verified both as regards what is laid down and what is elaborated, I then explain them by many alternative formulae, teach and illuminate them, make them comprehensible, open them up, dissect and spread them out."

5. "Early Indian Architecture, I. Cities and City-Gates, etc.; II. Bodhi-Gharas," Eastern Art II (1930): 208–235; "III. Palaces," Eastern Art III (1931): 181–217. Coomaraswamy's copy of the manuscript of Part IV, which Eastern Art failed to publish before its demise, was deposited, among other archival material, with the Firestone Library, Princeton University, by Dr. Rama P. Coomaraswamy.

6. Smithsonian Institution, Washington, D.C.; reprinted in one volume, New Delhi: Munshiram Manoharlal, 1971.

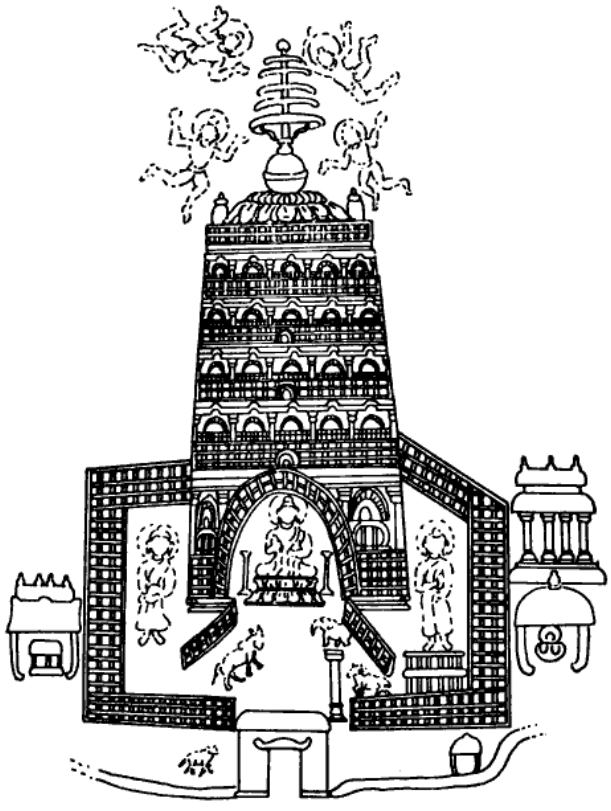
7. Journal of the American Oriental Society 48 (1928): 250–275.

8. Harvard University Press, Cambridge, Mass.; reprinted, New York: Dover Publications, 1956, p. 155.

9. Lipsey, op. cit., pp. 190–191.

10. Michael W. Meister, "On the Development of a Morphology for a Symbolic Architecture, India," Res 12 (1986): 33–50.

11. His line of investigation of this particular motif was continued by Odette Viennot, Temples de l'Inde centrale et occidentale, Paris: École française d'Extrême-orient (Mémoires archéologiques XI), 1976.



Buddhist temple of the second or third century A.D. represented on a terracotta plaque from Kumrahar, Bihar. Drawing copyright the American Institute of Indian Studies, Varanasi.

architecture clearly benefited from his involvement with the arts-and-crafts movement and his experience with Ceylonese craftsmen earlier in the century, yet in these essays the lure of texts becomes what Lucien Sherman called Coomaraswamy's "spitzfindigkeiten."[12] *His brief excursions attempting to establish formal connections with later and "related" temple-types in parts III and IV are his last comments on the temple until he—with some relief, I think, that someone else had managed it—reviewed Stella Kramrisch's accomplishment in her* The Hindu Temple *of 1946 in his article on "An Indian Temple: The Kandarya Mahadeo."*[13] *This brilliant review—not so much of Kramrisch as of the significance and form of the temple itself—ends with a particularly personal and poignant summation of Coomaraswamy's* philosophia perennis *in the year before his death that I believe should be cited in full:*[14]

> The deity who assumes innumerable forms, and has no form, is one and the same Puruṣa [cosmic entity], and to worship in either way leads to the same liberation: "however men approach Me, even so do I welcome them" [Bhagavad Gītā 4·2]. In the last analysis, the ritual, like that of the old Vedic Sacrifice, is an interior procedure, of which the outward forms are only a support, indispensable for those who—being still on their way—have not yet reached its end, but that can be dispensed with by those who have already found the end, and who, though they may be still in the world, are not of it. In the meantime, there can be no greater danger or hindrance than that of the premature iconoclasm of those who still confuse their own existence with their own being, and have not yet "known the Self"; these are the vast majority, and for them the temple and all its figurations are signposts on their way.
>
> *Michael W. Meister*

12. *Letter cited in Lipsey, op. cit., p. 187.*

13. Art in America *35 (1947); reprinted in Lipsey, ed.,* Coomaraswamy 1: Selected Papers, Traditional Art and Symbolism, *pp. 3–10.*

Early Indian architecture

The basic type of Indian architecture[1] is that of the circular or rectangular single-roomed hut or cottage (Sanskrit *kuṭi, kuṭī, kuṭīkā,* Pali *kuṭī, kuṭikā,*) as used by peasants (Pali *kuṭi-purisa,* "cottager"), or by Brahmanical recluses or Buddhist friars.[2] As one or more such huts may constitute a village (*grāma*), so one or more such cells may constitute a monastery (*ārāma*).

In the early literature, *vihāra* generally denotes a single such cell, or a Buddhist "temple," although now used only in the latter sense, the monastery being now

14. *Ibid.*, p. 10.

1. [Coomaraswamy's copy of the manuscript for this unpublished article was deposited in the Firestone Library, Princeton University, along with other archival material, by his son, Dr. Rama P. Coomaraswamy, who has kindly given permission for the publication of this version here. Copyright for the text remains with Dr. Coomaraswamy. Parts I through III of "Early Indian Architecture" were published in nos. 2 and 3 of the journal *Eastern Art* before it ceased publication (Coomaraswamy: 1930 and 1931). The original manuscript and the seventy-six drawings he had submitted for publication with Part IV apparently were never returned to Coomaraswamy. *Ed.*]

2. [In Part I of "Early Indian Architecture," Coomaraswamy added the following note to his title: "Mainly as referred to in the Pali literature and as represented in the reliefs of Bharhut, Sāñcī, and Amarāvatī. Terms are cited in Pali, Sanskrit, or Prakrit, according to their source. Where no particular text is cited, it is to be understood that the term is of very common occurrence, or that the sense is well known." *Ed.*]

known as *paṇṇa-sālā*, originally equivalent to *vihāra*, meaning a single cell. The term *paṇṇa-sālā*, or Sanskrit *parṇa-śālā*, refers to the leaf thatch,[3] as shown in many representations (figs. 2, 4). The root meaning of *kuṭ* is "curvature," and there can be little doubt that *kuṭī* in the sense of "hut" (also "nest," cf. Tamil *kūḍu* equivalent to *sīha-pañjara*) implied primarily an arbour or simple shelter constructed of entwined branches or creepers (fig. 2), cf. Sanskrit *kuṭaṅga* (*ka*), Prakrit *kuḍaṅga*, with this sense, Sanskrit *kuṭanka*, "thatch," and Sanskrit *kuḍya*, Pali *kuḍḍa*, "wattle and daub."

Such huts as are alluded to above were made either in whole or part of timber (*dāru-kuṭikā, Vinaya Piṭaka* 3·43), reeds (*naḷāgāra, Aṇguttara-Nikāya* 101), straw (*tiṇāgāra, ib., tiṇa-kuṭikā, Saṃutta-Nikāya* 1·61), or leaves (*paṇṇa-kuṭī* or *paṇṇa-sālā*, passim). There is no clear evidence, either literary or other, for the use of bamboo as building material. The word *kuḍḍa*, primarily the "wattle" of wattle and daub, soon stood for "wall" in general, although in most cases a wall of wattle "daubed with mud and whitewashed" (*sudhāmattikālepana, Cullavagga* 6·3·11)[4] is to be understood. In *Jātaka* 4: 318[5] a *paṇṇa-sālā* has walls of

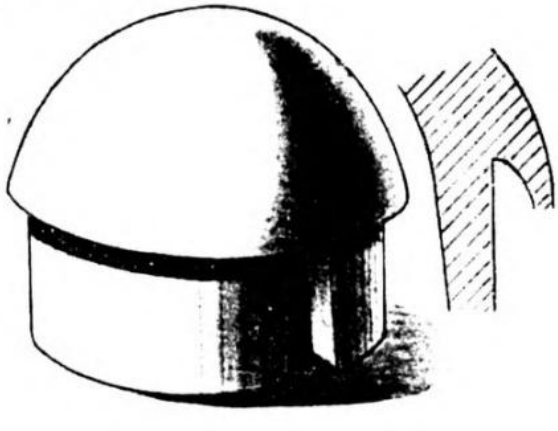
3. For a good illustration of such an arbour, see the *Museum of Fine Arts Bulletin* (Boston), no. 179, p. 50.

4. It should not be overlooked that many of the hermits' huts were plainly not plastered or whitewashed at all but simply wattled.

5. *The Jātaka, or Stories of the Buddha's Former Births*, 6 vols., ed. E. B. Cowell, Cambridge, 1895–1907 [hereafter abbreviated simply *Jātaka*. *Ed.*]; the Pali Text Society, *Pali Dictionary*, s.v., misprints this reference as VI, 318.

6. Mistranslated "double-gabled" by Pe Maung Tin, and misunderstood by myself, Coomaraswamy 1931: 193, note.

Figure 1. Sudāma cave, Barābar hills, Bihar. This hut-shaped shelter forms the left end of a vaulted rectangular hall, excavated parallel to the rock-face, of the third century B.C. It was intended for the use of monks of the Ājīvaka sect. (From Percy Brown, *Indian Architecture [Buddhist and Hindu]*, 3rd ed., Bombay, 1959, pl. VIII, 1.)



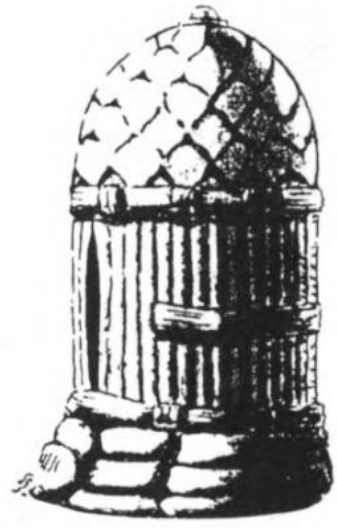


Figure 2. Mathurā, Uttar Pradesh. Reed hut (*naḷāgāra*) from an unidentified Jātaka scene, relief carving. Kuṣāna period, ca. second century A.D. (From Brown, pl. XVIII, 2.)

reed (*naḷa-bhittika*) with sills (*bhitti-pāda*) of *udumbara*-wood. Similarly, *Cullavagga* 6·3·4 permits, in the case of a *vihāra* (*kuṭī*), the use of a sill (not "buttress," as rendered in *The Sacred Books of the East* 20: 174) to prevent decay at the bottom of the wall, and here we get *kuḍḍa-pāda* and *kilaṅka-pāda* as synonyms of *bhitti-pāda*; with *kulaṅka* in this sense of horizontal beam, cf. *kaḷiṅgara*, "tread" if a stair, *Cullavagga* 5·21·2. In *Cullavagga* 6·3·3, friars are permitted to subdivide the interior of a *vihāra* by means of party-walls, half the height of the *vihāra* itself, and called accordingly *aḍḍha-kuḍḍa*, "half-wall." This gives us a clue to the meaning of *eka-kuḍḍaka* and *dvi-kuḍḍaka* in *Jātaka* 1: 92, the latter also in *Visuddhi Magga* 364;[6] for half-walled, one-walled, and two-walled must all refer to a ratio between the height of the wall and that of the chamber.

