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A SUMMARY OF THE MĀNASĀRA

PRASANNA KUMARACHARYA, M.A.
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A TREATISE ON ARCHITECTURE AND COGNATE SUBJECTS.

PROEFSCHRIFT TER VERKRIJGING VAN DEN GRAAD VAN DOCTOR IN DE TAAL- EN LETTERKUNDE VAN DEN OOST-INDISCHEN ARCHIPEL, AAN DE RIJKS-UNIVERSITEIT TE LEIDEN, OP GEZAG VAN DEN RECTOR-MAGNIFICUS DR. G. KALFF, HOOGLEERAAR IN DE FACULTEIT DER LETTEREN EN WIJSBEGEERTE, VOOR DE FACULTEIT DER LETTEREN EN WIJSBEGEERTE TE VERDEGENDEN OP DONDERDAG 27 JUNI 1918, DES NAMIDDAGS KLOKKE 2 UUR, DOOR PRASANNA KUMAR ACHARYA, M. A. (CALCUTTA) GEBOREN TE RAY KH, BENGALEN (INDIË).

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N. V. BOEKHANDEL EN DRUKKERIJ VOORHEEN E. J. BRILL, LEIDEN. 1918.
This little book is a small portion of an Introduction approximately 300 pages in print, to the first Edition and the English Translation (both prepared by me) of an ancient text, Mānasāraya, on architecture, sculpture and cognate subjects. In 1834 in his Essay on the architecture of the Hindus, Mr. Rām Rāz referred to the contents of the first few chapters of the Mānasāraya from a fragmentary manuscript he had access to. Since the publication of this Essay, scholars interested in the subject have been curious to know more about this "monumental work" as Dr. F. W. Thomas, M. A., Ph. D., calls it. But for some reason or other, nobody had made any attempt to deal with this huge text in any way for a period of 80 years, when I undertook the task in 1914. The text comprises more than 10,000 lines and has undergone five recensions. In five different scripts there are eleven badly preserved manuscripts. The important various readings collected from these manuscripts have amounted to about 500 pages, the text itself together with appendices being about 600 pages of 20 lines to a page. It is written in a language which Sanskritists like Dr. G. Bühler call the "most barbarous Sanskrit". It can hardly be called Sanskrit, which etymologically means the refined language of the Aryans, of their Vedas, Epics, Dramas, and other sweet literature. The text is replete with obsolete expressions and technical terms, of which there is no elucidation in any of the existing dictionaries. With a view to enabling scholars to cope with this sort of expressions which are by no means restricted to the vāstuśāstras, but are frequently met with in the inscriptions

and the general literature, the authorities of the University of
London suggested "to make a full dictionary of all the architect­
ural terms used in the Mānasāra with explanations in English
and illustrative quotations from cognate literature". I was
entrusted with this tremendous task, and I have prepared to my
satisfaction a dictionary of approximately 1000 pages containing
not only all the architectural terms used in the Mānasāra but
also those found in the known vastuśāstras and all the published
inscriptions and other cognate archaeological records. I have,
therefore, not explained the technical terms frequently mentioned
in this dissertation. Concerning the date of the Mānasāra, it is
premature to assert anything definitely. If I have to express my
impression at this stage, I might say that the Mānasāra could
not have reached its present shape later than 500 A.D.

Thus this dissertation has no merits to be judged by its own
size, which is due to want of leisure on the part of my promoter,
or even by its contents which are not showy in the present
shape. No one but those who have taken part in similar labours
can at all realize the tedious toil which I had to undergo, or will care
to look back at the thorny ways which I had to discover and
clear for myself through the continuous struggles of four years,
before I could achieve the information recorded in the following
pages. The object of this summary of the Mānasāra is, however,
nothing more than to introduce the various topics in brief and
facilitate the understanding of my Translation of the Text. It
might at the same time throw a little light, for the first time,
upon one of the most useful and hitherto unknown branches of
Sanskrit studies.

Another object of this preface is to acknowledge aids and
encouragement I have received in connection with my work in
Leiden and London.

I take this opportunity to express my gratitude to the Govern­
ment of H. M., the Queen of the Netherlands for making the
necessary amendments to the University-regulations enabling me
to take the doctor's degree at the University of Leiden. To the
Faculty of Letters and Philosophy I am grateful for their recognition

of my qualifications and their recommendation based thereon. In this connection I am sincerely thankful to Prof. Dr. J. Ph. Vogel, Prof. Dr. J. Huizinga, Prof. Dr. C. van Vollenhoven, Prof. Dr. G. Kalff, and other professors of the University who took so lively an interest in the matter of my taking the doctor's degree here. To Prof. Dr. Vogel, as my promoter, I am also grateful for the troubles he has undergone in going through this dissertation. I am further indebted to him as well as to Prof. Dr. C. C. Uhlenbeck, Prof. Dr. J. Huizinga, Prof. Dr. C. Snouck Hurgronje, Prof. Dr. G. Kalff and Prof. Dr. G. J. Thierry for helping me with advice on many an occasion.

For many friendly services I shall ever remain grateful to Mr. E. L. G. Den Dooren de Jong, iur. cand., and Miss Ch. L. Du Ry van Beest Holle, Assistant to the Zoological Laboratory, who have been very kindly looking after my comfort, convenience, and prosperity in Holland with great zeal and fraternal affection.

In connection with my whole undertaking, my sincere obligations are due to the Secretary of State for India in Council for granting me all facilities and help needed for a pioneer in this most difficult and useful branch of Sanskrit researches. Both to Dr. T. W. Arnold, M. A., Litt. D., C. I. E., and to Mr. N. C. Sen, the well wishing friends and educational advisers to Indian students, I shall ever remain sincerely grateful, not only for their kind recommendation through which I have been getting all pecuniary aids from the India Office in London, but also for their helpful advice and genial sympathy, and still more for their affectionate care and anxiety to make me successful and "happy". I owe to Dr. F. W. Thomas, M. A., Ph. D., the Librarian of the India Office, more obligations than I could ever express. I am indebted to him for all the materials of my work, the much needed consultation, the constant encouragement, the scholarly sympathy, the parental affection, and my success and reward. As a student of the University of London I had the privilege of consulting Dr. L. D. Barnett, M. A., Litt. D. He rendered me a good deal of substantial aid and much needed encouragement for which I am very grateful to him.

To Mr. R. E. Field, the popular warden of 21, Cromwell Road, London, and his estimable wife Mrs. Florence Field I shall ever
remain indebted for very many friendly services in connection with my present work. To the latter I owe the precious motto "never to give up". Miss. E. J. Beck, the Honorary Secretary of the National Indian Association in London, who has been very kindly looking after me with great affection, was the first to read this dissertation in its original form and suggested many improvements. Like many other Indian students, I owe to this talented lady more obligations than I could ever express. And to Miss Dora J. M. Dove, another well wishing friend of Indian students, I am sincerely grateful for her kind help and genial sympathy.

CHAPTER I.

The table of contents (Samgraha).

The first verse is an invocation of Brahmā, the Creator of the universe. In the second verse it is said that the science of architecture (Vāstuśāstra) had come down from Śiva, Brahmā and Vishnu, through Indra, Bṛhaspati, Nārada, and all other sages, to the rishi Mānasāra who systematised it.

After this, the titles of the chapters are given in order. There are only sixty names, although the work actually contains seventy chapters. This discrepancy is apparently due to the loss of some verses (sloka) in this chapter. But all search made for them in all the eleven manuscripts has failed. The colophon of the last chapter (named Nayanonmilana) in all the complete manuscripts gives the number as seventy-one. The manuscript called I, the codex architypus of my text, has made up the number seventy-one, by repeating the chapter, Strimāna-madhya-ma-dasatala; once it is numbered 66 and in the second place 67. The only explanation of this number 71 in the last chapter is to suppose that the compilers of all complete and independent groups of manuscripts were equally careless in numbering the chapters. This supposition is corroborated by the fact that the contents of the work do not show that any chapter is missing.

The last verse of the first chapter states the reason why the book is named Mānasāra and explains the importance and authority of the work. It is called Mānasāra after a sage of that name. And as an authoritative work on arts and complete in all its aspects, it has been accepted by the best among the leading artists.
CHAPTER II.

The system of measurement (Manopakaraṇa-vidhāna).

The first part of this chapter gives a mythical genealogy of the artists. From the four faces of Brahmā, the creator of the universe, originated in order the heavenly architect Viśvakarman, Maya, Tvāṣṭar and Manu. Their four sons are called respectively Sthapati, Sutragrāhin, Vardhaki and Takshaka. These four evidently represent the progenitors of the four classes of terrestrial artists.

The sthapati is highest in rank; he is the master-builder. The sūtragrāhin is the guru of the other two; while the vardhaki is the instructor of the takshaka.

The sthapati must be well versed in all sciences (sastras). He must know the Vedas. He must have the qualifications of a supreme director (āchārya). Sthāpanādhipatir yasmāt tasmāt sthapatīr uchyaṭe.

The sūtragrāhin also should know the Vedas and the Śāstras. He must be an expert draftsman (rekhajña).

The vardhaki, too, should have a general knowledge of the Vedas. But the object of his special study is painting (chitrakarman).

The takshaka must be an expert in his own work, i.e. carpentry.

The second part of this chapter deals with the system of measurement.

The paramāṇu or atom is the lowest measurement.

| 8 paramāṇus  | = 1 rathadhūli (lit. car dust). |
| 8 rathadhūlis| = 1 vālāgra (lit. hair's end). |
| 8 vālāgras   | = 1 likshā (lit. nit).         |
| 8 likshās    | = 1 yūkā (lit. louse).        |
| 8 yūkās      | = 1 yava (lit. barley corn).   |
| 8 yavas       | = 1 aṅgula (lit. finger's breadth). |

Three kinds of aṅgulas are distinguished, the largest of which is made of 8 yavas, the intermediate one of 7 yavas, and the smallest one of 6 yavas.
Directions are given with regard to the use of the four different kinds of cubits (hasta) enumerated above. Conveyances (yana) and couches (sayana) are said to be measured in the cubit of 24 angulas, temples (vimana) in the cubit of 25 angulas, buildings (vastu) in general, in the cubit of 26 angulas, and villages, etc., in the cubit of 27 angulas. The cubit of 24 angulas may, however, also be used in measuring all these objects.

In the final portion of this chapter directions are given for the preparation of the yard-stick (hasta), the rod (daṇḍa), and the measuring rope (rajju). The former two objects should be made of the wood of certain trees, the names of which are enumerated. In the same manner certain fibres are to be used as materials for the rope. The presiding deity of the yard-stick and the rod is Vishnu, that of the measuring rope Vasuki, the king of serpents.

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CHAPETRS III, IV, V.

The classification of vastu (Vastu-prakarana).

Examination of soil (Bhu-parikṣā) and Selection of site (Bhumi-saṅgraha).

The first part of the 3rd chapter defines vastu (dwelling, habitation) and divides it into four classes. The place where men and gods reside is called vastu. This includes ground (dharā), building (harmya), conveyance (yāna), and couch (paryāṅka). Of these, the ground is the principal one, for nothing can be built without ground as a support. The building (harmya) includes
prasāda, maṇḍapa, sabhā, śālā, prapā and āraṅga. The conveyance (yāna) includes āḍika (?) syandana, śibika and ratha. The couches (paryahka) include pañjara, mañchali, mañcha, kakāśṭha (?) phalakāsana and būlaparyahka.

The second part of the 3rd chapter as well as the 4th and 5th chapters deal with the same subject, namely, the site where a village, town, fort, palace, temple or house is to be built. The soil is examined with regard to its shape, colour, odour, features (rupa), taste and touch. The elevation of the ground as well as the luxuriant growth of certain plants, trees and grasses on the ground are also minutely examined.

If a plot of land is found to be satisfactory on all or most of these examinations, it should be selected for a village, town, fort, or house, as the case may be. But even after this selection it would be wise to test the ground by some other ways. A square hole of one cubit deep should be dug on the selected site and be filled with water. After twenty-four hours the chief architect should mark the condition of the water in the hole. If all the water be dried up by this time, the earth must be very bad. But if, on the other hand, there remains some water in the hole, the selected plot of land would be fit for any building purposes.

Another final test is this: a similar hole is dug on the plot and filled up with the earth taken out of it. If this earth fills up the hole exactly, the land is fair; if this earth be not quite enough to fill up the hole, the ground must be very bad, but if this earth overfills the hole, the soil must be very good for any building purposes. The general import of these examinations seems to be this: in the former case, very dry land is avoided, while in the latter case, very loose or sandy land is said to be unfit for the construction of a building.

After this final selection the ground should be ploughed over. The concluding part of the 5th chapter deals with the minute description of the oxen and the plough to be used in ploughing the selected site.
CHAPTER VI.

The gnomon (Śaṅkusthāpana-vidhāna).

The object of this chapter is to lay down rules on the principles of dialing and for ascertaining the cardinal points by means of a gnomon.

The gnomon is made of the wood of certain trees. It may be 24, 18, or 12 aṅgulas in length and the width at the base should be respectively 6, 5, and 4 aṅgulas. It tapers from the bottom towards the top.

For the purpose of ascertaining the cardinal points, a gnomon of 12, 18, or 24 aṅgulas is raised from the centre of a water reservoir (saṅlakṣṭhala) and a circle is described with the bottom of the gnomon as its centre and with a radius twice its length. Two points are marked where the shadow (of the gnomon) after and before noon meets the circumference of the circle. The line joining these two points is the east-west line. From each of these east and west points a circle is drawn with their distance as radius. The two intersecting points, which are called the head and tail of the fish (śīla), are the north and the south points. The intermediate regions are determined in the same way through the fish formed between the points of the determined quarters.

The text is not well preserved; but this seems to be the purport of the first part of the chapter. As regards the principles of dialing, each of the twelve months is divided into three parts of ten days each and the increase and decrease of shadow (avocchhāya) are calculated in these several parts of the different months.

Why the subject of the present chapter is important for architecture is evident from the rules regarding the orientation of buildings. Here it is said that a building should preferably face the east or the north-east, but that it should never be made to face the south-east, as this is considered inauspicious.

1) Cf. Vitruvius Book IX. Chap. VIII, "... the principles of dialing and the increase and decrease of the days in the different months." (translated by Mr. Gwilt).
The chapter closes with a passing reference to the *khāta-sāṅku* which appears to be wooden pegs posted in different parts of the foundations made for constructing buildings thereon.

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**CHAPTER VII.**

**The division of the ground into squares (Padavinyāsa).**

When a site is selected for purposes of constructing a village, town, or house, the ground is divided into squares of various numbers. Thirty-two kinds of such schemes are distinguished by as many different names according to the number of squares into which the whole area is partitioned out.

The whole scheme has been arranged in such a manner that in each case the number of partitions represents the square of the serial number. The eighth plot, for instance, which is called *Chāndita*, comprises a division into sixty-four squares, while by the ninth plot which bears the technical name of *Paramaśādhika*, the ground is divided into eighty-one squares 1).

Each of these eighty-one squares is again assigned to its presiding deity 2). Some deities, however, are lords of more than one square. The lord of the central square is always *Brahmā*. *Charagit*, *Vidaṅkā*, *Pūtanā* and *Rākshasī* are the presiding deities of the four corners on the outside, beginning with the north-east 3). A detailed description of all the squares in each of the thirty-two plans is given in the text.

Then the forty-four deities which have been enumerated in connection with the Paramaśādhika scheme are described in the

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1) *Bṛihatsamhitā* LIII, 42—68. Kern’s *Verspr. Geschr.* vol. II, pp. 17 sqq. Varahamihira describes only two schemes, namely that of eighty-one squares and that of sixty-four squares.


3) Cf. op. cit. LIII, 2—3, 51—54 and 67—78. Kern, vol. II pp. 42—43, 18—19 and 21. In the *Bṛihatsamhitā* the position of the *vastupuruṣa* (which Kern renders by ‘the spirit of the house’) is somewhat different, his head being in the north-east corner of the plot.
form of as many dhyānas. This portion is of some iconographical interest.

Finally the spirit of the site (vāstupurusha), who is described as hump-backed and crooked-shaped, is said to occupy the habi-
tated area (vāstu) in such a manner that his limbs cover the several squares or groups of squares which, as set forth in the former part of the chapter, are assigned to and named after various deities. As he is supposed to lie down with his face turned downward, his head being in the central square on the east side (that of Sūrya) his right and left hand must be in the partitions of Agni (S. E.) and Īsā (N. E.) respectively; his right and left foot in those of Nṛṣīti (S. W.) and Vāyu (N. W.) respectively. The middle part of his body occupies the central portion of the plot which, as we saw, is assigned to Brahmā.

CHAPTER VIII.

The offerings (Balikarma-vidhāna).

Different kinds of offerings (bāli) are prescribed for the various deities, enumerated in the immediately preceding chapter, which are supposed to preside over the different partitions of the Pa-
ramaśadhika (or Manḍūka) ground-plan. These offerings consist of milk in its various forms, butter, rice and sesame; parched grain (lāja); honey and sweetmeat (modaka, offered to Sugrīva); incense and lamps; flowers and fruit. Blood is offered to Āsura, dried meat to Mrīga, dried fish to Roga (Disease), and sea-fish to Bhṛṅgarāja. The four demonesses Rākshasī, Pūtanā, Vidārī and Charagī also receive their share, the first-mentioned evil spirit in the shape of meat of goats mixed with blood.

In the bringing of these offerings the master-builder (sthapati) takes a leading part.
CHAPTER IX.

The village (Grāmalakshāṇa-vidhāna).

According to the Mānasāra, there is not much difference between a village, a town, and a fort. All are fortified places intended for the residence of people. A town is the extension of a village. A “fort” (pura) is in many cases nothing more than a fortified town, only with this difference that a fort is principally meant for purposes of defence, while a village or a town is mainly intended for habitation.

The description in detail of the plan of villages, towns, and forts and the arrangement of the various buildings which they contain is given in the text.

A few observations on the plan in general as well as on some important points as to the internal arrangement will be made here.

According to the shape the villages are divided into these eight classes, called daṇḍaka, sarvabhadra, nandyāvarta, padmaka, svastika, prastara, kārmuka and chaturmukha.

