74°

75°

34°

34

Sopur

SINDH. R.

Baráhmala

Temple

Tampura

R.

BEHAT.

Paharispura

Pathan

Dyáman

Bhanigar

Uri

SRINAGAR

Takht ó Suliman

Pándrethán

Panthasok

Pámpur

Kákapór

Avantipur

Pámpur

BEHAT. R.

LIDAR. R.

Bij Bihára

Bhaumajo (Cave)

Bháwan

Mártand

Islámábád

Shupiyan

SKETCH MAP

showing the positions of the different Temples in

KASHMIR.

Scale, 8 British Miles = 1 Inch

Miles 10 5 0 10 Miles

A. Cunningham delt.

74°

75°

J. D. Cruze Lith. Press Calcutta.

JOURNAL

OF THE

ASIATIC SOCIETY.

SEPTEMBER, 1848.

An Essay on the Arian Order of Architecture, as exhibited in the Temples of Kashmír. By Captain A. Cunningham, *Engineers. (Communicated by* H. M. Elliot, *Esq. Secretary to the Government of India.)*

Introduction.

1. The architectural remains of Kashmír are perhaps the most remarkable of the existing monuments of India, as they exhibit undoubted traces of the influence of Greeian art. The Hindu temple is generally a sort of architectural pasty, a huge collection of ornamental fritters huddled together either with or without keeping; while the Jain temple is usually a vast forest of pillars, made to look as unlike one another as possible, by some paltry differences in their petty details. On the other hand, the Kashmírian fanes are distinguished by the graceful elegance of their outlines, by the massive boldness of their parts, and by the happy propriety of their decorations. They cannot indeed vie with the severe simplicity of the Parthenon, nor with the luxuriant graceefulness of the monument of Lysierates: but they possess great beauty; different indeed, yet quite their own.

2. The characteristic features of the Kashmírian architecture are its lofty pyramidal roofs, its trefoiled doorways covered by pyramidal pediments, and the great width of its intercolumniations. The Greeian pediment is very low, and its roof exceedingly flat: the Kashmirian pediment, on the contrary, is extremely lofty, and its roof, high. The former is adapted for a sunny and almost rainless climate, while the

latter is equally well suited to a rainy and snowy climate. But besides the difference of climate, there was perhaps another reason for the form of roofing peculiar to the two countries, in the kind of material most readily procurable for building. In Greece, it was stone; in Kashmir, it was timber. The former imposed low flat roofs with small intercolumniations: the latter suggested lofty roofs and wide intercolumniations.

3. In the Kashmirian architecture the great width of the interval between the columns (which is constant) is perhaps the most characteristic feature of the order. Indeed, I have a suspicion that this distinctive mark of the Kashmirian style was well known to the Greeks; for an intercolumniation of four diameters, an interval seldom, if ever used by themselves, was called *Araiostyle*, a name which would appear to refer to the intercolumniation common amongst the Hindus or Eastern *Aryas*, the Αρειοι of Herodotus. The vulgar etymology of Araiostyle, from Αραιος "rare," seems extremely far-fetched, if not absurd; while the etymology of the "*Arian columnar interval*," appears both natural and appropriate, as the intercolumniation followed by the Aryas of Kashmír was never less than four diameters.

4. Now the interval between the Kashmírian pillars being always *Araiostyle*, I feel inclined to call the style of architecture used by the *Aryas* of Kashmir, the "ARIAN ORDER." This name it fully merits; for it is as much a distinct order of architecture as any one of the more celebrated classic orders. Like them it is subject to known rules which confine the genius of its architects within certain limits. A Kashmírian pillar is indeed distinguished from all Indian pillars by having a base, a shaft, and a capital, and each, besides, bearing a certain proportion to the diameter. How unlike is this to the columnar vagaries of the Hindus, which are of all shapes, and of all dimensions. A favorite Hindu pillar has the lowest fourth of its height square, the next eight-sided, the third sixteen-sided, and the upper part round; another has a double capital with a low flat base; whilst a third has a shaft of only one-fourth of its height; the remaining three-fourths being all base and capital: and yet these three pillars may be neighbouring columns of the same temple.

5. The superiority of the Kashmirian architecture over all other Indian buildings would appear to have been known to the Hindus themselves; for one of their names for the people of Kashmír is *Shástra-*

shilpina, शास्त्रिशिल्पिन, or "architects," a term which could only have been applied to them on account of their well known skill in building. Even now the Kashmíris are the most expert handicraftsmen of the East; and it is not difficult to believe that the same people who at present excel all other Orientals as weavers, as gun-smiths, and as calligraphers, must once have been the most eminent of the Indian architects.

6. Before entering upon any details of the Arian order of architecture, and upon the comparisons naturally suggested between it and some of the classical orders, I will first describe the present state and appearance of the principal buildings that still exist in Kashmír, all of which were accurately measured by myself in November 1847. They are entirely composed of a blue limestone, which is capable of taking the highest polish, a property to which I mainly attribute the present beautiful state of preservation of most of the Kashmírian buildings; not one of these temples has a name excepting that of Marttand, which is called in the corrupt Kashmírian pronunciation, matan, but they are all known by the general name of *Pándavón-ki-lari*, or "*Pándus-houses*," a title to which they have no claim whatever, unless indeed the statement of Ptolemy can be considered of sufficient authority upon such a subject. He says, "circa autem Bidaspum Pandovorum regio"—*The kingdom of the Pándus is upon the Betasta* (or Behat), that is, it corresponded with Kashmír. This passage would seem to prove that the Pándavas still inhabited Kashmir so late as the second century of our era. Granting the correctness of this point, there may be some truth in the universal attribution of the Kashmírian temples to the race of Pandus, for some of these buildings date as high as the end of the 5th century, and there are others that must undoubtedly be much more ancient, perhaps even as old as the beginning of the Christian era. One of them dates from 220 B. C.

7. Most of the Kashmírian temples are more or less injured, but more particularly those at Wantipur, which are mere heaps of ruins. Speaking of these temples, Trebeck* says, "It is scarcely possible to imagine that the state of ruin to which they have been reduced has been the work of time, or even of man, as their solidity is fully equal to that of the most massive monuments of Egypt; earthquakes must have been the chief agents in their overthrow." I have quoted this

* Travels, v. 2—p. 245.

passage to show the utter confusion that characterises the ruins of the Avantipura temples. In my opinion their *overthrow* is too complete to have been the result of an earthquake, which would have simply *prostrated* the buildings in large masses. But the whole of the superstructure of these temples is now lying in one confused heap of stones totally disjoined from one another. I believe therefore that I am fully justified in saying, from my own experience, that such a complete and *disruptive overturn* could only have been produced by gun-powder. I have myself blown up a Fort, besides several buildings, both of stone and of brick, and I have observed that the result has always been the entire *sundering* of all parts, one from another, and the capsizing or *bouleversement* of many of them. Neither of these effects can be produced by an earthquake. It seems also that Trebeck and Moorcroft would most likely have attributed their destruction to the same agency, had they not believed that the use of gun-powder was unknown at that time: for, in speaking of a traditional attempt made by Shah Hamadan to destroy Marttand, they say, "It is fortunate he was not acquainted with the use of gun-powder." I admit that this destructive agent was most probably unheard of in Kashmir so early as the reign of Shah Mír Shah of Hamadán: but the destruction of the Kashmírian temples is universally attributed both by history and by tradition to the bigotted Sikander, whose idol-breaking zeal procured him the title of *But-shikan*, or "Ikonoklastes." He was reigning at the period of Timur's invasion of India, with whom he exchanged friendly presents, and from whom I suppose that he may have received a present of the "villainous saltpetre." This is not at all unlikely; for the furious Tamerlane was as great an idol-breaker as Sikandar himself. Gibbon, it is true, denies that either the Mogals or the Ottomans in 1402 were acquainted with gun-powder: but as he points out that the Turks had *metal* cannon at the siege of Constantinople in A. D. 1422,* I think it is no great stretch of probability to suppose that gun-powder itself had been carried into the East, even as far as Kashmír, at least ten or twenty years earlier; that is, about A. D. 1400 to 1420, or certainly during the reign of Sikandar, who died in 1416.

8. Even if this be not admitted I still adhere to my opinion that the complete ruin of the Avantipura temples could only have been

* Decline and Fall, c. 65—note 93.

ELEVATIONS OF KASHMIRIAN PILLARS.

GRECIAN PILLARS

DORIC

Fig. 1.

Fig. 2.

Fig. 3.

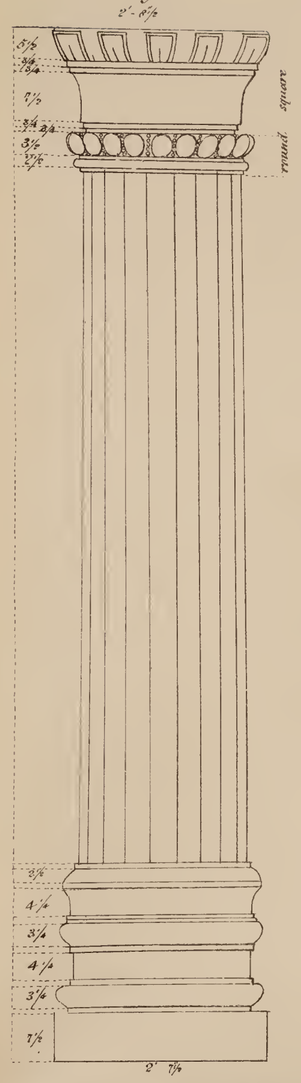


Fig. 8

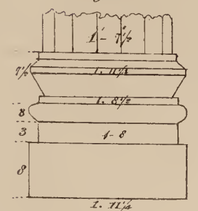


Fig. 4.

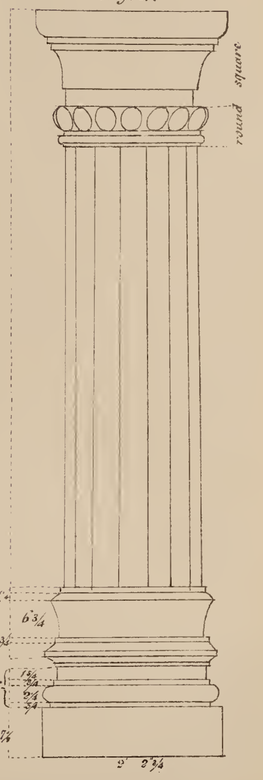
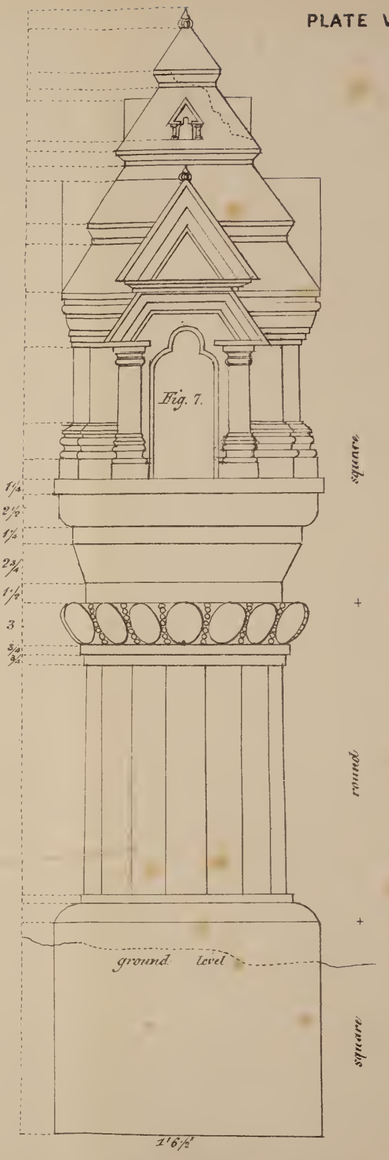


Fig. 5.

Fig. 6.

Fig. 7.

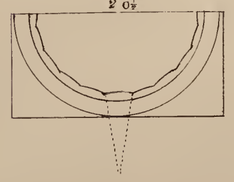


CORINTH.

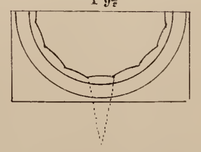
ATHENS.
Parthenon.

MÁRTTAND.

Porch.

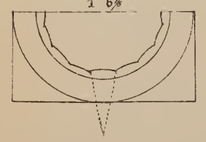


Peristyle.



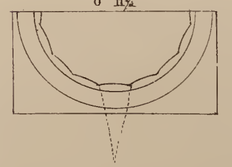
AVANTIPUR.

Peristyle.



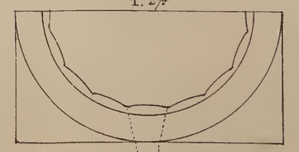
PÁMPUR.

Peristyle.

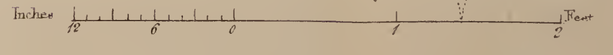


SRINAGAR.

Isolated Pillar.



N.B. Radius of Flutes = one half of Lower Diameter.



A. Cunningham delt.

T Black Asiatic Lith Press Calcutta

effected by gun-powder, and I would then ascribe their overthrow to the bigotted Aurangzeb. Ferishta* attributed to Sikandar the demolition of all the Kashmírian temples save one, which was dedicated to Mahadéva and which only escaped "in consequence of its foundation being below the surface of the neighbouring water." In A. D. 1580-90 however Abul Fazl† mentions that some of the idolatrous temples were in "perfect preservation;" and Ferishta himself describes many of these edifices as being in existence in his own time, or about A. D. 1600.‡ Besides, as several of them are still standing, although more or less injured, it is quite certain that Sikandar could not have destroyed them all. He most likely gave orders that they should all be overturned; and I have no doubt that many of the principal temples were thrown down during his reign. For instance, the tomb of his own Queen in Srinagar is built upon the foundation, and with the materials of a Hindu temple: likewise the wall which surrounds the tomb of his son, Zein-ul-Ábud-din, was once the enclosure of a Hindu temple—and lastly, the entrance of a Masjíd in Nowa-Shehra of Srinagar, which according to its inscription was built during the reign of his son Zein-ul-Ábud-din, is formed of two fluted pillars of a Hindu peristyle. These instances prove that at least three different temples in the capital alone must have been overthrown either by Sikandar or by one of his predecessors. But as the demolition of idol temples is not attributed to any one of the earlier kings, we may safely ascribe the destruction of the three above mentioned to Sikandar himself.

9. But besides the ruthless hand of the destroyer, another agency less immediate, but equally certain in its ultimate effects, must have been at work upon the large temples of Kashmír. The silent ravages of the destroyer who carries away pillars and stones for the erection of other edifices, have been going on for centuries. Pillars from which the architraves have been thus removed have been thrown down by earth quakes, ready to be set up again for the decoration of the first masjíd or tomb that might be erected in their neighbourhood. Thus every Mahomedan building in Kashmír is constructed either entirely or in part of the ruins of Hindu temples. An instance of the transfer of

* Briggs, v. 4—p. 465.
† Ayin Akbari, v. 2—p. 124.
‡ Briggs, v. 4—p. 445.

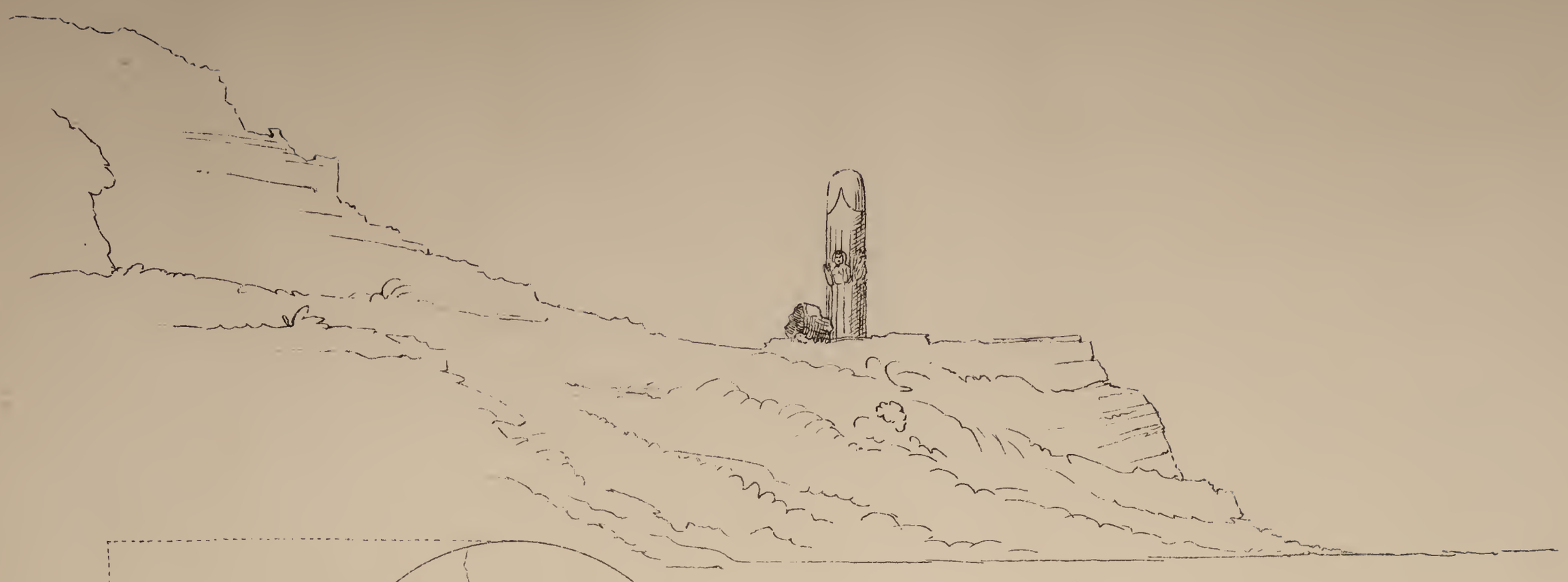
materials I saw myself in November, 1847, when the ruins of Nur Jehán's palaee (itself built of Hindu materials) were daily being removed for the construction of additional buildings attached to the Sher-garhi. To the other cause I would attribute the disappearanee of the second pillar that within the last 25 years adorned the gateway of the Wantipur temple. One only is now standing (see Plate XIX.), but Moorcroft* in 1823 saw *two*, "eaeh supporting masses of stone of extraordinary size."

10. From the deseription of these temples given by Ferishta it is evident that some of them were much more perfeet in his time than any of those are whieh now exist. He deseribes them eorreetly enough,† as being situated within quadrangles and resting upon raised terraces—but they had transferred the "massive solid eolumns, eaeh of a single stone," from the peristyles to the temples themselves. The apartments within, he adds, are small, being in general only 12 feet square, and on the walls are seulptures of human figures, some representing mirth, others grief. In the middle of one of the temples there is a throne, cut out from the solid roek, on which is a minaret with a dome." The last was most probably a Buddhist temple with an interior *chaitya*. Unfortunately, no traee of this now exists, unless indeed the deseription may be taken as bearing a distant resemblanee to the Buddhist cave temple of Bhaumajo.

11. The great size of most of the blocks of limestone and the enormous massiveness of others, which have been used in the eonstruetion of the Kashmírian temples, perhaps first led the people to ascribe their foundation to the raee of Pándu: for even now they gravely assert that none but giants eould have raised sueh ponderous masses. When I assured them that I had seen bloeks of twice the size of the largest drawn upon carts in England, they politely shrugged their shoulders, and seemingly assented, saying, "It may be so" (hoga), but they evidently did not believe it. I am eonvineed however that none of them knew the exaet size of these blocks of limestone, and that they have only a vague impression of their magnitude being mueh too great for the weakened powers of man in this iron age to move. I measured several of these stones—one lying to the right of the gateway of the

* Travels, v. 2—p. 244.
† Briggs, v. 4—p. 446.

View of the Site of the ***Pravareswara*** *Symbol.*



CARYATID FIGURE

FROM THE

PORTICO OF THE ERECTHEUM,

AT ATHENS.

VIEW

OF THE

PRAVARESWARA SYMBOL OF MAHÁDEVA,

AT **PÁNDRETHÁN, KASHMIR;**

ERECTED A.D. 400 – 415.

Scale, ¼ Inch = 1 Foot

Inches 12 6 0 1 2 3 4 5 6 7 8 9 10 Feet

Avantipura temple (Plate XIX.) was $10 \times 5 \times 2\frac{1}{2}$ feet—and Vigne* mentions one of almost exactly the same size, over the entrance to the inner chamber of Márttand. Its dimensions were not less than 10 feet in length, by about a yard in thickness. The lower roofing stone of the Payach temple is 8 feet square by 4 feet in height. As a cubic foot of the Kashmírian limestone weighs $166\frac{1}{2}$ lbs., each of the above blocks must weigh nearly 17 tons.—But even such massive blocks, although heavy enough for all purposes of solidity, and sufficiently large for the greatest stretch of Kashmírian intercolumniations, were much too small to suit the exaggerated ideas which had been formed of Pándavan architecture. Accordingly we find even the sober Ferishta† gravely asserting that "many of the stones are from 40 to 60 feet in length, and from 3 to 15 feet in thickness and width"—or just four times the actual size of the blocks which I have measured. The other dimensions given by him are also much exaggerated: thus, he says that the walls of the quadrangles are from "500 to 600 feet in length, and in many parts nearly 100 feet in height." The longest side of the Márttand quadrangle is 249 feet on the exterior, and the height of the gateway was about 54 feet, or just one half of the dimensions stated. I have quoted these passages to show how little dependence can be placed in the most detailed dimensions even of the most trustworthy native authors; and I now proceed to describe the temples themselves from my own notes and measurements, with occasional illustrations from Moorcroft, Hugel, and Vigne.

II.—*Temple on the Takht-i-Sulimán.*

1. The oldest temple in Kashmír, both in appearance and according to tradition, is that upon the Takht-i-Sulimán hill. It is now called *Sankaráchárya;* but the Bráhmans in the valley were unanimous in their belief that its original name was *Jyeshteswara.* Its erection they ascribed to Jaloka, the son of Asoka, who reigned about 220 B. C. The old Hindu name of the hill however was *Sandhimána-parvata,* which is said to have suggested the Mahomedan designation of *Takht-i-Sulimán,* from the similarity of sound between the two. The name

* Kashmir, v. 1—p. 390.
† Briggs, v. 4—p. 445.

of Sandhimána was derived from the Bráhman minister of Jayendra, who reigned from A. D. 341 to 360, or no less than five centuries and a half after Jaloka. Now the attribution of the Jyeshteswara temple to Jaloka rests solely upon the authority of the following verse of the Raja Tarangini, B. 1, v. 124:—

प्रतिष्ठां ज्येष्ठरुद्रस्य श्रीनगर्यां वितन्वता ।
तेन नन्दीशसंस्पर्द्धा न मेने सोदरं विना ॥

which is thus translated by M. Troyer:—

"Après avoir répandu a Srinagari la vénération du premier Rudra, il se ralentit de sa ferveur pour Nandisa par l'absence de la fontaine (sacrée.)