Accordingly, *eka-kuḍḍaka* will describe a one-storeyed hut, with reference to the outer wall as it rises normally from the ground to the eaves. *Dvi-kuḍḍaka* will be "double-walled," not in the sense of having two parallel walls or a wall of double thickness, but in the sense that the walling extends upward above the level of the ceiling of the chamber, making the structure two-

storeyed, at least in outward aspect. (This upper part of the wall may, in reality, serve only to elevate the roof and so provide a greater coolness.)

Relief representations do, in fact, include many examples of constructed shrines provided with a kind of clerestory, having false eaves below and a true roof above[7] (figs. 5, 6); it is here assumed that *dvi-kuḍḍaka* alludes to huts and shrines of this kind.[8] The type is in any case of particular importance, because it demonstrates the principle of elaboration by the reduplication of roofing elements that later on determined the characteristic development of the *śikhara*.[9]

The over-hanging eaves (*osaraka*) of the thatched roof, or the false eaves of a *dvi-kuḍḍaka* structure, shelter a narrow verandah below, designated *ālinda*, as clearly shown by *Jātaka* 3: 446 and *Visuddhi Magga* 394;[10] however, in the case of more pretentious buildings of several storeys, *ālinda* may denote verandahs at a higher level (fig. 6).

The roof (*chadana* is "roofing" rather than "roof") as house-top is sometimes referred to as *thūpi(ka)*, as already in *Śāṅkhāyana Gṛhya Sūtra* 3·3·7; *"stūpika"* remains in use in the same sense in later Śilpa texts. As

7. These "false eaves" survive throughout later architecture as a curved hollow cornice (*kapota*, Tamil *kabodam*, see Coomaraswamy 1927: fig. 239) retaining the original value of a drip-ledge protecting any verandah below, whatever the nature of the superstructure may be.

8. That is, provided with what Foucher 1900: 122, calls *"le double dome"*; but neither "double dome" nor "double roof" really defines the type. "Dome and cornice" or "vault and cornice" would be preferable.

9. See Coomaraswamy 1931: 203, and Parmentier 1925.

10. *Ālinda* is thus "verandah," whether on a ground or any other floor. Cf. *ālinda* given in explanation of *pīthikā*, the basement ledge or verandah of a temple, accessible from the ground. *Pratijñāyāugandhārayaṇa* Act 3.

Figure 3. Amarāvatī, Andhra Pradesh. Buddhist *stūpa*, second century A.D. Circular fire temple from a "Conversion of Kassapa" scene, relief carving. (From Fergusson, *Tree and Serpent Worship*, pl. LXX.)

Figure 4. Sāñcī, Madhya Pradesh. East gateway, Buddhist *stūpa*, early first century A.D. Domed fire temple, square in plan, supported on four pillars, a thatched hermit's hut, and a Brahmanical *stūpa* beneath, relief carving. (Photograph copyright American Institute of Indian Studies, Varanasi.)

Figure 5. Sāñcī, relief carving of a domed structure (upper left), tree shrine with gateway, and altar. (Photograph copyright AIIS, Varanasi.)

Figure 6. Bhārhut, Uttar Pradesh. Gateway, Buddhist *stūpa*, ca. early first century B.C. Relief carving of a pavilion labeled "*Sudhamma-devasabhā*." (Drawing copyright AIIS, Varanasi.)

the original meaning of *stūpa* was "top" and the tops of circular huts were actually domes, it may be inferred that the name *thūpa* or stūpa as applied to the solid domed Buddhist *dhātugabbha* (memorial monument) derived its application from the resemblance of the mound to the house-top; accordingly, structural domes in stone should be regarded not as imitations of mounds but as a natural translation of the timbered dome, with its rafters and roof plate, into the new material. The term *sikhara* at this time seems to have denoted only a finial or pinnacle; one such finial invariably surmounting the dome if the hut be circular or arranged at intervals along the roof-ridge when the roof is elongated (fig. 7). Huts of the sort described above are naturally contrasted with the more pretentious *kuṭāgāras* (*Aṇguttara-Nikāya* 103, 137) as to their security.

Rules for the making of huts (*kuṭikāra-sikhāpada*) are alluded to in *Jātaka* 2: 282, and 3: 78 and 351, and are found in the *Pātimokka, Sutta Vibhanga*, and other Vinaya texts. However, from these texts we learn very little more than has already been cited, except that a cell should measure twelve by seven spans (*vidatthi*); and while the exact value of the *sugata* span in question remains doubtful, these dimensions may be taken as roughly equivalent to something less than twelve by seven feet.

There is otherwise very little occasion for literature to make detailed reference to the construction of simple huts, or even to describe the simplest forms of temple architecture, such as might have been exemplified in any village shrine. Yet nothing is more certain than that the dwelling place provided for a deity differed in no essential — although often in somewhat greater elaboration — from that made use of by man as villager or hermit. As remarked by Senart, "*on donne au dieu la meme habitation, embellie at aggrandie, qui sert a ses adorateurs.*"[11]

The prototypes of temple architecture, then, are identical with simple building forms that may have

11. *Légende du Bouddha*, p. 408, etc.: cf. Foucher 1900: 99 ff.

been in use from time immemorial and have survived to the present day. However, just as *gṛha*, any "house," becomes in religious application a *cāitya-gṛha* or *deva-gṛha* or *pratimā-gṛha*, meaning "temple," so also does *sabhā*, the village assembly-hall, become in religious application *dharma-sabhā*. As *prāsāda* denotes indifferently a palace, monastery, or temple, so the technical nomenclature of the several parts of a building is preserved, without regard to the application of the building. *Garbha*, for example, denotes equally a "room," or the cella of an image-house, or the interior of a reliquary; conversely, *gavākṣa* is by no means specifically or exclusively a *"cāitya-window,"* but any curved or gabled window.

The importance of our present theme is, then, much greater than might at first sight appear. For it is precisely by an understanding of and familiarity with the elementary forms and nomenclature of Indian buildings that we are enabled to comprehend the natural development and recognize the indigenous sources of the more elaborate styles—which have so often been spoken of as making their appearance suddenly and mysteriously after the Gupta period. Certain stages of the development, carried out in relatively impermanent materials, may have been lost. However, when we dissect even the most elaborate temple into its component parts, or consider the essential factors in the design of a modern palace or gateway, we see that the fundamental forms are really identical with those of the primitive huts and surviving vernacular building, as well as with those of the simplified architectural forms (*"reductions d'edifices"*) which are often applied decoratively to more pretentious structures. It is, then, from a study of its simplest forms that the study of Indian architecture ought to be begun, for it is by a repetition of these that the later forms are evolved.

Examples of the Hindu use of *kuṭī* as "temple" may be cited from the *Gṛhya Sūtra*,[12] where, for example, *kuṭī* is equated with *āyatana* and used to refer to a shrine erected for Īśāna, Miḍhuṣī, and Jayanta; and from Mayūra's "traveller,"[13] where a *kaṭaghaṭita kuṭī* is the "straw-built shrine," with *kuḍya* walls, of a *grāma devatā* (village divinity).

More striking is the history of the specifically Buddhist term *gandhakuṭī*, "fragrant hut," originally one of the three *vihāras* occupied by the Buddha when residing in the Jetavana garden. The two others are known as *kosambakuṭī* and *kareri-kuṭī(ka)*. Two of these—*gandhakuṭī* and *kosambakuṭī*—are represented and named at Bhārhut (fig. 8); all three are seen but not named at Sāñcī (fig. 9). In both cases they are substantial thatched single roomed cottages with porches. At Bhārhut (fig. 8) the altars indicating the Buddha's presence are shown within the chamber, and at Sāñcī outside (fig. 9). Almost precisely of the same kind is a Brahmanical hermit's hut shown in a relief from Bodhgayā.

From the subsequent history of the word, it may be assumed that after the Parinibbāṇa the *gandhakuṭī* became, so to speak, the first Buddhist temple. For we find on the one hand that in late descriptions of the

Figure 7. Sāñcī, relief showing the Buddha's birth-city, Kapilavastu. Vaulted structures with curved dormers are typical of early urban architecture in India. (Photograph copyright Michael W. Meister.)

12. See Arbmann, *Rudra*, 1922, pp. 104 ff.

13. See G. P. Quackenbos, *Sanskrit poems of Mayūra*, 1917, p. 236.

gandhakuṭī (there are no very clear accounts), the onetime cottage has become a glorious house, and on the other that the term *gandhakuṭī* is applied as a habitual designation of large and elaborate temples, quite unlike any such simple *vihāra* as the Buddha might have made use of in real life. Thus in *Dhammapada Atthakathā* 4·203, the *gandhakuṭī* in the Jetavana garden is said to have been provided with pillars, three great windows (*mahā-vātapāna*), gem-set roofing-tiles (*chadaniṭṭhakāhi*), a golden bowl on the roof (*thūpika*), and pinnacles (*sikharā*) of coral. The golden bowl is clearly thought of as inside the roof, for it sprinkles perfume on the Buddha seated within, and in fact some such device may really have been the origin of the old term *gandhakuṭī*, literally "perfumed hut."

We must here digress to point out further that in *Dhammapada Atthakathā* 3·364, practically the same description is applied, not to the *gandhakuṭī* itself (it is immaterial from our point of view that a previous Buddha, Vipassī, is here in question), but to an "elephant-hall" (*kuñjara-sālā*) containing a golden

Figure 8. Bhārhut, relief showing two of the three *vihāras* occupied by the Buddha in the Jetavana garden. Labeled "*kosambakuṭī*" and "*karerikutī*." (From Cunningham, *Stūpa of Bharhut*, pl. LVII.)

Figure 9. Sāñcī, the three Jetavana-garden *vihāras*. (Photograph copyright AIIS, Varanasi.)

pavilion (*maṇḍapa*) with a throne for the Buddha. It seems that this should be thought of as "an elephant amongst halls" rather than as an "elephant stable" as rendered in the Harvard Oriental Series 30: 131. In any case, this hall, mentioned also in *Dhammapada Atthakathā* 4·203, corresponds to the *kareri-maṇḍala-māḷa* or assembly-hall built in front of the *kareri-kuṭī* (*Dīgha-Nikāya* 2·2 and Commentary) and to the *nisīdana-maṇḍapa* of *Jātaka* 1: 32, alternative designations being *nisīdana-* or *upaṭṭhāna-sālā*.[14] The elephant-hall is described in *Dhammapada Atthakathā* 3·364 as *thambha-tulāsaṃghāṭa-dvāra — kavāṭa-vātapāna-gopānasi-chadaniṭṭhakā*, with a golden bowl

14. On the nature and use of a *maṇḍala-māla* see also BA 1·43, quoted in *Journal of the American Oriental Society* 50: 240.

"above" (*upari*) and a coral "pinnacle and dome" (*sikharathūpi*).

We have already inferred (Coomaraswamy 1931: 193) that the term *sikhara* in pre-Gupta usage meant only "finial" or "pinnacle," and no such structural tower as we are later familiar with, when the term *śīkhāra* (Sanskrit *śikhara*) is applied to a tower in any style, but more especially to the Nāgara spire. *Dhammapada Atthakathā* 4·203, cited above, confirms this view, for it is there expressly stated that the gem-set roofing tiles (*chadaniṭṭhakā*) lay below (*hetthā*) the *sikharā*; the use of *sikharā* (plural) shows further that the roof (*thūpika*) is not here thought of as a circular dome, but rather as an elongated vault (as in fig. 8, where the single roof carries four pinnacles). The early *sikhara* then seems to have been a ringed terracotta pinnacle (or according to more imaginative descriptions, one of coral); and a well-preserved example of such a pinnacle of pre-Gupta date (fig. 10) has been found at Basāṛh (Vaiśālī), corresponding in appearance and size to the pinnacles that are almost always represented on the early domed and vaulted roofs (figs. 6–9).