Each village is surrounded by a wall made of brick or stone. Beyond this wall there is a ditch broad and deep enough to cause serious obstruction in the event of an attack on the village. There are generally four main gates at the middle of the four sides and as many at the four corners. Inside the wall there is a large street running all round the village. Besides, there are two other large streets, each of which connects two opposite main gates. They intersect each other at the centre of the village, where a temple or a hall is generally built for the meeting of the villagers. The village is thus divided into four main blocks, each of which is again subdivided into many blocks by streets, which are always straight, and which run from one end to the other of a main block. The two main streets crossing at the centre have houses only on one side facing the street. The ground floor of these houses on the main streets consists of shops. The surrounding street has also houses only on one side. These houses are mainly public buildings, such as schools, colleges, libraries, guest-houses, etc. All other streets generally have residential
buildings on both sides. The houses high or low are always uniform in make. The drains (jaladvara; lit. water passage) are made towards the sloping of the village. Tanks and ponds are dug in all the inhabited parts and located in such quarters as can conveniently be reached by a large number of inhabitants. The temples of public worship as well as the public commons, gardens and parks are similarly located. The people of the same caste or profession are generally housed in the same quarter.

This partition of the quarters among the various sects cannot be said to be quite impartial. The best quarters are generally reserved for the Brahmins and the artist-class. Such partiality to the artists is not met elsewhere in Sanskrit literature. The quarters of the Buddhists and the Jainas are described in a few lines. The habitations of the Chaṇḍālas as well as the places for cremation are located outside the village wall, (in the north-west in particular). The temples of fearful deities such as Chāmuṇḍā are also placed outside the wall.

CHAPTER X.

Towns [and Forts] (Nagara-vidhāna).

As it was observed, a town is a large village. According to the Mānasāra, it appears that the dimensions of the smallest town-unit are 100 × 200 dandas; the largest town-unit is 7,200 × 14,400 dandas. A town may be situated from east to west or from north to south according to the position it occupies. There should be one to twelve large streets in a town. It should be built near a river or a mountain and should have facilities for trade and commerce with the foreigner (dvipantarāvartin). Like a village, it should have walls, ditches and gates, drains, parks, commons, shops, exchanges, temples, guest-houses, colleges, etc. For purposes of military defence, the towns are generally well fortified.

Towns are divided into eight classes; rājadhāni, nagara, pura, nagari, kheṭa, kharvaṭa, kubjaka and pattana. The distinction of these towns is very slight. The general description of towns given above is applicable to all of these.
The details will be found in the text. It may, however, be pointed out here that a city of the last mentioned class called pattana is a big commercial port. It is situated on the banks of the sea or a river, and is always in exchange and commerce with foreigners who deal specially in jewels, silk clothes and perfumes etc., imported from other countries (dvipāntara).

Forts are first divided into eight classes called sībira, vahinimukha, sthāniya, dronaka, saṃviddha or varadhaka, kolaka, niγama and skandhavāra. There is a further division of these forts according to their position. They are known as mountain fort (giridūrga), forest fort (vanadūrga), waterfort (jaladūrga), chariot fort (rathadūrga), gods’ fort (devadūrga), marsh fort (paṇkadūrga) and mixed fort (miśradūrga). ¹

The mountain fort is sub-divided into three classes, as it may be built on the top of the mountain, in the valley, or on the mountain slope.

All these forts are surrounded with strong walls and ditches. The wall is made of brick, stone, and similar materials. It is at least 12 cubits in height and its thickness at the base is at least 6 cubits. The wall is provided with samchāras (galleries?).

CHAPTER XI.

The dimensions of buildings of various stories (Bhūmilamba-vidhāna).

The name of this chapter is “Bhūmilamba” which literally means the height of the story. The Kāmikāgama (paṭala 50, verse 1) defines this name, Bhūmilamba, thus: “Chaturamśādi saṁsthānāṁ bhūmilambamāṁti smṛitam”. This definition does not correspond to the contents which are actually found in the chapter in both the works Mānasāra and Kāmikāgama. The contents imply simply the measurement of length, breadth, and height of buildings of one to twelve stories.

The various shapes of buildings are given in the opening lines

¹) Cf. Manu VII, 69 and MBh. XII, 86, 4.
of the chapter. They may be square, rectangular, round, octagonal or oval. Buildings of all kinds, such as the vimāna or temple, the harmya or palace, the gopura, śāla, maṇḍapa, or veśman (residential house generally), should have either of these five shapes.

Buildings are again divided into four classes — jāti, chhanda, vikalpa or samkalpa, and ābhāsa — which are frequently referred to in the subsequent chapters. But the criterion of this classification is not quite clear. These four classes seem to have different characteristics in different cases.

The proportion between height and width is expressed by five technical names — śāntika, paushtika, pārshṇika (sometimes called jayada), adbhuta, and sarvakāmika. When the height of a building or idol is $2^{1/4}$ of its width, it is called śāntika; the paushtika height is twice the width; the pārshṇika or jayada height is $1^{3/4}$ of the width; the adbhuta height is $1^{1/2}$ of the width, and the sarvakāmika height is $1^{1/4}$ of the width. This proportion of height and width is not, however, strictly followed all through. There is a slight variation in some cases. But the proportions given above are the most common. The measurement of length, breadth and height is invariably divided into three types: largest, intermediate, and smallest. The śāntika and the paushtika heights are prescribed for the largest type of measurement, the pārshṇika or jayada for the intermediate type, and the adbhuta and the sarvakāmika for the smallest type.

Five series of length and five series of breadth are prescribed here for each of the classes of buildings of one to twelve stories. But in some subsequent chapters, as many as nine alternatives of length or breadth are prescribed for one and the same building. A modification of these alternative measurements is discussed under the āyādīshādvarga which will be dealt with later.

The five series of breadth in the smallest type of one-storied buildings are 2, 4, 6, 8, and 10 cubits, and the five series of length are 3, 5, 7, 9, and 11 cubits.

In the intermediate type, the five series of breadth are 5, 7, 9, 11 and 13 cubits, and the five series of length 6, 8, 10, 12 and 14 cubits. In the largest type, the five series of breadth are 6, 8, 10, 12, and 14 cubits and the five lengths are 7, 9, 11, 13, and 15 cubits.
All the classes of buildings of one to twelve stories are in this way measured separately. The dimensions of the twelve-storied building in its three types are given briefly 1).

In the smallest type, 35, 37, 39, 41, 43 (?44), in the intermediate type, 36, 38, 40, 42, 44, (?45), and in the largest type, 37, 39, 41, 43, 45 cubits. These are the fifteen kinds of Vipula (?width) and the height should be as before.

These are the measurements in the jāti class of buildings. Three-fourths, half and one-fourth of these are prescribed for the chhanda, the vikalpa, and the ābhāsa classes respectively.

The concluding part of this chapter prescribes the number of stories allowed in edifices according to the social status of their occupants. In the first instance reference is made to the various classes of kings 2), amongst whom the one highest in rank, namely the chakravartin or universal monarch, is said to inhabit a palace of five to twelve stories. The residence of the heir-apparent (yuvarāja) as well as those belonging to the chief feudatories (sāmanta-pramukhya) should have one to three stories.

CHAPTER XII.

The foundation (Garbhanyūsa-vidhāna).

The foundation is classed under three heads — for buildings, for villages, etc., and for tanks, etc.

The last named foundation which is meant for a cistern, well, or tank (vāpi-kūpa-tālāka), is said to be as high as the joint palms of a man (naraṅjali).

The depth of the foundation-cave (garbhabhājana) in case of

1) The description of these dimensions is much clearer in the Kānikāgama (pātala 50). According to this work, the width of a twelve-storied building is 70 cubits and the height 100 cubits. It expressly states (śloka 33) that it is never desirable that buildings should be larger than 77 cubits in height and 70 cubits in width.

2) Cf. below, chapter XLI. In the present passage only six out of the nine classes are mentioned, the mandaleśa, paṭṭadhara and pārshṇika having been omitted.
a village, a town or a fort (ग्राम, नगर, पुरा, पत्तन, खर्चवात, कोश्त, कोला, etc.) is of five kinds, 5, 7, 9, 11, 13 आंगुलास, and in the case of a building it is equal to a man's palm.

The foundation of buildings is further divided into two classes — as it may belong to temples and to human dwellings. Of temples those of Vishnu and Brahma are dealt with, and the others are said to be like these.

Of the human dwellings, there are four classes according to the four castes — Brahmin, Kshatriya, Vaisy and Sdra.

In the laying of a foundation ritualistic prescriptions take a prominent part, the actual process apparently being the same in all cases. The details of the process are not quite clear, but the main purport seems to be as follows:

The depth of the foundation-cave is equal to the height of the basement. The four corners (? sides) built of brick or stone are equal. This cave is filled with water and ten kinds of earth, such as, earth taken from an anthill, from a crab-cave, etc., are placed at the bottom.

Portions of certain plants are then deposited on the four sides: the root of the blue lotus (उत्पालकंड) to the east, the root of the white lotus (कावमुदकंडा) to the south, saugandhi (a kind of fragrant grass) to the west, and some other plant, the name of which is lost, to the west. Above these are to be placed grains of ten kinds of cereals, to wit: सली (rice) to the north-east, व्रिक (rice) to the east, कोड्रवा (paspalum scrobiculatum) to the south-east, कांगुर (panicum italicum) to the south, मुधा (phaseolus mungo) to the south-west, माषा (phaseolus radiatus) to the west, कुलाथ्या (dolichos uniflorus) to the north-west and तिला (sesamum indicum) to the north.

The twelve kinds of its breadth and length to suit buildings of one to twelve stories are respectively 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25; and 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26 आंगुलास. And its height should be equal to the breadth or less by 1/8 or 1/9 of the breadth.

In the remaining portion of the chapter which is very obscure an architectural member, called मन्जुष्ठ, figures most prominently.

The concluding lines of this chapter deal with the measurement of brick, with which buildings of one to twelve stories are pre-
ferably built, and also with the ceremonies in connection with laying the foundation-stone, (lit. first brick, prathameshṭaka).

The breadth of a brick may be from 7 to 29 or 30 āṅgulas. The length is greater than the breadth by \( \frac{1}{4}, \frac{1}{3}, \) or \( \frac{3}{4}; \) or is twice the breadth. And the thickness should be half the breadth.

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**CHAPTER XIII.**

**The Pedestal (Uparītha-vidhāna).**

The opening lines of the chapter describe the height of the pedestal as compared with the base. This height is said to be of nine kinds which are worked out by nine proportions. Five of them are those expressed by the technical terms sāntika, paushtika, jayada, adbhuta and sarvakāmika (1/3; 1/4; 1/5; 1/6; and 1/7). The details of the remaining four proportions are not clear, owing to the corruptness of the text. Rām Rāz supposes that the height of the pedestal is to be reckoned from one-quarter to six times the height of the base.

The next topic of this chapter refers to the measurement of the projections (nirgama) of pedestals. The height of the pedestal is divided into 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, or 15 equal parts; of these 1, 2, 3, 4, 5, 6, 7, or 8 are given to the projection. The nine kinds of projection are 1, \( \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 2, \) \( \frac{2}{3}, \frac{2}{3}, \frac{2}{3}, \) and 3 hastas. The projections may be 1, \( \frac{1}{2}, 2, \) \( \frac{2}{3}, \frac{3}{2}, 4, 5, 6, 7, 8, \) or 9 daṇḍas.

After this, the pedestals are divided into three classes known as vedībhadra, pratībhadra and mañcābhadra. Each of these are sub-divided into four types. The measurements of the mouldings of each of these twelve kinds of pedestals is given in detail.

The remaining portion of the chapter contains a lengthy enumeration of the names and measurements of the various mouldings which are to be employed in each of the twelve kinds of pedestal.

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CHAPTER XIV.

The Base (Adhishṭhāna-vidhāna). ¹)

The heights of bases are of twelve kinds beginning with 30 aṅgulas and ending with 4 hastas, the increment being by 6 aṅgulas. These twelve heights are respectively used in twelve different stories one above the other. The heights of bases are said to be 4 hastas in the houses of the Brahmins, 3 hastas in those of the Kshatriyas, 2 hastas in those of the Vaiśyas and 1 hasta in the houses of the Śudras.

Bases are divided into sixteen different types, most of which are again subdivided. Their names are pādabandha, uragabandha, pratikrama, kumudabandha, śrībandha, maṁchabandha, śrenibandha, padmabandha, kumbhabandha (or kalaśabandha), vaprabandha, vajrabandha, ratnabandha, paṭṭabandha, kampabandha, kukshibandha and śrīkānta. Of each of these various types the mouldings and ornaments are described in detail.

CHAPTER XV.

The pillar (Stambha-lakshade-vidhāna) ²).

The opening lines divide the subject matter into five heads,—1st the measurement of pillars, 2nd their shape, 3rd their ornaments and mouldings, 4th the collection of wood for purposes of making pillars which are also made of stone, and, 5th, the ceremonies and process of erecting pillars.

The height of a pillar is measured from above the base to below the uttara, or above the pedestal from the janman to the uttara. The height of a pillar, in other words, is measured from the plinth up to the lowest member of the entablature, so as to include the capital. In an important passage in the Kaśyapa, quoted by Rām Rāz, it is stated that the measurement may

¹) Rām Rāz, Essay p. 28; plates II and III.
²) Ibidem pp. 28—40; plates IV—XVIII.
also be taken from the cimbia of the shaft, exclusive of the base.

The height of a pillar is twice, \(1\frac{1}{2}\) or \(1\frac{3}{4}\) times that of its base(?) or the height of the pillar begins at \(2\frac{1}{2}\) hastas and ends at 8 hastas, the increment being by 6 aṅgulas or \(\frac{1}{4}\) hasta. But according to Kāśyapa, the height of the pillar may be 3 times that of the base; or 6 or 8 times that of the pedestal. The width (diameter) of a pillar may be \(\frac{1}{6}\), \(\frac{1}{7}\), \(\frac{1}{8}\), \(\frac{1}{9}\) or \(\frac{1}{10}\) of its height; \(\frac{1}{3}\), \(\frac{1}{4}\) or \(\frac{1}{6}\) of the height, if it be a pilaster (kudyaṣṭambha). The width of the pilaster, according to the Mānasāra, is \(3, 4, 5\) or \(6\) mātras (aṅgulas), — and twice, thrice, or four times of these should be the width of the kampa. The height of a pillar being divided into 12, 11, 10, 9, or 8 parts, the one of these parts is the breadth of the pillar and at the top it is diminished by one fourth.

The column admits of different shapes. A square pillar is called brahmakānta. An octagonal one is called vishnukānta. A sixteen-sided or circular one is known as rudrakānta. A pentagonal one is called śivakānta, and the hexagonal one skandakānta. These shapes are stated to be uniform from bottom to top. But the base may be quadrangular.

With respects to dimensions and ornaments, the five kinds of columns, — brahmakānta, vishnukānta, rudrakānta, śivakānta, and skandakānta, — are called chitrakarna, padmakānta, chitrakambha, pālīkāstambha, and kumbhastambha. The sixth one, koshṭhastambha, in the latter division, is stated to be two-sided, and is the same as the kudyaṣṭambha or pilaster.

It should be noticed that the former set of five names refers to the shapes of the shafts, whilst the latter set of five names is based on the shapes of the capitals, but in the detailed description (which is given below) both the capital and shaft are included.

Columns, when in rows, must be in a straight line. The general rule is this: “The intercolumnation may be two, three four, or five diameters; it is measured in three ways, 1st from the inner extremity of the base of one pillar to that of another, 2nd, from the centre of the two pillars; and 3rd from the outer extremities of the pillars including the two bases”. “There are no fixed intercolumnations in Hindu architecture.

This has been left to the discretion of artists who are how-
ever required to be particularly careful with regard to beauty and utility. Minor pillars are to be proportionate to the main pillar. A main pillar with one minor pillar (upapāda) is called ekākānta, with two minor pillars dvīkānta, and with three minor pillars trikānta. A main pillar with four minor pillars is brahma- kānta; with five śivakānta; with six skaṇḍakānta, and with eight minor pillars, it is called vishnuṇikānta. The composition of these pillars cannot be expected to be quite clear from the meagre description without ocular observation.

The tedious description of the collection of wood for purposes of pillars might as well be omitted. The details seem to point out that in the time when the Mānasāra was composed wood was frequently used for making columns; stone pillars are also mentioned, but pillars made of brick alone are not particularly dealt with. It is, however, stated that stone, brick, and wood were used for making different parts of a column. The square adhāra or base of a stone pillar should be made of stone, and that of the wooden pillar of wood. But at the end of the next chapter, it is stated that all the parts of a column should be made of stone (silā), wood (dāru), or brick (īśṭa). In the middle of the same chapter, the use of these three materials is elaborately discussed. The pillars etc. are called suddha (pure) when made of one material, miśra (mixed) when made of two materials, and saṅkīrṇa (amalgamated) when made of all the three (or more) materials.

The concluding part of this chapter deals with ceremonies in connection with erecting columns. They are essentially ritualistic. It is directed that the column should be posted (veṣayet) at the side of a maṇḍapa.

CHAPTER XVI.

The entablature (Prastara-vidhāna).

The height of the entablature (prastara), as compared with that of the base (adhisṭhāna), is of six kinds. The height of the former may be equal to that of the latter, or less by \( \frac{1}{4} \), or greater by \( \frac{1}{4}, \frac{1}{2} \) or \( \frac{3}{4} \); or twice, or, in cubit (hasta) measure-
ment, these six kinds of height of the entablature begin from 7 cubits and end by $4\frac{1}{2}$ cubits, the decrement being by $\frac{1}{2}$ cubit. These six kinds of entablatures are respectively used in the houses of the gods, the Brahmans, the kings (or Kshatriyas), the crown-princes (yuvarāja), the Vaiśyas and the Śūdras.