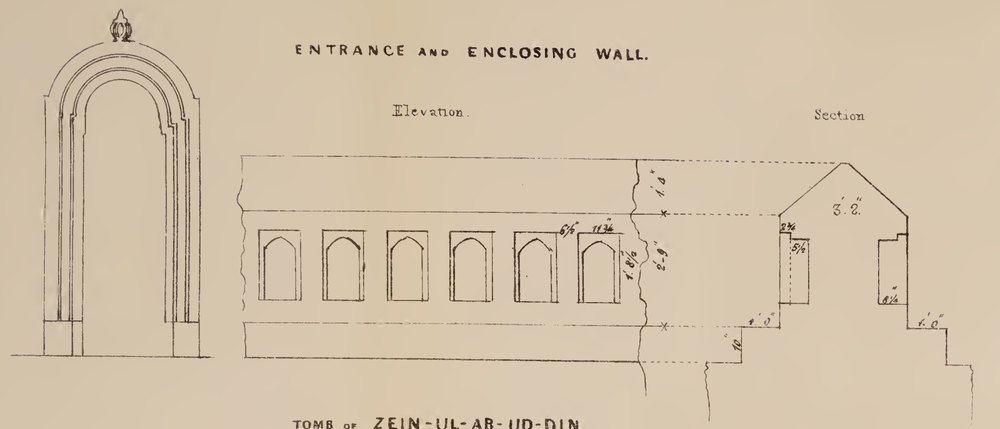
2. In the original the word which is translated "premier Rudra," is *Jyeshta-Rudra*, a name of exactly the same meaning as *Jyeshteshwara*, the "supreme lord," and which is used here only as a synonyme of Siva, who in this same verse is likewise designated by another name, as *Nandisa*, or "Lord of Nandi," his attendant bull. It is true that the verse distinctly attributed to Jaloka the extension of the worship of Jyeshteswara throughout the city of Srinagar; and that the temple of Jyeshteswara on the Takht-i-Sulimán was within the bounds of the old capital, which extended from the Takht-i-Sulimán as far as the present Pánthasok to the south-east. Both the position and the name of the old temple therefore agree very well with the record of the Raja Tarangini, and which is still further borne out by the undoubted antiquity of the building itself. On the very same authority the Bráhmans likewise ascribe the building of a temple to Nandisa, at the place now called Nandymarg, behind Bij Bihára.—But as the actual erection of a *temple* to Jyeshteswara is not distinctly mentioned, some shadow of doubt must always rest upon this attribution.

3. It would naturally be supposed that the hill must have been known by the name of the temple that crowned its summit: instead of which it is called Sandimána-parvata. Perhaps some part of this hill may have been the scene of the burning of Sandhimána's body; for after the cremation, when he became regenerated as Arya Raja, he is said to have built on that very spot a temple named *Sandheswara*.* The belief in this miracle would have been quite sufficient for the attri-

* Raja Tarangini, B. 2—v. 134.

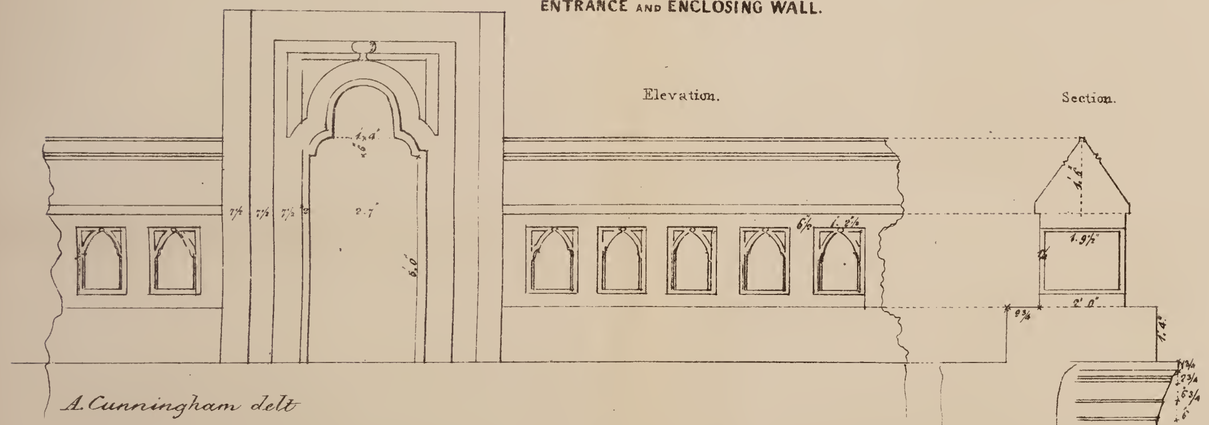
TEMPIE OF JYESHTESWARA ON THE TAKHT-I-SULIMÁN HILL.

ENTRANCE AND ENCLOSING WALL.



TOMB OF ZEIN-UL-AB-UD-DIN

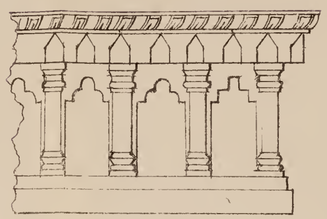
ENTRANCE AND ENCLOSING WALL.



FRIEZES.

SRINAGAR.

N° 3



N° 2

MARTTAND

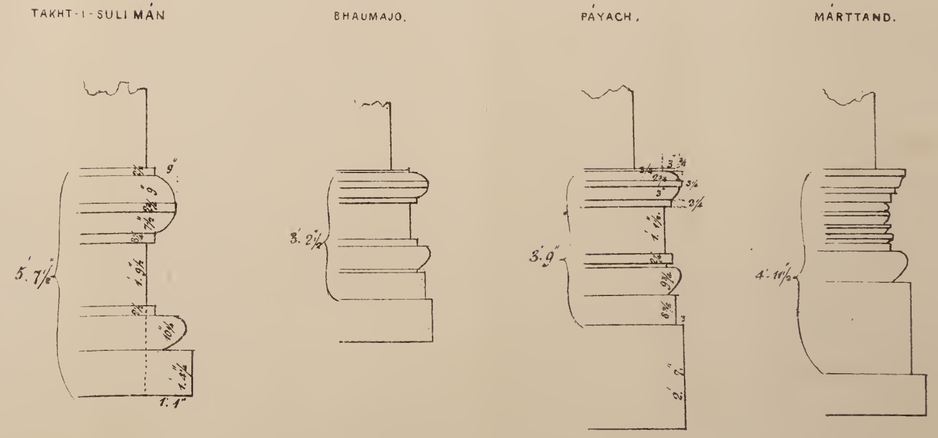
A.D. 500

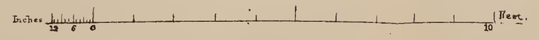
N° 1

MARTTAND.

A.D. 700.

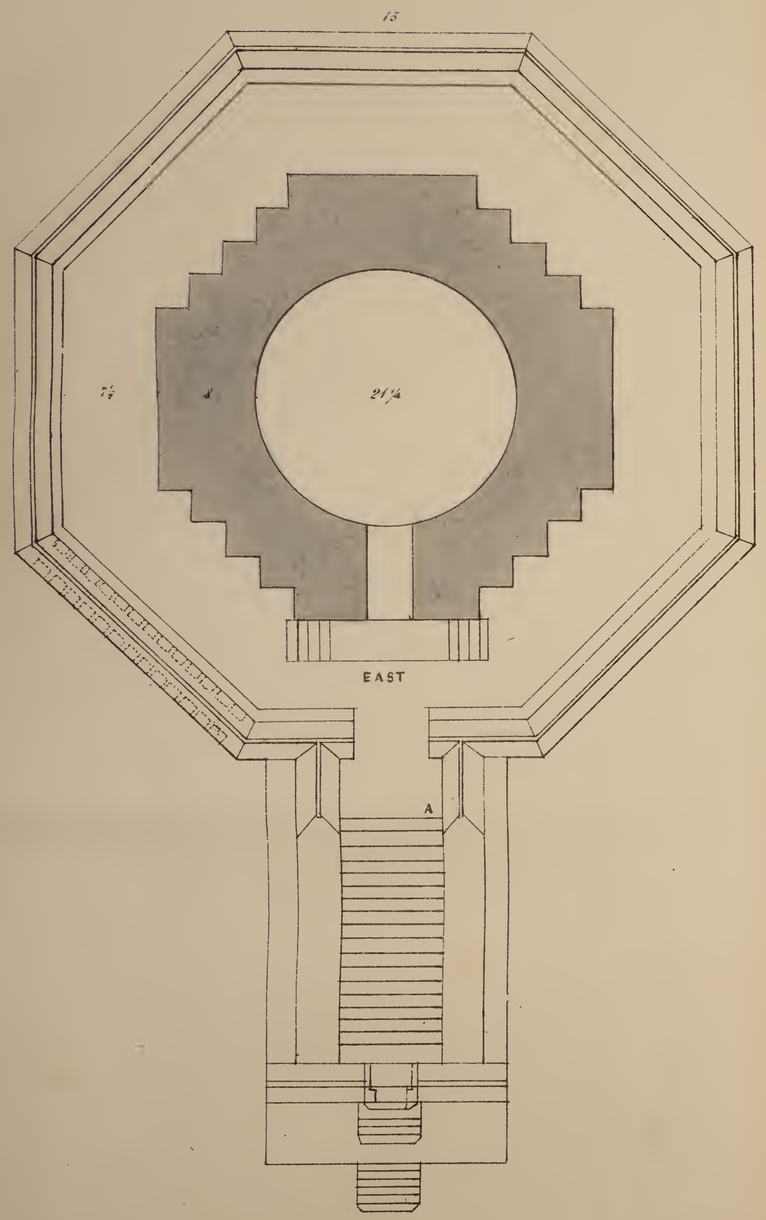
BASEMENTS





T Black Artist Lith Press Calcutta.

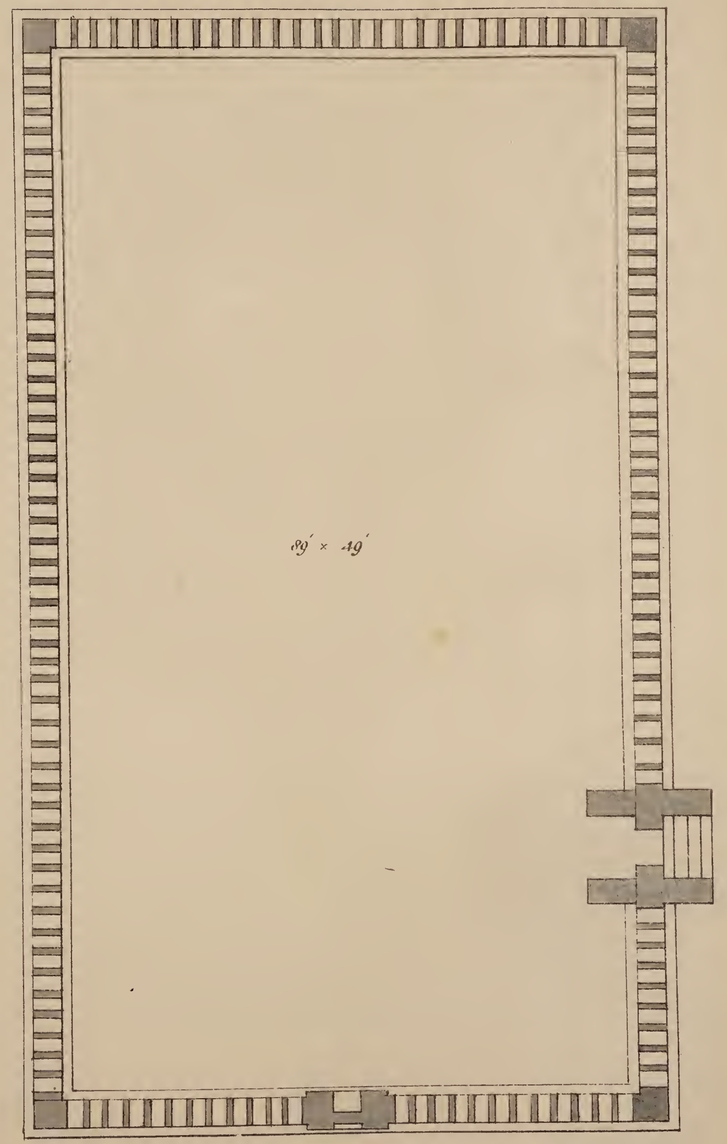
PLANS OF TEMPLES AND ENCLOSURES, KASHMIR.



TEMPLE OF **JYESHTESWARA** OR **SANKARÁCHÁRYA**

ON THE TAKHT-I-SULIMAN HILL.

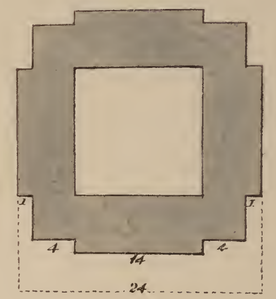
B. C. 220

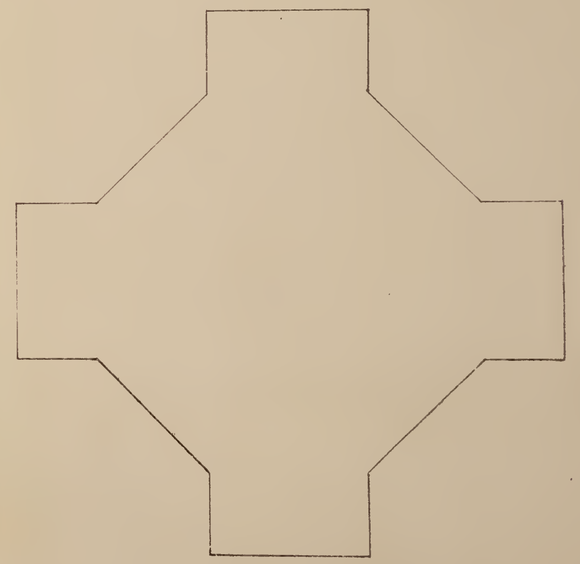


ENCLOSURE OF **ZEIN-UL-AB-UD-DIN'S** TOMB,

SRINAGAR.

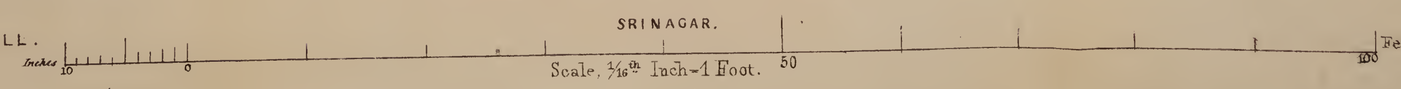
TEMPLE OF **PADMASWÁMI**, PAMPUR.





TOMB OF **ZEIN-UL-AB-UD DIN'S** MOTHER.

SRINAGAR.



bution of a new name even to an old locality; and as the name of Sandhimána still clings to the hill, we must perhaps rest content with the assumption that such was the fact: and that the temple of Jyeshteswara on its summit was most probably built by Jaloka about 220 B. C. In this case the ruins which exist just below the temple may be the remains of that named Sandheswara. They are mentioned by Vigne,* who likewise considered them to be the remains of a temple.

4. Vigne also assigns the building of the upper temple to Raja Gopaditya; but the *Raja Tarangini*† merely states that he erected a Jyeshteswara upon mount Gopa, which may be, and probably was, only another name for the Takht-i-Sulimán: but of this we have no evidence. Now Gopaditya reigned from A. D. 238 to 253. It is quite possible therefore that the temple of Jyeshteswara may have been either repaired or rebuilt by Gopaditya, who at the same time may have imposed his own name upon the hill.

5. The situation is a noble one, and must have been amongst the first throughout the whole valley which was selected as the position of a temple. It stands one thousand feet above the plain, and commands a view of the greater part of Kashmír.

6. The plan of this temple is octagonal, each side being 15 feet in length. The entrance, the back, and the two flank walls are perfectly plain; but the other four walls are broken into a succession of salient and re-entering angles, as shown in Plate IX. The light and shade thus produced offer an agreeable variety to the bald massiveness of the other walls. The height of the original temple cannot now be ascertained,‡ as the present roof is a modern plastered dome which has, I believe, been built since the occupation of the country by the Sikhs. The interior, which is a circle of $21\frac{1}{2}$ feet in diameter, is perfectly plain and very dark; the entrance being a narrow passage only $3\frac{1}{2}$ feet in width. The walls are therefore 8 feet thick; which I consider as one of the strongest proofs of the great antiquity of the building.

7. The basement of the temple has much the same style of moulding as those of the Bhaumajo and Páyach temples: but it differs from them in being but slightly projected beyond the face of the wall. The

* Kashmír, v. 2—p. 59.
† B. 1—v. 343.
‡ See Note in the Section on Basements.

different members are altogether more massive; and in my opinion betoken an earlier style of building.

8. It is surrounded by an octagonal enclosure parallel to the walls of the temple, at only $7\frac{1}{2}$ feet distance. This enclosing wall is 3 feet 2 inches in thickness and 4 feet 2 inches in height; and stands upon a basement 5 ft. 2 inches broad, and 10 inches high. The lower portion, $2\frac{3}{4}$ feet in height, is ornamented both on the outside and inside by small rectangular panels, 1 foot $8\frac{1}{2}$ inches in height by $11\frac{3}{4}$ inches in breadth, and $2\frac{3}{4}$ inches in depth: and in each of these panels there is a pointed arched recess $5\frac{1}{2}$ inches in depth. There are twelve of these recesses in each of the seven unbroken sides of the octagonal enclosure. The whole number of recesses is therefore 84: and in each of these I presume that there was once a miniature *lingam* or emblem of Siva, as in the larger chambers of the Saiva temples at Avantipura and Pathan, to be hereafter noticed. The top of the wall, 1 ft. 4 inches in height, is triangular in section and perfectly plain. See plate VIII. In this primitive example I think that I can trace the germs of that style of enclosure, which, by gradual development, was afterwards expanded into the noble colonnade of Márttand.

9. The temple is approached by a flight of 18 steps, 8 feet in width, and enclosed between two sloping walls. At the foot of the steps there is another wall of the same upper section as that of the enclosing wall of the temple: and in the middle of this wall is the entrance, which is closed by a wooden door. An elevation of this entrance with part of the enclosing wall is given in Plate VIII. It is 6 ft. 10 inches in height, and 1 ft. $11\frac{1}{2}$ inches in width. The top is semi-circular, with a few parallel and perfectly plain mouldings, which are joined to the similar mouldings of the sides by short horizontal returns. The perpendicular mouldings rest upon plain bases, which are made flush with the outermost building. The top is surmounted by a melon-like ornament, similar to that which crowns the summit of most of the Kashmírian buildings.

10. A further notice of this most ancient example of the Kashmírian entrace and enclosing wall will be given hereafter, as well as a comparison between it and the later specimens.

11. In the right hand flank wall, at the point marked A, there is a small slab about 10 inches square, which formerly bore a Persian inscrip-

tion dated in A. H. 1069 or A. D. 1659. I copied this inscription in 1839: but since then it has been so completely defaced by the Dogar soldiery that I could with difficulty trace the name of Takht-i-Sulimán. How little did the idol-breaking Aurangzeb anticipate such a reverse of fortune!

III.—*Cave Temple of Bhaumajo.*

1. This little temple, which is only 10 feet square, and not quite 16 feet high, is the most perfect of all the existing buildings of Kashmír. It stands in a cave which is partly a natural fissure, and partly an excavation of the limestone cliff at a short distance from the holy spring and village of Bhavana or Bháwan, and at about 4 miles to the N. E. of Islámábád. At this point the hill projects into the plain, and has been naturally scarped by the action of the river Lambodari, or Lidar, of which a considerable branch still washes the base of the cliff immediately beneath the great cave. There are also many other narrow fissures at different heights above the ground, which are known as Siva's cave, Bhimá-Devi's cave, &c.; and there are likewise numerous square chambers hewn out of the solid rock at its base, which once were most probably the monastic dwellings of Buddhist priests. The large cave in which the temple stands, is situated considerably higher than the others, it being upwards of 60 feet above the level of the river.

2. The cave and temple are both known by the name of Bhaumajo; which in the Kashmírian *Túkra* character, is written 𑆦𑆳𑆫𑆩𑆪𑆯 Bhaumajova. But I cannot help suspecting that it is only the Sanskrit भौमज्योतिस् *Bhauma-jyotis*, the "Planet Mars." This derivation however, the Kashmírian Bráhmans would not allow, though they admitted that *Bhauma* was the name of a Rishi. Now as Vrihaspati, or the planet Jupiter, is also the name of a Rishi, Bhauma may certainly be considered as the Regent of the planet Mars, if not as the actual star itself.

3. There is not even a traditional clue to the date of the building: but I have little doubt that it is one of the oldest of the Kashmírian temples. Indeed its massive simplicity, its unadorned pilasters, its unbroken tympanum, and its plank-like roof, all point to a much earlier period than that of the most ancient of the authenticated structures,

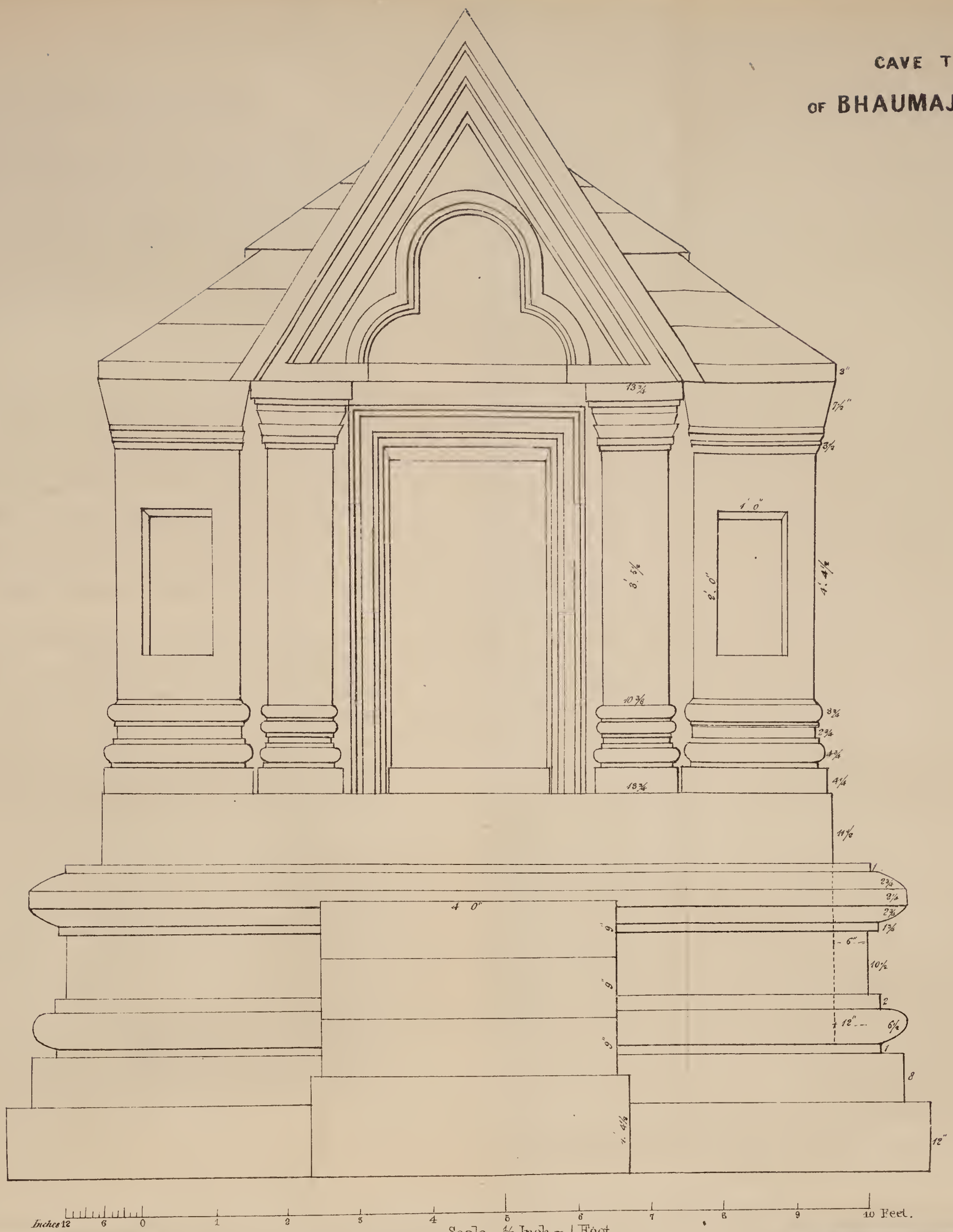
excepting only that upon the Takt-i-Sulimán. The wonderful temple of Márttand, as the Hindu historian himself calls it, with its lofty roof and highly ornamented walls, was built either in the third or the fourth century; and as its style differs fully as much from that of the plain low-roofed temple of Bhaumajo, as the style of the Parthenon does from that of the temples of Pœstum, a considerable interval must have elapsed between the dates of their construction. The building of this temple cannot therefore be placed much later than the commencement of the Christian era.