Reference may be made here to the well-known *āmalaka*, a large ribbed and cushion-shaped stone that crowns the mediaeval Nāgara *śikhara* and in turn supports a finial or pinnacle (figs. 12, 13). The word

Figure 10. Vaiśālī, Bihar. Excavated terra cotta roof-pinnacle, restored. Said to be pre-Gupta (before A.D. 320). (From *Archaeological Survey of India, Annual Report, 1903–04*, p. 94.)

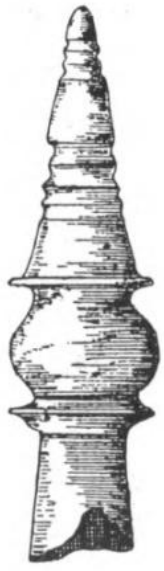


Figure 11. Deogarh, U.P. "Gupta" temple, ca. A.D. 525. Doorjamb relief showing shrine model with two cornice-storeys and with corner and crowning *āmalakas*. (Photograph copyright Michael W. Meister.)

āmalaka does not occur in early texts with an architectural sense. Rather, it means either (1) a fruit, or (2) the ribbed bulbous legs of a kind of throne.[15] On the other hand, in the developed Nāgara spire nothing is more conspicuous than the crowning *āmalaka*, while on the corners of the spires, at intervals of one or more courses, there are found "angle-*āmalakas*" (fig. 12). These are evidently vestigial ornaments marking the individual roofing elements, which, being compressed and superimposed, have built up the spire itself (figs. 12, 13). It is to be inferred that the whole scheme is developed from an original type of domed shrine surmounted by a single *āmalaka*; examples of this kind may be cited from a relief at Sohāgpur (*Archaeological Survey of India, Memoirs* 23: pl. 54). In the second stage, there would be a terminal *āmalaka*, and one set of angle-*āmalakas*; an example of this kind is represented on a door jamb from Deogaṛh (fig. 10; see

15. *Cullavagga*, 6·2·4.

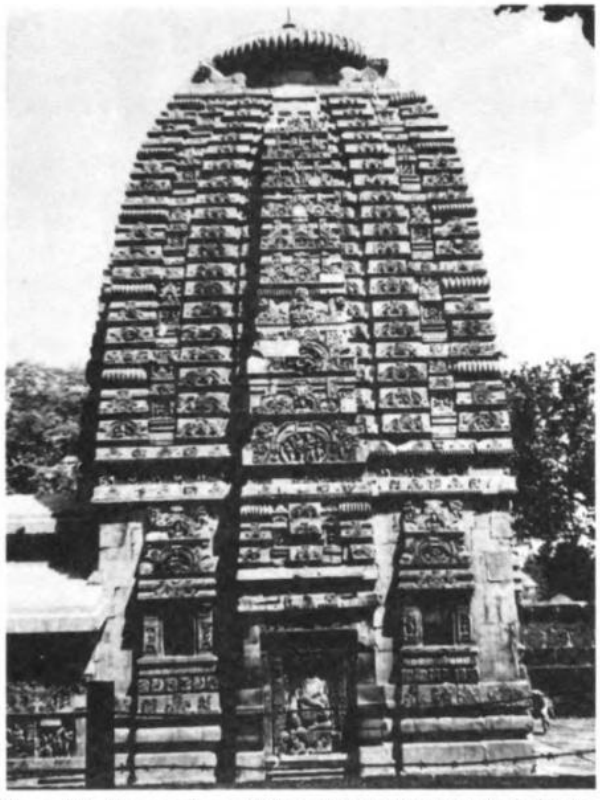


Figure 12. Bhubaneśwar, Orissa. Parasurāmeśvara temple, ca. A.D. 650. (Photograph copyright AIIS, Varanasi.) The hall in front, more than the curvilinear tower, suggests a hut-form (see *Res* 12, Autumn 1986, p. 49, fig. 30).

also the same type of ornament, Coomaraswamy 1930: figs. 72, 74).

We cannot pretend to offer here a complete solution of the *āmalaka* problem, that is, as to the actual origin of the form itself; but it may be pointed out that there is an analogy, as to placing and appearance, between the terminal *āmalaka* and the "topknot" that completes the domed roof of certain types of thatched huts (figs. 4, 14). This suggestion, moreover, would tend to support, more than not, Simpson's comparison of the *āmalaka* with the terminal stone placed on the conical thatched roof of the Toda "boath."[16]

To return to the *gandhakuṭī*, we find, in the second place, that not only was the conception of the original *vihāra* expanded and magnified in the literature and in corresponding representations (fig. 21), but at the same time the term *gandhakuṭī* itself came into general use as the designation of any Buddhist temple, wherever erected and however elaborate. The most notable case of this is the great shrine at Bodhgayā (fig. 15), erected in late Kuṣāna or early Gupta times on the site of the older *rāja-pāsāda-cetikā* and designated in a contemporary inscription "the great *gandhakuṭī* of the *vajrāsana*" (Coomaraswamy 1930: 227). We find also the designation *mūlagandhakuṭī* ("original" or "main temple") applied to a shrine at Sārnāth; another, probably later, shrine at the same site was known as the *aṣṭamahāsthāna-śāilagandhakuṭī*, or "stone temple

Figure 13. Khajuraho, M.P. Kandarīya-Mahādeva temple, ca. A.D. 1025–1050. This clustered curvilinear tower is typical of fully developed Nāgara architecture in North India. (Photograph copyright Michael W. Meister.)

16. See Simpson 1891: 244.

Figure 14. Juna, Barmer District, Rajasthan. Modern desert hut. (Photograph copyright Michael W. Meister.)

Figure 15. Kumrahar, Bihar. Terracotta plaque depicting a Kuṣāṇa-period version (ca. second century A.D.) of the Mahābodhi temple at Bodhgayā.

of the Eight Great Stations."[17] In modern times, however, at any rate in Ceylon, only the term *vihāra*, in one of its two original senses, is employed to denote a Buddhist temple.

We have now sufficiently demonstrated a continuity in architectural morphology and terminology. It only remains to point out a few of the more conspicuous of the formal elements that are directly inherited from primitive building types. Amongst such elements, none is more conspicuous than the domed or vaulted and gabled roofs and the hollow cornice. As we have already indicated, *stūpa* (*thūpi, thūpika*) originally meant simply "top," hence in architecture "roof," and only because such roofs were, more often than not, domed, the term acquired and retained the connotation "dome" along with the denotational "top." We have also discussed elsewhere[18] the construction of the domed wooden roofs of early buildings, pointing out that the principle employed — that of curved rafters supported above by a circular roof-plate (*kaṇṇikā*) functioning as a keystone — is retained in later stone construction. At present we are more concerned with the external aspects of the dome.

The oldest Indian reliefs do not, to my knowledge, provide us with any example of a secular or monastic *kuṭī* or *paṇṇa-sālā* of the dome and cornice (*dvi-kuḍḍaka*) type; only later representations show this development. Accepting this negative evidence, we must conclude that the addition of a clerestory, usually with a small window, and having a normal roof above and false eaves by way of cornice below, represented an elaboration that generally distinguished a shrine from an occupied hut. The earliest and one of the best representations of such a shrine is that of the Sudhammā Sabhā at Bhārhut (fig. 6), although it may be noted that here the building is not walled but of open pillared construction. A very complete walled shrine of the same type, having also a high basement and external *dhaja-thambhas*, is illustrated in a privately owned Gandhara relief in Paris; and a well-built stone (ashlar) structure of the same kind is still standing in Swat (Foucher 1901: figs. 45, 46). In the last case, the identity of construction below the false eaves (cornice) and the actual eaves of the dome may be observed; the narrow slit windows are such as are designated *āloka-sandhi* (*Mahāvagga* 1·25·15).

The following description of the Sudhammā Sabhā appears in *Dīgha-Nikāya Atthakathā* II, 647 (Commentary on *Dīgha-Nikāya* 2·220); I am indebted to Mr. F. L. Woodward for the text:

> The Sudhammā Sabhā was provided with a wooden roof-plate (*kaṇṇikā*) of one *aratni* measure. Its base (*bhūmi*) was of marble (*phalika*), rivets (?) (*āṇiyo*) of precious stone, pillars (*thambhā* of gold, capitals (*thambha-ghaṭikā*) of gold and tie-beams (*sanghāṭā*) of silver, and (bracket) animal figures (*vāḷa-rūpāni*) of coral; the rafters (*gopānasiyo*), sheathing-stones (*pakkha-pāsāṇa*), and porch-frame (*mukha-vaṭṭi*) were made of the seven gems; the roofing

17. Archaeological Survey of India, *Annual Report, 1906–07*, pp. 97–99.

18. Pali *kaṇṇikā* = circular roof-plate, see *Journal of the American Oriental Society* 50 (1930): 238–243. [Reprinted in *Coomaraswamy, 1: Selected Papers, Traditional Art and Symbolism*, ed. Roger Lipsey, Princeton, 1977, pp. 459–464. *Ed.*]

Figure 16. Gandhāra, Pakistan. Relief showing a leaf-thatched "dome-and-cornice" shrine with a framed door. (From Brown, pl. XVIII, 4.)

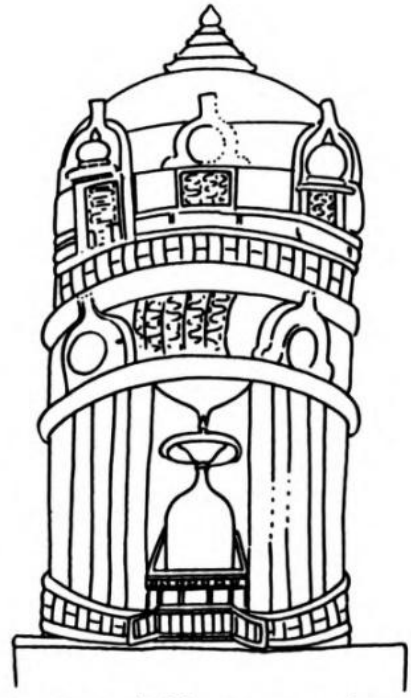


Figure 17. Amarāvatī, relief showing a stone shrine, of *sabhā* type, with dome and double cornice. (Drawing copyright AIIS, Varanasi.)

> (*chadana*) was of sapphire tiles (*iṭṭhakāhi*), the roof-ridge (*chadana-pīṭha*) was of gold, the domes (*thūpikā*) of silver; it was three hundred *yojana* in breadth and width, nine hundred in circumference, and five hundred in height.

In this description it should be noted that "domes" are mentioned in plural, and there is an inconsistency between the normal size of the roof-plate and the great size of the whole structure.

Certain terms used are rare. *Ghaṭika* occurs as *ghaṭaka*, in the sense of "capital" also in *Jātaka* 1: 32, in connection with the pillars of a *nisīdana-maṇḍapa*, assembly-hall. *Sanghāṭa* are elsewhere referred to (1) as *piṭṭha-sanghāṭa*, door jambs (= *kavāṭa-piṭṭha* [*Mahāvagga*, I.25.15]), and (2) *tulā-sanghāṭa*, evidently the tie-beams or wall-plates resting on the pillar-capitals (*tulā*, as scale-beam or wall-sweep, is horizontal with respect to an upright above or below it); both jambs and tie-beams may be intended in the present case. *Vāḷa-rūpāni*, "figures of animals," probably denotes pillar brackets (Coomaraswamy 1913: fig. 97). *Pakkha-pāsāṇa* must be "stone sheathing" (which would not be present, of course, in an unwalled structure such as is represented at Bhārhut, fig. 6); *pakkha-pāsa* (cited in Coomaraswamy 1931: 185, from *Atthasālinī* 107), if not an error for *-pāsāṇa*, must in any case have a similar significance. Walling with stone slabs may have dolmen prototypes.[19] *Mukha-vaṭṭi* (also loc. cit.), generally "outer rim," "border," "strip," "fringe," etc., (Pali Text Society, *Pali Dictionary*), might denote a string-course or cornice, but more likely, since *mukha* as an architectural term always means "entrance," it means the "outer frame of the porch." *Chadana-pīṭha* (perhaps for *-piṭṭha*) probably means the roof-ridge, *kūṭa*, and *thupikā* means tops, roofs (often, but not necessarily, domed, cf. Coomaraswamy 1931: 193).