The height of the entablature is said to be $\frac{1}{4}$ or $\frac{3}{4}$ of, or equal to, that of the pillar (pāda) or greater by $\frac{1}{4}$, $\frac{1}{2}$ or $\frac{3}{4}$. Yet another set of six heights is described. The height of the pillar being divided into eight parts, seven, six, five, four, three or two parts may be assigned to that of the entablature.

The greater portion of the chapter is devoted to an enumeration of the various mouldings and their measurements to be used in the different kinds of entablatures.

In this chapter the roof (prachchhadana) of buildings is described. It is stated that a brick-built building may be furnished with a wooden roof, and that the roofs of stone buildings should also be built of stone.

CHAPTER XVII.

The wood-joinery (Saṃdhikarma-vidhāna).

The definition of the name (saṃdhi-karman) of the chapter is given in the opening lines. The joining of pieces of wood for buildings is so called. Several kinds of wood-joining are described in detail. It would be impossible to give here a résumé. But it may be noted that wood was very frequently used in constructing houses of various kinds; some parts of pillars too were made of wood, as has already been pointed out. Doors were mostly made of wood. The same was the case with couches, cars, chairs, etc.

The wood-joining is of various kinds and forms. Pieces of wood are said to be joined in such a way as to make the nandyāvarta, svastika, sarvatobhadra and such other shapes. Some kinds of wood are strictly forbidden to be joined with some others. Fresh timber should under no circumstances be joined with old one.
CHAPTER XVIII.

The vimāna (Vimāna-vidhāna).

The contents of the chapter are divided into the following headings: 1st, the classification of the vimānas of one to twelve stories; 2nd, the three styles of architecture; 3rd, the characteristic features of the stūpikā or pinnacle, the stūpikāla or pinnacle-staff, the lūpa, and the mukhabhadra; and 4th, the ceremonies of posting the stūpikā.

The description begins with the making of the foundation; but this subject has already been dealt with in the 12th chapter.

The classification of the vimānas of one to twelve stories is elaborately described here, the absolute dimensions of them having already been given in the 11th chapter called Bhumilamba-vidhāna. Each of the twelve classes is subdivided into three types, according to their size — largest, intermediate, and smallest. Whilst the width of the smallest type of a one-storied building is 1, 2, 8, 4, 5, or 6 parts, it should be 5, 6, or 7 parts in the intermediate type; and 6, 7, or 8 parts in the largest type. These “parts” appear to be the partitions of the façade bordered by two pilasters (pāda).

The three styles of architecture are called nāgarā, drāvida, and vesara, which are apparently geographical names. The distinguishing feature seems to be the general shape of the sikhara.

In the third place the measurement and mouldings of the pinnacle (stūpi or stūpikā) are given in detail. The height of the stūpi is one cubit (hasta) in the houses of the Śūdras, two cubits in those of the Vaiśyas, two cubits and a half in the houses of the crown-princes (yuvarāja), three cubits in the houses of the kings (kṣatriya), three cubits and a half in the houses of the Brahmins, and four cubits in the houses of the gods (viz. in temples).

Building materials are then discussed. Four of such materials are distinctly mentioned: stone, brick, wood, and iron (laūha).

Buildings are made of one, two, three, or all the four of these materials, but preference is given to one material alone. With regard to materials, buildings are divided into three classes:
śuddha (pure), viz. made of one material alone, miśra (mixed), viz. made of two materials, and saṁkīrṇa, (amalgamated) viz. made of three or more materials.

The term stūpikāla literally means the nail, or pin of the stūpi. Its form is described clearly. It is quadrangular at the base, octagonal at the middle, circular at the top, and tapering gradually from bottom to top. The width at the top is one aṅgula.

Then two more architectural members are described, namely the lupa and the mukhabhadra. The former is described by Rám Ráź ¹ as “a sloping and a projecting member of the entablature, representing a continued pent roof. It is made below the cupola [sikhara], and its ends are placed as it were suspended from the architrave, and reaching the stalk of the lotus below”.

The name mukhabhadra, as pointed out by the same author ²), indicates an ornamental niche which occupies a central position in the façade of the building.

The chapter is concluded with a description of the ceremonies in connection with fixing the stūpikāla.

CHAPTER XIX.

The one-storied building (Ekabhūmi-vidhāna) ³).

The chapter opens with various classifications of buildings. They are first divided into four classes called jāti, chhandha, vikalpa, and ābhāsa. Here they are considered with regard to their measurement. The jāti class is said to be measured in the pūrva-hasta, — the first kind of cubit, i.e. the cubit of 24 aṅgulas. The chhandha is measured in $\frac{3}{4}$ cubit, the vikalpa in $\frac{1}{2}$ of this(?), and the ābhāsa in $\frac{1}{2}$ cubit or span.

A further classification is into sthānaka, āsana and sāyana, which are also called respectively, saṁchita, asaṁchita and apa-saṁchita. This classification also refers to measurement. In the sthānaka class the measurement of the height is considered, in

¹) Rám Ráź, Essay, p. 52, footnote 2.
²) Ibidem, pp. 51 f.
³) Cf. ibidem pp. 49—53; plate XXI.
the āsana the breadth is taken into consideration, and in the śayana the width is measured. It should be noted that these three classes, namely sthānaka, āsana, and śayana, have a further significance with regard to the object of worship. In the sthānaka buildings the idol is in the erect posture, in the āsana buildings, it is in the sitting posture, and in the śayana buildings it is in the recumbent posture.

A third classification refers to the shape. Buildings are classed as male (purusha) when they are equiangular or circular, and as female, when they are rectangular. Male deities are installed in male temples, and female deities in female temples. It is added, however, that the images of the latter may be placed in male temples too.

After this introduction follows the description of the one-storied buildings. The absolute measurement is referred to the chapter called Bhūmilamba (dimensions of stories). The comparative measurement and plan are described at great length. The whole height of the building is divided into a certain number of equal parts which are distributed in a happy proportion amongst the different members, namely, the base, the pillar, the entablature, the neck, the dome and the pinnacle. Similarly the length of the entire temple is divided into a certain number of equal parts which are also distributed among various rooms and halls, namely, the garbhagrīha or shrine, the antarāla or ante-room, and the maṇḍapa or porch. These component chambers of the temple building are described in detail in subsequent chapters, as is also the case with gates (gopura), courts (prākāra) and such architectural members as doors, windows, arches, and so forth. In the present chapter a detailed account is given of the water-spout (nīla) which is meant to be an outlet for the water with which the idol has been washed.

The eight kinds of one-storied buildings are known as jayantika, bhoga, śrīvīśāla, svastibandhana, śrikara, hastiprīthīha, skanḍhāra, and keśara.

The concluding portion of the chapter (as well as of the next eleven chapters) is devoted to an enumeration of the various deities with whose images the doors and walls of the temple should be decorated.
The Buddhist and the Jain temples, dealt with in only two lines, are directed to be similarly built with this difference that in these temples the images of the Buddhist and the Jain gods should be made instead of those of the Brahmins.

CHAPTERS XX—XXX.

Buildings of two to twelve stories. ¹)

The contents of these eleven chapters of the Mānasāra may be conveniently summarized at the same time. They deal respectively with two-storied (dvitāla), three-storied (tritāla), four-storied (chatuśṭāla), five-storied (pāṇḍuṭāla), six-storied (śaṭṭāla), seven-storied (saptatāla), eight-storied (ashtatāla), nine-storied (navatāla), ten-storied (daśatāla), eleven-storied (ekadaśatāla), and twelve-storied (dvādaśatāla) buildings. In each of these chapters we find a classification of the peculiar kind of edifice under discussion followed by an account of certain details, in particular, the location of the divine images, with which the walls are decorated. Thus the buildings of two stories are divided into eight classes which are called śrīkāṇṭa, vijaya, siddha, paushtika, pārśhvika, prabhūtaka, svastika and pushkala. Those of three stories are likewise divided into eight classes called śrīkāṇṭa, āsana, sukhālaya, kesara, kamalāṅga, brahmakāṇṭa, merukāṇṭa and kailāsa.

The same eight-fold division is found in connection with the four-storied buildings; here the names are viṣṇukāṇṭa, iśvara-kāṇṭa, maṇḍakāṇṭa, indrakāṇṭa, chaturmukha, rudrakāṇṭa and vedikāṇṭa. The eight classes of the five-storied buildings are called airavata, bhūtakāṇṭa, viśvakāṇṭa, mūrtikāṇṭa, yamakāṇṭa, gṛihakāṇṭa, yañacakāṇṭa and brahmakāṇṭa. In the case of the buildings of six stories there are no less than thirteen classes, the technical names of which are padmakāṇṭa, kāntāra, sundara, upakāṇṭa, kamala, ratnakāṇṭa, vipulāṅka, jyotishkāṇṭa, savoruha, vipulakriti, svastika, nandyāvarta and ikshukāṇṭa. The seven-storied buildings are divided into eight kinds — puvārīka, śrīkāṇṭa,

¹) Rām Ráz, Essay, pp. 53—57; plates XXII—XXXIV.
śrilbhoga, dhāraṇa, pañjara, āśramāgāra, harmaṇakānta and hima-
kānta. The eight classes of eight-storied building are called bhūkānta, bhūpakaṅtā, svargakānta, mahākānta, janakānta, tapaskānta, satyakānta and devakānta. Those of nine stories are divided into seven kinds — saurakānta, raurava, chaṇḍīta, bhūshaņa, vivīta, suprakānta and viśvakānta, of which the first-mentioned four represent the smallest type of nine-storied buildings, the next two the intermediate type, and the last one the largest type. The ten-storied buildings are divided into six classes which are named — bhūkānta, chandrakānta, bhavanakānta, antariksha-
kānta, meghakānta and abjakānta. Buildings of eleven stories admit of six varieties — sambhukānta, iṣakānta, chakrakānta, yamaṅkānta, vajrakānta and akrakānta. Finally buildings of twelve stories are divided into ten kinds — pāṇchala, drāviḍa, madhakānta, kaliṅga, varāta, keralā, vaṃsaka, magadha, janaka, and sphuṣrjaka. It deserves notice that in this instances the terms by which the classes are designated are for the greater part geographical names.

In chapter XXX we find, moreover, a lengthy account of staircases (sopāna).

CHAPTER XXXI.

The courts (Prakāra-vidhāna).

The chapter begins with the announcement that five kinds of prakāra-1) buildings will be discussed in connection with bali (offerings), parivāra (attendant deities), śobhā (beauty) and rak-
shaṇa (defence).

But the main object of the chapter is evidently to describe the various courts into which the whole compound of the temple is divided. The description of five such courts is given. The first

1) The word prakāra literally means a wall, enclosure, fence, rampart, a surrounding wall elevated on a mound of earth. In the Sāṅkhāyana-śrauta-
sūtra (XVI. 18, 14) it denotes a walled mound supporting a raised platform (prasāda) for spectators. Almost in the same sense it is found in the Mahā-
bhārata and the Manusāṁhitā. The Mānasāra, however, uses it in a slightly different sense, namely, in that of a temple court.
or innermost court is called the antarmanḍala. The second is known as antanihāra and the third as madhyamahāra. The fourth court is technically named prākāra. The fifth and last one is known as the mahāmāryāda or 'the extreme boundary' where gate houses (gopuras) etc. are constructed. As the title of the chapter indicates, the greater part of it describes only the fourth court. Here it may be briefly observed that this prākāra is also divided into the jāti, chhanda, vikalpa, abhāsa, and kāmya classes. Under each class a number of buildings (śāla) is exhaustively described. A further classification (samākṣa etc.) is made with regard to the materials of which the prākāra-buildings are made. These materials are the same as in other cases, namely, stone, brick and timber. 1)

The shrines of the attendant deities (parivāra-vimāna) and the gopuras are very briefly described in conclusion, the next two chapters being entirely devoted to a special treatment of these two kinds of buildings.

CHAPTER XXXII.

The attendant deities (Parivāra-vidhāna).

The temples of these deities are directed to be built round the prākāra. At the eight cardinal points of the innermost or the first court, the temples of a group of eight deities are built. Groups of sixteen and thirty-two deities are located in the second and the third courts respectively. Between the third and the fifth courts is said to be the viniyoga-mañḍapa. After a lengthy description of the location of temples for each of the deities of these three groups, the attendant deities of Vishṇu are described in detail.

With regard to the family of Vishṇu, it may be pointed out that it also includes the same three groups of eight, sixteen and thirty-two deities. The second group relating to Vishṇu includes Buddha too. The well known ten incarnations of Vishṇu, except

1) Cf. above pp. 19 and 20.
the Matsya (fish) and the Kūrma (tortoise) are included in the third group.

The temples of the Bauddhas and the Jainas, it is expressly stated, should be constructed according to the rules of their own śāstras.

It should be noticed that the description of the temples intended for so many deities does not contain any measurements etc. The text is solely occupied with the location of these temples or deities in the compound. But a considerable portion of the chapter is devoted to the description of maṇḍapas for such purposes as bath, bed, assembly, horses, musicians, dancing girls, cows, and so forth.

CHAPTER XXXIII.

The gopura (Gopura-vidhāna) ¹).

Gateways (gopura) are built in front of each of the five courts into which the whole compound of the temple is divided. The gopura belonging to the first court (antarmanḍala) is technically called the dvāra-sobhā or "the beauty of the gate" ²); that belonging to the second court is known as dvāra-sāla or gate-house. The gate-house of the third court is called dvāra-prāśāda, and that of the fourth court (prakara) has the name of dvāra-harmya. The gate-house of the fifth or outermost court (mahāmāryādā) is known as mahāgopura or the great gate-house.

Each of these five classes of gateways admits again of three kinds — the smallest, the intermediate, and the largest. Gatehouses are exhaustively described under these fifteen kinds. They are further divided into ten classes with regard to the number of architectural members designated as śikhara (domes) stūpikā (pinnacle), galakūṭa (neck-peak), and kshudranāśī (vestibule). A gopura is thus technically called śribhoṣa when its śikhā is like a sāla; it has a circular surrounding stūpikā and is furnished

¹) Rám Ráz. Essay, pp. 58—61; plates XXXVI—XLII.
²) This term in Prākrit form (duarasoha) occurs Mṛichhakāṭikā (ed. STENZLER) p. 72, l. 13 in the description of Vasantasena’s palace (Act V).
with a *galakūta*, four *kshudranāsis* and eight *mahānāsis*. The remaining nine classes are called respectively — *śrīvīsāla*, *vishṇukānta*, *indrakānta*, *brahmakānta*, *skandakānta*, *śikhara*, and *saumyakānta*. The names of two of these ten classes are evidently missing.

The fifteen kinds of gate-houses referred to above may have one to sixteen or seventeen stories. But the details of those of one to five stories only are given, others being left to the discretion of the artists and stated to be built in the same way as those described so minutely.

The measurements, both absolute and comparative, of length, breadth, and height of each story belonging to each of the fifteen kinds of gate-houses are described at great length. The ornaments and mouldings of each story are also given in detail. The *garbhagriha* (cella or sanctum) as well as all other rooms together with their different parts, such as pillars, entablatures, walls, roofs, floors, doors, and windows, etc. are exhaustively discussed.

The measurements, etc., of the gate-houses are discussed in comparison with those of the main building also. Then follows a lengthy and partly obscure description of their solid (*ghana*) and hollow (*aghana*) parts. The description of some interior members is also included in this section.

The chapter closes with an interesting description of windows, not only for gate-houses, but also for other sorts of buildings, both religious and residential. The general plan of windows seems to be this: a post or pillar is fixed in the middle to which are attached two perforated screens (*jālaka* and *phalaka*). These admit of various patterns represented by the following names by which they are classed as regard their shape: *nāgabandha*, *valli*, *gavaksha* (cow’s eye), *kuhjaraksha* (elephant’s eye), *svastika*, *sarvatobhadra*, *nandyāvarta*, and *pushpabandha* (band or bunch of flowers). They are decorated with floral and foliated ornament, as well as with decorative devices in imitation of jewels. The measurement of length, breadth, and thickness is entirely left to the discretion of the artist. But it is stated in conclusion that according to some authority the width of the windows for gate-houses varies from 1 1/2 to 5 cubits (*hasta*), the increment being by six *aṅgulas*. 
CHAPTER XXXIV.

The maṇḍapa (Maṇḍapa-vidhāna).

The term maṇḍapa generally means a temple, pavilion, bower, shed or open hall. But the word has been used in three technical senses in this chapter. It is used to imply a house in a village, etc., or built on the bank of a sea, river, tank, or lake; secondly it is used to imply all the detached buildings in a compound which is generally divided into five courts. But in the most general sense, it implies various sorts of rooms in a temple or residential building. The most part of this long chapter is devoted to the description of these rooms.

After an account of the architectural members indicated by the technical terms bhūtī, alinda and prapā, follows the lengthy description of the maṇḍapa. Seven maṇḍapas are said to be built in front of the prāsāda or the main edifice. They are technically called himaja, nishadaja, vijaya, mālyaja, pariyātra, gandhamadāna, and hemakūṭa respectively. The first is said to be used for the purpose of a bath-room, the second for a study (library or school, adhyayana), and so forth. Various parts of these, such as walls, roofs, floors, verandas, court-yards, doors, windows, columns, etc. are described in detail. Besides these seven, various other classes of maṇḍapas are also described exhaustively. Their technical names together with the main purposes for which they are built may be summarized here.

The meruja-maṇḍapa is used as library-room, the vijaya for marriage-ceremonies, the padmaka as "a temple-kitchen", the sīcchā as an ordinary kitchen, the padma for collecting flowers, the bhadra for a waterreservoir, store-house, etc., the śiva for unhusking corn, the veda for an assembly-hall, the kuladhāraṇa for storing perfumes, the sukhāṅga for a guest-house, the dārva for an elephant's stable, and the kauśikā for a horse-stable, the saukhiyaka and others built on the bank of the sea, river, lake, etc. are meant for purposes of pilgrimage, the jayāla and others for summer residence. The plan, ornaments etc. of each of these various classes are described in detail.

The chapter closes with the description of the form of maṇ-
Those of temples and of the houses of the Brahmins should have the jāti shape; the chhanda shape is given to the maṇḍapas of the Kshatriyas, the vikalpa shape to those of the Vaiśyas, and the abhāsa shape to those of the Śūdras. But according to some, these four classes are also said to be based on the form of the bhadra.