4. In plate X. I have given a plan and an elevation of this temple: together with plans of the caves of Bhaumajo and of Bhimá-Devi. The latter is a straight narrow fissure, 160 feet in length, which gradually widens out towards the end into two small chambers, from 16 to 20 feet across, and from 12 to 15 feet in height. In each of these there is a shapeless waterworn stone, which is considered holy by the Hindus. The larger cave of Bhaumajo is 55 feet long, 25 feet broad, and from 10 to 20 feet in height. Baron Hugel* erroneously states that this cave is about "20 feet long and 12 feet high and broad," but these dimensions must certainly have been recorded from memory, for mine are given from measurements made by myself. Moorcroft did not visit these caves, and Vigne† was deterred from entering by the stench of innumerable bats. Before I visited it I had all the bats turned out, and their dung removed: but still the task of measurement was rendered extremely unpleasant by a villanous smell, and still more by the myriads of bugs which were swarming over the glistening walls of the temple.

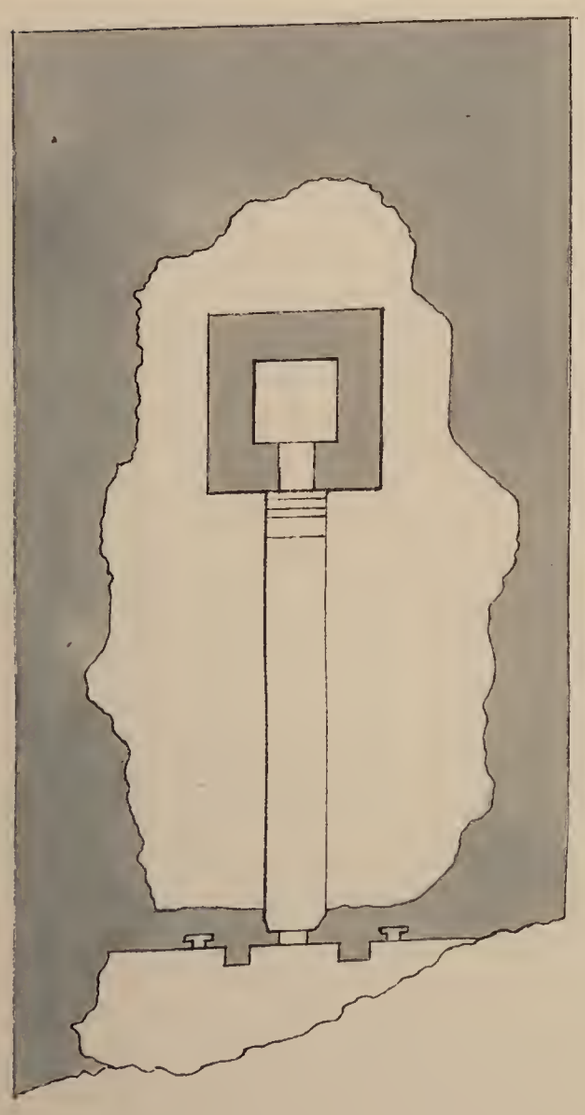
5. There are numerous dressed stones in the interior of the cave, and there are also two low stone walls flanking a narrow pathway, which leads to the steps of the temple. The same arrangement I have observed in most of the Buddhist temples in Ladák and in Upper Kanáwar: and I am therefore disposed to consider this building as a Buddhist structure. The existence of the numerous excavated cells at a short distance from the cave would seem to prove the correctness of this appropriation, as they appear to have been the usual accompaniments of the monastical institutions of the Buddhists; being destined either for the reception of figures or for the dwellings of the priests.

* Eng. translation, p. 36.
† Kashmír, v. 2—p. 4.

CAVE TEMPLE
OF BHAUMAJO, KASHMIR.

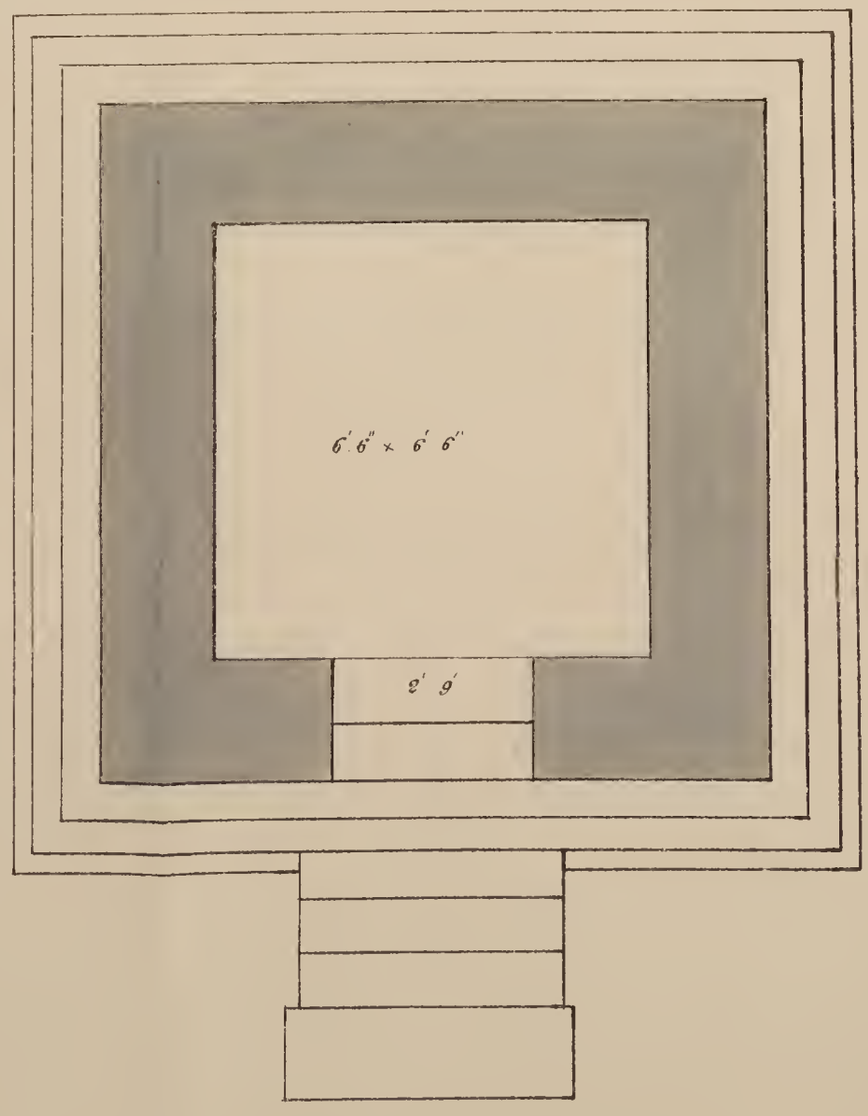


Scale, ½ Inch = 1 Foot.



Scale, 1 Inch = 20 Feet.

Cave of Bhaumajo.



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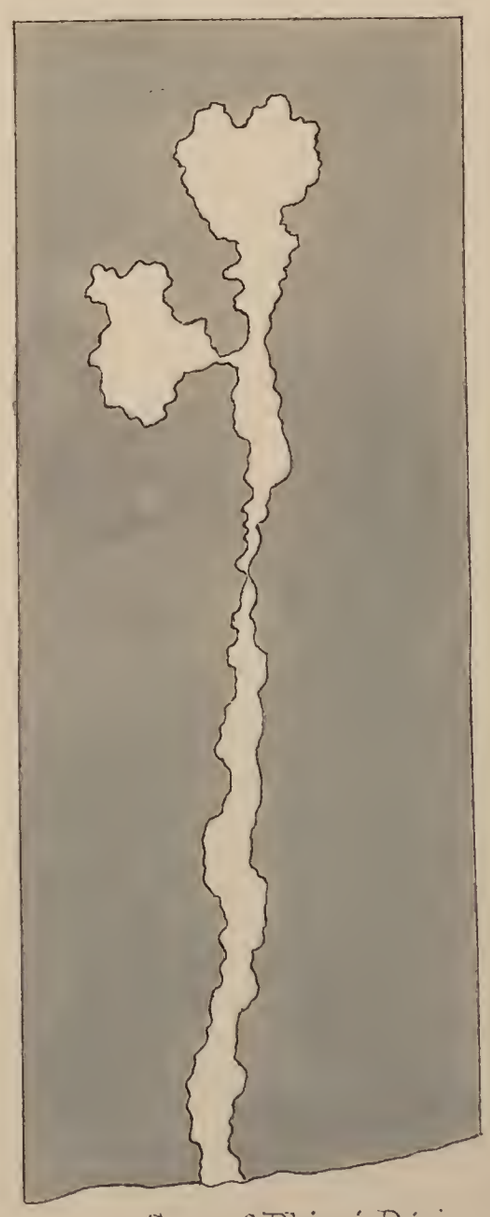


Cave of Bhimá Dévi.

Scale, 1 Inch = 40 Feet

A. Cunningham delt.

6. The temple of Bhaumajo is a square of $6\frac{1}{2}$ feet, interior side, with walls 1 foot 10 inches in thickness. The doorway is small and low; being only $2\frac{3}{4}$ feet broad, by $4\frac{3}{4}$ feet high. It is surmounted by a pediment, of which the tympanum is occupied with the trefoiled decoration common to all the Kashmírian buildings. In this instance however the trefoil is a mere ornament, as it rests upon the architrave which covers the pilasters of the doorway, instead of being supported, as is always the case in other examples, upon slender independent pilasters of its own. Yet even in this temple, although the architrave is unbroken, it is still somewhat retired in the central portion immediately above the doorway. Its erection must therefore have preceded in date that of all the other temples of Kashmír, in which the architrave is always completely broken through, and the base of the tympanum is reduced to two short returns of the horizontal mouldings of the pediment, each of which serves as a sort of upper abacus to the pedimental pilasters. In the oldest of the Kashmírian buildings the architrave forming the base of the pediment was no doubt preserved in its full integrity; but I was unable to discover a single example of so early a date.

7. Another peculiarity in this temple consists in the height of the doorway pilasters, which are made flush with the top of the main pilasters and walls of the building: whereas in all other examples the crowns of the doorway pilasters are generally made of the same height as the bases of the main pilaster capitals, or even lower, as at Márttand.

8. Lastly, the pyramidal roof of the Bhaumajo temple is remarkable for its extreme lowness, the height being only one half of the breadth of the temple, instead of being exactly equal to it, as in most other examples. Like them it is broken into two portions; but it wants the dividing band of ornament, which characterizes all the other temple-roofs. In this respect the roof is an exact copy in stone of the sloping timber roofs usual in Kashmir; such for instance as those of the buildings in the Shálimár garden. I therefore consider this as an undoubted proof of the antiquity of the temple.

9. The entrance to the cave of Bhaumajo has a structural doorway covered by two pediments; one within the other, and each having a trefoiled tympanum. The smaller trefoil rests upon the architrave of the pilasters, which, as in the temple itself, is partially retired in

the middle; but the outer trefoil is supported upon independent pilasters; and the architrave, which would have interfered with the inner pediment, is altogether omitted. Perhaps it was this neeessity, of either breaking or omitting the architrave of the *outer* pediment that eventually led to the same treatment with the *inner* one. This entrance was formerly gained by a flight of steps, of which some of the stones still remain, but not in position, and I obtained aeeess at first with some difficulty.

IV.—*Temple of Páyach.*

1. This elegant speeimen of Kashmírian arehiteeture is situated on the bank of a small sparkling brook at the little village of *Páyach*, or as it is written in Nágari पायच्छ *Páyachchha*, which most likely derived its name from the stream: पाय *páya* signifying "water" and अच्छ, *achcha* "clear." The full name of the hamlet is *Payachchha-gráma*, the "village on the elear stream." The name of the temple itself has been forgotten; but three different Bráhmans informed me that it was built by Raja *Nal*, *Nar*, or *Nand*. This is not indeed very preeise; but in the absenee of all other reeords this elose agreement in the name beeomes of value. Even the slight variations of the traditional name would seem to give a elue to the right one; for there is but one Raja throughout the Kashmírian list to whom these different names can be applied. This prinee is *Narendráditya* who was also called *Nandravat*, in whieh names we have both the *Nar* and *Nand* of my informants. Now in the following verse of the Raja Tarangini the erection of a temple is direetly attributed to this very prinee. B. 3—v. 383

पद्मावत्यां सुतस्तस्य नरेन्द्रादित्य इत्यभूत ।
लक्षणापरनामा यो नरेन्द्रस्वामिनं व्यधात् ॥

which I translate as follows:—

"Padmávati bore a son named *Narendráditya* or *Lakshana*, who built the temple of *Narendraswámi*." This Raja reigned between the years 483—490. A. D.

2. There are but two other prinees of similar name posterior to Nandravat, namely Nirjita-varmma, and Nandi-gupta. As each of them however reigned only one year, and as the Raja Tarangini does not mention any temples of their construction, it seems highly probable

that the attribution made by me is correct. Indeed the fortunate agreement of the tradition with the record of the native history of the country almost increases the probability to certainty. And yet in spite of this remarkable concurrence I cannot help harbouring a suspicion that this temple owes it erection to the same period as that of the well authenticated structure at Pándrethán. Vigne* also was of opinion that this was the most modern of the Kashmírian temples. I have been led to this suspicion solely by the great similarity of the internal decorations of the two temples. But at the same time I must confess that the ground-plan of the Páyach edifice assimilates more closely with that of Márttand, than with those of later date at Avantipura, Pathan and Pándréthan.

3. But there is another evidence in favor of this appropriation in the fact that both the temples of *Páyach* and of *Narendraswámi* were undoubtedly dedicated to Siva. The dedication of Páyach is known by the presence of a *lingam* which still stands intact in the middle of the building, and by the representation of the Bull Nandi upon the capitals of the supporting pilasters of the trefoiled niche. The name of the enshrined Deity in the temple of Narendraswámi is ascertained by the title of *Swámi*, which is one of the names of Siva. It is true that a *Swámi* does not necessarily signify a Saiva temple; but unless otherwise specified it is always intended as such. Altogether therefore the balance of evidence and of probability is decidedly in favor of the early date which I have assigned to the temple on the concurrent authority of tradition and of the record of the Raja Tarangini.

4. The remarkably perfect state in which this temple still exists is no doubt, as suggested by Vigne, partly owing to its retired situation on the westward and immediately beneath the steep side of the Karewat (or elevated alluvial flat) of No-nagar. This position is some miles to the eastward of the high road leading into Kashmír, and entirely screened from observation by the Karewah from any point of the great thoroughfare along the bank of the river. But I attribute its preservation chiefly to the extreme solidity of its construction: the walls being made each of a single stone, and the roof of no more than two stones. A reference to plates XI. and XII. will show the disposition of the six stones, which form the superstructure of this temple. In the former

* Kashmir, v. 1—p. 392.

Plate, A. B. C. D. E. F. and G. E. F. H. K. I. are the two roofing stones, and I. L. N. R. P. and M. K. T. S. O. are two of the four stones which form the walls. In the latter Plate, A. B. C. and D. are the four wall stones.

5.—An attempt has once been made, as noticed by Vigne, to pull down this temple; but either through accident or superstition, or perhaps solely owing to the difficulty of moving such massive stones from their positions the attempt was fortunately abandoned. The design certainly could not have been to destroy the temple, but only to remove it to some other position; for the attempt was made with the upper stone of the roof which still remains displaced about five inches to the eastward. In the elevation of Plate XI. I have, for the sake of symmetry, restored this stone to its original position. A destroyer would no doubt have made sure work by beginning below; as the removal of a single corner-stone would have completely overthrown the building.

6.—The removal and appropriation of the Hindu temples would appear to have been a favorite practice with the Mahomedan saints of Kashmír, who thereby acquired a double benefit: renown during life by the overthrow or desecration of Idol houses, and a lasting tomb after death by the appropriation of the Idol houses to themselves. Thus Syad Mahomed Feroz appropriated the Hindu temple of Pánthasok पान्यशोक, of which one cloistered recess yet exists; and Syad Mahomed Madani appropriated another temple, of which two of the fluted pillars of the peristyle, and the intervening trefoiled recess, with the human-headed birds, are still standing within the tomb.

7.—This elegant little temple is only 8 feet square in the superstructure and 21 feet high, including the basement, which is almost a literal copy of that of the cave temple of Bhaumajo. The mouldings indeed are exactly the same both in form and in disposition, which may perhaps be taken as another indication of the antiquity of the Páyach temple, although there are some slight differences in the relative proportions of the different members. The temple has four doorways with a flight of steps to the eastward: and in the niches formed by the trefoils over each doorway there are sculptured representations of Siva and of other Hindu deities. The roof as usual is broken into two distinct portions by an ornamental band. This band is divided into square spaces alternately projecting and retiring. The latter are occupied by flowers; but the pro-

jecting ends are carved into three upright mouldings slightly rounded at top and bottom and surmounted by a straight and horizontal band. The resemblance which these bear to the dentils of classical architecture is remarkably striking: and I suspect that these diglyph ornaments are a direct imitation of the Doric, and not an accidental likeness. In either case they represent the ends of beams. In the former they are the ends of the beams overlying the architrave: in the latter the lower set are the ends of the beams which supported the pyramidal roof, while the upper set are either the ends of the horizontal ties of the wooden tresses; or of the beams of an upper floor in the roof, a construction particularly common throughout the eastern hills of the Punjáb.

8.—Each of the blank sides of the upper roof is appropriately occupied by a niche similar in form to the doorway of the temple: but the head of the niche is semi-circular and not trefoiled, while the upper part of the tympanum is filled by a flowered ornament. The common trefoil was however also used in this position as may be seen in the small temple which crowns the isolated Srinagar Pillar represented in Plate VI, as well as in the upper part of the roof of the Pándrethán temple. Lastly the top is crowned by a melon-like ornament surmounted by a concave-sided cone, which forms a very suitable finish to the building by preserving the pyramidal form which is the characteristic feature of the Kashmírian architecture.

9.—In the interior the walls are plain, but the roof is hollowed out into a hemispherical dome, of which the centre is decorated by an expanded lotus flower. Vigne* erroneously says that the "ceiling of the interior is radiated so as to represent the Sun." But, in addition to my experience and knowledge of Hindu decorations in general, I have the testimony of the accurate Trebeck, who states that the interior of the temple of Pándrethán was "quite plain with the exception of a large *lotus* sculptured on the roof." A reference to my drawings of the two roofs, which were made from measurements, will prove the truth of Trebeck's description as well as of my own. Vigne was probably misled by his belief that the temple was dedicated to Vishnu, as *Surya* or the *Sun-god*; but the presence of the *lingam* as well as the representations of the bull Nandi, decides, beyond all possibility of doubt, that the temple was appropriated to Siva.

* Kashmír, v. 2.—p. 41.

10.—The lower edge of the dome is ornamented by three straight-edged fillets and by a beaded circle. The spandrils are filled by single naked and winged figures (of rather spirited execution), who with outstretched arms and legs would appear to be supporting the roof. Vigne calls these three figures *jins* or *genii,* which unfortunately are Mahomedan creations, and have no more right to a place in a Hindu temple, than the angels Gabriel and Raphaël. They are probably *Yakshas ;* the demigod inhabitants of mount Kailása—which was the favourite residence of Siva. The dome itself rests upon the cornice which is formed of six plain straight lined mouldings, as shown in Plate XI. An enlarged and beautiful specimen of this roof may be seen in that of the Pándrethán temple delineated in Plate XXI.

V.—*Temple of Márttand.*

1.—Of all the existing remains of Kashmírian grandeur the most striking in size and situation is the noble ruin of Márttand. This majestic temple stands at the northern end of the Karewah (or elevated table-land) of Matan and between three and four miles to the eastward of Islámábád. This is undoubtedly the finest position in Kashmír. The temple itself is not now more than 40 feet in height ; but its solid walls and bold outlines towering over the beautiful fluted pillars of the surrounding colonnade give it a most imposing appearance. There are no petty confused details ; but all are distinct and massive and most admirably suited to the general character of the building.

2.—Many vain speculations have been hazarded regarding the date of the erection of this temple, and the worship to which it was appropriated. It is usually called *Pándavon-ki-laré* or " House of the Pándus" by the Bráhmans, and by the people *Matan.* The first is exactly the same as Moorcroft's *Khána Pánduwa* which is only a Persian rendering, that was most likely derived through his Mahomedan Munshi. The name recorded by Hugel and Vigne of *Kaura-Pandu* has, I believe, no reference whatever to the Kaurawas as supposed by them, but bears precisely the same meaning as the other terms ; *Gharo-Pándava* being another Kashmírian name for " House of the Pándus." The true appellation however is preserved in *Matan,* which is only a corruption of the Sanskrit Márttand मार्त्तण्ड, or "the Sun," to whom the temple was de-

PLATE XIV.

VIEW

OF THE

TEMPLE OF MÁRTTAND, OR THE SUN,

NEAR BHÁWAN, KASHMIR:

WITH ITS

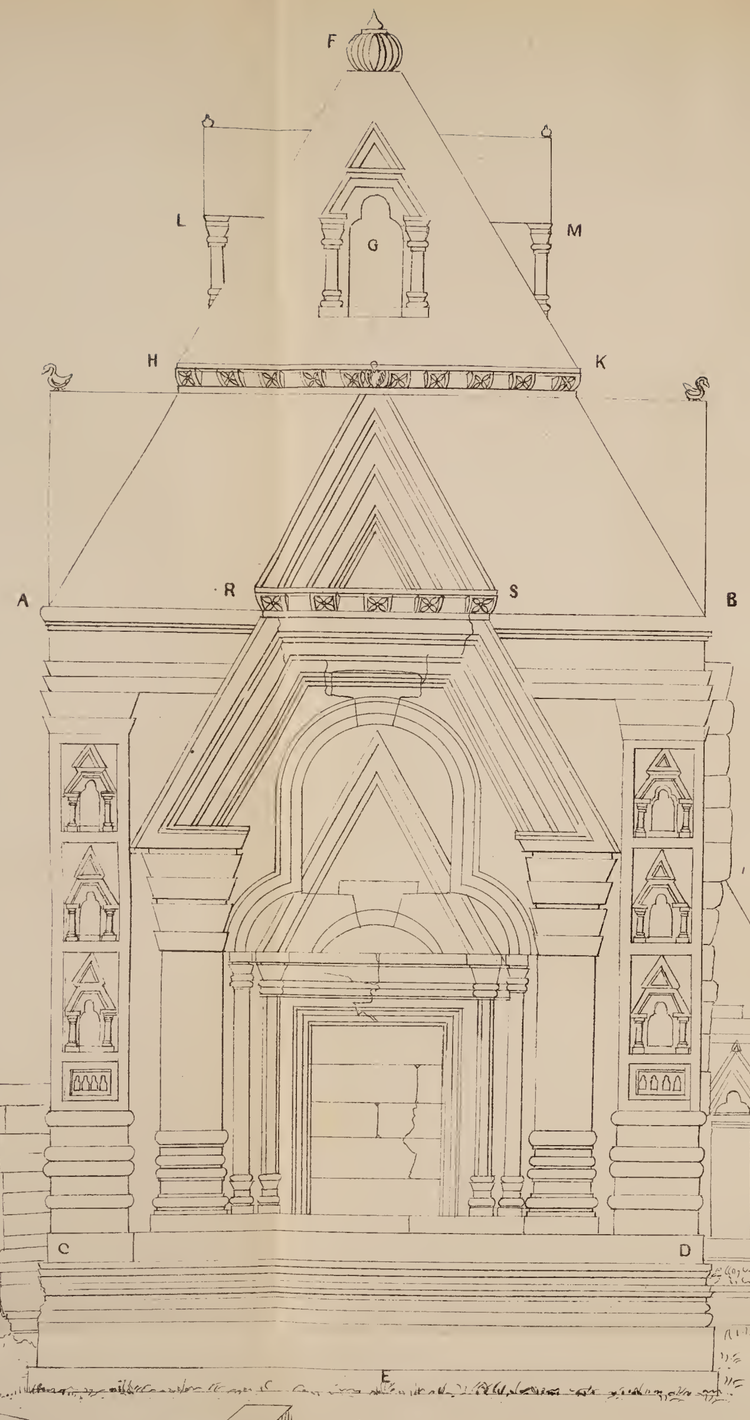
PYRAMIDAL ROOF RESTORED.