More valuable than this description, however, is the Bhārhut representation (fig. 7) because it provides us with the earliest, and very clear, representation of the dome and cornice type of shrine. It is evident even in this case, and still more by comparison with other representations (fig. 16), that the cornice is really a

19. See Longhurst 1915–16.

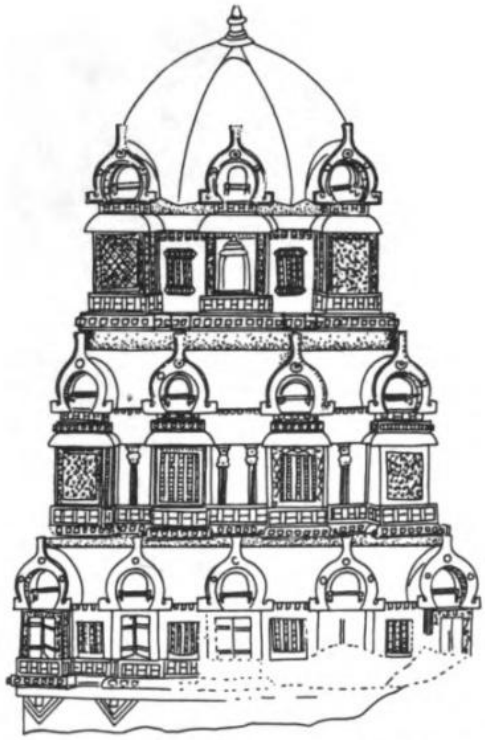


Figure 18. Ghaṇṭaśālā. A.P. Relief showing a multistoreyed dome shrine, ca. first century B.C. [Coomaraswamy's date, ed.], now in Musée Guimet, Paris. (Drawing copyright AIIS, Varanasi.)

duplicated roofing element, that is, eaves (*osaraka*). The dome is here circular, surmounted as always by a pinnacle or finial, apparently at this time designated *sikhara*. Later on this term (*śikhara*) came to denote an entire tower or spire built up of duplicated roofing elements.

Clearly related to our round domed *sabhā* from Bhārhut, in which the roofing material is not indicated, although thatch may be thought of, is the more elaborate domed pavilion from Amarāvatī (fig. 17), where stone construction is clearly indicated; here the upper part of the dome consists of broad converging slabs of stone, which take the place of rafters and must be completed by a key-stone or roof-plate beneath the pinnacle. The dome is here provided with six dormer balconies (*sīha-pañjara*) and a railed parapet (*vedikā*) while the cornice element is doubled, the space between the cornices occupied by windows and possibly shutters (?); in effect a triplication of the roofing (dome plus two cornices). The sacred object, surmounted by an umbrella and with a bulging awning above, seems to be a reliquary. Numerous variations of this type, both square and circular in plan, are to be found.

Similar in principle also is the splendid representation of a shrine recently (as of ca. 1930) acquired by the Musée Guimet (fig. 18); in this, there are three fully developed storeys, each complete with its railed balconies and a curved roof (which would have appeared only as a cornice had a reduction of the type been made, as in fig. 17). In the present case, we do not know what the lowest part of the building was

Figure 19. Sāñcī, pillared *sabhākāra* pavilion with cornice. (Photograph copyright AIIS, Varanasi.)

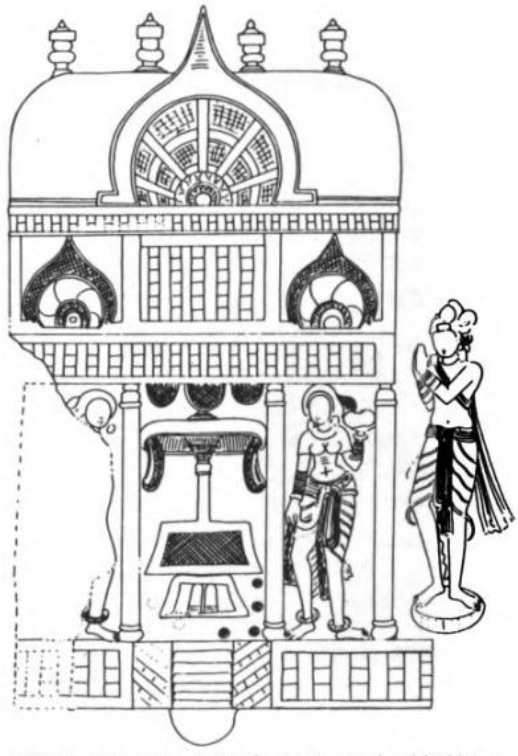


Figure 20. Jaggayapeṭa, A.P. Three-storeyed *sabhākhāra* shrine, ca. early first century B.C. (Drawing copyright AIIS, Varanasi.)

like, whether pillared or walled. It should be noted that a reliquary is represented in the balcony frame in the middle of the dome-storey, and this may be taken as an indication of the kind of sacred objects that the building was intended to contain. In any case, the religious dedication of the structure is clearly indicated in the relief by the angels paying homage above and the donors below to right and left (not shown in fig. 18).[20] These last figures, incidentally (in one case only the top of the head is preserved), show that what is lost of the structure cannot have extended downward farther than the bottom of the wooden stand on which the fragment is exhibited. The fragment of stone projecting above seems to indicate that the slab may have formed part of a *pākāra* surrounding some structural shrine. This is likely enough, as many elaborately sculptured slabs of this kind have been found in the Amarāvatī district.

As to the date of this fragment, the exact find-place of which is not known, the first century B.C. or possibly A.D. may be suggested; this date is indicated by the plain spadelike tops of the window arches, and by the square, flat-faced physical types, unlike those of the developed Amarāvatī style of the early third century A.D., but like that of such early fragments as those in the Boston Museum of Fine Arts.

The Sudhammā Sabhā at Sāñcī (fig. 19) differs in general appearance from that at Bhārhut (fig. 6), but only in the fuller development of the upper storey, now an accessible *upari-tala* with a *vedikā*, and in the elongated rectangular plan. It does not differ in the principles of its construction. Even closer is the relation between the early shrine from Jaggayyapeṭa (fig. 20, incidentally the most exquisite example of Indian wooden architecture of which we have a record) and the stone shrine from Amarāvatī (fig. 17); except for the omission of the cornices, the relative development of the parts is identical, even to the arrangement of two second-storey windows with a perforated screen between them.

The hexagonal dome of fig. 18 is matched not only by those of certain of the early *kuṭīs* (fig. 9), and such related types of two or three storeys as are illustrated in fig. 21, but also by two fragments of domed structures

Figure 21. Mathurā, three-storeyed *gandhakuṭī*, relief detail from gateway architrave, ca. late first century A.D. (Photograph copyright AIIS, Varanasi.)

20. [An illustration of the full relief can be found in U. P. Shah, "Beginnings of the Superstructure of Indian Temples," *Studies in Indian Temple Architecture*, ed. Pramod Chandra, Delhi, 1975, plate 12.]

Figure 22. Amarāvatī, dome-shaped knob from the top of a pillar, Madras Museum. (Drawing copyright AIIS, Varanasi.)

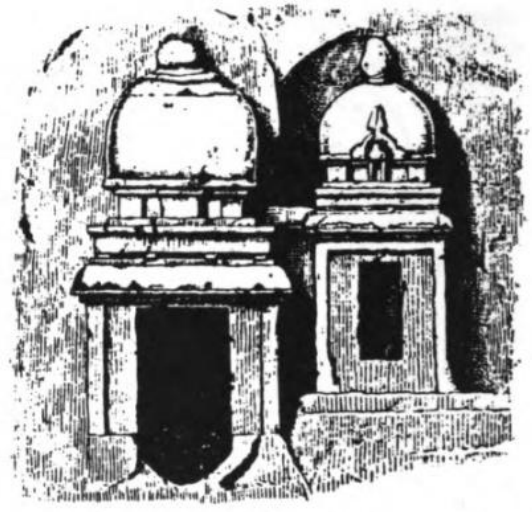


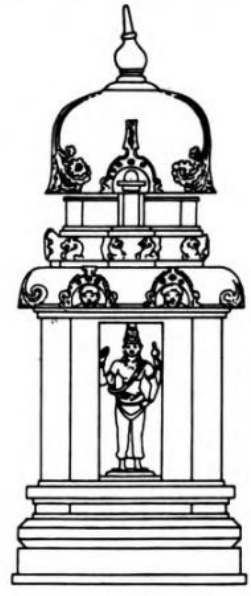
Figure 23. Uṇḍavallī, A.P. Rock-cut reliefs showing domed structures, early Calukya? [Coomaraswamy calls these "early Pallava," ca. A.D. 600–625]. (From A. H. Longhurst, *Pallava Architecture*, pt. 1 (*Archaeological Survey of India, Memoirs* 17), Simla, 1924, pl. XIII.)

from Amarāvatī (fig. 22), which must have belonged to similar buildings. Fig. 22 shows a hollowing out of the sides of the hexagonal dome comparable to that of the Guimet example (fig. 18); the second Amarāvatī fragment, on the other hand, has a circular dome, wonderfully ornamented with a design that seems to represent a jewelled net thrown over it. In this case, only a fragment of the *vedikā* below the eaves is preserved.

Simpler types of domed structures, in which the single dome is provided with windows and a railed parapet (*vedikā*), are illustrated in two fire temples (*aggi-sālā*) represented at Sāñcī (fig. 4). Dome and cornice types of Hindu application, and slightly later in date—either with or without dormers and either walled or pillared—can be illustrated by votive shrines from Chezarlā (Coomaraswamy 1927: fig. 147) and rock-cut examples from Uṇḍavallī (fig. 23), both sites lying in the Kistna District, ancient Veṅgī, where the Āndhra style developed and in due course passed into and became early Pallava.[21]

21. [This is a position that scholars who now recognise the separate development of Calukya art perhaps would no longer take. P. Z. Pattabiramin, *Sanctuaires rupestres de l'Inde du sud, 1. Andhra*, Pondicherry, 1971, assigns the Uṇḍavallī caves to the Viṣṇukuṇḍins; J. C. Harle, *The Art and Architecture of the Indian Subcontinent*, New York, 1986, p. 187, prefers the early Calukyas. *Ed.*].

Figure 24. Māmallapuram, Tamil Nadu. Temple shown in the Gaṅgāvataraṇa [Arjuna's Penance] relief, Pallava, ca. mid-seventh century A.D. (Drawing copyright AIIS, Varanasi.)