The maṇḍapas of two faces are called daṇḍaka, those of three faces svastika, the latter may also have the lāṅgala shape. The maṇḍapas of four faces are known as chaturmukha, those of six faces as maulika, and those of five faces as sarvatoḥadra.

A short description of the maṇḍapas in a village or town is given at the end. Their principal members are said to be the ṭupā, prastara, prachchhādana, sabhā and kūṭa etc. Maṇḍapas are also built on the road side and elsewhere.

All classes of maṇḍapas mentioned above are separately described, as they may belong to a temple or to the houses of the Brahmins, the Kshatriyas, the Vaiśyas and the Śūdras respectively.

CHAPTER XXXV.

The śālā (Śālā-vidhāna).

The distinction between the śālā, the maṇḍapa, and the griha, to each of which a separate chapter is devoted, is not quite clear. The three terms are used more or less in the same sense, to imply houses in general. All of them consist of the same parts and are used for the same purposes. In the compounds gosālā (cow-shed), aśvāsālā (horse stable), pāṭhasālā (college or school), the word śālā indicates a detached building; while in pākaśālā (kitchen) etc., it may imply a hall or room. In the present chapter śālā is used mostly in the sense of both temples and residential buildings for Brahmins, Kshatriyas, Vaiśyas and Śūdras.

Like villages, śālās are first divided into the same six classes, namely, the daṇḍaka, svastika, maulika, chaturmukha, sarvatoḥadra and vardhamāna. Some of these with a certain number of halls are said to be temples, while others varying in the number of rooms are meant for the residence of different castes.
A distinction is made with regard to the number of stories they should be furnished with. The maximum number of stories a śālā has is twelve. The various stories of all these śālās are described in detail. Eleven alternative breadths, eleven lengths and five heights are given to each śālā. It should be observed that the width is the standard measurement in Indian architecture; the length and the height being in most cases determined in comparison with the breadth. The height is described here by the general formula indicated by the five technical names sāntika, paushnīka, jayada, dhanada (in other places sarvakāmika), and adbhuṭa. So many alternatives in measurement are, however, modified by the rules of āyādi-shadvarga as in all other places.

The plan and characteristics of the six classes of śālās, both religious and residential, are described in detail. The various parts, mouldings and ornaments of a śālā are the same as those of an ordinary house. Columns, walls, roofs, floors, domes, doors, windows, staircases, arches, arcades etc., are minutely described.

A special feature of the present chapter is the consideration of weather and climate in building a śālā. Certain months and seasons are strictly forbidden for this purpose. Astrological and ritualistic considerations form another peculiarity of this chapter. Some classes of śālās are said to suit in particular people born under the influence of certain planets and stars.

The chapter closes with the description of the rules of shadvarga as applied to śālās, and with a enumeration of the various parts of a śālā.

CHAPTER XXXVI.

The location and measurement of houses
(Gṛihānāstabhāna-vīnyāsa.)

The main object of the chapter is to describe the arrangement and location of houses in the compound. The breadth of a house is said to be of five kinds, from two or three dandaśas to ten or eleven dandaśas, the increment being by two dandaśas. The length may be equal to twice the breadth. Houses are to be built in
a village, town, port (pattana), khetaka, grove, or hermitage, near a hill or mountain, or on the bank of the river, etc.

In the 34th chapter various sorts of mandapas were stated to be located in different parts of the five courts into which the whole compound of a temple was divided. In the present chapter, houses intended for various purposes are located in different squares in which an inhabited area is divided according to the paramasādhārika scheme described in the 7th chapter called Padavinyāsa 1).

The Brahmasthāna or the central square is stated to be unfit for a residential building. The temple of the family god is generally built in this part. Round this are constructed all other houses — such as the house for the master of the family, for his wife, for the children, servants, for cows, horses, fowls, etc., for kitchen and dining hall etc., for guests, for the library or study, for the daily sacrifices of the upper castes, for amusements and music, for the dancing girls, and for all other domestic purposes. This arrangement of houses is, however, slightly different according to the caste and social position of the family. But the general plan of the houses for a family is the same in all cases.

CHAPTER XXXVII.

The first entry into the house (Grihapraveśa-vidhāna).

The ceremonies in connection with the opening of and first entry into a house are described in detail. The consideration of an auspicious day and moment, and the worship and sacrifice in this connection are still usually observed in India. The masters of the ceremonies are stated to be the sthapati and the sthāpaka. They lead the procession in circumambulating the village and the compound before the ceremonial entry into the house. The head of the family and his consort are usually the chief figures in these affairs. After completing the worship and

1) Cf. above p. 6.
sacrifice, the guardian angel of the house (Griha-Lakshmi) is prayed to confer male offspring, wealth and long life on the master of the house 1). After the solemn entrance into the house has been performed, the householder should feed the Brahmins and present the architects and their followers with rich gifts.

CHAPTER XXXVIII.

The doors (Dvāra-sthāna).

Doors and gates have already been described on various occasions. Two separate chapters are now devoted to the arrangement, location, measurement, and ornaments of doors to be used in all kinds of buildings. Such a special description of the windows has already been noted at the end of the 33rd chapter on gate-houses (gopura).

It is stated in this chapter that four main doors are constructed on the four sides of all kinds of buildings of gods and men. In most cases four smaller doors are also made at the four corners. Many other smaller doors are prescribed at the intervening spaces. Drains (jaladvāra) are made underneath the śālā.

The main doors are always furnished with a flight of steps. In many buildings, the entrance-door is made, not in the centre of the frontage, but on either side of the middle. But in some houses they may be made in the middle of the front wall. In the case of kitchens, in particular, the main doors must be at the middle of the wall.

It is also stated expressly that, where it is inconvenient to make so many smaller doors, as prescribed here, they should be replaced by windows.

The materials with which doors are constructed are mainly timber; but stone is used in some exceptional cases.

1) The mantra to be recited runs: He Lakshmi grihakartrānāḥ putra-paurṇādhanidhiḥ saṃpārṇān kuru chayushyāṁ prārthayāmi namo 'stu te.
CHAPTER XXXIX.

The measurements of doors (Dvāramāṇa-vidhāna).

The common rule is that the height of a door is to be twice its breadth. But various alternative measurements are also given. The height of the larger doors may vary from $1\frac{1}{2}$ cubits (hasta) to 7 cubits, the increment being by 6 aṅgulas. The height of the smaller doors varies from one cubit to three cubits, the increment being by 3 aṅgulas. In the former case we, therefore, have twenty-three, in the latter seventeen varieties of dimension.

These dimensions are prescribed for doors in the jāti class of buildings. But other measurements are given to doors in houses of the chhanda, vikalpa, and the ābhāsa classes. The alternative dimensions are modified by the application of the shādvarga formula.

The door-posts and other parts of the door are then described at great length. Doors are generally two-leafed, but single-leafed doors are also mentioned.

They are profusely decorated with foliated and floral ornament. The images of Gaṇeśa, Sarasvatī and other deities should be carved over the entrance.

CHAPTER XL.

The royal palace (Rājagṛha-vidhāna).

Palaces are divided into nine classes with regard to their size, as they may belong to a king of any of the nine classes enumerated in the next chapter. Each class of palaces, whether of a chakravartin, a mahārāja, a narendra, a maṇḍalesa, etc. admits of nine sizes. For each of the nine main classes it is further laid down, that they should consist of a certain number of halls (sāta). Thus the palace of the chakravartin or universal monarch should have from one to seven halls; that of the adhirāja (or mahārāja) from one to six halls; that of the narendra from one to five halls, and so forth.
Then the location of the various palace buildings is minutely described on the basis of the Paramaśādhika scheme explained in the 7th chapter called Padavinyāsa.

The Brahmapitha is installed in the Brahmasthāna, the square in the centre. The main palace of each of the nine classes of kings is then located in certain of the remaining squares — Indra, Varuṇa, Yama, Pushpadanta, etc. Among the other palace buildings enumerated we mention the residences of the queens the princesses, and the private council-hall.

Other buildings which are necessary adjuncts of the dwelling of an Indian king are the coronation pavilion (abhishkeśadinmanḍapa), the arsenal (āyudhālaya), the storehouse (vastunikshepa-manḍapa), the house for keeping ornaments (bhūshanālaya), the dining-hall (bhojana-manḍapa), the kitchen (pachanālaya), the flower pavilion (pushpamanḍapa), the baths (maṇjanālaya), the bed-chamber (śayanālaya) and several more. These all belong to the inner part (antaśāla) of the palace.

In the outer part (bahiḥśāla) are situated, the residence of the crown prince (yuvarāja), of the family priest (purohita), of the ministers and others, likewise the hall of public audience (āsthānamanḍapa), temples, etc.

Pleasure gardens, flower gardens, groves, tanks, etc., are assigned their proper places. Stables for horses and elephants, cow-sheds, etc., are generally made near the main gate. Other animals which are kept within the royal enclosure are rams, cocks, deer and antelopes, monkeys, tigers and peacocks. Pavilions to witness ram-fights and cock-fights (meshayuddhārthamanḍapa, kukkuṣatayuddhamanḍapa) are specially mentioned. The jail (kara-gāra) is located in a rather out-of-the-way place, such as the Bhṛśa, or the Antariksha part. At the end of the chapter it is stated that for the rest the arrangement is left to the choice of the king and to the discretion of the artists.
CHAPTER XLI, XLII.

Characteristics of kings (Rajalakshana-vidhana).

These two chapters, which bear the same title, deal with the classification of kings, the qualities which are required in a good ruler, and so forth.

Kings are divided, in a descending progression of rank, into nine classes, namely, chakravartin, maharaja (or adhiraja), mahendra, pārshna, pattañdra, manḍaleśa, pattañbhū, prahūraka, and astragrāhina.

The opening and closing lines of the chapter XLI describe the general qualifications of all kings. They should know philosophy and religion and must be learned in all Śastras, and in the political, military, civil and moral laws. They should be haughty (uddhata), gracious (lalita), and generous (udatta) in their behaviour. They should have the direct knowledge of and control over the subordinate kings and ministers. They should themselves be great warriors and wise in all matters. The treasury should always be kept full and they should themselves be religious and of strict morals. They should be the protectors of their subjects. They should possess peace of mind, love of fame, good taste in matters of art, and fondness of music (Gandharva-śāstra).

Then it is stated of each of the nine classes of kings what should be the number of his horses, elephants, soldiers, women, and queens. The astragrāhin, for instance, who is least in rank, is said to possess 500 horses, 500 elephants, an army of 50,000 soldiers, 500 female attendants and one queen (mahishī). The prahūrika, who follows next, has 600 horses, 600 elephants, 100,000 soldiers, 700 beautiful women and two queens. The highest figures are reached in the case of the chakravartin or universal monarch.

Chapter XLI begins with the classification of kings mentioned above. The extent of their kingdoms and some special characteristics of each of the nine kings are then described. The empire of the chakravartin reaches as far as the four oceans (chatuḥsāgara). He is the suzerain of all subordinate kings. He is strict in his judgment of right and wrong, but protects the
people with kindness and mercy. He is famous and the most fortunate of all. The next king (mahārāja or adhirāja) is the lord of seven kingdoms. He has the six principal kingly qualities (guna), the six strengths (bala) and the three powers (śakti).  

He is also versed in politics (niti). He is born either in the Solar or in the Lunar race. The remaining seven classes of kings are similarly described.

A point of great historical interest in this passage is that royalty is no longer the monopoly of the Kshatriyas. A king may belong to any of the four castes — the Brahmins, the Kshatriyas, the Vaisyas, and even the Śūdras. The prāharaka is expressly stated to belong to any of the four castes.

The nine kinds of crowns which pertain to these nine classes of kings are then described. This subject, however, is more elaborately treated in the 49th chapter (Abhisheka-lakṣhaṇa). Next comes the description of the nine kinds of thrones used by the nine classes of kings. Here other royal insignia, particularly the white umbrella (dhavalachhattra) and the chowrie or fly-whisk made of the yak’s tail (chāmara) are also mentioned. Thrones, it will be noticed, are fully dealt with in the 45th chapter (Śīkhasanalakṣhaṇa-vidhāna).

The next point of importance is the rate of royal revenue. The chakravartin takes only one-tenth of the produce as his share. The mahārāja takes one-sixth, the narendra one-fifth, the pārshvaṇa one-quarter, the paṭadhara one-third; the exact proportions of the other kings’ shares are not given. No tax should be illegally imposed. Punishment and fines should be legal and moderate. The temples, as well as the Brahmins, the hermits, and similar people should be supported by the state.

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1) The six ‘qualities’ (guna) of a king are found in Manu VII, 160:

\[ \text{sādhīn cha vigrāhīn chaiva yānam āśanam eva cha /} \\
\text{dvādhiḥḥśvān saṅgāravān cha śadgūṇāṁ chintayet sadā //} \\
\]

“Let him [the king] constantly think of the six measures of royal policy (guna) viz. alliance, war, marching, halting, dividing the army, and seeking protection.” (Bühler, S. B. E. XXV, p. 241). But according to another source the six gunas or qualities of a king are valour, energy, firmness, ability, liberality and majesty. The three royal powers (śakti) are found Anarukosha 2, 8, 1, 19 śaktayas tīrthaḥ prabhāvotsāhanaśrama “the three powers come forth from majesty, energy and good counsel.”
At the end of the chapter it is stated that the description of kings it contains is made on the authority of the Vedas, the Purāṇas and the Śāstras.

CHAPTER XLIII.

Cars and chariots (Rathalakṣaṇa-vidhāna).

Cars and chariots are constructed for the ceremonial and ordinary drives of gods, Brahmans, and kings, as well as for war and other purposes. The wheels and other parts of cars, their shapes, their measurements, and their ornaments and mouldings are described in order.

The chapter begins with a minute description of the wheel, the most important part of the car. It is always circular, and is furnished with a strong tyre of similar shape. All its parts, together with their measurements, are described in detail — the kukshi (nave lit. belly), the aksha (axle), sikhā or danta (axle-hand), chhidra (hole) and the kila (axle-bolt, linch-pin). The particular trees of the timber of which the wheel is to be made are enumerated. On a double support (called adhāra and upadhāra) which rests on the axles, is raised a lofty structure which is provided with niches (bhadra) and lavishly decorated. It may have as many as nine stories, the height of each successive story being smaller than that the one beneath. The exact proportion is not given.

The forms of the cars are next discussed. With regard to their shape, the cars are divided into seven classes, — nabhasvan-bhadraka, prabhaṇjanabhadraka, nivata-bhadraka, pavana-bhadraka, prishada-bhadraka, indraka (or chandraka?) bhadraka and anila-bhadraka. The first of these is square, the second hexagonal; the third should have two bhadras, and the fourth, three bhadras, the fifth and the sixth should have ten bhadras and the last one should have twelve bhadras.

The description of the different shapes of the cars is rather confusing. According to another classification given here the square cars are called nāgaru, the octagonal ones drōvida, the
circular ones vesara, the hexagonal ones andra (andhra?), and the oval ones aśinga (kaliṅga?).

The cars, in accordance with the different purposes referred to above, have various kinds of wheels and other members. Thus a fighting car has three wheels, the car for mock-fighting has four wheels; one for ordinary festivals (nityotsava) five wheels, one for special festivals (mahotsava) may have six, seven, eight, nine or ten wheels. In the same manner the number of vedis (platforms) varies according to the special purpose for which the car is to be used.

Thus it is stated that the chariot of the universal monarch (sārvabhauma) should have one to nine vedikās, that of the mahārāja one to seven vedikās, that of the narendra one to five vedikās, and so forth. The cars of Vishnu and Siva should consist of one to nine vedikās, those of the Buddhist and Jain deities of one to seven vedikās, and in the case of other gods the number should be four, or one to five.

The cars should be decorated with peacocks' feathers, chowries, arches (torana), little bells, bright mirrors, fans and garlands. They should also be carved with the images of various deities, particularly the upper part of the structure, whereas the basement is adorned with representations of lions, elephants and crocodiles (harikarimakararūpiṇī), with foliated ornament and with figures of dancers (nāṭaka), bhūtas and yakshas.

CHAPTER XLIV.

Couches (Saṅkha-vidhāna).

Couches are meant for the use of the deities, the twice-born, and members of other castes. They are said to be of two kinds—the small (balaparyāṅka) and the large (paryāṅka), the one being distinguished from the other by its size alone.

The measurement and various parts of the two kinds of couches are described separately. The width of the balaparyāṅka may vary from 11 to 25 aṅgulas, the increment being by 2 aṅgulas. This makes eight varieties. The paryāṅka proper admits of nine
varieties, as they may be from 21 to 37 aṅgulas in width with increments of 2 aṅgulas.

It may be pointed out that they are generally furnished with four legs, and small wheels are attached to the legs so that they may easily be moved from one place to another. The legs of royal couches should be decorated with lions. The proportion of breadth to length shows that couches are generally rectangular in shape.

Special mention is made of swings suspended from four chains which are said to be used by the gods, the Brahmins, the Kshatriyas, etc.

The material of which couches and seats (āsana) are constructed is the wood of certain timber-trees. For the legs special kinds of timber are recommended.

CHAPTER XLV.

The thrones (Simhāsana-lakṣaṇa-viḍhāna).

The expression simhāsana implies a seat marked with a lion. This lion-seat or throne is made for the use of deities and kings. Royal thrones are divided into four classes. The prathamaśāna is said to be fit for the first (prathama) coronation, the maṅgala throne for the coronation of the same name. The vīra throne for the vīra-coronation and the vijaya throne for the vijaya-coronation. What is evidently meant is that these four thrones are employed for the four successive stages of the coronation of one and the same king.

As for deities, the nityārcharaṇa throne, as the name indicates, is used for daily worship, the nityotsava throne for ordinary festivities; the viśeshārcharaṇa throne for special worship; and the mahotsava throne for great festivals.