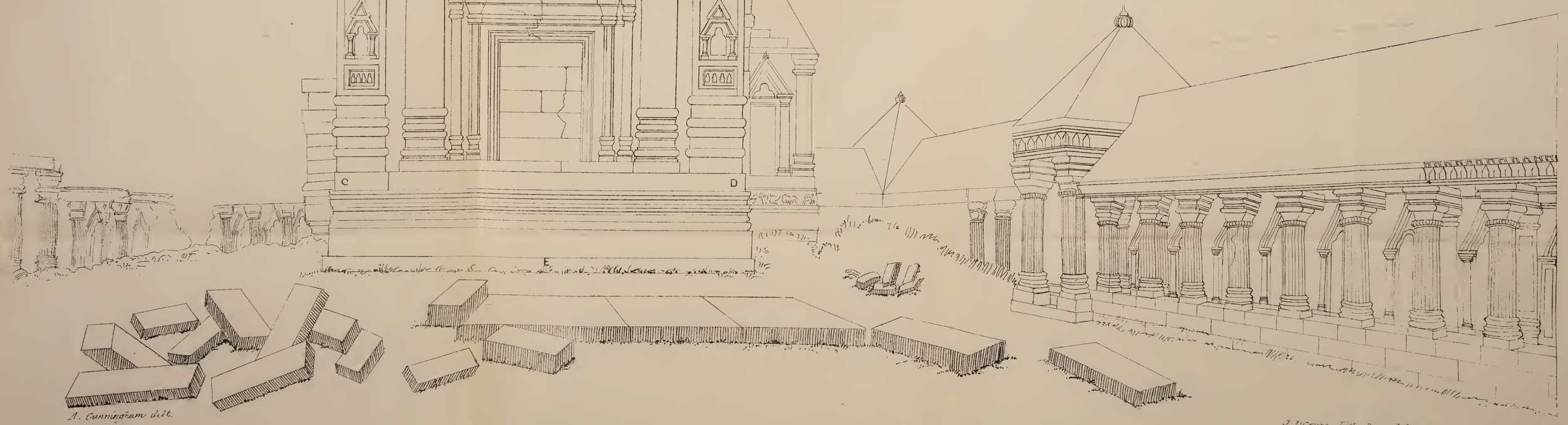
The existing portions are shaded.
The restorations are plain.

TEMPLE BUILT A.D. 490-555.

COLONNADE „ , A.D. 693-729.

Scale, 8 Feet = 1 Inch.





A. Cunningham delt.

J. D'Cruze Lith. Press Calcutta.

EAST

TEMPLE OF RANAPURASWÁMI.

TEMPLE OF AMRITESWARA.

PLAN

OF THE

TEMPLE OF MARTTAND, OR THE SUN,

NEAR BHÁWAN, KASHMIR.

The existing portions are shaded
The restorations are plain.

TEMPLE BUILT A.D. 490 – 555.

COLONNADE ,, A.D. 693 – 729.

Scale, 20 Feet = 1 Inch.

10 5 0 50 100 *feet*

A. Cunningham delt.

J. D. Cruze Lith: Press Calcutta.

WEST

dicated. The temple itself is mentioned in the following verse of the Raja Tarangini: B. 3—v. 462.

ख्यातिं रणपुरस्वामिसञ्ज्ञया सर्वतोगतं।
स सिंहरोत्सियामे मार्त्तण्डका प्रत्यपादयत्॥

which is thus translated by M. Troyer, vol. II. pp. 112—462. "Il construisit aussi dans le village Sinharotsika un sanctuaire au soleil, lequel, sous le nom de Ranapuraswámi, acquit une renommée répandue partout."

2.—In the original the term used for the Sun is *Márttand;* and there can be no doubt therefore that the celebrated temple of Matan or Márttand is the edifice referred to. But the name of the temple which was erected by the King is *Ranapuraswámi,* or as it is called in the next verse *Ranesa,* both of which terms have precisely the same meaning, as "Lord of Rana" or Ranaditya, and would usually imply the king's devotion to Siva. In M. Troyer's translation however the temple is expressly said to have been dedicated to *Márttand* or the Sun; and as this name has adhered to the building down to the present day, there can be little doubt of the correctness of my appropriation. There would appear to be a slight error however in M. Troyer's translation in the transfer of the epithets from the *sun* himself to the title of *Ranapuraswámi.* I have consulted two intelligent Brahmans upon this point, and as their opinion agrees with mine I will venture to give my own rendering of the above couplet, as follows:—

"He in the village of Sinharotsika, erected (a temple) named Ranapuraswámi to the famous all-pervading Sun." The true name of the temple would therefore appear to be *Ranapuraswámi,* which has been completely superseded by that of Márttand; the deity to whom it was dedicated.

3.—I have a suspicion however that two different edifices may possibly be indicated in the above verse. In support of this we have 1st, the probability abovementioned that the temple of Ranapuraswámi must have been dedicated to Siva, and 2nd, the fact that the author of the Raja Tarangini in mentioning the erection of the surrounding colonnade calls the temple by the name of *Márttand* and not by that of *Ranapuraswámi.* Judging from these two points alone, I conclude that two different temples are most probably referred to; the principal one dedi-

cated to the sun as *Márttand*, and the smaller one to Siva as *Ranapuraswámi*. This view receives further support from the record of the next succeeding verse of the Raja Tarangini. B. 3.—v. 463.

अमृतप्रभया तस्य राज्ञः पत्न्यान्यया कृतः।
दक्षिणस्मिन् रणेशस्य पार्श्वे देवोऽमृतेश्वरः॥

which I translate thus :— " Amrita prabhá, one of the king's wives erected an *Amriteswara* close to the south side of *Ranésa*." Here the substitution of *Ranésa* as a synonyme of Ranapuraswami increases the former probability almost to a certainty that the temple so named must have been dedicated to Siva, as Isa is a title *peculiar* to that God.

4.—We have thus the mention of no less than three distinct temples which correspond exactly both in number and position with the existing buildings now known by the general title of Matan or Márttand. To the northward, within $4\frac{1}{2}$ feet of the principal temple, which I assign to *Márttand* or the Sun, there is a small edifice containing two chambers, which from their shape and dimensions could only have been intended for the reception of *linga* or emblems of Siva ; and this I suppose to be the fane of *Ranapuraswámi* or *Ranésa*. Again, *due south* from this, exactly as described by the Kashmírian author, there is a corresponding Saiva building that can only be the temple of *Amriteswara*. The accuracy of the description, as well as the names of the different fanes, are thus verified by the relative positions of the existing buildings. These are faithfully represented in Plate XIII. in which the northern detached building or wing must be the temple of *Ranesa*, and the southern one that of *Amriteswara*.

5.—If the correctness of this attribution be admitted, some slight alteration must be made in the translation of the first quoted couplet of the Raja Tarangini, which might I think be rendered with almost equal accuracy as follows : " He, in the village of Sinharotsika, erected (a temple) named Ranapuraswámi, near (that) of the famous all-pervading Sun." All difficulties are thus removed by this slight change, which has every probability in its favour, although perhaps not strictly allowable.

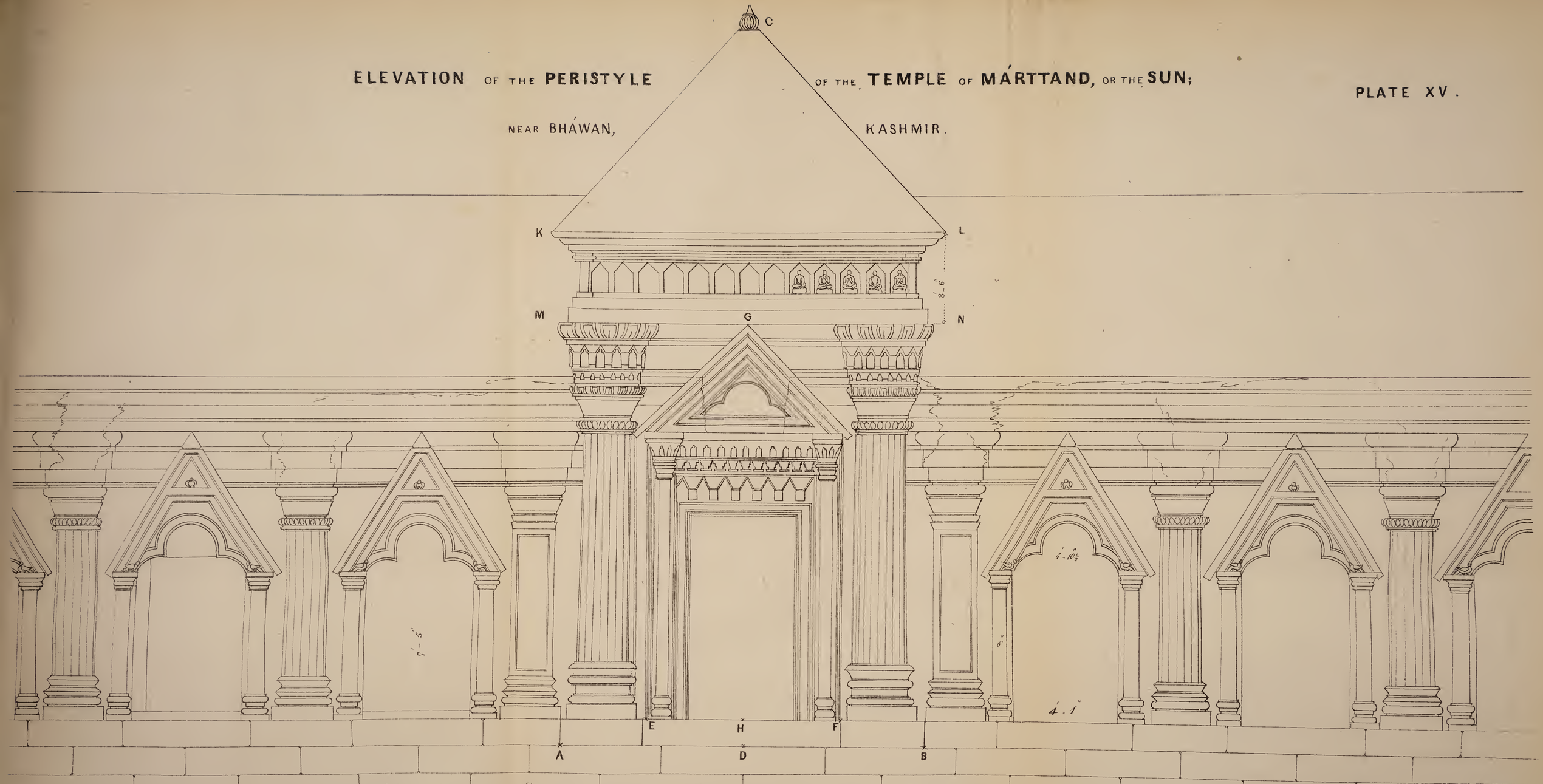
6.—The period of Ranaditya's reign must next be determined. According to the native historians, * he was the most powerful Prince of the line of Gonerda, and equal to Ráma amongst the race of Raghu.

* Raja Tarangini, B. 3—v. 473.

ELEVATION OF THE PERISTYLE OF THE TEMPLE OF MÁRTTAND, OR THE SUN;

NEAR BHÁWAN, KASHMIR.

PLATE XV.



A. Cunningham delt.

Inches 12 6 0 Scale ½ Inch = 1 Foot. 10 ft

T.D. Cruze Lith. Press Calcutta.

The same authority also says that he reigned for 300 years; and M. Troyer, the learned translator of the Raja Tarangini, has attempted to unravel this knotty point of Kashmírian chronology, but in my opinion without the least success. I believe that the native author must have mistaken the Vikramáditya of Ujain, who placed Matrigupta upon the throne of Kashmír for the celebrated Vikramáditya Sákári of Ujain. Now the mention of *Dinars* in the reign immediately preceding, proves that the author's Vikramáditya could not have lived until after the period of Roman ascendancy in the east, when the Indian trade was followed by Roman sailors, and when, as we learn from the Periplus, the Roman *denarii* were exchanged with advantage against the gold coin of the country. Now *Dinárs* are also mentioned in the *Sáchi* tope inscription of Chandragupta of Magadha, who flourished during the end of the 4th and the beginning of the 5th centuries, who was also Lord of Ujain, and who on his coins takes the title of Vikramáditya. These facts no doubt must have misled the Kashmírian author, who, to fill up the gap that thus resulted, could fortunately invent no better plan than the miraculous lengthening of one Prince's reign to 300 years.

7.—I published this identification of the Vikramáditya of Kashmírian history with Chandragupta Vikramáditya no less than six years ago, in the Numismatic Chronicle of London; and I still adhere to the general correctness of my Kashmírian chronology published at the same time, which places the reign of Ranaditya between the years 480—555, A. D. In a disputed point of chronology however which involves the true date of the erection of a temple, the wonder of Kashmír, it may be as well to quote the dates given by other authorities. According to the Raja Tarangini, which is followed by Troyer, Ranaditya flourished between the years A. D. 217—517. According to Wilson's corrected chronology, he reigned from A. D. 545 to 568; but this date must be curtailed by 21 years, the amount of Wilson's own error, which will place Ranaditya's reign between the years 524—547, A. D. Now as the different dates of Ranaditya's death correspond within a few years, or between 517—555, A. D. it seems quite certain that this Prince must have flourished in the earlier part of the first half of the 5th century. We may therefore safely assume A. D. 500, as being within a few years of the true date of the erection of the two subordinate temples of Ranesa and Amriteswara.

8.—The date to be assigned to the large temple of Márttand itself can only be conjectured, as I can find no mention of it in the Raja Tarangini. The plan of the body of the temple, as already noticed, is very similar to that of Páyach, which I have assigned to the reign of Narendraditya, the predecessor of Ranaditya. In the later temples of Avantipura, Pathan, and Pándréthán, all the porticos of the four sides project considerably more beyond their main walls than those of the older temples of Bhaumajo, Páyach, and Márttand; of which the particos are almost flush with the rest of the building. Taking these indications as slight proofs of rather an earlier style, I think that the erection of the great Sun-temple may perhaps be ascribed to a somewhat earlier period than that of the building at Páyach. Now amongst the predecessors of Narendraditya I find only two who were sufficiently powerful to have erected such an extensive and costly building: namely, Arya Raja, who reigned from 360 to 383, A. D.; and Meghaváhana, who reigned from 383 to 400, A. D. As the latter however was a zealous Buddhist, the erection of a sun temple can scarcely be attributed to him. The date of its foundation may therefore be fixed approximately at A. D. 370, during the reign of the zealous Saiva prince, the regenerated Arya Raja.

9.—As the temple of Márttand is the most celebrated specimen of the Kashmírian architecture, I think it right to state every suggestion which presents itself for the determination of the true period of its erection, I will therefore give another version of the recording couplet of the Raja Tarangini, which appears to me quite as probable as the former one. This new rendering is as follows: "He, in the village of Sinharotsika, erected (a temple) named Ranapuraswámi, (and another) to the famous all-pervading Sun." This version attributes the erection of both temples to Ranaditya, who reigned about A. D. 500. But whichever rendering may be accepted as the correct one, the date of the foundation of the temple will still be within the limits of little more than one century—or between A. D. 370 and 500.

10.—Fortunately there is no doubt regarding the date of the erection of the noble peristyle of Márttand, which, thanks to the author of the Raja Tarangini, is distinctly recorded in the following verse, B. 4—v. 192—

सो ऽखण्डिताश्मप्राकारं प्रासादान्नर्व्यधत्त च ।
मार्त्तण्डस्याद्भुतं दाता द्राक्षास्फोतं च पत्तनं ।।

which I translate thus :—

"This benefactor likewise built an *enclosure* of polished stone around the wonderful temple of Márttand, and the town of *Drákshásphita*, (abounding-in-vines)." The compound word *akhanditasma* is rendered "solid stones" by Troyer, but although it means "unbroken" or "uncut," it also signifies "without crack or flaw"—and I have therefore translated it by "polished" to make the description agree with the actual peristyle alluded to, of which the walls are *not* solid, while the stones are certainly *polished*.

This statement refers to the celebrated Lalitáditya, who reigned over Kashmír from A. D. 693 to 729, or certainly 200 years after the latest date to which the erection of the temple itself can be attributed. This long interval is sufficient to account for many improvements of style which are observable in the colonnade, and more especially in the mouldings of the bases and capitals. The practice of constructing enclosures around the old existing temples, as well as of repairing and re-building the ruined ones, would appear to have been less uncommon in Kashmír than in India. Thus we find that Asoka* built a stone enclosure around the old brick temple of Vijayesa; and that Diddá Ráni† repaired the surrounding walls of all the temples that had suffered by age or fire, and erected stone enclosures around other temples.

11.—The mass of building now known by the name of *Matan* or *Márttand*, consists of one lofty central edifice with a small detached wing on each side of the entrance; the whole standing in a large quadrangle surrounded by a colonnade of fluted pillars with intervening trefoil-headed recesses. The central building is 63 feet in length—by 36 feet in width at the eastern end, and only 27 feet in width at the western or entrance end. It contains three distinct chambers, of which the outermost one, named *Arddha-mandapa*, or the "half temple," answering to the front porch of the classical fanes, is 18 feet square. The middle one, called *antarála*, or "mid temple," corresponding to the *pronaos* of the Greeks; is 18 feet by $4\frac{1}{2}$ feet; and the innermost one named *garbha-griha* or "womb of the edifice," the *naos* of the Greeks,

* Raja Tarangini, B. 1—v. 105.
† Ibid. B. 6.—v. 307.

and the cella of the Romans, is 18 feet by $3\frac{1}{2}$ feet. The first is open and highly decorated, in accordance with its name, *mandapa*, meaning literally "the ornamented." The middle chamber is likewise decorated in the same style: but the inner chamber is perfectly plain and closed on three sides. The walls of the temple itself are 9 feet thick, and its entrance chamber only $4\frac{1}{2}$ feet thick, being respectively one-half and one-fourth of the interior width of the building.

12.—On each side of the porch or *arddha-mandapa*, flush with the entrance wall to the westward, and with the outer walls of the temple, or *garbha-griha*, to the northward and southward is a detached building or wing, 18 feet long by $13\frac{1}{2}$ feet broad, with a passage $4\frac{1}{2}$ feet wide between it and the wall of the entrance chamber. These wings, called *paksha*, correspond in some degree with the πτερωματα of the Greeks. It is true that the latter were *attached* colonnades, while the former were distinct buildings. But as both were attached to the main edifice by a roof supported upon architraves, there is much similarity between them. That such was the case with the wings of Márttand I feel confident; for the width of the passage between the *paksha* and the *arddhamandapa* being exactly one-third of that of the wing itself, the roof which covered the two would have been an exact square, which is the very form required as the basis of the pyramidal roof of the Kashmírian architecture. I am happy to be able to quote the opinion of so sensible and accurate an observer as Moorcroft* in favor of my views. His words are, "Opposite to these extremities also were the two wings or chambers, *connected formerly* by a colonnade *with the centre*." As my opinion was adopted some months before I was aware that Moorcroft had formed the same, the coincidence of our independent conclusions may perhaps be considered as the next thing to positive proof.

13.—Vigne† also would appear to have come to a somewhat similar conclusion, for he gives an opinion that these wings were joined "by a flying buttress to the upper part of the central building; particularly as the remains of part of an entablature projecting from the top of the left wing towards the centre building would seem to countenance such an opinion." The existence of this piece of the entablature, which entirely escaped my observation, most satisfactorily proves the correctness

* Travels, v. 2—pp. 255, 256.
† Kashmír, v. 1—p. 391.

of my proposed restoration of the roofs of these detached buildings. The connexion was formed by the prolongation of the entablature of the wings over the intervening passages to the walls of the entrance-chamber. A similar connexion of a detached pillar with a building may be seen in the view of the Avantiswami temple, Plate XIX. Vigne is however undoubtedly wrong when he says that these wings appear to have been a mass of *solid masonry*, for a reference to Plate IX. will show that each of them contained two chambers, which were most probably destined for the reception of the Saiva emblems called *Ranésa* and *Amriteswara*.

14.—As the main building is at present entirely uncovered, and as the upper portions of the detached buildings have long since disappeared, the original form of roof can only be determined by a reference to other temples, and to the general form and character of the various parts of the Márttand temple itself. In Plate XIV. I have restored the roof of the principal building by continuing the pedimental mouldings of the porch upwards until they meet at G. The horizontal denticulated member R. S. is borrowed from the temple of Páyach, and from the little temple which crowns the Srinagar column in Plate VI. The interposition of this member is fully authorized by its occurrence in all the pedimental niches of the interior of Márttand, as well as in those of the recesses of the colonnade as shown in Plates XIV and XV. The angle of the roof itself was obtained by making the sides of the pyramid parallel to the sides of the doorway pediment; a rule which I deduced from the same treatment being observed in the interior niches of Márttand itself, as well as in the roofs of the Páyach and Pándrethán temples. The same rule is also followed in the niches of the great temple at Pathan, and with the small temples in the Baráhmula Pass. The denticulated member H. K. is inserted for the same reasons as are given above for the pediments of the porch. The crowning pinnacle, or *Kalasa*, F, is added on the authority of the Páyach temple; and lastly, the small projecting pedimental niches G. L. and M, are taken from the Páyach temple and from the small Srinagar column in Plate VI.

15.—Now it is remarkable that the total height of the temple, E. F, thus obtained, is exactly equal to twice its width, C. D: for this proportion would seem to have been the favorite and most usual practice (if indeed it was not the invariable rule) followed by the Kashmírian archi-

tects. Thus the height of the Páyach and Pándrethán temples, of the Márttand and Avantipura cloistered recesses, and of the porch-pediments and niches of Márttand itself, were all just double their respective widths. This agreement in the relative proportions of my restored roof of Márttand with those deduced from other examples, is a presumptive proof of the correctness of my restoration.

16.—The entrance-chamber and the wings I suppose to have been also covered by similar pyramidal roofs. There would thus have been four distinct pyramids, of which that over the inner chamber must have been the loftiest, the height of its pinnacle above the ground being about 75 feet. That of the entrance-chamber must have been about 65 feet, and that of each of the wings about 40 feet. If pyramidal tops be added to the three buildings in Vigne's front view of this temple,* a very good general idea of the original appearance of Márttand may be readily obtained.

17.—Such was once the grand mass of building dedicated to the worship of the Sun: a mass, 75 feet in height, 63 feet in length, and the same in breadth, including the wings. The entrance was gained by a wide flight of steps, which are now covered by ruins. On each of the other sides was a closed doorway, surmounted by a trefoiled arch, and covered by a pediment which rose to a height of 60 feet. At the angles of the building on each side of the doorway were stout pilasters, which were divided into panels, each decorated with a miniature representation of the Arian style of temple. These pilasters sustained the entablature, and gave a look of strength and solidity to the walls which was absolutely required for the support of the vast and massive roof. This lofty pyramid of stone was itself rendered lighter, and more elegant in appearance by being broken into two distinct portions separated by an ornamental band, and by the addition of small niches with pointed roofs and trefoiled recesses, all of which were in strict keeping with the general character of the building.

18.—The interior was equally imposing. On ascending the flight of steps the votary of the Sun entered a highly decorated chamber, with a doorway on each side covered by a pediment, with a trefoiled headed niche containing a bust of the Hindu triad. This representation was

* Kashmír, v. 1—p. 388.