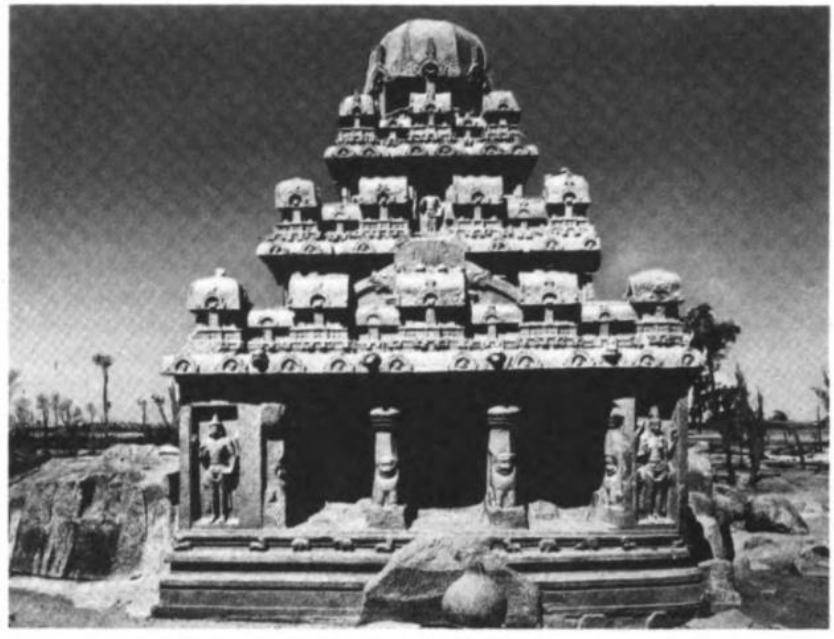


Figure 25. Māmallapuram, Dharmarāja-ratha, Pallava, ca. mid-seventh century A.D. (Photograph copyright AIIS, Varanasi.)

The dome and cornice shrine is still easily recognizable in the temple shown in the Gaṅgāvataraṇa relief at Māmallapuram (fig. 24); at the same time, the developed type of the Drāviḍa style here is as clearly recognizable as in the contemporary many-storeyed *rathas* of the same site (fig. 25) and it becomes unnecessary to emphasize the stylistic continuity in the southern development [of temple architecture] from this time onward. A slightly different treatment of the reduplicated dome and cornice, with far greater compression of the parts, was at the same time giving rise in other parts of India to the simpler forms of the Nāgara *śikhara*, as previously explained.

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COOMARASWAMY'S PLATES

[Coomaraswamy had submitted seventy-six drawings to Eastern Art *for publication, on twelve plates, as illustration for "Early Indian Architecture: IV. Huts and Related Temple Types." None were returned to him. His descriptions of these plates and his sources, however, remain with the Princeton manuscript and have been edited here as part of the record of Coomaraswamy's thinking at the time. I have left his dates as he provided them, although modern scholarship has made some revisions. In instances where one of his figures corresponds to one of those used to illustrate this publication, the present number has been provided as well, within square brackets and in boldface.* Ed.]

[Coomaraswamy's] Note: All the drawings have been made from photographs, in some cases unpublished. References to published illustrations are given only when it may be desirable to refer to the full setting of the extracted details.

Plate I

Figure 1. Six-sided domes *kuṭī* or *paṇṇa-sālā* occupied by a Brahmanical hermit. Detail of the Uda Jātaka, Bhārhut coping, *ca.* 150 B.C. A. Cunningham, *The Stūpa of Bharhut*, London, 1879, plate XLVI, 4.

Figure 2. Similar hut. Detail of the Maṇikaṇṭha Jātaka, Bhārhut coping, *ibid.*, plate XLII, 1.

Figure 3. Similar hut, but circular. Detail from the Vessantara Jātaka, north *toraṇa*, Sāñcī, *ca.* 75 B.C. Similar huts may be found in the Sāma (Śyāma) Jātaka relief, west *toraṇa*; and see also fig. 6; *kuḍḍa* walls may be presumed for figs. 1–3, 5, and 6. The object hanging within is a bark garment.

Figure 4. Shelters occupied by a Brahmanical hermit and his wife. Detail of a Sāma (Śyāma) Jātaka relief, from Kot, Peshāwar District; see *Archaeological Survey of India, Annual Report, 1922–23*, plate X, and for similar types James Burgess, *The Ancient Monuments, Temples and Sculptures of India*, two parts, London, 1897–1911, plates 95 and 125, and Foucher 1900: fig. 43. For a fire-temple of this type see J. Ph. Vogel, *Indian Serpent-Lore*, London, 1926, plate IX, b. See also a hermit's shelter of the seventeenth century, L. Binyon and T. W. Arnold, *Court Painters of the Grand Moguls*, Oxford, 1921, plate XXXIV.

Figure 5. Six-sided hut, as in figs. 1 and 2, but with a basement and steps. Detail from the Migapotaka Jātaka, Bhārhut coping, Cunningham, *Bharhut*, plate XLIII, 8.

Figure 6. Reed hut (*naḷāgāra*, or *paṇṇa-sālā*) of a Brahmanical hermit. Detail from a Conversion of Kassapa scene at Sāñcī; see also fig. 3. A bark garment, similar to that worn by the Jaṭila Brahman, is seen within.

Figure 7 **[10].** Terracotta pinnacle (*sikhara*); from Basāṛh, height 24"; pre-Gupta. *Archaeological Survey of India, Annual Report, 1903–04*, p. 94.

Figure 8. Hut (*paṇṇa-sālā*) of a Brahmanical hermit, seen seated outside on a grass cushion (*bṛsī*). From a Jātaka scene, in the lunette of a Kuṣāna railing pillar from the Ghosnā Khreā, Mathurā. *Archaeological Survey of India, Annual Report, 1915–16*, part I, plate V, e; J. Ph. Vogel, *La sculpture de Mathurā (Ars Asiatica* 15), Paris, 1930, p. 63 and plate XVI, 2. An unpublished Bhārhut fragment illustrating the Vessantara Jātaka shows the Brahman Jujuka seated within, and is square in plan.

Figure 9. Straw or grass hut (*tiṇāgāra*). Detail from the Vessantara Jātaka, Amarāvatī, *ca.* A.D. 200.

J. Burgess, *The Buddhist Stupas of Amarāvatī and Jaggayyapeta*, London, 1887, plate XLIII, 2. See also J. Fergusson, *Tree and Serpent Worship*, 2d ed., London, 1873, plate LXV, 1.

Figure 10. Circular *paṇṇa-sālā*. Detail from the Isisiṅgiya Jātaka, Bhārhut; Cunningham, *Bharhut*, plate XXVI, 7.

Figure 11 **[2].** Reed hut (*naḷāgāra*) similar to fig. 8. From an unidentified Jātaka scene, Kuṣāna, Mathura; Vogel, *Mathurā*, plate LX, a [also Coomaraswamy 1927: fig. 76].

Figure 12. Straw hut (*tiṇāgāra*) similar to fig. 9. From Vessantara Jātaka relief, *stūpa* at Goli Village, near Guntūr, third century A.D. A bark garment hangs from the peg (*nāga-danta*) outside. Madras Government Museum, *Bulletin*, I, 1, plate IV.

Plate II

Figure 13 **[8].** "Gandhakuṭī," Bhārhut, ca. 150 B.C. Identified by the contemporary inscription. Cunningham, *Bharhut*, plate LVII.

Figure 14 **[8].** "Kosambakuṭī," Bhārhut. Identified by the contemporary inscription. Cunningham, *Bharhut*, p. 119 and plate XXVIII, 3.

Figures 15–17 **[9].** "Gandhakuṭī, Kosambakuṭī, and Karerikuṭī." Sāñcī, north *toraṇa*, ca. 75 B.C. No inscription identifies the separate structures. North *toraṇa*, Sāñcī, ca. 75 B.C.

Figure 18. *Kuṭī* of a Brahmanical hermit, similar to fig. 17, but with windows. From a Śuṅga railing pillar, ca. 100 B.C., Bodhgayā.

Plate III

Figure 19 **[6].** Sudhammā Sabhā, enshrined the Buddha's *cūḍā*, in the heaven of Indra. Bhārhut, ca. 150 B.C.; identified by the contemporary inscription. Cunningham, *Bharhut*, plate XVI [also Coomaraswamy 1927: fig. 43].

Figure 20 **[17].** Stone shrine of the *sabhā* type, with dome and double cornice. A pillar relief from Amarāvatī, ca. first century A.D. Coomaraswamy 1927: fig. 145.

Figure 21. Dome (*thūpika*) of a similar structure; fragmentary relief from Amarāvatī, ca. first century A.D.

Figure 22. Ornamented dome of a similar structure; relief from Amarāvatī, first century B.C. *Archaeological Survey of India, Annual Report, 1908–09*, plate XXIX.

Figure 23. Similar dome and upper part of a hexagonal building; fragment of a relief from Amarāvatī, ca. A.D. 200.

Plate IV

Figure 24 **[18].** Four-storeyed domed shrine, lacking the lower storey. Amarāvatī school, Guntūr District, first century B.C. Musée Guimet.

Plate V

Figure 25. Fire temple (*aggi-sālā*), with dome, cornice, and framed door. Detail from a conversion of Kassapa relief, Gandhāra, Peshāwar Museum, ca. second century A.D. Burgess, *Monuments*, plate 131.

Figure 26. Similar domed shrine, probably a *gandhakuṭī*; square ground plan and high basement with four *dhaja-thambas*. Circular dome. Relief from Gandhāra, privately owned in Paris. Photo due to the kindness of M. A. Foucher.

Figure 27. The Gumbat shrine, Kandag Valley, Upper Swāt (Gandhāra). Stone (*ashlar*) construction, square ground plan, circular dome. Photo by the Archaeological Survey of India. See Foucher 1900: figs. 45, 46.

Figure 28 **[24].** Domed Śaiva shrine; detail from the Gaṅgāvataraṇa relief, Māmallapuram. Square dome and plan; the *vedikā* of the upper storey still clearly recognizable. See also figs. 41, 42, 44. Pallava, Māmalla period, mid-seventh century A.D. Photo Goloubew [also Coomaraswamy 1927: fig. 198].

Plate VI

Figure 29 **[21].** *Gandhakuṭī*; detail from a *toraṇa* architrave, Kuṣāna, Mathurā, ca. first century A.D. Three storeys; hexagonal plan. Mathurā Museum. Vogel, *Mathurā*, plate VII, c.

Figure 30. Gandhakuṭī; Kuṣāna, Mathurā, first century A.D. Two storeys; hexagonal plan. Museum of Fine Arts, Boston.

Figure 31. Shrine (?) of the type of figs. 47, 48, with an additional lower storey. Detail of a relief from Gandhāra. Sevadjian Sale Catalogue, Paris, 1932, fig. 60.

Figure 32 **[16].** Fire temple (*aggi-sālā*). From Takht-i-Bahi, Gandhāra, Peshāwar Museum. *Archaeological Survey of India, Annual Report, 1907–08*, plate XLV, c.

Figure 33. Hexagonal two-storeyed structure. Detail from a railing pillar (B 95). Lucknow Museum. Kuṣāna, Mathurā, second century A.D. Vogel, *Mathurā*, plate XX, d.

Figure 34. Buddha shrine (*maṇḍapa*); detail from a clay sealing. Bodhgayā, tenth–eleventh century A.D. A. Cunningham, *Mahābodhi, or the Great Buddhist Temple at Buddhagaya*, London, 1892, plate XXIV, b.

Figs. 35, 36. Domed and vaulted thatched cottages in a village; from a relief. Amarāvatī, ca. A.D. 200. L. Bachhofer, *Early Indian Sculpture*, 2 vols., New York, 1929, plate 126 (top) and 127 (right); the subject of these once continuous fragments seems to be the "Four Signs."

Plate VII

Figs. 37–40. Dome-and-cornice Śaiva shrines, monolithic votive offerings at Chezarlā, Kistna District. Gupta or earlier date. Coomaraswamy 1927: fig. 147.

Figs. 41, 42 **[23].** Two similar shrines, rock-cut, at Uṇḍavallī, Guntur District. Early Pallava, ca. A.D. 600–625. A. H. Longhurst, *Pallava Architecture*, I (*Memoirs, Archaeological Survey of India*, 17), Simla, 1924, plate XIII.

Figure 43. Similar shrine, relief over doorway, cave no 1, Bādāmī. Early Cāḷukya, sixth century A.D.