Next comes a further division of thrones into ten kinds. The descriptions of the general plan as well as the measurements of the various parts of them are given in detail. They are technically called — padmāsana, padmakeśaṇa, padmabhadrā, śrībhadrā, śrīviśāla, śrībandha, śrimukha, bhadrāsana, padmabandha and
padabandha. Nine kinds of dimensions are given to each of the above mentioned thrones. But the right proportion in each case is to be selected by the application of the rules of shadvarga.

Of the ten kinds, the first, padmāsana, is used as the throne for Śiva or Vishnu, the padmabhādra for the [other] gods and for the chakravartin, the padmabhādra for the adhirāja (i.e. the mahārāja); the śrībhūdra is fit for the adhirāja and the narendra; the śrīvīśāla is fit for the narendra and the pārśvni; the śrībāndha is fit for the pārśvni and the pāṭṭadhara; the śrīmukha for the maṇḍalesa; the bhadrāsana for the pāṭṭabhāj, the padmabhādra for the pārbhākara, and the pādabandha throne is fit for the astragrāhin.¹) It is expressly stated that the lion-shaped legs should not be made for the throne of the last-mentioned class of kings. But in the case of all other kings, the thrones are marked with lions and furnished with six legs. They are generally made facing the east. But the thrones of deities should face the four quarters.

At the end of the chapter the author says that the “thrones of Vishnu, Rudra, Jinaka, Indra, and all the [other] prominent gods and also of the kings have thus been described.” It deserves, however, notice that in the description itself no reference whatever is made to thrones of Buddhist or Jain deities, as the term Jinaka would seem to imply.

CHAPTER XLVI.

The arches (Torana-vidhāna).

The torana²) or arch is stated to be an ornament for the thrones (āsana) of gods and kings. It is supported on dwarf pillars (aṅghri) which rest on the pedestal (pūrṇa) of the image. The ornamental arch admits of various shapes. It may be cir-

¹) On the classification of kings into nine classes cf. above p. 34.

²) It will be noticed that the present chapter deals only with the arch as a decorative device of images, not with the well-known structural torana of ancient Buddhist architecture. Cf. James Fergusson, History of Indian and Eastern architecture, revised and edited by James Burgess and R. Phene Spiers, London 1910. Vol. I, pp. 162—124.
cular, triangular (?), crescent-shaped, bow-shaped or of an arbitrary form. The directions for making these arches as well as the measurements of their constituent parts are given in detail. With regard to their ornamentations, arches are divided into four kinds technically called *patra-torana* (foliated arch), *pushpa-torana* (floral arch), *ratna-torana* (jeweled arch), and *chitra-torana* (ornamental arch).

The various ornaments of arches are then described in detail. The top of the *torana* should be decorated with the figures of the heavenly musicians Tumburu and Nārāyaṇa, while *makaras* 1) are placed at the sides. The arch is supported by leoglyphs (*vyāli*) which are found on both sides of the pillars. For the rest, the *patra-torana* as the name indicates, is mainly adorned with foliated ornament, the *pushpa-torana* with flowers, and the *ratna-torana* with jewels. Among the other decorative devices mentioned we find the effigies of different classes of semi-divine beings, such as *yakṣas*, *vidyādharas*, *kinnaras* and *kinnaras*. 2) At the end of the chapter it is said that arches may also be made without any ornament (*chitra-hīna*).

**CHAPTER XLVII.**

The *madhyaraṅga* (*Madhyaraṅga-vidhāna*).

The present chapter deals with an architectural member called *madhyaraṅga*, the exact meaning of which is not clear. In the first verse we meet with the expression *muktaprapāṅga* which appears to be used in the same sense as *madhyaraṅga*. It is provided with dwarf pillars or pilasters (*āṅghripāda*), consists of various other members (*masūraka*, *vedi*, *mañcha*, *kuṭṭima*, *upapiṭha* etc.) and should be decorated with *uttaras*,

2) The *kinnara* (Fem. *kinnari*) is a hybrid creature with human bust, while the lower part of the body is that of a bird. Cf. Grünwedel. Buddhist art in India, revised by James Burgess, pp. 46 sqq.
vājanas, mushtiśvanīhas and lupās. It should be furnished with four bhadrās (or with one bhadra) and with eight or sixteen kshudranāsīs. The upper portion is adorned with figures of leo­
gryphs (vyāli) and crocodiles (makara). From the last but one verse of the chapter (which is composed in the vasantatilaka metre) it is evident that there must be a close connection be­
tween the muktaprapāṅga, on the one hand, and the simhāsana, the makaratorāṇa, and the kalpavīṅka, on the other hand, the latter three subjects being discussed in the two immediately preceding and the next chapters. The verse in question runs as follows:

\[
\begin{align*}
\text{simhāsanam makaratorāṇakalpavīṅka} & \\
muktaprapāṅgam api dārusileśtakādyaiḥ & \\
ratnair anekabahulohaviśeshakāśca & \\
kuryān manoharatara chāpvasolabhaḥkāya
\end{align*}
\]

From this verse, (the fourth pada of which is corrupt) it will be seen that the materials to be used for the muktaprapāṅga etc. are wood, stone, brick (terra-cotta?) and various kinds of metal (loha, lit., iron).

CHAPTER XLVIII.

The ornamental tree (Kalpavīṅka-vidhāna).

The name of the chapter is Kalpavīṅka, which literally means a mythical tree granting all wishes or, in other words, an all-productive tree. But here it is undoubtedly a decorative device surmounting a seat (āsana) or throne. It is also found in connection with the muktaprapāṅga, the maṇḍapa, and the makaratorāṇa.

The minute description and measurement of all the various parts of the tree are given. Its trunk (pāda) is wound with a serpent, with expanded five-fold hood. The measurements of the snake, of its hood, and of its tail are described in detail. The number of branches as well as their size varies according to the special purpose of the throne, for the decoration of which the

1) Cf. above p. 20.
tree is meant. The tree is beautifully decorated with creepers, leaves, and flowers of various colours and forms. Jewels and garlands of pearls are inserted in suitable places. The figures of deities, siddhas, vidyādhāras, monkeys, etc. are placed in the intervals between the branches.

Many other particulars regarding this ornamental tree are left to the discretion of the artist.

CHAPTER XLIX.

The crowns and coronation (Abhishekakalaksana-vidhāna).

The chapter is divided into two parts: the first part describes the crowns of gods and kings, and the second deals with the ceremonies of the coronation of kings.

It opens very unusually with the description of the lavish presents to be made to the artists. These gifts consist, among other things, of girls, wealth, land, houses, and servants, both male and female.

After this introduction there follows an enumeration of the various head-dresses used by gods and kings, namely, jaṭā, mauli, kiriṭa, karandha, śrīstraṇa, kunḍala (kuntala?), keśabandha, dharmillā, alaka, chūḍā, makuṭa, and paṭṭa (turban).

Of these the last-mentioned is subdivided into three kinds called foliated, jeweled and floral turbans (patra-paṭṭa, ratna-paṭṭa, and pushpa-paṭṭa).

The jaṭā (matted hair) and the makuṭa (lit. diadem) are said to suit Brahmā and Śiva. The kiriṭa and makuṭa are suited to Nārāyaṇa (i. e. Vishṇu).

Other minor gods wear the karandha and makuṭa. The love-goddess Rati (Manonmani) wears a jaṭā, mauli, maṇḍala or kunḍala. Sarasvati and Śāvitri put on a keśabandha and a kunḍala. All the female deities may wear a karandha or makuṭa. Among the kings 2), the chakravartin (sārvabhauma) and the adhirāja wear the kiriṭa. The narendra puts on a karandha, the pārśvanāka

2) On the nine classes of kings cf. above p. 33.
a śīrastraka. But the chakravartin and other kings may wear a karaṇḍa or makuṭa. The pataṇḍa-pattā is suited to the pataṇḍadhara, the raṭna-pattā to the pārṣṇika, the pūṣpa-pattā to the pāṭṭabhāj, and the pūṣpamālya (flower wreath) to the pṛāhāraka and the astra-grāha 1).

The kuṇḍala (? kuntala) and makuṭa are prescribed for the queen of a chakravartin; the keśabandhana for the queens of an adhirāja and a nareṇdra, the dhammilla and kumuda for queens of a pārṣṇika, a pāṭṭadhara, a maṇḍaleśa or a pāṭṭabhāj, and the alaka and chūḍā for the queens of a pṛāhāraka or astra-grāha.

The height of a crown varies with the importance of the divine or royal bearers, as is set forth at considerable length. Next is described in detail the number of gold pieces and precious jewels in the crowns worn by the kings of various ranks and by their consorts. The forms of these crowns are then described.

The second part of the chapter deals with the royal coronation (abhisheka). In the coronation ceremonies of the chakravartin and other kings four stages are prescribed which are called prathama (here called prāpta), maṅgala, viṣa, and viṣaya 2). But they are not clearly distinguished. In this matter, too, the artists take a leading part. The sthāpati, the sthāpaka and the Brahmin priest perform the ankurāraṇa and all other ceremonies ending with the adhivasana. Afterwards the king is anointed with various auspicious substances. This is the coronation or abhisheka proper. The king is then adorned with the royal robes, the sacred thread, and various ornaments, and led to the coronation hall (abhisheka-mañḍapā) which is furnished with the maṇḍapa, the royal thrones, the wishing-tree (kalpavṛkṣa), the ornamental arch (torana), and other emblems of empire 3). The king and the queen take place side by side on their thrones, the latter being on the

1) Elsewhere these two are called praḥāraka and astra-grāhin.
2) Cf. above p. 38.
3) Cf. Hultsch, South Indian Inscriptions, vol. I p. 54, ll. 23—25, where in an Eastern Chalukya grant the maṅgarorunṇa is mentioned among the royal insignia. Professor Hultsch quotes Sanderson's Canarese Dictionary, where the word is explained as 'an honorary wreath or string of flowers, etc., raised upon poles and carried in front of one, as an emblem of distinction'.
left side of the king. The crown is held by the leading priests (purolita-purogāḥ); but it is actually placed on the king’s head by the sthapati and the two sthāpakas on an auspicious moment among the pronoouncement of svasti and other auspicious sounds. After this the king is garlanded, anointed and besprinkled with various substances of good augury. Afterwards the king mounts an elephant and circumambulates the city among proclamations of felicity. On the occasion of the entry into the palace, a curious ceremony takes place in order to determine the success awaiting the new king, as well as the future prosperity of the kingdom. Various auspicious and inauspicious things are arranged in a hall in the palace. The king is led there blind-folded and has to pick up anything he chooses. The thing thus picked up by the blind-folded king points to the prosperity of the people, victory of the king, or the opposite.

“If the rice porridge or rice be touched [by him], there will be an increase of rice. If the heap of corn is touched by the [royal] hand, there will be plenty of food (subhiksha). If gold and other precious metals be touched, it indicates that the subjects will prosper. If the sword or other weapons be touched, it bespeaks the king’s prowess. It would be unfortunate for the whole kingdom, if any in auspicious things be touched by the king.”

The chapter closes with the recapitulation of the four forms of coronation, the directions as to the conduct of the ceremonial regal procession, and a reference to the authorities (Vedas and Purāṇas), by which the coronation ceremonies are prescribed.

CHAPTER L.

The ornaments (Bhūshāṇalakṣaṇa-vidhāna).

In the first verse it is announced that the chapter is devoted to the description of the ornaments of gods and kings. But in reality only the first part of the chapter deals with ornaments proper, whereas the remaining portion deals with certain miscellaneous articles, such as lamp-posts, fans, mirrors, swings,
and so forth, which we should hardly reckon to belong to the same category.

The Mānasāra calls the former ‘ornaments of the body’ (aṅga-bhūshaṇa) and the latter ‘external ornaments’ (bahir-bhūshaṇa).

Ornaments proper are here divided into four classes, namely, patra-kalpa, chitra-kalpa, ratna-kalpa, and miśrita. All these are suited to the deities. The emperor or universal monarch (chakravartin, sārvabhauma) can put on all these four kinds of ornaments, except the patra-kalpa. The adhīrāja and narendra can wear both the ratna-kalpa and the miśrita kinds. The miśra-kalpa is prescribed for all other kings.

The patra-kalpa ornaments are so called, because they show foliated decoration. The chitra-kalpa kind consists of floral and foliated designs, precious stones, and nāṭaka (?). The ratna-kalpa variety is made of flowers and jewels. And the miśra-kalpa decoration consists of leaves, jewels, in short, the mixture of all others. These four kinds, it should be observed, are specially made for the images of gods and kings only.

The following is a list of the personal ornaments mentioned in the course of the chapter:

kīrīṭa a diadem, a crown.
śīrovibhūshaṇa a head-ornament.
chūḍāmaṇi a crest-jewel.
kundaṇa an ear-ring.
tāṇaṅka (or tāṇaṅka) a kind of ear-ornament.
maṅkarabhūshaṇa an ear-pendent decorated with makaras (or maṅkarāṅkita-kundaṇa).
kaṅkaṇa a bracelet.
keyūra, kaṭaka a bracelet worn on the upper arm.
vaḷāya a bracelet worn round the upper arm (?bāhunūle) or on the fore-arm (prakoshṭha).
mayṣbandhakālāpa 1) a jeweled ornament worn on the fore-arm.
kiṅkiniwalaya a bracelet (or anklet) decorated with little bells.
aṅguliyaṇa a finger-ring.
ratnaṅguliyaṇa a jeweled finger-ring.

1) Cf. mukta-kalāpa (Kumāra-sambhava I, 43).
hāra 1)  
ardhahāra  }  a string of pearls worn round the neck.

māla  a garland or necklace hanging down from both shoulders.

vanamāla  a garland of wild flowers (?)

nakshatramāla 2)  a necklace of 27 pearls.

dāman  a garland or string worn under the armpits.

stanasūtra  }  a cord or chain worn round the breasts.

suvarṇaṣūtra  }  a cord or chain worn round the chest (?)

udarabandha  a girdle worn round the waist.

kaṭisūtra  a cord or chain worn round the loins.

mekhala  a girdle, a belt.

suvarṇa-kāṅchuka  a golden cuirass (or bodice?)

nūpura, valaya  an anklet.

pādajāla-bhūṣaṇa  a net-like ornament worn on the feet 3).

The following articles, which are reckoned to belong to the
‘external’ ornaments (bahirbhūṣaṇa), are described in great detail:

1) the dipa-danda (lamp-post); 2) the vyajana (fan); 3) the
darpaṇa (mirror); 4) the maṅjūsha (basket, chest, box); 5) the
dolā (swing, or palanquin); 6) the tulā (balance) of kings; and
7) the pañjara (cage), niḍa (nest), for domestic animals and birds.

The lamp-posts (dipa-danda) 4) are of two kinds, the stationary,
placed in front of the house, and the movable. The former kind
of posts are made of wood, iron, or stone; the latter of wood
or iron. They may be square, octagonal, or circular in shape.
The vedikā (platform) or the pedestal at the bottom of these is

1) According to Brihatsamhitā LXXXII, 32 a chain of 108 strings is styled
a hāra and a chain of 64 strings an ardha-hāra. Kern’s Verspr. Geschr.

2) A nakshatramāla (lit. a star-cluster) consists of 27 pearls in accordance
with the number of nakshatras or lunar mansions. Cf. Brihats. LXXXII, 34.

3) A few more terms of uncertain meaning are mentioned, namely: viśe-
shīka (= tilaka ?), bālapāṭha, chūlikā, pūrīma, kēsakūṭaka, and mallikā.

4) In literature we find the evidently synonymous expression dipavriksha
(lit. lamp tree). Mahābh. XII, 7204; XIV, 1737. Rām. (ed. Gorresio) II, 5, 18;
Buddhacharita (ed. Cole). V, 44. Monumental lamp pillars of stone, now-
a-days designated by the name of dip-dān, are found especially in the South
of India. Cf. Fergusson, History of Indian and Eastern architecture. Revised
generally shaped like a lotus. The lamp-posts generally taper from the bottom upwards. Various other parts and also the mouldings of lamp-posts are described in detail. The measurements are also given.

The fan-post (vyañjana-daṇḍa) as well as the fan itself is described in a like manner. These posts are made of timber or iron; but the fans appear to be made of leather. The description on the whole, however, does not convey a very clear idea of the appearance of the objects in question.

Nine alternative measurements are prescribed for the mirror, namely, from 5 (or 6) aṅgulas up to 21 (or 22) aṅgulas. Mirrors should be quite circular (swriṭṭa) with the edge a little raised. The surface must be perfectly bright, the rim being decorated with linear ornament (rekhā) and the reverse with the figures of Lakshmi and others. The description of the various parts is given in detail.

Three kinds of mañjūshas are described in detail. They are made of either timber or iron and shaped square, rectangular or circular. They generally consist of one, two, or three compartments or chambers (koshṭha). The paṇa-mañjūsha looks like a box or trunk. The taila (oil)-mañjūsha is apparently a receptacle of oil. It does not differ from the other, except in its greater height. The third kind is called vastra-mañjūsha and is easily identified with a wardrobe or linen-chest. Its breadth is said to vary from one to three cubits, the height and length being proportionate to the breadth.

The word dolā means both a swing and a palanquin. But as the description opens with the statement that the height of the post or pillar (pāda) varies from three to eight cubits, there can be little doubt that the passage refers to a swing, although the exact meaning of the other technical terms (bhitti, vājana, valaya, vārana, nirgala) connected with it is by no means clear. We may assume that the phalaka which is repeatedly mentioned in this connection must be the swing-board. The swing is said to be used by gods and men.

The balance 1) consists of the horizontal balancing rod or beam,
the strings by which the scale pans are suspended, and the scale pans themselves. The two pans are made of iron, the rod of timber or iron, and the jihvā (lit. tongue) and the torana (lit. arch) are always made of iron. The various parts of the balance are described minutely together with their measurements.