T. Black. Asiatic Lith Press. Calcutta.

VIEW OF THE INTERIOR OF THE TEMPLE OF MÁRTTAND, OR THE SUN.

itself only another symbol of the Sun; who was Brahma, or the Creator at Morn, Vishnu or the Preserver at Noon, and Siva or the Destroyer at Even. This is the "Mystic orb triform" of Sir William Jones's hymn to Surya. On the flanks of the main entrance as well as on those of the side doorways were pointed and trefoiled niches, each of which held a statue of a Hindu divinity. That in the larger niche I presume to represent the Sun himself, while those to the right and left are probably intended for some of his wives, for *Chandri* or the "Moon," when in conjunction, for *Sajnya* or "Intellect;" for *Prabhá*, or "brightness"—or for *Aswini*, one of the constellations. The same representations were repeated in the niches of the opposite wall. In Plate XVI. I have given a sketch of the northern wall of this chamber; and a view of the southern wall may be found in Vigne's travels.*

19.—In his sketch of this chamber however the decoration of the entablature which surmounts the niches is altogether misrepresented. Its true character will be seen in Plate XVI. where the leading feature is a niche formed of a trefoiled-headed arch resting upon half engaged semicircular pillars. Each of these niches contains a seated figure connected with the Hindu Mythology, and is separated from its neighbour by a plain pilaster.

20.—The interior decorations of the roof can only be conjecturally determined, as I was unable to discover any ornamented stones that could with certainty be assigned to it. Baron Hugel doubts that Márttand ever had a roof; but as the walls of the temple are still standing, the numerous heaps of large stones that are scattered about on all sides can only have belonged to the roof. The northern wing has still a portion of its roof remaining; and there are besides two curved stones lying on the top of a heap to the northward or right of the temple, as shown in Plate XVI. which certainly must once have formed part of the circular portion of the ceiling. A reference to Plates XI. and XXI. of the Páyach and Pándrethán temples, will show the arrangement and decoration of two of the smaller Kashmírian roofs. The same treatment, which is also of common occurrence in India, was most probably followed with Márttand. The corners of the square were first covered by overlapping stones, which reduced the opening to

* Kashmír, v. 1—p. 390.

an eight-sided figure; the angles of the octagon were next covered by other stones which formed a figure of sixteen sides; and lastly, an upper course of curved stones completed a circular opening which was covered either by one or by two large blocks, hollowed out so as to form a dome like that in the Páyach example. I have been led to conclude that such was the style of the Márttand ceiling, from the existence of the two curved stones mentioned above; which as the trefoiled arches are still perfect, could only have formed part of the circular portion of the ceiling of one of the principal chambers.

21.—The interior of the *naos* or *cella* called, *garbha-griha*, or "womb of the edifice" by the Hindus, was quite plain. This want of ornament was perhaps designed to prevent the votary's attention being withdrawn from the contemplation of the chief object to which the temple was dedicated. No vestige of the consecrated image has escaped the destructive zeal of the Musalmáns: but there can be little doubt that the chamber once contained a figure of the Sun-god, *Márttand*, in his chariot, drawn either by seven or by four green or yellow steeds. The former is the number usually seen in modern representations: but the latter is found upon a very ancient copper seal which was discovered amongst the ruins of Ayodhya. The *green* color is that given in the present day; but the *yellow* is that assigned by the venerable Vedas. The chamber was lighted during the day by semicircular openings over the closed doorways on the three sides, but in the evening, as the entrance was to the westward, the image of the glorious Sun was illumined by his own setting beams.

22.—Indeed I can almost fancy that the erection of this Sun-temple was suggested by the magnificent sunny prospect which its position commands. It overlooks the finest view in Kashmír, and perhaps in the known world. Beneath it lies the Paradise of the East, with its sacred streams and cedarn glens, its brown orchards and green fields, surrounded on all sides by vast snowy mountains whose lofty peaks seem to smile upon the beautiful valley below. Such is the daily prospect from this happy spot: but there are occasional scenes which for sublime magnificence, can scarcely be equalled, and certainly cannot be surpassed. Thus when the blue sky was completely shrouded by heavy masses of clouds which spanned the valley from side to side, I once saw the evening sun burst suddenly forth through the Baráhmula Pass,

The change from gloomy dark to brilliant light,
Was instantaneous :—then from peak to peak,
Through the whole length of Kashmír's happy vale,
The setting sunbeams, from that canopy,
Reflected, over hill and stream and tree
Poured downward such a blaze of golden light,
As filled the heart with joy unspeakable.
There as the sun went down, the dusky pile,
First lost the gladdening brightness of his eye—
And hill and dale, temple and tower and tree,
After his retreating footsteps, one by one,
Sank neath the flowing wave of murky night.

The vast extent of the scene makes it sublime ; for this magnificent view of Kashmír is no pretty peep into a half-mile glen, but the full display of a valley sixty miles in breadth and upwards of a hundred miles in length, the whole of which lies beneath the ken of the "wonderful Márttand."

23.—The temple is enclosed by a pillared quadrangle, 220 feet in length by 142 feet in breadth, containing 84 fluted columns. This number was, no doubt, designedly fixed by the later architect, and is another proof of the dedication of the temple to the sun. For this number, the famous *chourási* (84) of the Hindus is especially emblematic of the sun, as it is the multiple of the twelve mansions of the ecliptic (typified by 12 spokes in his chariot wheel), through which he is carried by his seven steeds in one year ; or it is the product of his seven rays, multiplied by the twelve signs of the Zodiac. The 84 pillars are, therefore, most probably intended for that number of solar rays. Thus even the colonnade is made typical of the Deity to whom the temple is consecrated.

24.—The entrance or gateway stands in the middle of the western side of the quadrangle, and is of the same width as the temple itself. This proportion is in accordance with the ideas of Hindu architectural grandeur : for the rules laid down by them, as quoted by Rám Ráz, give different proportions from six-sevenths to ten-elvenths of the breadth of the temple, for that of each different style of gateway from the most simple to the most magnificent. Outwardly the Márttand gateway resembled the temple itself in the disposition of its parts and in the decorations of its pediments and pilasters. It was open to the

west and east, and was divided into distinct portions, forming an inner and an outer portico, by a cross wall with a doorway in the centre, which was no doubt closed with a wooden door. On each flank of the gateway, the pediment was supported upon massive fluted pillars, $17\frac{1}{2}$ feet in height, or eight feet higher than those of the quadrangle. One of these is still standing to the south of the entrance; and the style of architrave and entablature which connected these pillars with the gateway, may be seen in the view of the ruined temple of Avantiswámi, represented in Plate XIX. I suspect also that the front and back pediments of the gateway were supported upon similar large pillars: but it is possible that the square foundations, which I observed in front, may have been only the remains of the wing-walls of a flight of steps. The roof was, no doubt, pyramidal; for a portion of the sloping mouldings of its pediment was still to be seen on one side, and I also observed the same at the Avantiswámi temple.

25.—It is probable that each corner of the quadrangle must have been covered by a pyramidal roof supported upon large pillars, for there is a broken column yet standing at the S. W. corner, and the bases of three others are still to be traced close to it. It was this broken column that puzzled Vigne so much, as he appears to have taken it for an isolated pillar, which once bore an inscription; but as the pillar is fluted this conjecture must be abandoned. In Plate XIV. will be seen the roofs of two of these corner buildings, according to my ideas of their size and of their connexion with the adjoining roof of the quadrangle. On the outside also at the S. W. angle, I found one of the stones of the decorated entablature, $3\frac{1}{2}$ feet in height, (see Plate VIII. Fig. I. Márttand,) which could only have belonged to such a lofty building at the corner as I have supposed. The decoration of this entablature is similar to that of the interior of the temple, but considerably plainer. This was, perhaps. designed as being more suitable to the exterior which is throughout less highly ornamented.

26.—In the middle of each of the long sides of the colonnade there is a pair of large fluted pillars, 13 feet in height and $8\frac{3}{4}$ feet apart, somewhat advanced beyond the line of the peristyle. On the northern pair of columns, the transverse architraves, connecting them with the wall of the peristyle, are still standing. I suppose that these pillars carried an entablature, $3\frac{1}{2}$ feet in height, of the same description as

that which has been assigned to the corner buildings, and covered by a similar pyramidal roof. The height of the roof, in this case, is determined by making the sides of the pyramid parallel to those of the pediment over the doorway of the intervening recess. In Plate XV. I have given a restored elevation of this porch, with the adjoining parts of the peristyle, from which it will be seen that the total height of the building C. D; thus obtained, is exactly twice its width A. B. As the same proportion is observed in the height of the recessed doorway, where G. H.=2 E. F, and also in the temples of Páyach and Pándrethán, as well as in Márttand itself, there can be little doubt that the general disposition of my proposed restoration is nearly correct.

27.—Both Vigne and Professor Willis (on Vigne's authority) have taken these central portieos for side gateways; but a referenee to my plan in Plate XIII. will show that the square-topped doorway leads only to a small-chambered recess, similar to those between the other pairs of pillars. There are, however, two flank entrances to the quadrangle, one on each side, between the second pair of pillars to the westward of the central porches. These I suppose to have been closed by ornamental wooden doors.

28.—The quadrangle itself contained seventy round fluted pillars, and ten square parallel pillars, which with the four pillars of the central porches, make up the number of 84, that was sacred to the sun. Of these about one half, all more or less imperfect, now remain standing, as shown in Plate XIII. Each pillar was $9\frac{1}{2}$ feet in height, and $21\frac{1}{2}$ inches in diameter, with an intercolumniation of 6 feet $9\frac{1}{2}$ inches. Immediately behind each column, there was a square pilaster, one fourth engaged, appropriately called *Kudyastambha* or "wall pillars" by the Hindus. This peristyle is of the class called peripteral by the Greeks, as the pilasters were exactly one diameter distant from the pillars. Between every pair of these pillars there was a deep recess with a trefoil-headed arch, covered by a pediment, and supported upon small pilasters, or rather upon half-engaged pillars. The imposts were surmounted by human-headed birds facing each other; and a similar bird looking to the front, ornamented the horizontal mouldings of the pediments. Each pillar was connected with its pilaster, and with the main wall by a transverse stone beam, which being broader at top than at bottom, bore the appearance of an upper capital to the pillar. In my elevation, Plate

XV. where the perspective view of these transverse stones is not shown, the general effect looks rather heavy, which is not really the case; for excepting those of the pair of pillars, immediately in front, all these transverse beams are seen resting upon the wall. Their moulded ends cannot, therefore be mistaken for upper capitals. The greatest and most characteristic distinction therefore, between the Arian and Classic orders, lies in the disposition of the architrave. In the latter it lies immediately over the line of pillars; whilst in the former it is placed over the transverse beams. There are consequently no metopes in the Arian architecture.

29.—About one-third of this entablature still exists, principally on the north-eastern side of the quadrangle: but the mouldings have been so much injured by the weather, that their character could only be conjectured, from the general outline relieved against the sky, to be much the same as that of the transverse beams. The upper part of the roof of the quadrangles has entirely disappeared, but with reference to the pointed character of other Kashmirian roofs, its form might have been restored conjecturally as triangular in section, the height being somewhat less than the base. Luckily the enclosing walls of the temple on the Takht, and of the old Hindu temple now occupied by Zein-ul-ab-ud-din's tomb are still perfect; and although they are on a small scale, and of a primitive style, without columns, yet the division of their walls into arched recesses is precisely the same as that followed in the main wall of Márttand. The roofs of the former are both triangular in section; and such no doubt was that of the Márttand quadrangle. Further, as the Zein-ul-ab-ud-din example exhibits small breaks or mouldings on each face, so might it be presumed that the roof of the Márttand peristyle was likewise broken into two portions by an ornamental band, exactly similar to that which I have assigned to the temple itself. As, however, this would impose the observance of the same treatment with the roofs of the central porches and corner buildings, I have not adopted it in my restorations; principally because I do not think that the general appearance would thereby be improved, and partly because the intervention of the ornamental band would make the total height of the central porches somewhat more than twice their own breadth, which was the proportion strictly adhered to during the best days of Kashmírian architecture.

30.—The outer walls of the quadrangle are ornamented by a succession of trefoil-headed panels, similar in shape and size to the recessed openings of the interior. Vigne,* by some oversight, says, that the "outside is completely a blank and unornamented;" a statement that is refuted by his own sketch of the temple, which represents the exterior walls as decorated exactly in the same manner as I have described them.

31.—It appears that some other smaller temples must once have existed within the quadrangle: for there are heaps of stones as well as some traces of foundations at the different places, marked W. X. Y. and Z. in Plate XIII. I have a suspicion also, that the whole of the interior of the quadrangle was originally filled with water to a level within one foot of the bases of the columns; and that access to the temple was gained by a raised pathway of slabs, supported on solid blocks at short intervals, which connected the gateway flight of steps with that leading immediately up to the temple. The same kind of pathway must have stretched also right across the quadrangle, from one side doorway to the other. Similar pathways still exist in the Shálimár gardens, as passages across the different reservoirs and canals. On the outside of the quadrangle and close to the northern side of the gateway there is a drain, by which, of course, the surplus rain and snow water found its exit; thus keeping the surface of the water always at the same level. The temples at Pándrethán, Ledari, and in the Baráhmula Pass, are still standing in the midst of water. I have, therefore, but little doubt that the interior of the quadrangle of Márttand was once filled with water. A constant supply of fresh water was kept up by a canal or water-course from the river Lambadari or Lidar, which was conducted along the side of the mountain for the service of the neighbouring village of Sinharotsika: of which the only remains now visible, are fragments of bricks and pottery that lie scattered over the fields for about half a mile. The object of erecting the temples in the midst of water, must have been to place them more immediately under the protection of the Nágas or human-bodied and snake-tailed gods, who were zealously worshipped for ages throughout Kashmír.

32.—In conclusion I cannot do better than quote the last words of the intelligent Moorcroft† regarding Márttand. "In its present condi-

* Kashmír, v. 1—p. 395.

† Travels, v. 2—p. 256.

tion," says he, "the palace of the Pandus is a precious specimen of ancient art, and deserves a foremost place amongst the remains of Hindu antiquity."

VI.—*Temple at Pámpur.*

1.—At Pámpur on the right bank of the Behat, six miles to the S. E. of the capital, and midway between it and Avantipura, are the remains of a Hindu temple, of which the basement and a few feet of the superstructure are still standing. To the westward at 100 feet is a beautiful fluted column, quite perfect, and a portion of a second fluted pillar of large dimensions, with a square-headed doorway behind them, which now forms the entrance to a Mahomedan tomb. An elevation and section of the perfect pillar is given in Plate VI.

2.—The temple was a square of 22 feet, with four porches, somewhat advanced beyond the main walls of the building. Its height, following the Kashmírian proportion, must have been about 44 feet. It was no doubt also surrounded by a colonnade of fluted pillars, with the intervening recesses, of which the smaller column and doorway mentioned above are perfect specimens. The existence of a larger column likewise shows that there were porches in the middle of each of the long sides of the quadrangle. But more than this cannot now be determined, excepting, perhaps, the name and date of the erection of the temple, which are recorded in the following verse of the Raja Tarangini. B. 4—v. 694.

पद्मस्य पद्मस्वाम्यास्ते क्षितिः पद्मपुरं तथा ॥

"Padma (the maternal uncle of Vrihaspati) built *Padmapura,* and a *Padmaswami.*"

Now as I could not discover any other ruins excepting those above described, it may be presumed, that they are the remains of the temple of *Padmaswami,* which was built during the reign of Vrihaspati, between A. D. 804 and 816. The modern name of *Pámpur* is the Kashmírian corruption of the Sanskrit *Padmapura* पद्मपुर ——, which means "Padma's town," and has not even the most distant allusion either to the lotus, or to the beauty of its women—as suggested by Vigne.*

* Kashmír, v. 2—p. 31

VII.—*Temples at Avantipura.*

1.—The ruins of Avantipura are situated on the right bank of the Behat, about 18 miles to the S. E. of the capital, and midway between it and the temple of Márttand. Avantipura was built by Avanti Varmma, between A. D. 852, and 883, and the opposite Karewah (or elevated table-land) of Nonagar, or "new-town," was so called from this recently established city, Vigne* erroneously states that "Nonagar signifies a place where there are nine lacs of inhabitants," which he calls an exaggeration of the former population of the Karewah. Nonagar *might* mean the "nine towns," but it *really* signifies only the "new-town" as I have stated above.

2.—The ruins consist of four different temples, of which the two that are the nearest to the capital, one on each side of the road, are completely overturned. They are besides so entirely covered by heaps of stone and rubbish, that I found it impossible to trace their former extent. The other two temples have also been overturned, but their foundations, and the outlines of their surrounding colonnades are still existing. The larger one of the two is situated immediately upon the high road, and to the N. W. of the small village now called Wantipur. The smaller temple stands at half a mile to the S. E. of the other and close to the village.

3.—In the Raja Tarangini I find only the record of the erection of two temples at Avantipura itself. There are, however, several other temples mentioned, but without any specific localities. The Brálımans assign the two smaller temples, which are completely ruined, to Sura Varmma, the King's half brother; but the Raja Tarangini merely states that this Prince erected a *Swámi* and a *Gókula*, or temples to Siva and to Krishna. The larger temples they assign to Avanti Varmma, and I think that there can be but little doubt of the correctness of this attribution. For besides the probability, that the larger temples would have been built by the King himself, their names of *Avantiswámi* and *Avanteswara* declare their dedication to Siva. Now this was undoubtedly the case with one of the two existing temples, in which by an excavation that I made in the corner of its surrounding quadrangle, I discovered the pedestal of a *lingam* or emblem of Mahadeva in the trefoil-headed recess between the pillars.

* Kashmír, v. 2—p. 39.

4.—The erection of the two temples by Avanti Varmma is assigned to different periods, in the following verse of the Raja Tarangini. B. 5, v. 45.

अवन्तिस्वामिनं तत्र प्राग्राज्याधिगमात् धृती।
विधाय प्राप्तसाम्राज्यश्चक्रे ऽवन्तीश्वरं तदा।

"This wise one erected *Avantiswámi* before he became King, and Avanteswara after he had attained sovereignty."

5.—Now as there is a very considerable difference in the size of the temples, as well as in the extent of the surrounding quadrangles, it appears to me that the respective periods of their foundation may be safely inferred by assuming, that the smaller temple was built by Avanti Varmma, before his advancement to the throne, and the larger one after his accession, when his increased means enabled him to erect a more costly edifice. For the sake of distinguishing the one from the other, I have taken this assumption as correct, and have named the two temples accordingly; the smaller one as Avantiswámi, and the larger one as Avanteswara, under which names I will now describe them.

Temple of Avantiswámi.

1.—As Avanti Varmma ascended the throne in A. D. 854, the erection of this temple may be placed a few years earlier or in about A. D. 850. The ground-plan is a square of 34 feet, with pilasters at the corners, 5 feet in thickness. The porches are 21 feet wide with a projection $1\frac{1}{2}$ feet in advance of the pilasters. The superstructure of this temple has been entirely overturned; and although amongst the confused heap of stones, there are many which still preserve portions of the different mouldings and decorations almost in their original freshness, yet I feel that it would be presumptuous to attempt even the simplest kind of restoration. From the stones which still exist I can say positively, that the temple had a porch on each side, with a trefoil-headed arch covered by a pediment; similar in general appearance to the Márttand example, but differing somewhat in details. For instance the imposts of the smaller pediments, within the trefoils, were surmounted by human-headed birds, and the horizontal lines of mouldings of the larger pediments were surmounted by colossal human heads similar to those represented on the Pravareswara Pillar in Plate VII.

GATEWAY AND RUINED TEMPLE OF AVANTISWÁMI AT AVANTIPUR, KASHMIR.
A.D. 852 – 854

T. Black, Asiatic Lith: Press. Calcutta.

In the interior niches too the figures were not carved out of the projecting mass of wall, as at Márttand, but were detached images placed in the recesses prepared for them. If the height of this temple bore the same proportion to its breadth, which was followed in other examples, as at Páyach and Pándrethán, and as in the small temple which crowns the Sri Nagar column, it must have stood about 68 feet above the plain.

2.—The size of the surrounding quadrangle can be distinctly traced on the south by some broken pillars which are still standing, and on the North and East by the line of *superstructure* resting upon the columns; and not as stated by Vigne,* by the line "of stone work that formed the *base* of the colonnade." Vigne's mistake was a very natural one: for the whole of the interior of the quadrangle has at some time been silted up as high as the top of the entablature of the peristyle. When I first saw this ruin I felt certain that such was the fact, by observing that the line of stone work on the North was much higher than the tops of the broken pillars to the South. I therefore made an excavation, 20 feet in length, in the North-eastern corner of the quadrangle, which fully proved the correctness of my anticipations. And further, that the silting must have taken place before the reign of Sikandar Butshikan, in A. D. 1396-1416, as the human-headed birds are not in the least injured, every feature being as perfect as when they were first carved. This excavation also showed that the filling up of the quadrangle must have been gradual at first, for the floors of the trefoiled recesses of the peristyle were built up with stone flush with the upper portions of the bases of the columns; an unsightly work, which I can only suppose to have been rendered necessary by an unforseen influx of water and its attendant silt.

3.—The final and complete silting up of the quadrangle, whether by the gradual process of years, or by some sudden catastrophe, had fortunately been the means of preserving the greater part of this peristyle from the defacing fingers of time, as well as from the destroying hand of Mahomedan bigotry; perhaps at some future day to be unveiled by European archæologists in all its virgin beauty.

4.—In the inside the quadrangle is 172 feet in length by 146½ feet in breadth, the longest sides being to the North and South. In the

* Kashmír. v. 2—p. 25.

middle of the West face stands the gateway, which is somewhat similar in plan to that of Márttand, excepting that the outer porch is only one half as long as the inner one. It is besides not more than 22 feet wide, or two-thirds of the breadth of the building, a proportion much smaller than any of those used in southern India, as detailed by Rám Ráz. To the right and left of the gateway there were the same pillars as at Márttand; but these had 24 fluted sides instead of 20. One of these pillars is still standing, as shown in the view, Plate XIX., but when Moorcroft visited Wantipur in A. D. 1823, there was a pillar on *each* side of the gateway, for he particularly remarks* that "two masses are each side of the entrance, and *each supported by a single pillar*, were of an extraordinary size." The large fallen stone to the right of the gateway measures $10 \times 5 \times 2\frac{1}{2}$ feet, and is probably one of those noticed by Moorcroft. The roof I suppose to have been pyramidal, with projecting pediments similar to that of Márttand.

5.—In the middle of each of the long sides of the quadrangle there was a porch supported as at Márttand, upon a pair of large fluted pillars, of which those on the south are still visible above the ground; and I presume that there were similar buildings at the four corners, as suggested in the description of Márttand. The peristyle itself consisted of 10 square pillars, disposed in the corners, and on each flank of the side porticos, and of 60 round fluted pillars, which together with the 4 large porch pillars, made a total of 74 pillars in the colonnade. An elevation of the north-eastern corner of this peristyle is given in Plate XVIII. This is the portion that I excavated, and which, with the exception of the upper row of stones, is just as perfect and fresh-looking as when it was first executed. The general style is similar to that of Márttand, excepting that the bases of the column are almost plain, and that the capitals are without ornament, whilst on the contrary the pedimental pilasters of the intervening recesses are highly ornamented. The shafts of the pillars are much more graceful, being somewhat higher in proportion to their breadth: but the beauty thus gained is more than counterbalanced by the large plain bases. Behind each pillar there is a pilaster of the same height, with mouldings exactly similar to those of the square pillar represented on the right hand in Plate XVIII.