Figure 44. Gandhakuṭī, from a railing pillar, Sārnāth, ca. 100 B.C. Sārnāth Museum, D (2) 11. D. R. Sahni and J. Ph. Vogel, *Catalogue of the Museum of Archaeology at Sārnāth*, Calcutta, 1914, plate VI; not a *stūpa*, as stated on p. 209. The so-called *gandhakuṭī* of pillar D (2) 7, described in the same place, and illustrated in *Archaeological Survey of India, Annual Report, 1907–09*, plate XX, is a structure of another sort, with two porches and an elongated plan, perhaps not a *gandhakuṭī*.

Figure 45. Gandhakuṭī from a tympanum, Kuṣāna, first century A.D. Museum of Fine Arts, Boston. *Museum of Fine Arts Bulletin* 15 (1917): 51.

Figure 46. "Dome-and-cornice" pillared Buddhist shrine with altar from the south *toraṇa*, Sāñcī, ca. 100 B.C. Like the Brahmanical fire-temple, fig. 50. M. M. Hamid, *Catalogue of the Museum of Archaeology at Sāñcī*, plate VIII.

Figure 47. "Dome-and-cornice" pillared shrine; one of three (*kuṭī?*) on the predella of a relief from Gandhāra. Calcutta Museum. Vogel, *Serpent-Lore*, plate IX, a.

Figure 48. Dome-and-cornice shrine with framed door. From the predella of a relief from Takht-i-Bahi, Gandhāra. Peshāwar Museum, 769.

Plate VIII

Figure 49 **[19].** Sudhammā Sabhā, an elongated structure with fully developed upper storey and cornice supported by pillars; similar in principle to the Bhārhut representation, fig. 19 **[6]**. Sāñcī, south *toraṇa*, ca. 100 B.C.

Figure 50 **[4].** Fire temple (*aggi-sālā*) and Jaṭila Brahman's cell (see also fig. 46). The fire temple is a domed structure, square in plan, supported by four pillars, and with fully developed upper storey. From the Conversion of Kassapa, Sāñcī, east *toraṇa*, ca. 50 B.C.

In the Sāñcī relief representing the Amambusām (Isisiṅga) Jātaka, *viz.* north *toraṇa*, lower architrave, a simpler Brahmanical fire temple is shown, consisting of a square dome supported on four pillars. In a Conversion of Kassapa scene from Amarāvatī **[3]**, Fergusson, plate LXX, the fire temple is a circular walled structure, with open door and simple roof.

Figure 51. Village architecture, Gahapati Jātaka, from the Bhārhut coping, ca. 150 B.C.

Figure 52. Village architecture, Mahā Ummaga Jātaka, Bhārhut coping, ca. 150 B.C. The central structure is the village gateway. For a similar entrance with doubled roofing elements see Coomaraswamy 1931: fig. 50, center.

Figures 50–52 are Indian Museum photos.

Plate IX

Figure 53. Village architecture, unidentified Jātaka, Bhārhut coping, ca. 150 B.C.

Figure 54 **[20].** Three-storeyed shrine (*pāsāda?*), represented on a *pākāra* slab from Jaggayyapeṭa; second century B.C. India Office photo.

Plate X

Figures 55, 56. Two domed shrines with *āmalaka* terminals; from a relief at Sohāgpur; twelfth century. *Memoirs, Archaeological Survey of India* 23: plate XLIV.

Figure 57 **[11].** Shrine with terminal *āmalaka*, and one set of four (only two visible) angle-*āmalakas*. Detail from a door-jamb, Deogaṛh, late Gupta.

Figure 58. Porch (*mukha*) of a shrine; detail from a railing pillar, *stūpa* no. 2, Sāñcī; first century B.C. *Cambridge History of India*, vol. I, plate XXI, fig. 55.

Figure 59. Palanquin consisting of a pavilion with an upper storey. Amarāvatī, ca. 200 A.D. Burgess, *Buddhist Stūpas of Amarāvatī and Jaggayyapeṭa*, plate XI, 1. See also the similar structure in another Amarāvatī relief, now in the Indian Museum, Calcutta, reproduced in outline in Fergusson, plate LXXIV, center. These flying mansions (borne by dwarf *yakṣas*) bear the Bodhisattva, in the form of an elephant, as he descends from the Tusita heaven to take incarnation. For a functionally similar vehicle, but of different construction, see Coomaraśwamy 1930: 217, fig. B, and 1931: 194, fig. 25.

Figure 60. Boat, bearing a pavilion; the hull in the form of a winged griffin, fish-tailed. Sāñcī, west *toraṇa*, ca. 50 B.C. The scene has usually been interpreted as representing the Buddha's miraculous crossing of the Ganges, but might instead illustrate the *Dhammapada Atthakathā* 3·339–440, where the Buddha ascends the Ganges in a boat (or two boats fastened together) provided with a *maṇḍapa* and *āsana*. The umbrella and empty seat imply in any case the presence of the Buddha. In the lower part of the relief, now missing, but as originally published by F. C. Maisey, *Sānchi and Its Remains*, London, 1892, plate XXI, five men are swimming in the water, supported by inflated skins or planks, and one is standing waist deep with his hands against the boat. The latter is perhaps king Bimbisāra who "followed the boat, descending into the water to his neck . . . pushed off the boat, and turned back"; or what is more likely, the persons in the water may represent the Licchavi princes who "came forth to meet the Teacher, and entering into the water up to their necks, drew the vessel to the bank." Dr. Vogel's invocation of the Sīlānisaṁsa Jātaka is hardly plausible, for reasons he himself adduces (*Indian Serpent Lore*, p. 147).

A very similar boat (pavilion with a griffin-hull) is represented in Cambodian art at Bantai Chmār, see H. Parmentier, "L'architecture interprétée dans les bas-reliefs du Cambodge," *Bulletin de l'École française d'Extrême-Orient, Hanoi* XIV: plate facing p. 28.

Plate XI

Figure 61. Two-storeyed pillared shrine and porch; detail from a railing pillar. Bodhgayā, Śuṅga, ca. 100 B.C. The upper part of the roof is restored, and the suggestion has been made that this may have been a *Bodhi-ghara*. See Bachhofer, plate 43.

Figure 62. Two-storeyed pillared shrine; detail from a railing pillar, Bodhgayā. Śuṅga, ca. 100 B.C. Bachhofer, plate 44 (?). (The two following figures are in further illustration of "Early Indian Architecture, III, Palaces.")

Figure 63. Inner wall of the rock-cut *vihāra*, cave no. 2 at Naḍsūr; representing an upper storey facade of a *pāsāda*. Second century B.C. See *Cambridge History of India*, I, plate XXVI, fig. 71.

Figure 64. Dvāra-doṭṭaka and outer *toraṇa* of a palace; detail of a relief from Amarāvatī. Fergusson, plate XCVI, 3.

Plate XII

Figure 65. Pavilion (*maṇḍapa*) enshrining a reliquary. Miniature representation in relief, from the side of a balustrade (*hasti-hasta*). Anurādhapura, ca. eighth century A.D.

Figure 66. Walled shrine, relief at the Gal Vihāre, Poḷonnāruva, Ceylon, twelfth century A.D.

Figure 67. Two from a range of *maṇḍapas* represented in relief on an architrave from cave no. 3 at Aurangābād, ca. sixth–seventh century A.D. See also a range of three roofed pavilions at Ajaṇṭā, cave no. 26, James Burgess, *Report on the Buddhist Cave Temples*, London, 1883, plate III, upper limit of the façade.

Figure 68. Domed walled shrine from a Rāmāyaṇa composition. Virūpākṣa temple, Paṭṭadkal, eighth century A.D.

Figure 69. Rectangular walled shrine, relief in cave no. 4, Bādāmī, sixth century A.D.

Figures 70, 71. Two shrines represented in relief, cave no. 4, Bādāmī.

Figure 72. Range of shrines and connecting galleries, relief above the Ādivarāha Perumāl rock shrine at Māmallapuram. Pallava, mid-seventh century A.D. Archaeological Survey of India photo.

Figs. 73, 74. Two domed railed pavilions represented on Āudumbara coins of the early Christian era. See Vincent Smith, "Numismatic Notes," *Journal of the Royal Asiatic Society*, third series, 1897: plate IV, 2, and p. 68, "a pointed roofed temple of two or three storeys, with pillars."

Figure 75. Domed, pillared, and railed shrine on coins from Jaffna, Ceylon, of the early Christian era.

See P. F. Pieris, "Nāgadīpa and Buddhist Remains in Jaffna," *Journal of the Royal Asiatic Society, Ceylon Branch*, 28 (1919): plate XIII, 7, 8, 11, 12.

Figure 76. Public granary (*koṭhagala* = *koṣṭhāgāra*). Detail from the Sohagāurā plaque, second or third century B.C. See J. F. Fleet, "The Inscription on the Sohgaurā Plaque," *Journal of the Royal Asiatic Society*, 1907, p. 510, facing plate.

Afterword: Adam's house and hermits' huts

A conversation

MICHAEL W. MEISTER and JOSEPH RYKWERT

MWM: Joseph, I'm curious, in reading Coomaraswamy now—an article he wrote in the late twenties or early thirties—what use would his evidence from India have been to you in writing *On Adam's House in Paradise*?[1]
JR: It would have been invaluable, because there was no material on the pre-Gupta architecture of India then available to me. Very few things had been written about it, most of them by Coomaraswamy himself. Very thin, and I simply couldn't get at the sources on sacred literature that I needed for Indian material, not being a Sanskrit speaker or reader, so I relied on people who wrote in European languages, and this particular issue—the issue of the primitive hut as a model of permanent architecture—had simply not been treated. It's really rather surprising to me that Coomaraswamy didn't publish his material in his lifetime.
MWM: My impression, from reading *On Adam's House in Paradise*, had been that it was not so much the hut itself but the idea of the primordial hut that was of enormous importance to the development of European architecture and thinking about architecture. Do you think that is parallel to the situation Coomaraswamy describes for India?
JR: Yes. The primordial hut is, of course, not any particular hut that anyone ever has discovered because by definition it cannot be discovered. Hence my Proustian tag at the beginning of *On Adam's House in Paradise* that "all paradises are lost paradises." Inevitably it was the idea of the hut that I was concerned with and, of course, the reconstruction of primitive huts—particularly reconstructions for ritual purposes, such as the permanent primitive hut of Romulus in Rome or the temporary primitive huts which were erected for festivals such as the Jewish festival of tabernacles and the Roman festival of Anna Perenna. This kind of ritual building of deliberately primitive huts is an extremely important aspect of the religious rites and beliefs of certain peoples, and I suspect that it was something that was very important in India as well.

1. Joseph Rykwert, *On Adam's House in Paradise, the Idea of the Primitive Hut in Architectural History*. New York, 1972; 2d ed., Cambridge, Mass., 1981.

MWM: Coomaraswamy relates the primitive hut—the hut of the hermit or the ascetic—to what he calls the "tabernacle of the flesh" and sees the hermit in his hut, I think, as equivalent to the religious aspirant or to the soul of man, which is released, at the end of his religious life, literally from the top of the skull, and Coomaraswamy relates the dome of the hut to the skull.[2] Is there anything parallel to that in the West?
JR: Oh, innumerable instances. The obvious one that comes to mind is the Capitolium, "the place of the skull," which was, as it were, the head of Rome. It was called that because a skull was found on the site and from the skull the prophecy was derived about the future greatness of the city of Rome. That's only one of very, very many instances. There's of course the whole history of the way in which we contend with columns, are concerned with the image of the body in columns, and particularly with the identification of capital with head. Again, "Capitolium" in Rome and the "*capitendum*" of the column are obviously parallels.
MWM: Coomaraswamy's article, the one we are publishing for the first time, is very much involved with gritty details of scholarship—with the fragments of references in texts and fragments of representations in reliefs that Coomaraswamy could collect by sifting through vast amounts of material. In another article, however, which he wrote almost eight years later, he deals, not with the construction or structure of the dome, but with its essence, with its meaning.[3] This is a remarkable article that never talks about space, never talks about keystones, never talks about arches or any other of the things that we might wish to deal with in reference to construction. He deals only with the symbolism, and yet that symbolism in India he believes is rooted in something so primitive as the hut. From that essential prototypic symbolism comes, in Coomaraswamy's mind, a whole evolution of many varied forms of sacred architecture in India. Does the

2. "The Symbolism of the Dome," in *Coomaraswamy 1: Selected Papers, Traditional Art and Symbolism*, edited by Roger Lipsey, Princeton, 1977.
3. Ibid., pp. 415–458; see also "Pāli *kannikā*: Circular Roof-plate," pp. 459–464.

hut serve that same form-giving role in European architecture?