A large portion of the chapter is devoted to the description of cages (pañjara). A number of birds and other animals are enumerated, and the size of the cage in which they are kept is given, the measurements admitting in each instance of nine different varieties. The following is a complete list: —

<table>
<thead>
<tr>
<th>Size of cage</th>
<th>Increment</th>
</tr>
</thead>
<tbody>
<tr>
<td>mriganābhi-bidāla (musk cat?)</td>
<td>1—2 hastas 3 aṅgulas</td>
</tr>
<tr>
<td>sūka (parrot)</td>
<td>9—23 aṅgulas</td>
</tr>
<tr>
<td>chātaka (cuculus melanoleucus)</td>
<td>7—23</td>
</tr>
<tr>
<td>chakora (perdix rufa)</td>
<td>7—23</td>
</tr>
<tr>
<td>marāla (kind of goose or duck)</td>
<td>7—23</td>
</tr>
<tr>
<td>pārāvatā (turtle dove)</td>
<td>7—23</td>
</tr>
<tr>
<td>nilakantha (peacock?)</td>
<td>25—73</td>
</tr>
<tr>
<td>kuñjariya (?)</td>
<td>5—21</td>
</tr>
<tr>
<td>khairjarita (?)</td>
<td>7—23</td>
</tr>
<tr>
<td>kukkula (cock)</td>
<td>15—31</td>
</tr>
<tr>
<td>kulāla (phasianus gallus)</td>
<td>15—31</td>
</tr>
<tr>
<td>nakula (mongoose, viverra)</td>
<td>11—27</td>
</tr>
<tr>
<td>ichneumon</td>
<td>9—25</td>
</tr>
<tr>
<td>tittiri (partridge)</td>
<td>1½—3½ hastas</td>
</tr>
<tr>
<td>godhāra (?)</td>
<td>2</td>
</tr>
<tr>
<td>vyāghra (tiger)</td>
<td>2</td>
</tr>
</tbody>
</table>

Kings in performing the curious ceremony of having themselves weighed against their own weight in gold and precious stones which were afterwards distributed among the Brahmins. This ceremony, known as tulāpurushadāna was performed on certain special occasions such as their coronation, or on the day of a solar or lunar eclipse, or on New Year's day. Cf A. H. Longhurst, The tulāpurusha-dāna monument at Hampi: Annual Report Archaeological Survey of India for 1912—13, pp. 142 sqq., plate LXXXIV. 2) Evidently there is here a mistake in the figures, which would yield only eight varieties of size. 3) It is not clear what animal is indicated by the word godhāra.
CHAPTER LI.

The triad (Trimūrti-lakshaya-vidhāna).  

The Indian Triad, to which the title of the chapter refers, consists of the three great gods Brahmā, Vishnu and Śiva. The chapter may be divided into two parts. The first part deals with the materials (dravya) of which the idols of these three deities as well as all other images are made. The second part describes the external features of the Triad.

The materials for making idols are nine, namely, gold, silver, copper (tamra), stone, wood, sudhā (stucco; also mortar and plaster), sarkarā (lit. gravel or grit), abhāsa (marble?) and earth (terra-cotta). All the materials enumerated are well known except abhāsa, of which a special description is given.

Abhāsa is subdivided into three kinds, called chitra, arāha-chitra, and abhāsa proper. If it is perfectly transparent (sārvāṅga-drīṣṭyamāna, lit., which can completely be seen through) it is called chitra; if only half transparent, it is known as arāha-chitra; and in case it is partially (lit. one fourth) transparent, it is called abhāsa proper. This description, however, does not help us to identify abhāsa with any certainty. It may have some affinity to crystal, but the latter has been referred to elsewhere by its own common name, sphatika. The ordinary meaning of the word abhāsa is splendour, light, transparency. It implies undoubtedly a transparent substance. I am inclined to think that it may refer to some particular and more or less transparent variety of marble (alabaster?) of which various other kinds, such as white, black, red, yellow, etc., are described in the next chapter in connection with the materials of which the pīṭha or yoni part of the phallus (liṅga) of Śiva is made.

The second part begins with the different classes of images. An idol may be stationary (sthāvara) or movable (jaṅgama); erect, sitting or recumbent. The movable images are used especially on the occasion of festivals. The three or four poses (bhānga),

called *ābhānga*, *samābhānga*, *atibhānga*, and *tribhānga*, are discussed more fully at the end of chapter LXVII.

The remaining portion of the chapter is devoted to a minute description of the images of Brahmana, Vishnu and Siva, the three gods constituting the *Trimūrti*.

Brahmā should have four arms and four faces. He should wear a diadem and the matted hair of an ascetic (*jaṭa-mukutatmanāḍita*). Two of his hands should be in the gift-bestowing (*vārada*) and refuge-granting (*abhaya*) attitude. The four attributes held in his hands are the water-pot (*kunḍika*), the rosary (*akṣamasalā*), and the large and small sacrificial ladles (*srūka-sruva*). The various ornaments with which his body is to be adorned are described in great detail. As to his clothes, he is said to wear a strip of bark (*chīra*) and an upper garment (*uttarīya*). His whole body should be of golden colour. Brahmā is accompanied by his two Saktis (female energies), the goddesses Sarasvatī and Sāvitri, standing to his right and left respectively.

Vishnu is also four-armed (*chaturbhūja*), but has one head. His head-gear is the diadem called *kīrṇa*. He wears a yellow garment, while the colour of his body is dark blue (*śyāma*). His chest is adorned with the symbol called *śrīvalsa*. Two of his hands are in the gift-bestowing and refuge-granting attitude. His attributes are the lotus-flower, the mace (*gada*), the discus (*chakra*), and the conch-shell called *Pañcachajanya*. Among the numerous ornaments which bedeck his limbs, special mention is made of the graceful garland of wild flowers (*vanamāla*) which hangs down by both his legs. At the back of his head there is an ornamental nimbus (*śivaśākra*, lit. a head-disc). Vishnu is likewise attended by two goddesses (*śakti*), apparently Lakshmi and Bhū-devī (the Earth-goddess) ¹).

Siva, the third member of the Triad, is four-armed and is, moreover, distinguished by a third eye which is placed in the middle of his fore-head. Like Brahmā, he wears the matted hair of the ascetic. The figure of Gāṅgā (the personified river) as well as the crescent are inserted in his head-dress, the latter on the left side. On the left side of his neck there is the mark of the

deadly poison kālakūṭa. His dress consists of a tiger-skin reaching down to the knees, and a waist-cloth. His complexion is said to be red 1). Two of his hands are in the attitudes of granting a boon (vara) and of conferring security (abhaya). In the remaining two hands he holds an antelope (harīna) and a tabor or hand-drum 2). Śiva is accompanied by the goddess Parvati, who is standing or seated on his left hand.

Images of the three members of the Triad are said to be measured in the largest type of the dasatāla measurement and those of their consorts in the middle type. The particulars of these two types of measurement are not discussed here, but reserved for an elaborate treatment in two separate chapters.

The pedestals are also dealt with in a separate chapter. Here it is very briefly stated that the pedestals of the Triad should be of the padma-pīṭha or the maha-pīṭha kind, and be furnished with a prapā, a toraṇa (ornamental arch), and a kalpavriksha (ornamental tree).

The chapter closes with a statement that the particulars, not mentioned here, with regard to the making of these idols, should be supplied according to the rules of the Śāstras.

CHAPTER LII.

The phallus (Līṅga-vidhāna) 3).

Various classifications of phalli are given. They are classified firstly into six heads — śaiva, pūṣupata, kālāmukha, mahāvṛata, vāma, and bhairava; secondly into four — samakarnā, vardhamaṇā, śivāṅka and svastika, fit to be worshipped by Brahmins,

1) Elsewhere the complexion of Śiva is stated to be white.
2) The name of the second attribute which occurs also in the iconographical portion of the 7th chapter, appears to be dhakka. But this word usually indicates a large kettle-drum, whereas the tabor which is one of Śiva’s emblems is called damaru. Or are we to read taṅka?
3) The phallus worship is very popular in India: this is unmistakably proved by the fact that the number of līṅgas or phalli in India is estimated at thirty millions, of which the best known are Viśveśvara at Benares, Somanātha in Gujarat, Mahākālī at Ujjayini, etc. etc.
Kshatriyas, Vaiśyas and Śūdras respectively; thirdly into four with regard to height — jāti, chhanda, vikalpa, and ābhāsa; fourthly into three types, with regard to width — nāgara, draviḍa, and vesara; fifthly into four — daivika, mānusha, gāṇava, and ārsha, the four together being called svayamabhū 1 or udbhūta; sixthly into two — atmārtha (for one’s own worship); and parārtha (lit. for others, for public worship); again into two — eka-liṅga (single), and bahu-liṅga (phalli in a group); or into many kinds — vajra, swarna etc. with regard to the material; and lastly into two — kṣana (for temporary worship) as contrasted with the permanent liṅga. All these kinds of phalli are described at great length. Various alternative measurements are prescribed for each of them. In some cases as many as thirty-six alternative heights are suggested. But in most cases their number is nine. The nine alternative heights of a phallus are determined in some cases by a comparison to different parts of the body of the worships (yajamāna). The height of the phallus may reach the worshipper’s penis, navel, heart, breast, arm-joint (bāhu-simānta), chin, nose, eye, or be equal to his full length. Another comparative measurement is given with regard to the garbha-grīha (the cella of the temple in which the phallus is enshrined). Various absolute measurements are given in some cases. These measurements vary according to the four classes jāti, chhanda, vikalpa, and ābhāsa, mentioned above. In the jāti class the height may vary from 1 to 9 cubits (hastā), the increment being 1 hastā. The chhanda class admits of nine varieties, namely from 3/4 to 63/4 cubits, the increment in this case being 3/4 hastā. In the third class (vikalpa) the height differs from 1 to 41/4 hastas with increments of 1/2 hastā, and in the fourth class (ābhāsa) from 1/4 to 21/4 hastas with increments of 1/4 hastā. Thus each of the four said classes admits of nine varieties of height. The breadth of the phallus is in like manner discussed at great length. The impracticability of so many alternative measurements is, however,  

1) The term svayamabhū (self-existent, self-created) indicates natural objects of worship. Such svayamabhū-liṅgas are still to this day worshipped at several tirthas of Kaśmir. Cf. Kalhana’s Rājatarangini, a chronicle of the kings of Kaśmir, transl. by M. A. Stein, vol. I, p. 22 (note at I, 113).
removed by the application of the rules of āyadi-shaḍvarga which are described in detail at the end of the chapter.

The second part deals with the pīṭha, which is the stand upon which the phallic proper is placed. The praṇāla (lit. canal, drain) or yoni-dvāra, and all other parts of the pīṭha are described in detail, together with their measurements. The same subject is discussed in greater detail in the next chapter. The general appearance of a phallus is well-known. The Mānasāra does not deviate much from it. The mūla or the lower part, technically called Brahma-bhāga, says our author, is square (chaturasra, lit. four-cornered), whereas the middle part, called Vishnu-bhāga, is octagonal (ashtāgrabha), and the upper part, called Śiva-bhāga, is round. But these shapes of the three parts may interchange in some cases. The top is sometimes shaped like a bud (kuḍmala) or a leaf (pattra) ¹.

The phallic proper and the pīṭha are generally made of the same material. But when they are made of very precious substances, such as jewels, gold, etc., the material of the two may differ. The pīṭha is mostly made of marbles of various colours such as white, red, yellow, black, etc. Precious stones are inserted in the different parts of the phallus.

The chapter closes with a description of the various fruits to be derived from phallic worship, and with the formula of the āyadi-shaḍvarga.

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**CHAPTER LIII.**

**The pedestal [of the phallus]** (Pīṭha-lakṣaṇa-vidhāna).

It has been pointed out in the previous chapter that the pīṭha ²) forms the yoni or the lower part of the phallus. The pīṭha must

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¹) A variant reading gives chhattrā (≡ an umbrella).
²) The term pīṭha means a stool, seat, chair, throne, pedestal, altar. The well-known fifty-one Pīṭha-sthānas are the sacred spots where the limbs of Satī (Pārvati), the consort of Śiva, fell after she had been cut to pieces by the discus of Viṣṇu. As the liṅga or phallus symbolically represents Śiva, so the pīṭha does his consort Pārvati.
match the phallus of which it forms the lower member. There
must, consequently, be as many kinds of pithas, as there are of
phalli. But the mouldings of the pitha are described under four
classes, technically called, bhadrapitha, sribhadra, srivisula, and
upapitha. The principal parts of the pitha are the nala (lit. canal),
the jala-dhara (lit. drain), the ghrita-vāri, the nimna, and the
pattika. These are, it may be observed, the various parts of which
an ordinary yoni is formed. The names of the principal mouldings
are the following: prathama or janman, padma, kshepana, kandhara,
kampa, ārdhva-pada, vājana, ghrita-vāri and vṛtta-kumbha.

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are the following: prathama or janman, padma, kshepana, kandhara,
kampa, ārdhva-pada, vājana, ghrita-vāri and vṛtta-kumbha.

The minute description and measurement of all these and
other mouldings of pithas of various kinds are given in detail.
With regard to their shape, the pithas, like the phalli (and, in
fact, all other architectural and sculptural objects), are divided
into three types nāgara, drāviḍa, and vesara. The pithas of the
nāgara class are said to be square, those of the drāviḍa type
are octagonal, and the vesara ones, round (vṛtta).

CHAPTER LIV.

The female deities (Śakti-lakṣaṇa-viḍhāna).

The following female deities are specially described: Sarasvatī
the goddess of learning, Savitṛ, Lakṣmī the goddess of wealth
or fortune, Mahā the earth-goddess, Manonmaṇi the goddess of
love, Durgā, and the „the seven Mothers” (Saptamātrī) collectively
so-called. Of these, Lakṣmī is distinguished into Mahā or the
great Lakṣmī, and Sāmānyā, the ordinary Lakṣmī, the latter
to be installed in all the family chapels. „The seven Mothers”
consist of Vārāhi, Kaumārī, Chāṃunḍā, Bhairavi, Māhendrī,
Vaishnavī, and Brahmāṇī. These seven goddesses are measured
in the navatāla system, all other female deities in the daśatāla
system. The details of these measurements are discussed in two
separate chapters in which the comparative measurements of
the several parts of the various limbs of the body are given.
But it may be pointed out that according to the daśatāla system
the whole length of the body is ten times the face, while in the
navatāla, it is nine times, and hence in the ashṭa-tāla, it should be eight times the face, and so forth.

The characteristic attributes and poses, and the ornaments, decorations etc. of each of these female deities are described in detail.

The goddess Sarasvatī is represented seated on a lotus-seat. Her complexion is white like crystal. She is four-armed; in her two right hands she holds a sāndarśa ¹) and a rosary (akshamāla) and in both her left hands a book (pustaka) and a water-pot (kundika). There exists, however, also a two-handed variety of the Sarasvatī image. Her ornaments, which are described in detail, include ear-pendents of the type called grāha-kundāla (= makara-kundāla?).

Sāvitri, who is seated on a lotus-seat to the left of Brahmā, may be white and red, or dark blue (syāma) of colour. She has two arms and two eyes, in other words, she assumes a purely human shape. She holds a blue lotus-flower (utpala) in her right hand, while her left is stretched out in the gesture of conferring a boon (vara). Sāvitri too is adorned with various ornaments.

Lakṣmī, the goddess of good fortune, shows a benign face (prasannavadana); her complexion is like pure gold. She has four arms. Her upper right hand is raised in the attitude of granting security (abhaya), in her other right hand she holds either a red lotus flower (padma) or a rosary. The attributes held in her left hands are a tabor or hand-drum (dīṇḍima) and a blue or a red lotus-flower. As befits the goddess of luck, she is bedecked with gorgeous ornaments and jewels.

In contradistinction with ‘the great Lakṣmī’ (Maha-Lakṣmī) thus described, the ‘ordinary’ Lakṣmī is said to have only two hands, in each of which she holds a red lotus-flower (rakta-padma). Her distinguishing feature is that she is placed between two elephants. Her place is over the entrance to the house or at the madhyarahga ²).

A few words are added about representations of Lakṣmī as the spouse of Viṣṇu.

¹) Should we read ādarsa (mirror)? The regular attribute of Sarasvatī, however, is the lute (viṇḍa).
²) Cf. above pp. 40 sq.
The Earth-goddess (Mahī-śakti), who is placed on the other side of Vishnu, is said to be two-armed and two-eyed. In her right hand she holds a blue lotus (utpala); with her left hand she indicates the granting of a gift. The has a dark blue (syāma) complexion and wears makara earrings.

Durgā, also called Gaṇeśa and Pārvatī, the consort of Śiva, is two-armed. She holds a blue lotus in her right hand, her left hand is in the gesture of granting a gift (vara). She is distinguished by all the marks of female beauty and is lavishly adorned with ornaments. She has a dark blue (syāma) complexion and wears yellow garments. She is placed to the left of Śiva, or of his symbol — the linga.

Maṇonmanī, the goddess of love, is four-armed and three-eyed. Strange to say, her hair-dress is said to be the matted hair (jata) of an ascetic. Two of her hands are in the attitude of granting protection (abhaya) and of conferring a boon (vara). In each of the two other hands she holds a lotus-flower. Her complexion is red and white (sveta-rakta) or dark blue (syāma). It appears that this Śakti also is reckoned to belong to the retinue of Śiva, in whose temple she is worshipped.

Finally 'the seven Mothers' are described. In general these Śaktis have the same emblems and distinguishing features as their male counterparts. Brahmāṇī and Rudrāṇī, for instance, who are the Śaktis of Brahmā and Rudra (or Śiva) respectively wear the matted hair of the ascetics. Brahmāṇī has four faces and four hands, in two of which she holds a rosary (akṣamalā) and a water-pot (kundika). Rudrāṇī has a white complexion, her attributes are the antelope (hariva) and the noose (pāsa). Vaishnavī and Varāhī, who are both Śaktis of Vishnu (the latter in his Boar avatāra), are distinguished by a dark blue (syāma) complexion and hold the discus (chakra) and conch-shell (saṅkha) which are the well-known emblems of Vishnu. Vārahī has a boar’s head.

The chapter closes with a very brief reference to the plumb-lines which are more fully treated in a separate chapter.

CHAPTER LV.

Jaina images (Jaina-lakṣaṇa-vidhāna).

The opening lines describe in detail the various kinds of measurements used in Indian sculpture.

The linear measurement is divided into six kinds māna, pramāṇa, parimāṇa, lambamāṇa, unmāṇa, and upamāṇa.