6.—The trefoiled-heads of the intervening recesses are joined to the

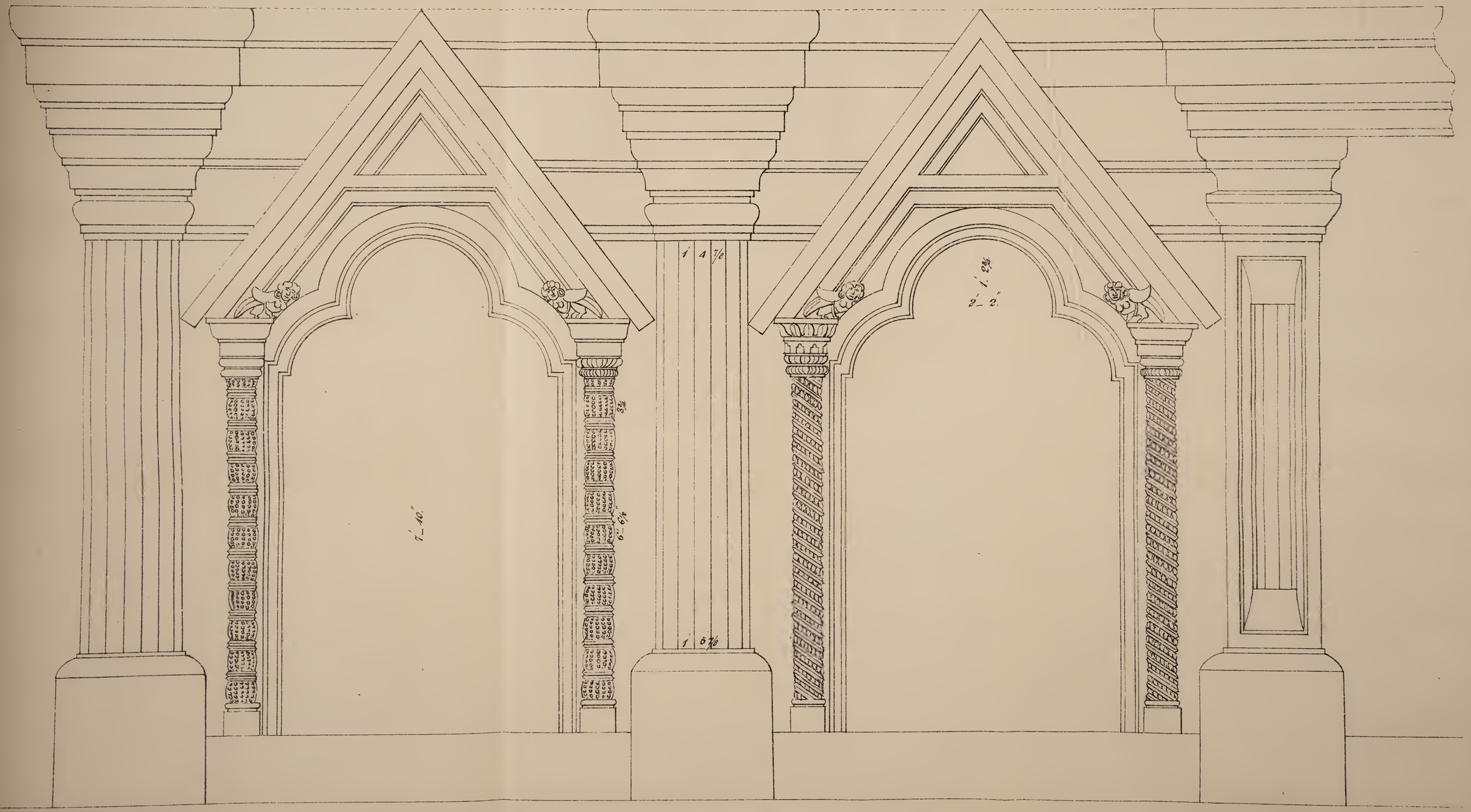
* Travels, v. 2—p. 244.

ELEVATION OF THE PERISTYLE

OF THE TEMPLE OF AVANTISWÁMI,

AT AVANTIPUR, KASHMIR.

Scale, ½ Inch to 1 Foot



A. Cunningham delt.

J.D. Cruze Lith. Press Calcutta

side mouldings of the opening by short horizontal returns, whereas at Márttand they spring at once from the sides of the doorway. The ornaments of the two pairs of pilasters which I excavated differ from each other; and it is possible that different ornaments were used for every pair: but I think it more probable that only these two styles of ornaments were used for the alternate pairs of pilasters throughout the whole extent of the quadrangle. The trefoiled-heads are shorter, although the doorways are five inches higher than those of Márttand; but this difference was imposed by the more obtuse angle of the pediment, which heightened its supporting pilasters, and consequently reduced the space of the tympanum. The only other difference that need be noticed is, that the capitals of the pilasters are highly ornamented, while the bases are quite plain: a contrast which I have already observed in the treatment of the pillars.

7.—In the right-hand recess of Plate XVIII. I discovered the pedestal of a *lingam*, from which I infer that the whole of these recesses must once have been occupied by emblems of Mahadeva.

Temple of Avanteswara.

1.—The raised foundations of this temple, which still exist in a very perfect state, form a square of 82½ feet. The whole of the superstructure has been overturned and the foundation is now covered by a confused heap of stones, which from its convenient situation on the immediate bank of the river, has no doubt formed a mine of materials for all the principal buildings that have been erected in the capital for several centuries. Thus the foundations and walls of the Juma Masjid, as well as of all the buildings, reservoirs and canals, in the Shálimár garden, are constructed of the squared stones brought from Hindu temples; of which many still retain the Hindu mason's marks, as well as the remains of ornamental sculpture. As a proof of the extent to which this temple has been pillaged, I may mention that not a single pillar of the ninety-one which once formed the colonnade of this noble pile now remains.

2.—This lofty temple was built by Avanti Varmma after his accession to the throne, between the years 854 and 888 A. D., and the edifice must have been worthy of the king. For if its height followed the same proportion of two breadths which is used in all the other temples, it

must have been the loftiest edifice, not only in Kashmír, but in India. The width is 82½ feet: its height therefore would have been about 165 feet, or perhaps a few feet less, being considerably more than twice that of Márttand.

3.—On each side of the temple there was a flight of steps with a front of 28½ feet, supported by flank walls 17½ feet in length. These walls still remain, and I believe that the steps yet exist uninjured, beneath what Moorcroft* justly calls a "confused mass of ruins." According to him the edifice must have been "a square temple with four doors approached by broad and spacious porches." This description corresponds exactly with that which I have already given as the most probable style of superstructure of the other temple, which is the same as that of the temples at Pathan.

4.—Of the surrounding quadrangle nothing but the foundations can now be traced, excepting to the westward, where parts of the gateway walls, and of the sides of the recesses are still standing. The gateway itself was similar in plan to that of Márttand, and much about the same size; but its width did not bear the same proportion to that of the temple. In the Márttand example the width of the gateway was made equal to that of the temple itself, or rather to that of the *arddha-mandapa*, or outer-chamber, whereas in both of the Avantipura examples the width of the gateway bears a very different proportion. In the smaller temple it is made two-thirds of the width, or exactly equal to that of the projecting porches; whilst in the larger one it is only one-third of the width, or just equal to the front breadth of the flight of steps leading up to the entrance of the temple.

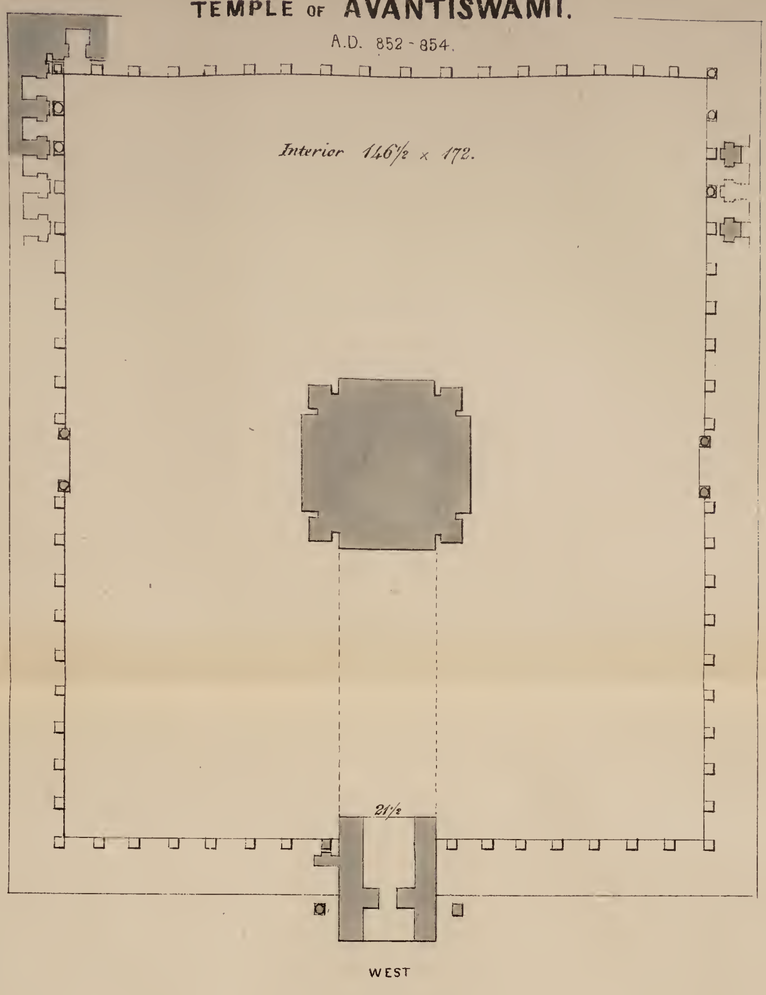
5.—In Plate XVII. I have restored the plan of the quadrangle of this temple, from the few stories which still remain in their original positions, guided by the plans of the Márttand and Avantiswámi examples. The foundations of many of the pillars still remain; and as the existing stones prove that there were both pilasters and recesses, the ground-plan of this peristyle must have been almost the same as that of the others. This plan shows a quadrangle 216 feet long and 190 feet broad, containing 86 recesses, from which two must be deducted for the side doors, leaving the favorite number of 84 for the reception of as many LINGA or emblems of Siva. For this number, although dedi-

* Travels, v. 2—p. 243.

PLANS OF TEMPLES
AT AVANTIPUR, KASHMIR.

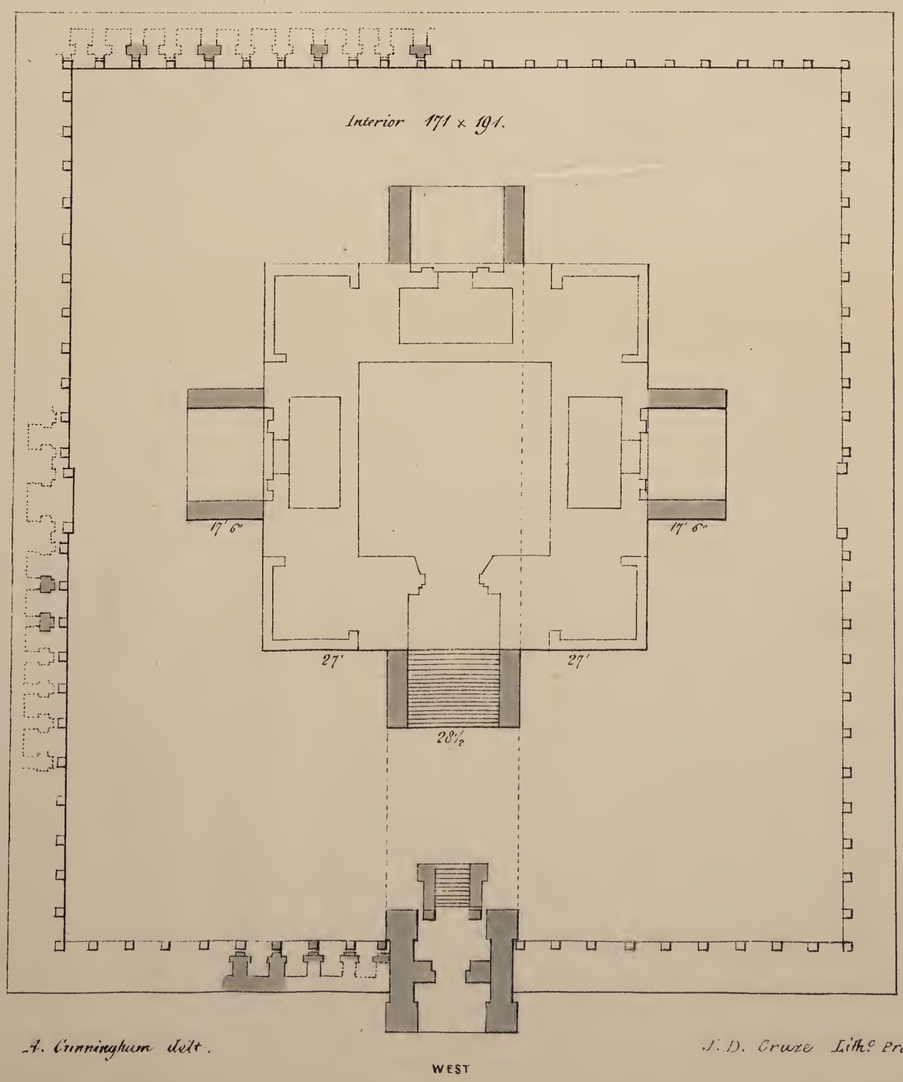
TEMPLE OF AVANTISWÁMI.

A.D. 852 - 854.



TEMPLE OF AVANTESWARA.

A.D. 854 – 883.



Scale, 40 Feet = 1 Inch.

0 50 100 150

A. Cunningham delt.

J. D. Cruze Lith.c Press Calcutta.

cated to the Sun, was also much used by the votaries of Mahádeva, as well as by others, on account of its auspiciousness. Thus there are 84 temples to Mahádeva both at Ujain and at Barmáwar in Chamba; and at Depálpur in the Panjab, there are said to be 84 towers and 84 wells.

6.—I presume that there were elevated pyramidal roofed porches at the angles and in the middle of each of the long sides of the quadrangle, as at Márttand, and at the other Avantipura temple; and that the walls of the peristyle were similarly covered by a roof of triangular section.

7.—Forster calls this place *Bhyteepoor*, a name which has puzzled Vigne exceedingly; although it has evidently originated only in a slip of memory, which could not restore the true name, from the inherent imperfection of the Persian alphabet, in which character Forster was obliged to keep his Journal. I suppose that he must have written *Bhantipur*, in Persian characters, بهنتيپور, which, when he came to reduce his remarks into English, he might easily have read as *Bhytipur*. At any rate there is no doubt regarding the identity of this place, both on account of his recorded distances, and of his description of the temple, which he* calls "a shapeless pile of ruins."

VIII.—*Temples at Pathan.*

1.—The temples of Pathan are situated on the high road leading to the Baráhmúla Pass, at 16 miles to the W. N. W. of the capital. Their erection is attributed by the Bráhmans to Sankara Varmma, who reigned over Kashmír between the years 883 and 901. The Raja Tarangini, however, simply records the erection of two temples by this Prince, in the town of Sankarapura, which he had himself founded. The identification of this town, with the present Pathan, is asserted by all the Bráhmans, who write the name पथन्, *Pathan*, which means "a road," and not पत्तन, "a town." The new city may, perhaps, have been so named, because it was in the midst of the high road, leading from the capital out of the valley to the westward. The foundation of these temples is recorded in the following verse of the Raja Tarangini, B. 5. v. 157:—

तया समं पुरन्दरे सुरराजोपमो नृपः ।
तस्मिन् शङ्करगौरीशसुगन्धेशौ विनिर्ममे ॥

* Travels, 8vo. vol. 2—p. 9.

"This Prince, equal to the king of gods (Indra), in conjunction with her (his wife Sugandhá) erected in that excellent town (Sankarapura) temples to *Sankara gauresa* and to *Sughandesá.*"

The two temples are rather less than half a mile apart, the smaller one being situated to the S. E. of the larger, as is likewise the case with the two temples at Avantipura. As there is no other clue for our guidance than difference of size and decoration, I have supposed that the larger temple, which is highly decorated, was built by the king in his own name, and that the smaller one, which is plain, was erected in the queen's name, and I have thus distinguished them in Plate XX.

Temple of Sugandheswara.

1.—The ground-plan of this temple is similar to that of Avantiswámi. The porticos, however, have a much greater projection, and their recesses are formed into separate chambers, 6 feet by 4 feet, which most probably once contained *linga:* for I found the pedestals of three of those emblems, which had been converted into Mahomedan tombs, within fifty paces of the temple itself. These porches were all surmounted by pediments of high pitch, covering trefoiled arches, which rested upon independent pilasters, as in the Márttand temple. The roof was, no doubt, pyramidal, and the total height of the building, estimated at twice its breadth, must have been 48 feet. The inner chamber is a square of 12 feet 7 inches, and is quite plain.

2.—I am unable to say whether this temple was surrounded by a pillared quadrangle or not; as I could not find a single trace of a column on any side. To the eastward, however, in front of the entrance porch of the temple, and at 68 feet distance, there is part of a large door-way or gate-way, and of a wall of squared stones. To the northward and westward also, at 50 feet from the temple, there are shallow trenches partially filled with stones. These I believe to indicate the lines of the surrounding quadrangle, which must have been completely carried away down to the very bottom of its foundation, as there is nothing now remaining but a trench to mark where it once stood. It is curious that the fate of these Pathan temples should have been exactly the reverse of that of the Avantipura temples. The latter were entirely overthrown, while their surrounding walls have escaped; in the one almost entirely, in the other partially. The former temples, on the

contrary, have been saved, while scarcely a trace now remains of their surrounding walls.

Temple of Sankara-gaureswara.

This temple is similar in plan, and in internal arrangement to the former; but the porticos, like those of Avantiswámi, have only one foot of projection beyond the walls of the building. The entrance is to the eastward; and leads to an inner chamber, 17 feet square, which is quite plain, as in the Márttand example, and as in other Kashmírian temples. The side walls of the entrance are, however, decorated by very elegant niches containing statues after the fashion of the Márttand entrance. Each of the side porches opens into a chambered recess, $8\frac{1}{2}$ feet long by 5 feet broad. These are now empty, but no doubt they once held *linga*. The porticos are of the same style as those of Márttand, with pediments of high pitch covering trefoiled arches.

2.—The walls are still standing, although much injured. It will be sufficient, however, to state, that this temple is very like Márttand, both in its style and in its present state of preservation. In size also it is much like the back view of Márttand, but somewhat smaller. The ground-plan is a square of $33\frac{1}{2}$ feet, which, if the usual proportion was observed, would give a height of 67 feet for the top of the pyramidal roof above the ground.

3.—I could not discover any traces of a surrounding wall, although I have no doubt that one formerly existed, as my examination of the precincts of the temple was cut short by a heavy and continued fall of snow, which obliged me to leave the place.

IX.—*Temple at Pándrethán.*

1.—The Pándrethán temple is situated $1\frac{1}{2}$ mile to the S. E. of the Takht-i-Sulimán. The name is a corruption of *Puránadhisthána*, and means simply "the old capital," which, we know, was situated on this side of the Takht. For the Chinese Pilgrim, Hwán Thsáng, particularly notices, that the old town stood at 10 *li* (or $1\frac{2}{3}$ mile) to the S. E. of the new town. Now the present city of Srinagar was built by Pravarasena, who reigned from A. D. 432 to 464: it was, therefore, a new town at the period of Hwán Thsáng's visit, between the years 629-642 A. D. There are but few ruins now existing on the site of the old town, but

carved stones and architectural fragments are numerous; the lines of old walls can be traced in the grass, and the fields are covered with broken pottery. These remains extend for nearly three miles, from the foot of the Takht-i-Sulimán to Pánthasok, at which place two piers of an old bridge are still existing, one just above the surface of the water, and the other just below it, the position of the latter being marked by the stillness of the water over it. The people assert that these piers are the remains of a stone bridge, which once spanned the Behat at this place. The colossal *linga* and other remains about Pándrethán induced Vigne* to imagine, that they might have formed "part of a *city* and vast Hindu temple." The existence of an ancient city on this spot may, therefore, be considered as fully established on the joint testimony of Vigne and myself: and that this ancient city was the old capital, is established beyond all doubt, both by the record of the Chinese pilgrim, and by its present name of *Pándrethán*, or "ancient chief town."

2.—The temple of Pándrethán, from its vicinity to the capital, has attracted the notice of most European travellers, who have spelt the name in as many different ways. Moorcroft calls it *Pándenthán;* Vigne, *Pandrenton;* and Hugel, *Pandritan*. The last is the same as the Kashmírian Tákri, in which it is written पंद्रेठान *Pándretán*, but as it is spelt पांद्रेथान *Pándrethán* in modern Nágari, and as the final syllable is a contraction of the Sanskrit, स्थान *sthán*, I have preserved the aspirate.

3.—The erection of this temple is attributed to Meru-Varddhana, the minister of Partha, both by tradition and by the Raja Tarangini in the following verse: B. 5—v. 266.

विष्णुः पुराणाधिष्ठाने मेरुवर्धनमन्त्रिणा।
श्रीमेरुवर्धनस्वामिनामा येन व्यधीयत ॥

"The minister Meru erected in the ancient capital, [Puránadhistána, or Pándrethán,] a temple called 'Sri-Meru-Varddhana-swami.'" The building of the temple is recorded between the years 89 and 97 of the Kashmírian era, equivalent to A. D. 913-921; and it is afterwards mentioned, between the years 958 and 972, as having escaped destruction, when Abhimanyu, Nero-like, set fire to his own capital, on which occasion the Raja Tarangini relates in B. 6—v. 191.

वर्धनस्वामिपार्श्वस्थभिक्षुकोपारकावधिः।
वेतालसुचपातस्थान् स ददाह महाग्टहान् ॥

* Kashmír, vol. 2—p. 36.

VIEW OF THE TEMPLE OF MERUVARDHANASWÁMI AT PÁNDRETHÁN, KASHMIR.

A.D. 913–921.

T. Blank, Asiatic Lith: Press: Calcutta

"This fire consumed the noble edifices planned by Vetála (an aërial spirit, or Ariel) from the temple of *Varddhana-swami* as far as *Bhikshu-kipáraka*, the "asylum of mendicants"—a Buddhist building.

Now, as this is the only temple situated in the old capital, of which I can find any record, there can be very little, if any, doubt, that it is the very same building which now exists. For, as it is surrounded by water, it was of course quite safe amid the fire, which reduced the other limestone buildings to mere masses of quick lime. Perhaps the same cause has also preserved it down to the present day: otherwise it could scarcely have escaped the hands of the Mahomedan spoiler. Its dangerous vicinity to the capital was more than counterbalanced by its inaccessibility. I have, however, a suspicion, that it must have been converted into a Mahomedan tomb; for both the interior and exterior figures and ornaments have once been plastered over; a practice which the Mahomedans often followed, as the cheapest and readiest way of adapting the sculptured Hindu buildings to their own purpose. This was done in the Hindu cloisters around the Kutt Minar at Delhi, and in all the Hindu temples in the fort of Gwalior.

4.—Baron Hugel calls the Pándrethán edifice a "Buddhist temple," and states that there are some well preserved Buddhist figures in the interior. But he is doubly mistaken; for the temple was dedicated to Vishnu, and the figures in the inside of it have no connexion whatever with Buddhism. Trebeck swam into the interior and could discover no figures of any kind: but as the whole of the ceiling was formerly hidden by a coating of plaster, his statement was at that time perfectly correct. The existence of the figures was first discovered in 1846 by Lord Elphinstone, who informed me of the circumstance: and before I visited the temple, I took the precaution of sending some men to remove the plaster, as well as a small boat for the purpose of gaining access to the inside of the temple, by which means I was able to ascertain the true character of the interior decorations.

5.—Hugel* further states, that the piece of water is 600 feet in diameter, and that the Natives believe it to be "unfathomable." But he is again doubly incorrect, for the tank is a square of not more than 125 feet wide; and it could not have been larger in his time, as it is surrounded by trees; by *chénars* on the city side, and by willows on the

* English transl. p. 124.

other three sides. And so far is it from being considered unfathomable *by the Natives*, that when I directed the Mahárájá's head-boatman to send a small boat to the temple, he declared it would be of no use, as the pond was "dry" *(khushk)!* Its actual depth in November was $3\frac{1}{2}$ feet, 2 feet only being water, and the remainder fœtid mud. Vigne says that it was 4 feet deep; and as Trebeck swam to it, it is certain that is is sometimes even deeper: but at no time can it exceed 5 or 6 feet in depth, as the banks are very low, and are besides cut through for the purpose of drawing off the water for irrigation.