JR: Yes, in a sense I think it does, and I think it does so also in other civilizations, for instance, Meso-America. But I think the hut is also important in Indian architecture precisely because constructed stone architecture arrives in Hindu India rather late, which leads one to presuppose (the argument from silence is always very problematic, but one may suppose) that there was a long tradition, which must have been handed down by craft-methods and craft-rituals which accompany craft-methods, and probably also by work-songs in which a whole timber structuring of the building process was commemorated. This, inevitably, as in most craft traditions would go back to the original inventor of building who made the hut, as it were, in the image of his own body. Hence the dome-head analogy is of such enormous importance.

Let me restate this. In many craft traditions, there is an originator of the craft, whether—as he often is in Christian traditions—the saint, like St. Crispin, the first shoemaker, or whether—as in classical traditions—he's a god and hero. There's always a founder of the craft who, sometimes by accident and at other times through revelation, found the original technique of the craft. That's really what I meant when I said that the songs and the rituals of craft commemorate the first maker who, as it were, made the craft out of his own body.

MWM: Joseph, in India the range of early forms of sacred architecture included open-to-air altars, hypaethral structures, and freestanding pillars symbolically connected to cosmogonic origination and cosmological order. To that sacred repertoire, Coomaraswamy wished to add the simple hut, the primitive hut. It seems to me that the thing which distinguishes the hut as a model for sacred architecture from other forms is that it provides shelter; by providing shelter to a hermit, who represents a spiritual potentiality, the hut is humanized in a way that cosmogonic and cosmological sacred monuments of early India were not. Is there any symbolic role for the function of shelter in European architecture that parallels that humanizing aspect of the hut in India?

JR: Not directly, but there is an area of ignorance where you have to enlighten me. Are there records of stone or even carved wooden shrines—highly worked shrines, at any rate—in which a ramshackle or a simple hut for a hermit or a holy figure was put on the temple platform?

MWM: Probably the most unusual example of a true hut-form used as a temple would be at Mahabalipuram, near Madras, in the seventh century A.D., where you have a range of monolithic shrine-models, made by carving down boulders. One of these is made in the form of a simple thatched hut above a moulded platform standing next to much more elaborated Dravidian shrines.

JR: I don't quite mean that. I mean that there should be a shrine on a platform, perhaps with or without a central column, on which a hermit or a holy figure came to live and built himself a hut for the duration of his lifetime, as it were, or for a period, which then disappeared or was taken down or was burnt—which was a temporary structure as against the permanence of the platform itself.

MWM: Not that I know of, but also I don't think in ancient India that there is evidence of substantial platforms of that sort being built. Simple altars for ritual practices were built, but such an altar is not extensive enough to then involve a hermit's shelter being built on one. Rituals do exist where the earth itself is taken as the "platform" (*bhūmi*), with a central pole, and a shelter is built to carry out rites related to cosmogonic creation as part of agricultural re-creation, and there was also a tradition of large terraced structures, on the tops of which *stūpas* or temple-shelters were built (it would, of course, be interesting to know if these ever were impermanent structures).

What one does sometimes find are sites where a particular hermit had made his home and which may have had a temple built on them or nearby after the hermit's death. A remarkable example would be the Mālādevī temple at Gyaraspur in Central India, where there is a cliff and a rock ledge under which a famous hermit seems to have made his shelter. This ledge now juts into the body of the present temple, forming a natural roof for its sanctum.[4] To build the temple in this location, in fact, architects had to build an enormous artificial platform up the side of the hill in order to support the structure.

Let's go back to the symbolic value of shelter. The primitive hut in Europe, the idea of which you trace in *On Adam's House in Paradise*, is a model for the primordial act of making architecture. To me it had seemed the moment when primitive man provided shelter for the first time, by even pulling branches from

4. Michael W. Meister, "Jain Temples in Central India," in *Aspects of Jaina Art and Architecture*, edited by U. P. Shah and M. A. Dhaky, Ahmedabad, 1976, pp. 223–241.

a tree to give himself protection from the rain, but was that function of shelter in any way itself conceived as a moment of transformation toward civilized man?

JR: The question you ask is really about the nature of human shelter as against animal shelter, because in fact the building of shelters is an instinctive activity of a great many species—fishes and birds and mammals (such as beavers). The great apes, of course, build shelters, and indeed it's their way of socializing space. Some mammals, like dogs and cats, socialize space by using their pee to mark boundaries; others need to construct shelters. Gorillas, particularly, are builders of quite elaborate nests. But none of these animals that we know of—and indeed I wouldn't think it conceivable—think or feel their nests metaphorically; man is the quintessentially metaphoric animal, and making metaphors is a human activity. I insistently go on saying "there is no architecture without architects"; the architect is the person who thinks before he builds and anyone who does that in my vocabulary is an architect. Therefore, I would say that a hut only happens when the man who bends the bow and twines the elastic branches around thick bits sees in that activity and in that shape something that has not made itself but refers to other things.

MWM: I think certainly Coomaraswamy would have agreed with you. I think the hut he speaks of is important to him for two reasons. One is that the hut with its potent ascetic within it—or with an object of sacred power such as in some of the early Buddhist caves where the *stūpa* itself is encased within the form of a hermit's hut—acts as a metaphor for spiritual potentiality, for the possibility of the aspirant to ascend from this world toward a different level of realization.[5] To demonstrate that a simple thatch hut could have such a metaphoric role in India is one of the purposes of his article. The other role that I think he emphasizes for the hut is its form-giving character—that, on the basis of a primitive hut, much more elaborated hutlike structures could be developed for an architecture meant to shelter, not simply the hermit, but images of divine reality in human form for worship. Shelters for those images take on ever elaborating architectural forms, which he still sees as ultimately derived from elements of the hut—elements such as dome, cornice, and clerestory taken from early village and urban architecture in India.

I think the question would then be whether, in European architecture, the idea of the primitive hut also has a form-giving role or only an intellectual role in the evolution of architecture and thinking about architecture.

JR: Well, clearly the idea of columns around a perimeter and of a pitched roof over the columns in Greek architecture referred to an earlier construction. In fact, the problems of Greek builders were partly due to the fact that the kind of architecture that they were producing in stone commemorated two separate kinds of building, one kind with flat roofs and the other kind with pitched roofs, which were not altogether matched but which were the archaic forms to which Greek architecture referred and which Greek architects wanted to see commemorated through their buildings. So in fact it's very much not only a form-giving precedent but a problem-setting precedent—a formal problem-setting precedent.

MWM: Coomaraswamy, in his article, actually spends much time exploring the fragments of evidence he can get from reliefs and texts. He tries to put that evidence together to show a formal evolution leading to later Hindu temples. The details of that evolution are not fully worked out in his article, perhaps not fully worked out in his lifetime.[6] The most difficult formal leap I think he has to make is from the primitive hut itself to a domed structure with gables, used to shelter images, that is of much greater complexity than the thatched hut itself. It's possible that what he did not fully recognize is the fact that the hut provided primarily a metaphoric or paradigmatic value for otherwise palatial structures, with domes, that took their additional meaning from the fact of their sheltering manifesting forms of divinity. The palace as well as the hut (as Coomaraswamy did recognize) contributed to the development of forms for the later Hindu temple.[7] Is there a similar duality in the way in which the hut contributes to European architecture?

JR: Not exactly the same way, but there are, of course, parallels. In antiquity there were a number of primitive huts that were either maintained and reconditioned to look primitive but new, such as the Ariopagus in Athens or the two huts in Rome, both of which were

5. "*Svayamātṛṇṇā*: Janua Coeli," in Lipsey, ed., 465–520; for a *stūpa* encased in a hut (even having a wicker-screen window) see the cave at Kondivte, Maharashtra, ca. first century B.C., illustrated in Susan L. Huntington, *The Art of Ancient India*, New York and Tokyo, 1985, p. 75, figs. 5.19, 5.20.

6. Michael W. Meister, "On the Development of a Morphology for a Symbolic Architecture, India," *Res* 12 (1986): 33–50.

7. Michael W. Meister, "Altars and Shelters in India," *aarp* 16 (1979): 39.

called the house of Romulus. And there were others where the hut was actually enclosed in a marble structure, or at least a stone one. That's one aspect of it—the hut as a relic—but the other aspect of this problem is the hut as a formal model or, if you like, as a legitimation. As construction becomes more elaborate and materials more precious and more permanent, so the recall of the first building with its virtue of being a primary answer to necessity is a prime legitimation. Therefore you will find palaces in which that kind of reference is made to the house of the first founder or to the ancestors of the family. You will find it in coronation ceremonies, even the absurdities to which Napoleon went to recall the coronation of Charlemagne. The decadent form was the mania for the lactic hut in the palace like the famous dairy of Marie Antoinette where the primitive hut becomes a toy.

MWM: Coomaraswamy points out that the hut of the solitary ascetic collectively becomes the form for the monastery, that the monastery is a collection of individual ascetics in their separate cells which then, arranged around a courtyard, becomes the model for the Indian monastery. Is there a similar linkage in the thinking of Europe?

JR: Certainly not in the European monastery, which starts, of course, as an assemblage of hermits in Thebide in Egypt, but by the time it becomes an architectural form it is already cenobitic, it already has a rule, and the first monasteries that we know, with the exception of orders like the Carthusians, are already formal buildings. The Carthusian monasteries were, of course, collections of huts and the whole of the Carthusian ethos is about each monk and his cell being, as it were, a unit of prayer and work that only needed a limited contact with other monks in public worship and occasional recreation, but otherwise, basically, each monk was involved with what he was doing within himself. They are not, however, the common form of monastery.

MWM: Are there other traditions which glorify the hut, the primitive hut, or hut-forms into real architecture in more permanent forms?

JR: Well, in Meso-America I guess the obvious example would be those curious Mayan oval huts that are reproduced in sculpture much as they were in India. The nunnery at Uxmal has a hut over the door of each chamber and in that sense it clearly was intended to represent a series of huts. The huts over the doors are almost keystones; they're hieroglyphs meaning "chamber equals hut, door equals hut."

There are a number of rituals involving building primitive huts all over the world. The Japanese commemoration ceremonies are one instance. There are certain specific rituals in the Western world (as in the Jewish and Roman festivals already mentioned), where fields of huts were built outside the town and a certain amount of eating and drinking—particularly drinking—had to go on in them. The Jewish regulations about the hut required that you be able to see the sky through the branches on the roof so that, although the roof should be more or less waterproof, it should still be permeable. That guarantees its character as a hut.

MWM: The huts that Coomaraswamy describes are sealed at the top but the symbolism of the dome he analyzes in his later work involves the idea of the top of the dome being permeable; its crowning circular plate is likened to the cranial hole through which the spirit escapes (or like the smoke-hole in a Central Asian yurt),[8] and the spirit of the dying man or the spirit of the aspirant in a religious ceremony is likened to the smoke which rises through that hole and forms a pillar parallel to the central axis of a cosmogonic monument. How much of that sort of thinking about the relationship between the individual, the architecture in which he carries out ritual, and cosmic order do you find in different periods in the West?