The measurement from the foot to the top of the head is called māna ¹), which is in fact nothing but height. Pramāṇa is the measurement of breadth (vistītī); parimāṇa is the measurement of girth or circumference (parītaḥ); lambamāṇa is the measurement along the plumb-line, the line drawn perpendicularly through the different parts of the body, the māna or the measurement of the height being determined by the surface of the body; unmāṇa is the measurement of thickness (nimna) or diameter; and upamāṇa is the measurement of interspace (antara), such as that between the two feet of an image; this measurement is evidently taken from one plumb-line to another.

The primary measurement (udimāṇa) refers to comparative measurement and is divided into nine kinds. The height of an image is determined: 1st, by comparing it with the breadth (tāra) of the whole temple (harmya); 2nd, with the height of the cella or sanctum (garbhagriha); 3rd, with the height of the door (dvāramāna); 4th, with the measurement of the base (aḍhishṭhāna); 5th, by expressing it in hastas; 6th, in the tāla system; 7th, in aṅgulas; 8th, by comparing it with the height of the worshipper; and 9th, with the height of the vehicle (vāhana) or with the height of the principal idol (mūlabera).

Absolute measurement in cubits (hasta), etc., is given in the case of many architectural and sculptural objects.

The aṅgula (lit. finger) measurement has reference to both comparative and absolute measurements. Three kinds of aṅgulas are expressly distinguished, and a fourth aṅgula is added later.

a) The berāṅgula is the measurement taken by the aṅgula or finger of the main idol;

¹) The wording of the text is somewhat obscure, but the above seems to render what is meant.
b) the *mānāṅgula* refers to the ordinary absolute measurement in *āṅgulas*, one *āṅgula* being equal to eight *yavas* ('barley grains') of 3/4 of an English inch; 

c) the *mātrāṅgula* is the measurement determined by the length of the digit and the width of the middle finger in the right hand of the master (*kārtṛi*). 

d) Another kind of *āṅgula* measurement is determined by dividing the whole length of the body of an image into a number of equal parts, each of which is called a *dehalabdāṅgula*, or simply *dehaṅgula*. In the last sense, the *āṅgula* is used to mean simply a part. Thus both *āṅgula* and part (*aṁśa*) are indiscriminately used throughout the work. If the length etc. of a building or image is divided into a number of equal parts for some special purpose, each of them is called *āṅgula* or *aṁśa* indiscriminately. This lack of discrimination has been very confusing in many places, while rendering it extremely hard to distinguish an absolute measurement from a comparative one.

The height of the image is determined by comparing it with the height of the worshipper (*yajamāna*). It may be of nine kinds, as it extends from the foot of the worshipper to his penis, navel, heart, breast, arms, jaw, tip of the nose, hair-limit (on the forehead), or to his full height. The *talamāṇa* admits of many varieties; the ten *tāla* measurements are from one-*tāla* to *daśa-tāla*; each of these is again divided into three types, the *uttama* or the largest, the *madhyama* or the intermediate, and the *adhara* or the smallest. Thus an image is of the *daśa-tāla* measurement, when its whole length is equal to ten times the face (?head). In the largest type of the *daśatāla* system, the whole length is divided into 124 equal parts, which are proportionately distributed over the different limbs of the body; in the intermediate type, the whole length is divided into 120 equal parts, and in the smallest type, into 116 equal parts. In the *navatāla* system, the whole length would be nine times the face, in the *ashta-tāla*, eight times, and so forth. Several of these *tāla* measures are described in detail in the subsequent chapters.

1) Cf. above pp. 2 sq.
The varieties of the alternative measurements (in each case) are simplified by the application of the rules of ayādi-shadvarga.

The main object of the chapter, the description of the Jaina deities, is thus submerged in a lengthy discussion of the various measurements used both in architecture and sculpture.

Like all other idols, the images of Jaina deities too may be stationary or movable; they may be in the erect or in the sitting posture. They have a purely human shape, and wear neither robes nor ornaments. On the chest the śrīvatsa symbol is marked in gold. They are placed on a throne decorated with a makara-torana and the ornamental tree (kalpavriksha), and are attended by Nārada and other sages, by Yakshas, Vidyādhāras, Siddhas, Nāgendras, and Lokapalas, etc. All these attendants, it should be observed, are also Hindu deities.

The twenty-four Tirthaṅkaras or Jaina saints are referred to but not specified 1).

CHAPTER LVI.

Buddhist images (Buddha-lakṣaṇa-vidhāna).

The account of these images too is very meagre. Evidently the author had in mind solely effigies of the Buddha(s), not of other Buddhist deities. This is clear from his description. These figures, he says, which may be either erect or in the sitting posture, are placed on a throne (śrīhāsana) and are distinguished by the aśvattha tree as well as by the kalpavriksha or mythic wonder-tree. The latter, as we have seen, is represented in connection with other divine beings as well, but the aśvattha or ficus religiosa is characteristic for the Buddha, as the Bodhi-tree under which he attained Enlightenment (Bodhi) belongs to that species. Another peculiar mark of the Buddha, which has been duly noted by the author, is the uṣṇīsā or protuberance of the skull (uṣṇīsahojjvalaṇamalika) 2). For the rest the ap-

2) The úrṇā or mark between the brows, which is another distinguishing feature of the Buddha, is not noticed in the course of this description.
pearance of the Buddha is purely human. He has a full face, a long nose, smiling eyes, and elongated ears. His body is fleshy, his chest broad, his belly round, and his arms long. He wears a yellow garment (pitaṃbaradhara) and his complexion is white. Like other idols, Buddha images are made of wood, stone or brass (lohaja). They are measured according to the largest type of the daśatāla system.

CHAPTER LVII.

Images of sages (Muni-lakṣaṇa-vidhāna).

The seven well-known patriarchs or sages (ṛishi, muni) are taken to illustrate the three varieties of the tāla measurement. They are Agastya, Kaśyapa, Bhṛigu, Vasishṭha, Bhārgava, Viśvāmitra, and Bharadvāja.

Agastya is bright blue (syama) in colour, Kaśyapa yellow (pita), Bhṛigu dark or black (krishṇa), Vasishṭha red (rakta), Bhārgava brownish (pīṅgala) Viśvāmitra red (rakta), and Bharadvāja yellow (hāridra, lit. turmeric-coloured). They are represented in a purely human shape (“two-armed and two-eyed”), wear yellow garments and the sacred thread (yajña-sūtra) and are distinguished by the matted hair of the ascetics (jaṭājūṭena maṇḍita).

In their two hands they hold a staff (danda) and a book (pustaka). Of Agastya, who is first mentioned among the seven sages, it is stated particularly that he is corpulent (brihat-kukshi) and hump-backed (kubjakara).

Of these seven sages, Agastya is measured in the seven-tāla, Kaśyapa, and Bhṛigu in the eight-tāla, and the rest in the nine-tāla. The details of these three tāla measurements are described subsequently.

In the sapta- or seven-tāla measurement the whole length of the image is seven times the height of the face, which is generally twelve aṅgulas (9 inches) in the Indian system. This length is divided into $12 \times 7 = 84$ equal parts of which the proportional distribution to the different limbs is explained at great length.

In the ashta- or eight-tāla system the whole length is similarly
divided into 96 equal parts, and in the nine-tāla into 108 equal parts. The details of the distribution of these parts to the different parts to the body it will be unnecessary to reproduce here.

CHAPTER LVIII.

Images of Yakshas, Vidyādharas, etc.
(Yakshavidyādharavidañha).

The present chapter deals briefly with four classes of semi-divine beings, namely, Yakshas, Vidyādharas, Gandharvas, and Kinnaras. They are said to have two arms and two eyes, in other words, they assume a purely human appearance. They are adorned with the crown known by the name of karanaḍa. The colour of the Yakshas is stated to be dark blue (śyāma) and yellow (pīta); that of the Vidyādharas dark red (śyāma-rakta) and yellow. The images both of Yakshas and Vidyādharas are measured according to the navatāla system. The Yakshas are to be distinguished from the Rākshasas which are evil spirits, whereas the former are regarded as supernatural beings of a benevolent and inoffensive disposition. The Yakshas act as attendants (anuchara) and chowrie-bearers of the gods. The Vidyādharas are a kind of fairies possessed of magical power. Here apparently they are described as Atlantes 1). The Gandharvas are celestial choristers, and celebrated as musicians.

The description of the Kinnaras, which is contained in a Mālinī stanza at the end of the chapter, may be quoted in full. It runs as follows: —

\[
\begin{align*}
\text{charana-pasu-samana} & \text{ chordhvakāyaṁ} \text{ narabham} \\
\text{vadana-Garuḍā-bhāvaḥ} & \text{ bāhukau pakshayuktau} \\
\text{makuta-kamala-yuktāṁ} & \text{ pushpasachchhāya vartyaṁ} \\
\text{paritakaruna} & \text{(?) viṇāṁ Kinnarasya svarūpam.}
\end{align*}
\]

"The legs are like those of an animal, the upper part of the

1) The description in the text is unfortunately far from clear. It is said that their legs assume the shape of a plough (lāṅgalākāra), that two hands are resting on their knees, and that two hands are raised towards the gopura."
body is like that of a man, the face is like that of Garuḍa [the bird of Vishṇu], the arms are provided with wings. He is adorned with a diadem and a red lotus, has the beautiful hue of a flower, and holds a lute (vīṇā). Such is the characteristic shape of the Kinnara.”

CHAPTER LXI.

Images of devotees (Bhakta-lakṣaṇa-viḍhāna).

The devotees are divided into four classes according to the four stages of holiness, called — sālokya, sāmīpya, sārūpya, and sāyujya. Sālokya is the result of devotion (bhakti), knowledge (jnāna), and renunciation (vairāgya). Knowledge combined with renunciation leads to sāmīpya. Sārūpya is produced in the worshipper by meditation alone, and sāyujya is attained by the true knowledge (of God).

The images of the sālokya class of worshippers are measured in the largest type of the navatāla system, in which the whole length is divided into 112 (?) equal parts. Those of the sāmīpya class are measured in the smallest type of the daśatāla system in which the whole length is divided into 116 equal parts. Those of the sārūpya class are measured in the intermediate type of the daśatāla system, in which the whole length is divided into 120 equal parts. And the figures of the sāyujya class are measured in the largest type of the daśatāla system in which the whole length is divided into 124 equal parts.

The first two systems, namely, the largest type of the navatāla and the smallest type of the daśatāla, are minutely described in this chapter. The other two systems, that is, the intermediate

1) The first compound of the fourth pāda is obscure. It may be noticed that the lower part of the body of the kinnara is always that of a bird. Cf. above p. 40, n. 2.

2) The sālokya-chatusṭaya is also mentioned in the Bhāgavata-purāṇa IX, 4, 67. The literal meaning of the four terms in question is: dwelling in the same world (viz. as the deity), dwelling in the vicinity (of the deity), being conform (with the deity), and being united (with the deity).
and the largest types of the dasatāla, are treated subsequently in two separate chapters.

CHAPTER LX.

The vehicles of the gods. The goose [the vehicle of Brahmā] (Vāhana-vidhāna. Hamsa-lakṣhāṇa).

The chapter opens with the announcement that the vāhanas of the Triad (Trimūrti) will now be described. But only one of them, namely, the goose (hamsa), is described in this chapter, the other three, the Garuḍa, the bull, and the lion, being described in the next three chapters. The word vāhana generally implies, drawing, bearing, carrying, conveying, bringing, etc., as also any vehicle or conveyance, e. g. a chariot, a waggon, a horse, or an elephant. But in these four chapters, the term vāhana is used to designate the various animals used by the gods and goddesses as their vehicles.

The goose is the vehicle of Brahmā. The limbs of the goose are said to be measured in the largest type of the dvi-tāla system. The details of this system are described minutely. It is white all over, with red legs and a golden beak.

The chapter closes with the statement that rows of geese should be beautifully carved or painted in the temples of the gods and in the mansions of Brahmins and kings. They are figured on the entablature (prastara), on the upper part of the uttara, on the kuṭa, nīḍa and griva (neck).

CHAPTER LXI.

The Garuḍa (Garuḍa-māna-vidhāna).

The chapter opens with a lengthy discussion on the application of the rules of āyādi-shaḍvarga in order to reconcile the

1) The Garuḍa is a mythical bird, the sovereign of the feathered tribes and the enemy of the Serpent (Nāga) race. There is a tradition that Garuḍa is the son of Kāśyapa and Vinatā. Hence the metronymic ‘Vainateya’ by which he is often designated. The myth of the birth of Garuḍa is told in the Mahābhārata, Ādi-parvan, adhy. 16.
various comparative measurements suggested for the Garuḍa and other vehicles of the gods.

Garuḍa is the vehicle (vāhana) of Vishnu. His limbs are measured in the navatāla system, the details of which are given in a previous chapter.

He is constructed in the erect or the sitting posture, meditating on Vishnu with joined palms. The arrangement of his various limbs and their colour etc., are described at great length. The description is far from clear in all its details, but this much is obvious that the Garuḍa is figured partly as a human creature and partly as a bird. He is provided with feathers, with wings painted in five colours, and with a beak (tuṇḍa), but, on the other hand, the description refers to his arms (prakosṭha), his ears and hair (keśa). He wears various ornaments (sarvālaṁkāra-saṁyukta) including a diadem of the kind called karāṇḍa (lit. a basket) and is gorgeously painted in a great variety of colours. He is described as being of a terrific appearance (ugradris). His worship is stated to conduce to the destruction of the enemy (satru-nāśa).

CHAPTER LXII.

The bull [the vehicle of Śiva] (Vṛishabha-lakṣaṇa-viḍhāna).

The bull Nandin1) is the animal of Śiva. Its image, which may be either recumbent or erect, is placed facing the north-west, on a pedestal (piṭha), either inside the shrine (vimāna) or in a pavilion (maṇḍapa) in front of the temple. It is not measured in any tala system. Various absolute and comparative measurements are prescribed. Its height, for instance, may be equal to the height of the idol (of Śiva), or up to its ears, or arms, or

1) The image of the bull Nandin is regularly found in front of temples dedicated to Śiva. A well-known example is the colossal recumbent bull, placed opposite the famous vimāna of Tanjore. It is hewn out of one block of black granite and measures 16 feet in length and 13 feet in height. A remarkable bronze Nandin, which is found at Brhamor (Chambā) in the Western Himālaya and which, on account of an inscription, may be assigned to the seventh century A. D., is illustrated Antiquities of Chamba State (Archaeological Survey of India, New Imp. Series, vol. XXXVI) Part I, plate X.
the height may be from one cubit to nine cubits, or the height may be equal to, three-fourths or half of the height of the door of the temple. The bull Nandin is made either solid or hollow, of brass (lohaja), stone, wood, abhāsa (marble?), ratna (precious stone?), suddhā (stucco), baked clay (terra-cotta?) and sārkara.

The description and measurements of the various limbs of the bull, which are given in great detail and occupy nearly the whole of the present chapter, it will be unnecessary to reproduce here. From the description, which is partly obscure, it would appear that the bull of Śiva is white in colour except the four legs, the hoofs, and the ears which are red. He is covered with a tiger-skin and wears not only garlands round the neck but even foot-rings or anklets (nūpura).

CHAPTER LXIII.

The lion (Sīṃha-lakṣhāṇa-viḍhāna).

The lion is the last of the four divine vehicles or vāhanas, to which a special chapter of the Mānasāra is devoted 1).

Like in the case of the bull, the image of the lion is not measured in any tāla system. The absolute measurements of the various parts of the lion, expressed in angulas, are enumerated in the text. The lion is made in the erect, sitting, or recumbent posture. His tail is generally equal to his height. His four legs are like those of the tiger. His colour is white, but his mane should be red. The shape of his nails and teeth is compared to that of the crescent (bāla-chandra, ardha-chandra).

1) At the beginning of the chapter (and again in the concluding verse) the lion is loosely indicated as 'the vehicle of the gods' (devāṁ vāhanam). It is, however, well known that the lion (or the tiger) is more particularly the animal of Pārvatī the consort of Śiva. It will be hardly necessary to point out that of the other deities both male and female each, as a rule, has his own vāhana, e.g. Kārttikeya the pea-cock, Gaṇeśa the mouse, Indra the elephant, Yama the buffalo, Sūrya a chariot drawn by seven horses, Varuṇa a crocodile (makara), Kubera a man (whence his epithet naravāhana), etc.
CHAPTER LXIV.

The image (Pratimā-vidhāna).

This chapter, which is missing in all manuscripts but one, opens with the announcement that herein will briefly be described the measurements from head to foot of the sixteen attendant deities of the Vishnu temple. It will be remembered that in the 32nd chapter on 'attendant deities' (Parivāra-vidhāna) groups of eight, ten, sixteen, and thirty-two deities have been mentioned who are to occupy subsidiary shrines in the compound of the large Vishnu temple.

But the contents of the chapter, in reality, do not expressly describe any of the groups of deities in question. The first part deals with the various kinds of comparative measurements already discussed at the beginning of the 55th chapter on the Jaina deities. The second part elaborately describes the rules of the āyādi-śaḍvarga which have been repeatedly mentioned, whenever a variety of measurements was suggested for any particular object.

The comparative measurement is distinguished into twelve kinds, as it may be compared to the phallus, the main Vishnu image, the width of the sanctum (garbhagrīha), the breadth of the main temple (harmya, prāsāda), the door, vaisa(?), basement, pillar, or based on cubit (husta) measurement, tālā-measurement, the measurement of the worshipper, and āṅgula measurement.

The āṅgula is further distinguished, as already pointed out, into three kinds — līṅga- or bera āṅgula, the mānāṅgula, viz., āṅgula of eight yavas or 3/4 inch, and the dehalabdha āṅgula, viz., one of the equal parts into which the whole length of an image is divided. The measurement obtained from a comparison with the height of the main idol or the worshipper is of nine kinds, as it may reach the full length (of the idol or the worshipper), his eye, nostril, chin, arms, breast, heart, navel, or penis.

Other measurements obtained from a comparison with the phallus, and various parts of the temple building such as the door, the pillar, etc., admit of many varieties and proportions.
CHAPTER LXV.