6.—The Baron's estimate of the size of the temple is very nearly correct. He calls it a square of not more than 25 feet, the real size being 22 feet. But the actual size of the square is only 18 feet, as the four porticos project two feet on each side. In the niche over the northern door there still exists a squatted male figure with the Bráhmanical cord over the shoulder: but the figures which once adorned the other niches have long since disappeared. These doorways have square tops covered by pediments, which rest upon the jambs of the door, the tympanum being occupied by a trefoiled niche that contains the figure. This again is covered by another pediment, which also has a trefoiled tympanum. The trefoiled arch rests as usual upon small pilasters on each side of the door, but the pediment is supported upon bold square pillars, which are attached to the building by short walls of less breadth. This is an innovation, which most decidedly betokens a later date, a fact already established from history: but it is also a great improvement upon the earlier style; as the boldness of the projection and the retirement of the connecting walls afford a great and pleasing variety of light and shade, which is altogether wanting in the same parts of the more ancient buildings. See Plates XXI. and XXII.

7.—The roof of the temple which is still nearly perfect, was a pyramid resting upon a line of horizontal denticulated moulding, and divided into two portions, by an ornamental band of the same moulding, on a level with the summits of the four porch pediments. See Plate XXII. The blankness of the upper portion is relieved by a trefoil-headed niche on each side, which is remarkable for its extreme smallness and for its want of a pediment. This is also another innovation, but I think not a happy one, as from the lowness of their position there must have been a high unadorned bald-looking surface, left above each

of them. It is, however, probable, that the upper portion of the pyramid was again subdivided by another band of denticulated moulding, which would have completely relieved its bald appearance. And this seems the more likely to have been the case, as the lower portion of the roof is only one third of the height of the pyramid. Each portion would then have possessed its own ornament: the upper one being crowed by the melon-like fruit, common to all the Kashmírian buildings. The total height of the temple, if the usual proportion of two breadths was observed, must have been 36 feet.

8.—The interior is now filled with water; but I presume that the temple was originally only surrounded by it; and that the villagers, taking advantage of its low situation, must have closed the drains, which formerly carried off the surplus water, so as to create a pond for the irrigation of their fields. In November the floor of the temple was fourteen inches below the surface of the water. Now the very existence of a floor proves, in my opinion, that the interior of the temple was formerly dry, and that the water must have been kept below that level by drains. Indeed two of these drains leading towards the river are still in existence. The access to the temple was, probably, arranged in the same manner, as the crossings of the reservoirs in the Shálimár garden; by large blocks of stone, placed at intervals in the water, carrying a roadway of long slabs from the outer edge of the water to the entrance of the temple.

9.—In the interior arrangement, see Plate XXI., it is remarkable that the southern doorway differs from the others; but with what object I am unable to say. The usual, I believe the invariable practice of the Hindu architects, was to place the entrance of a temple either to the eastward or to the westward; so that the enshrined image should daily receive the beams of the sun, either in the morning or in the evening. Such in fact is the arrangement of all the other temples in Kashmír; and I am, therefore, puzzled to say what could have been the object of the present variation. It is true that with four open doorways the interior would have been illumined, both by the rising and by the setting sun: but it appears to me, that the enshrined image must have been placed to the northward, and immediately in front of the doorway on that side; for I found the iron mortices, which received the door pins, still quite perfect. This side must, therefore, have been closed by a door,

which would seem to point to the opposite doorway on the south as the usual entrance. But the reason for such a departure from the common practice still remains unaccounted for.

10.—The ceiling is formed of nine blocks, four of which rest over the angles of the cornice, and reduce the opening to a square, which is just one half of the size of the other. The same process is again repeated with an upper course of four stones, by which the opening is still further narrowed to a square of 4 feet; and lastly, this opening is covered by a single stone decorated with a large expanded lotus, surrounded by a beaded circle. The smaller angles are occupied by naked human figures, something similar to those of the Páyach ceiling, but without wings. These figures besides have only one leg and one arm outstretched, which affords more variety than the other treatment at Páyach. Each of the larger angles is filled with two figures holding out a garland, which falls in a graceful loop between them. The whole rests upon a cornice supported by brackets, which were so much decayed that I found it impossible to trace their decorations or even their exact shape. The spaces between the brackets were also much injured; but they appeared to have been filled with some kind of ornamental drapery hanging in curved folds.

11.—I was unable to discover any remains of a surrounding quadrangle; but from the square form of the piece of water in which the temple is situated, I feel confident that it must once have had a stone enclosed, similar to those of the other temples, although perhaps neither so large nor so highly decorated. The numerous squared stones still lying about prove, in my opinion, that it must once have had an enclosure of some kind. Indeed some portions yet remain of the walls which formerly surrounded the water; but there is no trace whatever either of pillars or of trefoiled recesses.

Other Temples.

Before closing my description of the Kashmírian temples, I will quote from Vigne and Hugel some accounts of other buildings, which I was prevented by different circumstances from visiting, although I obtained a fair view of two of them across the Behat through a good telescope.

X.—*Temples at Lidar.*

1.—Vigne who is the only person that has seen these ruins, deseribes them* as follows: "At Lidar, or Lidarpur, are two old Hindu temples. One resembles the eentre building at Márttand, but is much smaller: the other I was informed, was very old indeed; and I have no doubt of the faet, it being built in the centre of a small pond, now, however, overgrown with reeds and rushes. It may have been built by Ledder Khan, one of the earliest Princes of the Pandu line." In Vigne's map the name of this place is spelt *Lidu;* and from its position I have no doubt that it is the village of *Ludaho* लुद्‌हो, called also *Dadhumand Gopál,* in a list of Kashmírian villages, which Mirza Ahad gave me in 1839. I made enquiries regarding this place from several Bráhmans whilst I was in the city; and again at Pándrethán, Pámpur and Wantipur; but the eonstant reply was, that there were no ruins of any kind at Ludaho. As I was pressed for time, I, therefore, gave up my intention of going to that plaee, judging that a visit to the ruins, whieh were not well known to the people, would scarcely repay me for the loss of time, and might probably entail my being eaught in the snow. And I was the more ready to forego this visit, as Vigne himself does not include them in the list of temples, whieh he eonsidered worthy of inspeetion.

2.—Regarding the period of their ereetion, therefore, I eannot possibly offer more than a vague approximation: for Vigne's idea, that one of them must be very old, because it stands in the centre of a small pond, is eompletely disproved by the faet, that the temple of Pándrethán, whieh is also surrounded by water, is the most modern of all the authentieated buildings of Kashmír. The dates of their erection must certainly lie between A. D. 400—900, and we might not be far wrong in assigning them to the period of Lalitáditya's reign, between A. D. 693—729. For his great eity of Lalitádityapura, now only a small village, called Latapur, is only 3 miles to the S. E. of Ludaho: and we know that it was the practice of the Kashmírian courtiers to ereet temples as well as dwelling houses in the neighbourhood of places founded by their kings.

3.—I have a suspicion, however, that the plaee is much older than the time of Lalitáditya, for in the Raja Tarangini† it is related that Raja

* Kashmír, vol. 2. p. 35. † B. 1—v. 8.

Lava bestowed *Levára* of *Ledari* upon a body of Bráhmans. Now this name of Ledari must surely be the original of Vigne's *Lidar* and Lidarpur. We may therefore, perhaps consider Ledari as a place consecrated to religion, so early as the reign of Raja Lava, who was a contemporary of Darius Hystaspes. But I do not suppose that either of the temples can be so old: for their style, according to Vigne's description, is similar to that of Márttand and of other temples of a much later age, while it has nothing whatever in common with the undoubtedly ancient temple of Jyeshteswara on the Takht-i Suliman.

XI.—*Temples at Kákápur.*

1.—Both Wilson and Troyer have identified Kákápur and Gaumoha with the *Khági* and *Khuna-musha* of the Raja Tarangini, which are said to have been bestowed upon the Bráhmans by Raja Khagendra, who was the grandson of Lava, and, therefore, a contemporary of Artaxerxes Longimanus. I agree with the former of these identifications: but there is no such place as Gaumoha; for the representative of *Khuna-musha* is the modern *Khunamoh* खुनमोह, which is situated at the foot of the hills at 3 miles to the N. N. E. of Pámpur.

2.—Vigne* dismisses the ruins of Kákápur in a few words—"At Kákápur, a village under the Karewah, or elevated plain of Pámpur, is an old ruined temple, but scarcely worth visiting after Márttand." As the name is spelt *Kákápur* in Vigne's map and is so quoted by Thornton, it strikes me that this must have been the name which Vigne noted down whilst in Kashmír, and that the new spelling of *Kákurpur*, originated afterwards from a desire to derive the name of the place from one of the Afghan tribe of Kákar.

3.—These ruins are not at present of much interest; but as the larger temple is hidden by rubbish as high as the frieze of the interior, it is possible that an excavation might bring to light as fine an edifice as any now existing, and perhaps a much more perfect one: as the exposed frieze of the southern wall is even now in very fair preservation. A part of the gateway of this temple is still standing to the westward; and as I was afterwards informed, some pillars of its surrounding quadrangle yet exist in a neighbouring Musalmán shrine or *astán*. This is the *astánu*

* Kashmir, vol. 2—p. 31.

of Vigne, for the Mahomedans are unable to pronounce any double consonant of which *s* is the first letter. Thus our names of Smith and Sturt become e-Smith and e-Sturt.

4.—Near this upon the bank of a canal there is the basement of a second Hindu temple with a flight of steps leading down towards the water: but I could discover no portions either of its superstructure or of its surrounding walls.

5.—It is admitted above, that the town of *Khági-pura*, or *Khágendrapura*, now called *Kákápur*, was founded by Raja Khágendra, who lived in the 5th century before Christ. But the temples are, undoubtedly, of a much later date, as we know that the pillared quadrangle could not have been introduced until at least one thousand years after his time. The frieze also appeared to me to bear a very striking resemblance in style to that of Márttand. With these indications, we may not, perhaps, be far wrong in assigning the erection of this temple to about the same period as that of Márttand, or even somewhat later, say about 600, for the pillared quadrangle of Márttand itself, which is the earliest authenticated example, was not erected until A. D. 700

XII.—*Temple near Baráhmula.*

1.—"Most of the ruins in the Baráhmula Pass" says Vigne,* "are well worth visiting. The top of the oldest of these, on the right bank of the river, has been a small but perfect pyramid, is surrounded by water, and has quite preserved its shape." Hugel† also notices this building in the following terms. "About two miles from Baráhmula, there is a Buddhist temple in ruins in a small tank. I judged it to be most probably [of the same age as‡] that of Pándrethán."

2.—When I passed along this road the whole country was covered with snow, which must have filled the tank, and have hidden the temple, for I never observed any object that bore the slightest resemblance to a temple, although I was on the look out for it. It is still more curious, that this temple twice escaped the observation of Moorcroft and Trebeck, who twice travelled the road between Baráhmula and Gingal, and in the month of August when there was no snow upon the ground.

* Kashmir, vol. 1—p. 406. † English transl. p. 173.

‡ I have supplied the words included between the brackets, as the sense is incomplete without them.

3.—I tried in vain to discover a name for it; as the ignorant Mahomedans only knew it as the *But-khána* or Idol-house. No name is assigned to it by Hugel; and Vigne simply calls it *But-dal*, which he translates "Lake of the Idol," but which really means the "*Tank Idol.*" From Vigne's description it would appear to be similar in size and style to the temple of Pándrethán; and this likeness must have struck Hugel, otherwise I know not on what grounds he considered it to be of the same age as that temple. As these authors would seem to agree regarding its striking likeness to the Pándrethán temple, we shall not perhaps err very much by assigning the date of its erection to the ninth or tenth century.

XIII.—*Ruins at Jampura.*

1.—These remains are noticed both by Hugel and by Vigne. The former* says, "Three buildings at Jampura attracted my curiosity. The first in the form of a sepulchral monument, was a circular edifice about 30 feet in height, on which stood a square chamber; but to what time or faith the monuments belonged I had no means of discovering." Vigne† says, "Farther on, upon the banks of the river, and close together, are the remains of three other buildings, the first of which appears originally to have been a tomb, the second a temple, and the third a fort."

2.—As stated by these authors, there are three separate buildings at Jampura, of which only one is described by Hugel, who appears to have considered it of a *sepulchral character*. Vigne also calls it a tomb. I examined it carefully, and I am of opinion, that it is a Mahomedan tomb. The upper portion is a square structure of small stones, with a circular arch-way in the middle of each side. The lower part, which is built of large dressed stones, must have been the foundation of some Hindu edifice: but I rather incline to believe, that the stones were removed from the Hindu temple next described.

3.—The middle building, which Vigne calls a temple; is undoubtedly the remains of a stone edifice, similar to the temples in Kashmír. It is built of large squared stones, many of which are very massive. On

* English transl. p. 173.

† Kashmír, vol. 1—p. 178.

the river front the wing walls of the entrance flight of steps still remain, and the greater part of the basement is quite perfect. There is also a considerable portion of the superstructure still standing, about 10 feet in height.

4.—The last building, which Vigne dignifies with the name of a fort, is only a large square room, of which three sides are still standing upon a mound of rubbish. The total height varies from 20 to 25 feet, I presume that it was only a dwelling house, built by the headman of the neighbouring village, out of the ruins of the adjacent Hindu temple.

XIV.—*Temple at Bhaniyár.*

1.—In Kashmírian, Tákri; this name is written ꠇꠛꠀꠣꠀꠤꠀꠇ, *Bhawániyar*, which would seem to prove, that the temple must have been dedicated to the goddess Bhawáni, the wife of Siva. It is situated on the left bank of the Behat, at $1\frac{3}{4}$ mile beyond the fortlets of Athári, Sankargarh and Noshehra. Hugel* simply describes it as a "Buddhist temple in good preservation." Its name, however, completely refutes this opinion of its Buddhistical destination. Vigne† dismisses it quite as briefly, as "an old Hindu ruin by the path side."—It appeared to me to be the most perfect of all the temples that I had seen; and I should certainly have visited it, had I not been prevented by the continued fall of snow, which had almost closed the road, and had more than half concealed the temple. The gateway and surrounding walls are still standing, but the former, which is of the same style as those in the valley, is without roof. A portion of the temple roof still remains; but the whole work is without ornament, and is altogether much inferior to the great temples of Márttand and Avantipura. Owing to the number and thickness of the trees, which filled the interior, I was unable to discover, even with a good teleseope, whether there was a colonnade around the inside of the enclosing wall, or not. The outside of the quadrangle, however, is ornamented by numerous trefoil-headed recesses, similar to those of the Márttand peristyle. Both of these must have escaped the observation of Vigne, as he states,‡ that "there

* English translation, p. 174.

† Kashmír, vol. 2—p. 176.

‡ Kashmír, vol. 1—p. 394.

is one peculiarity about the older buildings of Kashmír, and that is, that * * the wall surrounding the peristyle has, as usual, a colonnade in the interior, but its outside is completely a blank and unornamented."

XV.—*Temple near Dyámun.*

1.—On the left bank of the Behat, at $3\frac{1}{2}$ miles to the N. E. of Uri, and at less than half a mile from the village of Dyámun, and on the opposite bank of the river, there is a small Hindu temple in very good preservation. Baron Hugel* calls it "a Buddhist temple still in good repair, and built in the same style as those of Kashmír. * * Its name is Brangutri." Vigne's account† is much more detailed. He says,—"Proceeding thence towards Uri, we pass two more ancient Hindu temples, of the same style of architecture as those of the valley. The colonnade which surrounds one of them, is in a good state of preservation, it is also evident that the top of the building in the centre of the peristyle, and now about ten yards high, was once pyramidal. The remains of a massive flight of steps are still in position before the entrance." * * "All the remaining ruins I have seen, are of limestone; but this which is called Bryn-kutri, differs from them in being built entirely of granite."

2.—The name which the people gave me was *Brinkar;* but I suspect that the name recorded by Hugel and Vigne is the more correct one; for *Kotari* कोटरी, which means a "naked woman," is also an appellation of Durgá. It is probable, therefore, that the temple contained a naked image of that goddess. Indeed, the whole name may, possibly, have been *Varna-kotari* वर्णकोटरी, the "painted" or the "golden Durgá." The enshrined image might have been a *gilt* one.

3.—The period of the erection of this temple, as well as that of Bhawánigarh, cannot be ascertained except within wide limits. For there are no *data* to guide us, save the existence of colonnades, which fixes the time of their construction between the fifth and tenth centuries.

Having completed the description of all the Kashmírian temples that I have myself seen, or of which I can find any account, I will now

* English translation, p. 174.

† Kashmír, vol. 2—p. 176.

proceed to an examination and comparison of their different details one with another, and with the rules laid down by the architects of Greece and India. But before noticing the different parts and various details of these buildings, I will first enumerate the Sanskrit names of the principal mouldings which are used in the Kashmírian architecture.

XVI.—*Kashmírian Mouldings.*

Abacus, उत्तर, uttara, the "uppermost." This name is used for every superior member, of whatever shape it may be.

Annulet, पट्टक, *Pattaka*, a "bandlet." This occurs in all subordinate positions, both above and below the principal mouldings.

Apaphyge', प्रस्तर, *Prastara*, the "spreader." This name is given to any overhanging moulding. It occurs in the Márttand and Avantipura capitals, as well as in those of Pámpur and Srinagar. In the latter, however, it is straight.

Astragal, क्षुद्रपद्म, *Khsudra-padma*, the "little-lotus," is used in both of the Márttand pillars, as the lowest member of the capital.

Dado or Face, गल, *Gala* or "neck." It occurs in every base, both of pillar and building.

Epitrachelium, अधिगल, *Adhigala*, or "above-neck" is used as its name implies.

Fillet, पट्ट, *Patta*, "a band." This moulding is sometimes used independently as in the Páyach basemcmt, immediately above the quirked ovolo. When it is placed in the middle of the torus, which is its most usual position in these mouldings, it is called आलिङ्गन, *A'lingana*, the "embracer," because it embraces the member to which it is attached.

Filleted-torus, कुमुदपट्टबान्ध, *Kumuda-patta-bándha*, the "lotus-fillet-bound." This is the upper member of several basements: it is also used in the base of the Márttand and Pámpur pillars.

Hypotrachelium, उपगल, *Upagala*, or "beneath neck," is used in the position indicated by its name.

Plinth, उपाण, *Upána*, the "undermost," is the lowest member both in bases and in basements.

Quirked Ovolo, पद्म, *Padma*, the "Lotus,"—or अण्डाकार, *Andákár*, the "egg-shaped." The *Padma* is used for any double curve, such as

the quirked ovolo, the Cyma recta, or the Cyma reversa. *Andákár* is, however, the proper name for the quirked-ovolo. When it is decorated with the egg ornament, like the Márttand and Pámpur pillars, it is called अण्डवपद्म *Andava-padma*, the "egged-lotus."

TRACHELIUM or *Neck;* कण्ड, *Kantha*, or ग्रीवा, *Grivá*, or गल, *Gala*. This occurs in every example of Kashmírian capital, immediately above the lower ovolo. *Gala* is the most common term.

TORUP, कुमुद, *Kumuda*, the "lotus," is a very favorite moulding, both in pillars and in basements.

XVII.—*Of Temples.*

1.—The Kashmírian temples are of three kinds, the oblong, the square, and the octagonal, and these again are subdivided into the closed and the open. The closed temples have only one entrance, and are called विमान, *Vimána*, which means literally a seat or throne of the gods. The open temples have door ways on all four sides, and are called मण्डप, *Mandapa*, from *Manda*, ornament, because these open temples are mostly decorated all round, while the inner chambers of the Vimána are generally quite plain.

2.—Of the oblong *Vimána*, the only example that now remains is the temple of Márttand, of which the length is equal to $1\frac{3}{4}$ breadth. It is closed on three sides. Of the square *Vimána*, there are, at least, three examples in the cave temple of Bhaumajo, and in the two temples at Pathán. It is probable that there were many more; for I suspect that the smaller one (and perhaps also the larger one) of the Avantipura temples, was of this description. Of the octagonal *Vimána*, only one example now remains in the ancient temple of Jyeshteswara, on the Takht-i-Sulimán.

3.—Of the *mandapa* there is but one kind of which the best examples are the almost perfect temples of Páyach and Pándrethán. The entrance chamber or *arddha-mandapa* of Márttand is also a perfect specimen of this kind, although attached to a larger building to which it is subordinate.

XVIII.—*Interior Arrangement.*

1.—According to the practice of the Hindus, the oblong temples were divided into three distinct chambers, of which the outermost was called *arddha-mandapa* or "*half temple*," the central one was named अन्तराल, *antarála* or "*mid*-temple," and the innermost was denominated गर्भगृह, *garbha-griha* or "womb of the edifice." The size of these chambers increased by an arithmetical progression from the outside. This arrangement is quite different from that of the Greeks, who in a temple of three apartments, placed the *naos*, which was always much the largest room in the middle between the *pronaos* and the *posticum*. The Kashmírian architects, on the contrary, judging from the plan of Márttand, which is the only example, adhered to the Hindu arrangement of the chambers but rejected their relative sizes. Thus the outer chamber of Márttand is a perfect square; the mid chamber is one fourth of this square; and the inner chamber is three fourths of it. In this arrangement it is remarkable that the outer chamber is exactly equal to the areas of the other two chambers—a size, which agrees with its name of *arddha-mandapa* or half temple. In this respect the Kashmírian architects would appear to have adhered strictly to the original rules, from which the Hindus themselves had departed. Something like this is, however, mentioned by Rám Ráz who,* quoting the Kásyapa treatise says, the *arddha-mandapa* or portico is "sometimes made broader than the *garbha-griha*, in which case the width of the former is either once and a half or twice that of the latter."

2.—The two kinds of square temples would seem to have had their respective arrangements of interior which were almost invariably observed. Thus the Mandapas of Páyach and Pándrethán have a square chamber, with an open doorway, on each side; while the Vimánas of Pathan have only one doorway, leading to a central square chamber, and an open porch leading to a small chamber on each of the other three sides. The length and breadth of these chambers are made one half and one third respectively of the breadth of the principal chamber. Both of these arrangements are somewhat similar to those followed in India Proper in temples of the same shape.

3.—In the positions of the entrances there are also some slight variations. Thus the doorways of the temples of Márttand and of Avan-

* Hindu Architecture, p. 50.

tipura are to the westward; those of the Takht-i-Sulimán, of Pathan and of Páyach, are to the eastward; while that of the Pándrethán temple alone is to the southward. In the Páyach temple the water-spout is on the northern face, which is in accordance with the practice observed in India, where an eastern entrance has a northern water-spout, and a southern entrance an eastern spout.

4.—On the whole, I think, that the general arrangement of the Kashmírian temples has so much in common with those of India, as to warrant the deduction that the rules of the two countries were originally derived from the same source.

XIX.—*Dimensions.*

1.—The relative proportions observed in the three dimensions of length, breadth and height, offer one of the best means of testing, whether the practice of the Kashmírian architects was independent and original, or was borrowed from that of their Indian neighbours. Unfortunately we have only one specimen of an oblong temple to furnish the required proportions between length and breadth, as all the Kashmírian temples, with the single exception of Márttand, are either square or octagonal. The length of the Márttand temple is 63 feet, and its breadth 36 feet; its length is, therefore, equal to $1\frac{3}{4}$ breadth; or if we compare it with the breadth of the portico, which is 27 feet, then the length is equal to $2\frac{1}{3}$ breadth; which is a very close approximation to the Hindu rule, given by Rám Ráz* of $2\frac{1}{2}$ breadth. It is probable, therefore, that the same proportions between the two dimensions of length and breadth, which were observed in India, were also followed in Kashmír.

2.—With regard to the Kashmírian temples, there can be little doubt, that the rule which was almost invariably practised, was to make the height of a temple equal to twice its breadth. The single exception to this rule is the cave temple of Bhaumajo, of which the height is only equal to $1\frac{1}{2}$ breadth. This sole departure from the usual custom may, possibly, have been imposed upon the architect, owing to want of height in the cavern; but the style of the roof itself seems to favor the opinion, that it must have been so designed, and as the proportion is one of those used by the Hindus, I think that there can be but little doubt that the

* Hindu Architecture, p. 50.

architects of Kashmír observed at least some of the rules that were followed in India.