JR: The idea of the smoke escaping from a smoke-hole in the roof, which may be vertically above the fire or which may be at an angle to it (it may be in the gable-ends of the hut)—the idea of that as a kind of revelation is fairly pervasive. You get it in Rome, you get it in Greek architecture (particularly early Greek architecture). It seems to me echoed, though not expressly stated, by the Greek custom of making the statues of the gods so big that they practically touch the roof. In fact, in our terms, the formal relationship between the statue of a god and the temple was very uncomfortable because the god was always so big that he practically went through the roof, so that in that sense the statue's head was identified with, was *in* the roof, and this imagery was a very persistent one in European thinking about building—the association between the roof-structure, pediment, and the head of an actual image, or of a metaphoric image that we can draw over the building.

MWM: Certainly, in India, in later temple architecture, the size of the temple is directly related to the size of

8. "Pāli *kaṇṇikā*: Circular roof-plate," in Lipsey, ed., 459–464.

the image in the sanctum, although the size of both temple and image seems in some instances to have been related to the size of the donor, so that the donor became the source of absolute measure in a structure otherwise developed in terms of proportional relationships.[9]

JR: In the Greek legend about the origin of the Doric order the presence of an actual standard of measurement taken from the human being is very explicit. The Greeks arrive in Asia Minor remembering the way they built on the mainland—particularly the temple of the Aga Karaiya, which seems to have been a model building—but not knowing, as Vitruvius says, the rules according to which such a building had been built. They therefore invited a young man of particular beauty (although again this is implied rather than stated) to make an imprint of his foot, and they measured his foot against the body of the five basic styles and therefore based the Doric order on the foot-to-height proportion. It seems to me that, as in all these relations, we are dealing with the memory of a rite, and I have no doubt that at some point actual city founders, donors, or some sort of model figures produced the standard measurement. In fact, when Vitruvius talks about how to set out a temple, he starts off with the whole measurement of the site and then the site is divided up into modules, so you don't start by setting out your module, you start with the full measure, and that full measure is presumably either paced out or walked out or in some way set down. It would not, presumably, just have been by the use of string.

What you have surviving of Maurya-period architecture in India (ca. third century B.C.)—and these caves are almost the first examples of Indian architecture after the Indus-Valley period—are faceted caves, some of which contain the stone "image" of a hut. One of these, on its façade [the Lomas Ṛṣi cave in the Barabar hills of Bihar] —and this I find particularly striking—represents an extremely elaborate architecture, in timber and presumably other materials (terra cotta perhaps), which bears witness to a very specialized building industry. This façade presents a kind of building with a fully identifiable image, very deliberately shown, with structural members very clearly delineated, so that there is no possible doubt about what is being represented. And yet we have no records of this sort of timber architecture—inevitably, because timber doesn't last that long—nor do we have accurate records of how these buildings were put together, so in fact the stone images *are* the records.

MWM: Coomaraswamy, in his article, demonstrates a methodology that combines close attention to terminology and texts and equally to the kinds of stone representations and replicas that survive—a close attention to visual evidence as a major source for the analysis of architecture. However, such representations are not the original architecture. They are already transformed. To what degree does that transformation limit their utility as evidence?

JR: Well, if you have no other evidence! . . . Such representations are limited, of course, but you have no counter evidence, certainly, and without them you have no argument at all. You could not have that kind of sculpted representation without there being the kind of architecture that is represented. The carving of cave faces with a hypothetical or fictitious architecture is unthinkable, nor could you have that kind of carving without a highly developed building industry already in existence. Whatever the limitations, therefore, I think, that such carvings are as powerful evidence as there is of anything in history.

MWM: There are two kinds of representations. The one is of the primitive hut in a context defined by the narrative surrounding it. That representation, I think, to Coomaraswamy provides a model for the meaning of the hut in the Indian tradition. It's a pattern of the hut with the ascetic in the forest that is repeated in one context after another. The other kind of evidence is the kind which one finds, in early Buddhist caves in particular, where wooden architecture is replicated in stone. That replication of wooden forms provides us with a major source for our knowledge of what the elaborated wood architecture of early India would have been like. There also are reliefs of cityscapes which give a sense of what the clustering of urban architecture would have been like. However, in the cave tradition, one sees this replication of wood architecture become a new language of stone architecture, where the plastic quality of the replica allows for abbreviation, condensation, scale changes, and substitution that creates a decorative reality to the stone façade that would not have been there in wood.

In the history of stone carving and its references to wood architecture in the West, is there a similar sort of transformation of architectural language?

JR: Well, the carving of caves in India is, of course, in no sense a primitive architecture. It's a highly

9. Michael W. Meister, "Measurement and Proportion in Hindu Temple Architecture," *Interdisciplinary Science Reviews* 10 (1985): 248–258.

developed architecture, a very sophisticated and complex architecture, so in a way it's irrelevant to the "representation" of the primitive hut. Of course the caves do contain hut representations and in a sense the *stūpa* is also a kind of hut representation, or perhaps an extrapolation from the idea of a *kourgan* (a hillock with a hut inside it), so the two things are, however remotely, related in one way or another.

Now, in Europe, the return to the hut is never quite as powerful as it's been in India. The appeal of the hut turns up in Europe, in theory, over and over again, but in representations it's not very frequent. It's not until the eighteenth century that it becomes an absolutely crucial legitimation point for the theory of architecture and therefore the image then becomes repeated very, very frequently.

Many years ago, the Belgian archaeologist Carl Hentse wrote a book called *The Hut as the World-Place of the Soul,*[10] and in it he traced the use of the primitive hut as a burial form, particularly in southeast Asia and China. There are these traditions, and of course we have the transformation of the primitive hut into a bronze urn in China; both the thatch roof and the cross-corners of the logs appear very explicitly.

MWM: The type of hut that one finds in India, certainly the kind of hut that Coomaraswamy documents and is fascinated by, is usually a circular structure with a thatched dome, and that domical form seems essential to the kind of symbolic meaning and formal meaning that Coomaraswamy ascribes to this tradition. Does the hut in the European tradition need to be in any particular form?

JR: The primitive huts of the Italians—the Roman primitive hut—was certainly circular, but it does look as if the huts used as a frequent form of burial both in Italy and in Northern Europe were square as well as circular. It has been supposed that some are for female and some for male burials, but there is absolutely no evidence for making such an identification, at the moment.

MWM: In the eighteenth century, when the idea of the primitive hut becomes so significant, does that refer back to a particular form of hut or only to the idea of a primitive shelter?

JR: No, it refers back precisely to the primitive hut. All the images make it look as close as possible to a Greek temple so that the whole burden of constant reference to it makes it plain that columns supporting a pitched roof with a cross beam—which looks like columns supporting a pediment—are the origins of all architecture. This hut provides something quite different from the image that Coomaraswamy is looking for in Indian huts. It provides a surrogate "nature," in that it provides man's direct answer to need (i.e., the need which is satisfied by instinct to produce the first artifact). It is by the direct passage from need to satisfaction, through a kind of Lockian comparison of bad experiences with different forms of shelter, that you get the image constructed. The image is the direct result of this process and therefore has the legitimacy of a quasi-natural object that re-bases, as it were, architecture on nature.

MWM: Coomaraswamy subtitles his article "Huts and Related Temple Types" and first sets up an analysis of the range of primitive huts available and then sees that form transformed into temples which seem in no way like a primitive hut—temples which are described, in fact, as palaces and are taken by worshipers to be the palaces of the divinities that they are worshiping within them. What I think Coomaraswamy implies is that the significance of that primitive hut, that primordial hut, for the religious meaning of the temple is incorporated into later structures sometimes simply through the persistence of the dome, but also in other ways that do not require the kind of referencing to its original primitive form that you describe in the West.

JR: Would this significance be familiar to all worshipers or only to the craftsman and to those who speculated on this kind of issue?

MWM: I think Coomaraswamy would be implying that there was a kind of homologous relationship between the simple form of the hut with its sacred center—the ascetic—and the palace of the divinity with its anthropomorphic image, and that that homologous relationship would be sensed by anyone brought up in the Indian tradition. I don't think he would imply that the average worshiper or the average craftsman would have been able to articulate that relationship.

JR: I think the problem is that in Europe this kind of figure of the holy man did not quite exist in the way in which he exists in India. The ascetic holy man is a relatively rare figure in Greek mythology and even the seer as a holy man, like Tiresias, is not thought of as particularly ascetic and certainly not as an isolated figure. He's very much a figure who gets himself involved in human affairs, as his part in the Oedipus

10. Carl Hentze, *Das Haus als Weltort der Seele*, Stuttgart, 1961.

story makes quite clear. So they do not exist in Greek and Roman lore. They exist certainly in Syria amongst the Jews, but that's a different story.

Now, when it comes to Christian building, the relationship between the church and the catacombs was such that many of the Latin churches were built on top of or near martyrs tombs; in some way they commemorated or replicated the use of martyrs' tombs as altar-stones or stones for celebrations of holy banquets or liturgies. Seeing the holy table as a human body and ultimately as itself the tomb of the body of Christ maintained the body-image at the center of the building; it did not maintain it in the form of the hut but rather in the form of the tomb.

MWM: I think Coomaraswamy's hut or the hut in India would also be a tomb without the enlivening figure of the ascetic within or the divine manifestation within the temple. The shelter would be only a shack without that which is sheltered within it. Does the idea of the primitive hut in the West require the inhabitant, or only the form of the shelter?

JR: I think there's no doubt that the inhabitant is not figuratively a terribly important adjunct to the type of hut.

MWM: On the other hand, I suppose that the architect is important, that is, that someone has made the hut—that the act of making the primitive hut was an act of architecture.

JR: Yes, I think there is never any question of it being a natural product. It's always made by human beings, however elementarily it's decorated. It's always deliberate; its image is always that of a deliberate act.

MWM: Well, I think the daub and wattle hut, the thatch hut that Coomaraswamy sees as the most primitive stage of the Indian hut, is clearly man-made. However, in the literature he describes, the role of the architect—the act of architecture producing shelter—is not much involved in the symbolism.

In terms of the way the architectural tradition in Europe chose to look back to the primitive hut, what role does the primitive architect play? Is the significance the fact that he is a model for later architects or is his significance that he represents the original act of making architecture?

JR: I think it's very much the second.

MWM: Joseph, one last question about methodology, perhaps. Since you are an architect and have worked a great deal with historical documents and texts, and Coomaraswamy, though not an architect, was concerned with both the visual and textual evidence available to him, let me ask whether as an historian you would give priority to one source or another, preference to one source or another, or be able to distinguish the individual virtues of the two kinds of sources available?

JR: I think one of the historian's main duties is to weigh the evidence and to decide where the evidence is more or less reliable, where it is of a higher or lower quality. I think there are no absolute rules in this particular game. I think part of Coomaraswamy's genius was in being able to put his finger on the telling evidence. As between visual and verbal evidence, it's when you can mesh the two together that you've got an interesting proposition.

MWM: Which gives you greater pleasure: responding to the built monument or finding that mysterious document that explains something that had no explanation before?

JR: Well, of course, unless I responded to the monument I wouldn't be looking for the document, so I think you are always in a double bind as an historian. It's when the monument begins to mean something special to you that you begin to link the monument to texts and begin to look for the textual evidence to tell you why you are having this experience—or perhaps not. Perhaps only experience will remain mysterious.

GENERAL INDEX

In order to accommodate the heavy use of references in much of Coomaraswamy's scholarship, sources cited by him — even in passing and in footnotes — have been included in this index. **Principal entries** are indicated by the use of **bold face**; *Figure* references are indicated by *italics*.

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