The largest type of the dasatāla measurement, used for images (Pratimā-mānottama-dasatāla-vidhāna ¹).

In this system the whole length of an image is divided into 124 equal parts which are proportionately distributed over the different parts of the body from head to foot. The measurement of breadth, etc., of the various limbs is not included in these 124 parts. The measurement of the hand, etc., is also excluded. All the numerous parts of the body are minutely described. Such minute measurement as that of the finger-digit, the interspace between two toes, etc., has not escaped the notice of the author of the Mānasāra.

CHAPTER LXVI.

The intermediate type of the dasatāla measurement, used for female images (Strīmāna-mādhyama-dasatāla-vidhāna).

The female deities of the higher order are generally measured in this system. The whole height of the image is divided into 120 equal parts which are proportionately distributed over the various parts of the body from head to foot. The details are minutely described in the text.

The face is taken as the standard of the tāla measurement. It is generally taken to be twelve aṅgulas or about nine inches. The face is stated to be of oval shape (kukkuṇḍasamākāra, lit. 'shaped like the egg of a hen'). The eye-brow is shaped like the bow (chāpākāra), the eyes like a fish (matsyākāra), the nose like the sesame flower (tilapushpākriti), and the nostrils (puṭa) like a bean (nishpāvabija).

According to both Indian and European canons, a well proportioned male human figure is equal to eight times (ashćatala) the length of the face, and a female human figure is seven and a half times the length of the face. "The other rules arrived at

¹) The Mss. have Pratimānāmuttama.

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by the Indian artist do not appear to be divergent from those evolved by the European artist, and if in Indian sculpture the results are not (as) good in some instances, it is the fault of the artist and not attributable to the guide books".}

CHAPTER LXVII.

The plumb-lines (Pralamba-lakshana-vidhana).

The plumb-lines, as has already been pointed out, are lines drawn through the body of an image in order to find out accurately the perpendicular and the horizontal measurements of the different parts of the body.

This is done by means of an instrument called pralamba-phalaka which is a square plank of four, three, two, or one angula in thickness with the sides equal to three-fourths or half the length of the image. Another plank of the same size is made and used as the stool on which the image is placed. The first mentioned plank (pralamba-phalaka) is fixed to the crown of the head of the image. The planks are kept parallel to each other. Some holes are made in the upper plank wherefrom are suspended strings, at the other end of which are attached small balls of iron or stone. The number of holes and strings suspended from them by which the plumb-lines are determined varies from five to eleven, according to the different postures and poses of the image. The five principal plumb-lines consist of one drawn from the centre of the upper plank corresponding to the crown of the head, and four on the four sides of the body. Two other lines drawn adjoining the right and left sides of the face make the number seven. Another two lines drawn on the right and left sides of the back of the head make the number nine; and two lines drawn from the two armpits make the total of lines eleven.

The line drawn from the crown of the head (śikhā-maṇi lit. crest jewel) passes by the diadem and the headdress, the middle

1) T. A. Gopinath Rao, Elements of Hindu Iconography.
of the forehead, the eye-brows, the nose, the chin, the neck, the chest (hrīdaya), the navel, the penis, the thighs, between the knees, the ankles (? nalakas), the heels, the soles of the feet, and the two big toes. This is evidently drawn along the surface of the body in the perfectly erect or straight posture of the image. The other plumb-lines too touch different parts of the body; but they are not particularly mentioned here.

Very minutely are described the comparative and the absolute measurements of the perpendicular distance between different parts of the body by a plumb-line, as well as the horizontal distance from one line to another. The distance, say, between the two big toes, is said to be eight āṅgulas. The variation of these measurements in different postures and poses is carefully considered.

The three postures of images, namely, the erect or standing (sthānaka), the sitting (āsana), and the recumbent (sāyana-lying down) are frequently mentioned in the course of the Mānasāra. ¹)

In the present chapter special reference is made to the three bhaṅgas or poses which are distinguished in Indian sculpture. They are known as samabhaṅga or equipoise, ābhaṅga or a slight flexion, atibhaṅga or an excessive flexion, and tribhaṅga or of three flexions ²).

CHAPTER LXVIII.

The first casting of the image (Madhūchhishṭa-viđhāna)

The chapter opens with an enumeration of the names of

¹) Each of these three does, of course, admit of various kinds. The sitting posture (āsana) is in particular distinguished into various forms in Indian literature and sculpture, such as the padmāsana, bhadrāsana, vajrāsana, virāsana, svastikāsana, yogāsana, etc. In some places, even eighty-four postures are enumerated. These manners of sitting form part of the eight-fold observances of ascetics.

²) The expression tribhaṅga (and tribhaṅgin) is applied to Krishṇa in his aspect as the divine cow-herd (Gopāla) playing the reed-pipe. Cf. Een onbekend Indisch toneelstuk (Gopālakāsicāndrikā). Tekst met inleiding door W. Caland. (Verhand. Kon. Akad. v. Wetensch. te Amsterdam N. R. Di. XVII No. 3. Amsterdam 1917, p. 46, l. 1 (marakatavibhaṅgojvalatribhaṅgāngagopālāna) and p. 124, l. 32 (tribhaṅgin).
phalli and ascetics (muni) as well as architects'), but the subject proper is the casting of an image in wax (madhuchchhishta). The sthapati and the sthapaka are to prepare the wax; but the actual preparation of it is not expressly described. All kinds of images, temporary or permanent, stationary or movable, are moulded in this fashion. The process appears to be this. Some part of the image is covered with thin copper-leaf (tamrapattra) and the wax is laid on two or three angulas deep. Mulika (?) is spread above the part covered with wax. The idol is heated after it has been besmeared with this. If the master likes, the process of smearing may be done with melted iron too. The half of the image not covered with earth is washed in water. This process is repeated again and again. If any of the minor limbs be lost through this process, the image should be furnished with it again after having been heated. But if the head or the middle of the body (madhyakāya) be damaged, the whole image should be changed. If the master does not approve of the image, it should be recast.

The whole process in its different stages has to be attended by many ritualistic ceremonies.

In other texts the process of casting an image is much more clearly described.

"If images have to be cast in metal, the wax must first be melted and poured (out of the mould) and all defects removed with cloth".

"If the images be required to be made of earth, rods (of metal

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1) The six kinds of phalli (jyotir-liṅga) enumerated here are: śaiva, pāṣupata, kālāmukha, mahārata, vāmana, and bhairava. Cf. above p. 52, where the fifth class is called vāma. The names of the munis are Agasta, Kāśyapa, Brigu, Gautama, Bhārgava, Gālava (? Gārgya), etc. Cf. above p. 60. The sages who are experts in architecture are the following: Viśvakarman, Viśa, Viśvakāśi, Prabodhaka, Vyāsa, Maya, Tvashtar, Manu, Nala, Mānavin. Mānakalpa, Mānasāra, Prasūtṛ, Māṇabodha, Viśvabodha, Naya, Ādīśāra, Viśāla, Viśvakāśi, Viśvakāśi, Vāstubodha, Mahātāntra, Vāstuvidyāpati, Parasārya, Kālaya, Chaitya, Chitraka, Āvaryu, Sādhakasāra, Suñīta, Bhānu, Indra, Lokajīva, and Saura. The text speaks of thirty-two of these sages, but the actual number of the names enumerated comes to thirty-three.

2) Karuṅgama II. V. 41.
or wood) must me (inserted in them); if of metal, it must first be prepared well in wax”).

“If an image is to be made of metal, it must first be made of wax, and then coated with earth; gold and other metals are purified and cast into (the mould) and a complete image is thus obtained by capable workmen”.

“In regard to bronze images”, says Mr. RAO, “it is believed by some that India could not have known the cire perdue method of making metal images earlier than about the 10th century, A.D. and that India must have therefore borrowed it from Europe. That the art of casting metals in wax moulds is much earlier in India can be shewn in more ways than one”. In support of his assertion, Mr. RAO cites the three above mentioned quotations.

CHAPTER LXIX.

The defects of the limbs (Angadāshana-vidhāna).

The chapter opens with the announcement that it will describe the evil consequences of a defective construction of buildings which threatens the king, the kingdom and the maker. It is laid down that no part of a building should be larger or smaller than what is prescribed. But nothing is further stated about the defects themselves. Nor are images separately mentioned. The penalties for defective construction are enumerated with regard to the different architectural members, such as doors, staircases, columns, walls, domes, spires, etc. Thus it is stated that, if the altar (vedikā) be too small, the master will lose his eye-sight; if the pinnacle (stūpikā) be too large or too small, the people will be afflicted with poverty; if the columns be too large or too small, the family of the master will be exterminated, and so forth.

No such penalties, however, are mentioned for defects in sculptural objects.

1) Supravedāgama XXXIV, 21.
2) Vishnu-saṁhitā, pañcāla 14.
3) Elements of Hindu Iconography.
CHAPTER LXX.

The chiselling of the eye (*Nayanonmilanalakṣaṇa-vidhāna*).

When the Indian sculptor has carved a divine image, the ceremony of chiselling *(lit. opening)* the eyes of the idol is the final function by which it is, as it were, imparted with eye-sight and rendered fit to be worshipped. The custom is quite ritualistic, although it is stated here that it should be carried out by the *sthapati*. The ceremonies consist in the worshipping of different deities, in performing the sacrifice with the holy fire, and in the *ratna-śuddhi* *(lit. purifying the jewel)*, etc.

The setting of precious stones in the different parts of the phallus, and in the images of the deities is also described in the present chapter.

This last chapter of the work closes with the statement that this science of architecture and sculpture was originally described by Brahma, Indra and all the other gods, and that the *Mānasāra* has been compiled on the basis of these authorities.
ADDENDA AND CORRIGENDA.

Page vii, after line 16 add 'To Messrs F. Pijper and C. Van Arendonk I am indebted for a good deal of friendly help.'

1, line 12, for 'temples (vimāna)' read 'vimāna'.

1, 1, for 'araṅga' read 'araṅga'.

1, 2, add a comma after 'ādika(?)'.

1, 2, for 'śibika' read 'śibika'.

4, 4—5 (from bottom upwards), omit 'beginning with the north-east') and the footnote 3.

8, 10, for 'is given in the text' read 'will be found in the Translation'.

8, 13, omit 'these'.

10, 1, for 'text' read 'Translation'.


11, 2, omit 'or temple'.

11, 9 (from bottom upwards), for 'dealt with later' read 'found in "a Dictionary of architectural terms" by me'.

12, 2 (from bottom upwards), for 'naraṅjalī' read 'narāṅjalī'.

13, 9 (from bottom upwards), for 'its breadth and length' read 'the breadth and length of the foundation-cave'.

11, 2, for 'or temple'.

11, 9 (from bottom upwards), for 'dealt with later' read 'found in "a Dictionary of architectural terms" by me'.

12, 2 (from bottom upwards), for 'naraṅjalī' read 'narāṅjalī'.

13, 9 (from bottom upwards), for 'its breadth and length' read 'the breadth and length of the foundation-cave'.
Page 14, line 14, after 'base' add a note ²).

Footnote ²): ibidem, pp. 23, 26, on the authority of a 'Tamil Ms.'

14, 5, (from bottom upwards), for 'is' read 'are'.

15, last line, after Ram Raz add a note ²). Footnote ²): ibidem, p. 29.

16, line 9 (from bottom upwards) omit 'which is given below'.

16, 2 (  ) after architecture add a note ¹). Footnote ¹): Ram Raz, pp. 32, 39.

19, for the title 'The vimāna' read 'The general description of Buildings'.

19, line 5, for 'tupa' read 'tupā'.

19, 6, for 'stupikā' read 'stupikāta'.

20, 9, for 'tupa' read 'tupā'.

21, 14 (from bottom upwards), for 'chambers' read 'parts'.

21, 13 (  ), omit 'temple'.

21, 12 (  ), for 'gates' read 'gatehouses'.

21, 11 (  ), 'and' read 'and'.

21, 2 (  ), 'temple' read 'building'.

22, 9 (  ), 'and' read 'sadāśīvā and'.

22, 2 (  ), 'lakriti' read 'lākriti'.

23, for 'building' read 'buildings'.

23, 14 'pañchāla' read 'pañchāla'.

23, 15 'Kalinga' read 'Kalinga'.

and 'magadha' read 'māgadhā'.

23, 16 'instances' read 'instance'.

23, 17 'the greater part' read 'apparently'.

23, 2 (from bottom upwards), for 'temple' read 'building'.

23, footnote, omit 'Almost etc. — Manusamhita'.

24, lines 4—5, omit 'where gatehouses (gopuras) etc. are constructed'.

25, title, for 'gopūra' read 'gatehouses'.

25, line 17 (from bottom upwards) for 'gateways' read 'gatehouses'.

25, 16 (  ) for 'temple' read 'building'.

and add 'cf. p. 27. lines 5—6'.
Page 25, line 8 (from bottom upwards), for "gateways" read "gatehouses".

25, footnote 2, line 1, after "occurs" add "in the".

27, line 14, for "pariyatra" read "pāriyātra".

27, line 22, for "summarized" read "given".

27, line 26, for "waterreservoir" read "water-reservoir".

28, 9—10, for "those of six faces as maulika, and those of five faces as sarvatobhadra, read "those of five faces as sarvatobhadra, and those of six faces as maulika".

29, line 25, for "a" read "an".

31, title, for "The doors" read "The location of doors".

32, line 11, for "śādvarga" read "śadāvarga".

34, title, for (Rājalakṣaṇa-vidhāna) read (Rājayāngalakṣaṇa, Bhūpālalakṣaṇa).

34, line 1, omit "which bear the same title".

34, line 19, for "of" read "for".

35, footnote, line 8, before "Amarakosha" read "in the".

36, line 13 (from bottom upwards) after "that" add "of".

37, line 1, for "(andhra?)" read "(randhra?)".

37, line 2, for "āliṅga (Kaliṅga?)" read "Kaliṅga".

38, line 13, for "timber-trees" read "trees".

40, line 5 (from bottom upwards) for "me" read "we".

42, footnote 2, for "33" read "34".

43, line 7, for "kēśabandhāna" read "kēśabandhā".

43, line 9, "pāṭṭadhara" read "pāṭṭadhara".

43, line 10, "an" read "a".

44, line 22, "in auspicious" read "inauspicious".

48, line 15, before "kind" read "a".

50, line 1, for "samābhaṅga" read "samābhaṅga".

50, line 13 (from bottom upwards), for "Pāṅchajanya" read "Pāṅchajanya".

51, line 7, for hand read side.

54, line 9, "kshepana" read "kshepana".

55, line 2, "so forth" read "so forth".

55, line 15, either omit "of colour" or read in its place "in complexion".

56, line 4, for "The" read "She".
Page 56, line 6 (from bottom upwards), for ‘Varahi’ read ‘Varahi’.
56, 3 ( ), for ‘Varahi’ read ‘Varahi’.
56, omit footnote.
57, line 6, for ‘Pramana’ read ‘Pramana’.
57, 7, ‘parimana’ read ‘parimana’.
58, 3, ‘of’ read ‘or’.
58, 21, ‘jaw’ read ‘chin’.
58, 26, ‘adhara’ read ‘adhama’.
59, 6, ‘all’ read ‘all’.
60, 6, ‘brass’ read ‘iron’.
60, 19 (from bottom upwards), after ‘(pihala)’ read a comma.
61, 3, for ‘to the body it will be unnecessary’ read ‘of the body, it will be unnecessary’.
62, 2, ‘bird’ read ‘vehicle’.
65, 4, ‘brass’ read ‘iron’.
65, 5, ‘sarkara’ read ‘sarkara’.
65, 9 (from bottom upwards) omit ‘of the Manasara’.
68, footnote, add ‘for want of book, the page-mark could not be added’.
70, footnote), add ‘Are we to read Sadhasara-samhita?’
70, line 13, for ‘again and again’ read ‘several times’.
71, footnote) add ‘for want of book, the page-mark could not be added’.
THESIS.
THESES.

I.

The term ‘Mānasāra’ etymologically means ‘the essence of measurement’; from certain passages it follows that it indicates both the treatise of that name and its author.

II.

The ungrammatical style of Sanskrit revealed in the branch of literature of which the Mānasāra is a representative, is due to the want of literary proficiency on the part of the professional architects who seem to have been the authors of it.

III.

The rules of the āyādi-shaḍvargā referred to in the Mānasāra are architecturally important, especially when alternative measurements are prescribed.

IV.

The term ‘vimāna’ is used frequently in the Mānasāra and other works of Sanskrit literature to designate buildings in general and not temples alone.
V.

The technical names (nāgara, drāvida, vesara) of the three styles of Indian architecture are geographical, in the same sense as those of the four Graeco-Roman orders.

VI.

There seems to have been a relation of indebtedness between the Mānasāra, on the one hand, and the architectural portions of the Agni-Purāṇa, the Garuḍa-Purāṇa, the Matsya-Purāṇa, the Bhavishya-Purāṇa; the Kāmikāgama, the Suprabhedāgama; and the Bṛihatsaṁhitā on the other.

VII.

The construction of altars was apparently the beginning of religious architecture in India: the rules for the size and the shape of the various vedis are given in the Brāhmaṇas long before they were embodied in the Kalpa-sūtras; but the explanations of the manner in which the manyfold measurements and transformations had to be managed are explicit in the Śulva-sūtras.

VIII.

Certain points of similarity between the Mānasāra and Vitruvius are so striking as to raise the presumption that the two works are in some way dependent on each other.

IX.

The five Indian and the five Graeco-Roman orders are similar in their composition.
X.

There exists a certain similarity between the qualifications of the Indian architects described in the Manasāra and elsewhere in Sanskrit literature and those of the Graeco-Roman architects given by Vitruvius.

XI.

Even in the absence of archaeological remains, literary evidence, especially when the different treatises happen to point to the same fact, cannot reasonably be doubted; (e. g. the existence of iron images and residential buildings of many stories in ancient India).

XII.

Krishṇa's advocacy of war described in the Bhagavadgītā is justifiable, in other words, it was Arjuna's sad duty to kill his relatives in the war for a righteous cause.