3.—Rám Ráz, quoting the Kásyapa says,* that "*Vimánas* are divided into five sorts, with respect to their magnitude." These are called,

1*st.*—*Sántika*, the "quiet looking" or "modest," height = $1\frac{3}{7}$ breadth
2*nd.*—*Panstika*, which Rám Ráz translates "bulky,".. = $1\frac{1}{2}$,,
3*rd.*—*Jayada*, the "triumphant" or "excellent," .... = $1\frac{3}{5}$,,
4*th.*—*Adbhuta*, the "wonderful,"..... = $1\frac{3}{4}$,,
5*th.*—*Sarvakáma*, the "all-pleasing," ..... = 2 ,,

Of these different kinds that which was most in esteem in Kashmír was undoubtedly the last. The cave temple of Bhaumajo must be ranked as *panstika Vimána* or "bulky temple," a name which its massive appearance fully merits. But all the other temples of Kashmír were certainly of the last kind, the *sarva-káma* or "all-pleasing." It is, however, remarkable, that the author of the Raja Tarangini when speaking of the temple of Márttand, calls it *adbhuta*, the "wonderful," the very name which is applied to another kind of temple of very nearly the same relative proportions, as those of Márttand itself. This epithet of the historical poet I consider as merely an accidental coincidence, for in his first mention of Márttand he calls it *sarvatogatam* "the all-pervading," a name which is somewhat similar to that of *sarva-káma*, in which class the temple of Márttand must undoubtedly be ranked.

XX.—*Basements.*

1.—Basements are appropriately called *upapita* उपपीठ, or "underseats" by the Hindus and also sometimes *adhastha* अधस्थ, or "underfixtures;" which names are exactly equivalent to the Greek ὑπεδρα and ὑποστασις.

2.—The basements of the Kashmírian temples may be divided into two kinds, the massive and the light, according to the character of their mouldings. In Plate VIII. I have exhibited five different specimens of the Kashmírian mouldings, of which three belong to the more massive order, and two to the lighter one.

3.—The former style which is adapted in the temples of Takht-i-Sulimán, Bhaumajo and Páyach, is distinguished by a massive filleted torus as the crowning member, with a straight fillet above and below.

* Hindu Architecture, p. 49.

Under this is the dado, or plain straight face, which is of about the same height as the torus itself. Beneath this is a quirked ovolo of bold projection surmounted by a straight fillet, and under this is the plinth, of which the dimensions vary in the different examples. Of these the Takht-i-Sulimán specimen is the most massive, and as it is further characterized by the total want of projection in the face, which is flush with the wall of the building, and which I take to be an undoubted sign of antiquity.

4.—Of the lighter kind of basement, there are two examples, of which that of the enclosing wall around the tomb of Zein-ul-ab-ud-din is probably the more ancient one as it is distinguished by the same want of projection in its face which has just been noticed in the Takht example. In this kind of basement the filleted torus is altogether omitted; and its place is supplied by an abacus, which in the earlier specimen is supported by an apophygé, or *prastara*, broken by several annulets; and in the later specimen by a cyma recta surmounting two annulets. The remainder of the earlier basement is similar to those of Bhaumajo and Páyach, but with a much less projecting ovolo. The Márttand example only differs in having its face broken into three annulets, something like those of the Doric capital, which are separated from the upper member by an astragal.

5.—The last basement is that of the wing-buildings of the Márttand temple of which unfortunately I have no detailed measurements. Its height is of course the same as that of the large temple; but it differs entirely in its details, which are however almost the same as those of the pedestal of the largest interior niche. See Plate XVI. The decorations of the face are precisely the same, and on the sides towards the large temple, where they have been covered from the weather, these decorations are still in excellent preservation.

6.—It is impossible to say whether any particular rule was observed in determining the height of a basement, as we have not sufficient data to guide us. In the Bhaumajo and Páyach examples, the height of the base is exactly one fifth of that of the whole temple, whereas in that of Márttand the basement was only one fifteenth of the whole height. If the Bhaumajo proportion had been used for the temple on the Takht-i-Sulimán, its height would only have been 28 feet and $1\frac{1}{2}$ inch. As however *this dimension* is *exactly* three fourths of its extreme breadth,

and one third more than its interior diameter, it seems highly probable that such may have really been its full height. The four plain sides were most likely covered by pediments, in which case the base of the pyramid would not have been much broader than the interior width of the temple. My present opinion is that the height of the basement was made entirely dependent upon the height of the roof. Thus the whole temple being two breadths in height, of which the walls were one half, the height of the basement would of course depend upon the pitch that was given to the pyramidal roof. If it was determined to make a lofty roof, the basement was of course lessened in height; and vice versâ, the basement increasing in height as the roof became more flat.

XXI.—*Walls.*

1.—The *walls* of a building are called *bhitti*, भित्ति, and *kudya*, कुद्य, in Sanskrit, but there are many other names now in use that are not of Sanskrit origin. In the Kashmírian temples the walls are made entirely of large blocks of grey limestone fastened together by iron clamps, several of which are now exposed in the walls of Pándrethán. As no cement has been used in the construction of any of the walls that I have seen, Vigne is undoubtedly wrong when he states that the stones "are cemented with an excellent mortar."* Thornton has noticed this statement and with much judgment has preferred the account of Jacquemont, who says that these walls are "sans ciment," although he modestly declines deciding in favor of the French traveller. As I have myself seen these temples and have examined them carefully I am able "tantas componere lites" by stating positively that no cement whatever has been used in the walls of any of the Kashmírian temples.

2.—The dimensions of these walls vary very considerably, those of the older temples being thicker in proportion to their interior breadth than the later ones. Thus the thickness of the Takht temple walls is four elevenths of the interior diameter: that of the cave temple of Bhaumajo is two sevenths; those of Márttand and of Pándrethán are one fourth, while that of Páyach is only one sixth. This gradual lessening in thickness, supposing each diminution to denote a more recent period, agrees exactly with the successive dates that have been

* Travels, vol. 1.—p. 386.

assigned for the erection of the different temples. The only exception is that of Páyach but as the four walls of that temple are formed of single stones, nothing is more likely than that the architect should have made them thinner than was the usual custom in his day, chiefly on account of their superior strength, but partly also to lessen their weight in transport. As the other temples at Pathan have small chambers on three sides which are constructed in the thickness of the temple walls, the architect was obliged to increase the thickness of the solid parts of the walls to one half of the interior diameter in order to gain sufficient strength and solidity for the support of the massive pyramidal roof.

XXII.—*Entablatures.*

1.—The Greeks called the whole of the upper part of the superstructure, including the capitals of the columns by the general name of επιστυλιον: but the Hindus discriminate between the capital of a pillar and the entablature itself. The former they call *adhistambha* अधिस्तम्भ, which means exactly the same as the Greek epistylium: the latter they call *urddhasthita* or *urddhastha*, उर्द्धस्थ, the "high fixture," which is equivalent to the Greek επισταsις, although not literally the same. Its exact meaning would be rendered by αιποστασις, but I am not aware that such a word has ever been used.

2.—The upper parts of the temple have in general been so much injured and are besides so inaccessible that the correct delineation of the entablatures was a work of considerable difficulty. In the cave temple of Bhaumajo, which is the oldest complete building there is no entablature whatever; unless indeed the narrow line of architrave which is interposed between the top of the walls and the base of the roof can be considered as such. In the next example, that of Páyach, this is somewhat enlarged, although still of very small dimensions. It however consists of three separate parts, which for the sake of distinction alone may be called architrave, frieze and cornice. The lower member is formed of two plain straight mouldings or bands, of which the higher one projects slightly over the other. The middle member is twice the height of the lower one and consists of a denticulated ovolo; while the upper member or cornice which is of the same size as the lower one, is a plain straight moulding or band similar to that of the Bhaumajo temple.

3.—The next specimens in point of antiquity are those of Márttand, of which we have no less than three examples, two belonging to the exterior, and one to the interior. These show a considerable improvement over the former specimens, and at the same time bear a decided general resemblance to the entablatures of the classical orders. That of the great temple itself is 4 feet in height or exactly equal to one diameter of its supporting pilasters. Its division into architrave, frieze, and cornice is distinct and unequivocal. The first which is $1\frac{1}{2}$ foot in height is equally divided into two plain mouldings each sloping inwards. The second which is of the same height is straight and perfectly plain; while the third which is only 1 foot in height consists of an ovolo surmounting two fillets or annulets. So far this entablature agrees in general distribution with that of the classical orders: but it differs from them most materially in its total want of projection, the line of the frieze being flush with that of the supporting pilaster. This may perhaps be reckoned as a defect; but I am inclined to consider it as an improvement with regard to the purpose for which it was destined. For, if the entablature had been projected beyond the line of the perpendicular walls of the building, the vast pyramidal roof would have appeared much too heavy for its supports. See Plate XIV. Such in fact is the case with the late example of the Pándrethán temple, in which the roof and its supporting entablature project considerably beyond the pilasters. See Plate XXII. In the low Grecian pediments this projection is undoubtedly a beauty: but in my judgment any projection, in a pediment of high pitch has an extremely top-heavy appearance. Indeed the European practice with steeples which are the most lofty description of pyramidal roofs, fully bears out my opinion, as their bases are never made broader than the width of their supporting towers.

4.—The second of the Márttand specimens belongs also to the exterior; but to one of the porches of the colonnade and not to the temple itself. It is therefore a more recent example by upwards of 200 years. Its height is $3\frac{1}{2}$ feet, and it is divided into three distinct and equal parts, which may, as in the former examples, be likewise called architrave, frieze and cornice. The first consists of three plain mouldings, which are in proportion to each other as 1, 2, 3; the uppermost being the smallest and having also the least projection. The frieze is

divided into triangular-headed niches which contain single seated figures; and at each end there is a small pilaster for the support of the upper member or cornice. This last, which has a projection equal to its height, is divided into several small mouldings, the uppermost being two bold ovolos. See plates VIII. and XV.

5.—The third specimen from Márttand belongs to the interior of the outer chamber, which may perhaps be of somewhat later date than the larger and plainer building. It is represented in Plates VIII. and XVI. In this specimen the frieze has been considerably enlarged, and the lower member is reduced to a mere band, only 9 inches in height and perfectly plain. The frieze which is no less than 4 feet in height is divided by pilasters into several spaces, each of which contains a niche with a trefoiled head resting upon small pilasters, which are themselves supported by panelled pedestals. Each niche is occupied by a seated human figure. The cornice, which is $1\frac{1}{2}$ foot in height, consists of two members, of which the upper one is an ovolo of 6 inches, decorated with square-topped leaves; and the lower one is a straight face of 1 foot divided into triangular-headed niches. This is the richest as well as the most elegant of all the Kashmírian entablatures. And yet its leading feature has been altogether mistaken by Vigne, who has represented the figures enshrined in the niches as a row of four-leaved flowers.* Unfortunately he selected for his sketch that side of the building which was most injured. He seems also to have been contented with giving the general forms and outlines of the masses, and thus to have lost all those numerous peculiarities of detail which characterize the different parts of one style of architecture from another.

6.—The next entablature I found upon a single stone which is now used as a flank wall to the entrance of the tomb of Zein-ul-áb-ud-din's mother. It is probably of about the same age as those of Márttand.

Like them it has its frieze divided by pilasters, and its cornice is the same as that of the Márttand interior. The decorations of the intervals between the pilasters are however quite different, although of the same style. On a small scale they resemble very closely those of the walls of the quadrangle, but without the peristyle. Like them they have the spaces between the pilasters occupied by trefoil-headed recesses; but they differ in the want of covering pediments. There is one thing

* See View, vol. 1—p. 390.

however in this entablature which is particularly worthy of remark; namely, that the corner recess is a square-headed trefoil, instead of being round like the others. I notice this fact the more prominently as Professor Willis has suggested that such was probably the original form of the trefoil. Its occurrence in a corner position is in perfect keeping with the treatment followed with the corner columns which are likewise made square instead of round.

7.—The last entablature is that of the temple of Pándrethán. See Plate XXII. It is exactly the same as that of Páyach but with the addition of a good-sized plain architrave beneath the fillets of the denticulated moulding. This specimen confirms the truth of what I before observed, that the height of the entablature appears to be increased in each successive building. Thus in the present example the height is equal to one fourth more than the width of the supporting pilasters. This superior height and apparent stability may have been given solely on account of the extra size of this particular roof, which projects considerably beyond the walls of the building.

XXIII.—*Roofs.*

1.—All the existing roofs of the Kashmírian temples are of pyramidal shape. In Sanskrit this form is called *sikhara* शिखर, which means a peak of any kind as well as a pyramid. Throughout India generally the same form is also observed; but the sides of the roof usually swell out considerably into a kind of paraboloidal pyramid, unlike those of Kashmír, of which the sides are invariably straight. The same style of wooden roof is still common in the valley, but it is seldom of so high a pitch. In most of the temple roofs, as at Bhaumajo and at Páyach, the pyramid is broken into two equal portions, which are divided by a broad moulding. The Pándrethán roof however was probably divided into three portions; and in the little temple which crowns the Srinagar column we have an example of a four-storied roof. This number of breaks on stories in the roof assimilates the Kashmírian style very closely to that of the Chinese; and this similarity is still farther increased almost to identity in the wooden roofs, which have also four stories. In these the ends of the corner beams are usually finished off with alligators' heads, somewhat raised above the bottom line of the sloping planks of the roof, and

bearing a singularly striking resemblance to the turned up corners of the different stories of Chinese buildings. As the Chinese religion was borrowed from the Indians chiefly through Kashmír, the introduction of the Kashmírian style of temple must naturally have followed upon the establishment of the new belief. This resemblance between the sacred buildings of the two countries may therefore be taken as a strong evidence in favor of the statement that Buddhism was introduced into China by five hundred Kashmírian *Arhans* during the first century of the Christian era. None of the stone roofs now existing have these ornamental corners, nor do I think that they could ever have had them; unless perhaps some of the very earliest buildings, in which the wooden roofs may have been more closely imitated.

2.—The masonry of the roofs is constructed entirely of horizontal courses. The ceilings are first formed by overlapping stones, which gradually diminish the opening to a size sufficiently small to be covered in by a single stone. Over this the interior of the pyramid was most probably hollow. Such at least is the case with the Pándrethán roof, which has a window in each of its four niches looking into the hollow part of the roof. I have little doubt that the same plan was followed in all the other roofs; partly perhaps to lessen the great weight of the pyramidal mass, but chiefly for the sake of economy.

3.—The flattened top of the pyramid in the Páyach example is an elegant pinnacle formed of a melon-like fruit surmounted by a concave-sided cone. In Sanskrit this is called *kalasa* कलस, which means the topmost point of anything. Thus the famous Rana Sanka, the Sisodia chief who opposed Báber, was called the *kalasa*, or pinnacle of the glory of his native country, Mewár.

XXIV.—*Interior Decorations.*

1.—The interior decorations are of two kinds; namely, those of the walls and those of the ceilings. Of the latter there are but two specimens, which have already been fully described in the accounts of the Páyach and Pándrethán temples. Under this head also should be included the soffits of the trefoiled arches, which, in the only existing example at Márttand, are divided into square panels, each containing an expanded lotus flower.

2.—The decorations of the walls are quite different, and are in strict keeping with the general character of the other parts of the building. They consist chiefly of trefoil-headed niches covered by pediments supported upon pilasters. These are called *karna-kutah*, कर्णकुटः, or "side-niches," by the Hindus. In Plate XVI. I have given a view of the northern wall of the entrance-chamber of Márttand, which is the most highly-decorated of all the Kashmírian interiors. The large temple at Pathan has a single niche (with double pediment) on each side of the entrance; but the interior chamber is quite plain. In Márttand however there are four distinct masses of ornament on each side of the interior, each differing in its details from the other, but all having the same predominating type of a pediment supported upon pilasters. Over the right hand niche there is a small indistinct object or tablet supported by a couple of naked and winged figures, which are well-conceived and neatly executed: while both above and below the left hand niche there are panels occupied by small trefoil-headed recesses. The base of the large niche to the left of the door is ornamented with various figures in very high relief. The middle figure is a seated man; and on each side of him there is a human-headed bird. Next to these are elephants, and beyond them are lions. In all the niches also the capitals of the pilasters are occupied by these same human-headed birds, which, though not so natural as the favorite ox-skulls of the Grecian metopes, are much more pleasing.

XXV.—*Porticos.*

1.—The different porticos have been fully described in the accounts of the various temples; but there are some points of difference as well as of similarity that require a more particular mention. Of the former the most striking is the difference in height in proportion to that of the temples to which these porticos are attached. In that of Bhaumajo the portico is exactly of the same height as the temple itself. In the Páyach example, as well as in the little temple on the Srinagar column, the porch reaches only to the centre of the pyramidal roof; whilst in the Pándrethán temple it is highly probable that it did not reach higher than one third of the roof.

2.—Another point of difference consists in the treatment of the pediment itself, which, in the Bhaumajo, Páyach and Pándrethán speci-

mens, is unbroken. In that of the little Srinagar column, and most probably also in that of Márttand, the pediment was divided into two distinct parts by horizontal returns of its mouldings, the same as in the pyramidal roofs of Páyach and Pándrethán.

3.—A third point of difference lies in the projection which is more or less bold in the several temples, apparently according to their relative antiquity. Thus the portico of the ancient Bhaumajo is flush with the pilasters of the temple; whilst in the modern examples of Pándrethán and of Pathan, the portico is advanced 2 feet and 3 feet respectively beyond the main pilasters. In the intermediate examples the projection varies from a few inches in the Páyach and Márttand porticos to $1\frac{1}{2}$ foot in those of Avantipura.

XXVI.—*Wings.*

1.—In Sanskrit all side buildings are called *paksha* पक्ष, or "wings," and *pakshála* पक्षाल, or "side-temples." The small buildings attached to Márttand are the only examples of this kind now existing in Kashmír. I cannot therefore presume to deduce any rules from a single specimen; but I may be permitted to notice a few of its leading features. For instance, the exterior dimensions of the Márttand wings are made exactly the same as those of the principal interior chamber. Again, the width of the wing is equal to one half of that of the entrance end of the temple, and its length is equal to one half of that of the other. Some of these proportions can scarcely be accidental; but nothing further can be deduced from them than that the dimensions of the wings would appear to have been about one half of those of the temples.

XXVII.—*Gateways.*

1.—The gateways of the Hindus have different names according to the class of buildings to which they are attached. Thus a royal gate is called *dwára-harmmya* द्वारहर्म्य, or the "palace-gate;"— that of a large public or private dwelling is named *dwára-shála* द्वारशाल, or "hall-door;" whilst that of a town is called *gopura* गोपुर. The last two are also applied to the gateways of temples, which are however more generally known as *dwára-mandapa* द्वारमण्डप, or "temple-gates." According to the Sanskrit works quoted by Rám Ráz, the Hindu architects divided the different kinds of gateways into five classes, each bearing a certain

proportion in its width to that of the temple to which it was attached. This proportion increases gradually from six sevenths, the breadth of the most simple kind, to ten elevenths the breadth of the most magnificent. The several names are as follows :

1.—*Dwára-sobha*, the "beautiful gate" — width ..... = $\frac{6}{7}$.
2.—*Dwára-shála*, the "hall-gate," ditto, ... = $\frac{7}{8}$.
3.—*Dwára-prasáda*, the "elegant-gate," ditto, ... = $\frac{8}{9}$.
4.—*Dwára-harmmya*, the "palace-gate," ditto, ... = $\frac{9}{10}$.
5.—*Gopura*, the "town-gate," ditto, ... = $\frac{10}{11}$.

If we might judge from the few examples that now remain, none of these Hindu classes would appear to have been known to the Kashmírian architects; or, if known, they were certainly not followed. For the gateway of Márttand is exactly of the same width as that of the temple itself, while those of Avantipura are only equal to two thirds and to one third of that of their respective temples. The first is equal to the width of the temple itself; the second to that of its entrance porch; while the third is only equal to that of its flight of steps. These different gradations would seem to point out that the Kashmírians possessed some rules relative to the widths of their gateways which were founded upon the sizes of the principal masses of the temples, and not upon any proportional parts of the temples themselves.

2.—But these are the larger gateways that were constructed during the most flourishing period of Kashmírian architecture. The gates of older times were mere doorways in the enclosing walls. Such for instance is that of the temple of Jyeshteswara on the Takht-i-Sulimán hill; and such also is that of the enclosing wall around the tomb of Zein-ul-áb-ud-din. (See Plate VIII.) This last however is a closed doorway; the actual entrance being a gateway of larger dimensions, similar to those of Márttand and Avantipura.

3.—The exterior ends of the gateway walls were divided into panels, each decorated with a miniature temple. These ends were in fact only square attached pillars with bases and capitals complete. The gateways were no doubt originally covered by pyramidal roofs and attached porticos; and they were therefore exteriorly only smaller temples.

4.—It was in their interior arrangement that the gateways differed from the temples, as they were open at both ends. Of the four existing gateways at Márttand, Avantipura, and Zein-ul-áb-ud-din's tomb, three

of them have a transverse wall exactly in the centre of the building; while the fourth, that of Avantiswámi, has this cross wall nearer to the outer end than to the inner one. Each of these cross walls had a doorway in the centre, which must once have been closed by a wooden door. The gateways were thus divided into two open porches, of equal size, in the first three temples; but differing in the last, of which the outer apartment was only half of the size of the inner one.

5.—The interior decorations of the gateways were also similar to those of the temples: as all the side walls of the four existing examples are ornamented with trefoil-headed niches covered by pediments. All of these must once have held statues or sculptures of some kind, excepting only, those of the gateway leading to Zein-ul-áb-ud-din's tomb. But these last were certainly never completed, as each of the niches is filled by a square mass of rough stone, which was no doubt destined by the architect to be carved into some divine form, or some mythological group.

XXVIII.—*Enclosures.*

1.—Rání Diddá, the Messalina of Kashmírian history, is recorded* to have repaired the ruinous surrounding walls of some temples and to have erected new enclosures around others. Thus every Kashmírian temple would appear to have been surrounded by a wall of some kind, more or less decorated according to the magnificence of the enclosed shrine, and larger or smaller according to the means at command. There are however only three existing enclosures in the valley itself; namely, those of Márttand, Avantipura, and Zein-ul-áb-ud-din's tomb, all of which have suffered considerably by the hands of the spoiler. But in my accounts of the temples themselves I have given grounds for supposing that those of Pathan and Pándrethán must once have possessed enclosing walls of some kind; and I have no doubt that a minute research would discover the traces or remains of a surrounding wall to the temple of Páyach. Of the temples in the Baráhmula Pass beyond the valley, two still have their enclosures somewhat perfect. The third I have not seen; and Vigne unfortunately does not notice this point.

* Raja Tarangini, B. 6—v. 307.

2.—These enclosing walls were called *prákára* प्राकार, both in ancient and in modern times, and in India as well as in Kashmír. I have been unable to discover any rules for their dimensions that would appear to have been followed by the Kashmírian architects, owing perhaps to the fewness of the examples which now exist. I have no doubt however that certain rules were observed, and that they were founded upon various multiples of some of the dimensions of the enclosed temples. Thus the Márttand quadrangle is $220\frac{1}{2}$ feet long by $142\frac{1}{2}$ feet broad in the interior; the former dimension being exactly equal to $3\frac{1}{2}$ times the length of the temple, and the latter being $1\frac{1}{2}$ foot more than 4 times its breadth. With the Avantipura temples a similar practice may be traced. Thus the quadrangle of Avantiswámi is 172 feet long by $146\frac{1}{2}$ feet broad, which dimensions are respectively 5 times and $4\frac{1}{4}$ times the width of the temple. Thus also the quadrangle of the Avanteswara temple is 191 feet long by 171 feet broad, or respectively $2\frac{3}{8}$ and $2\frac{1}{8}$ times that of the temple itself.

3.—As the fractions of these last proportionals of the Avantipura temples are very small, it seems probable that some other rules must have been observed with them, but of what description it is difficult to conjecture. I have tried multiples of the diagonal lines of the ground-plans, which would seem to answer very well, as the results which they give are in large fractions. In the Avantiswámi temple they are $3\frac{1}{2}$ and 3 diagonals, and in the Avanteswara temple $1\frac{1}{2}$ and $1\frac{2}{3}$ diagonals. I do not however lay much stress upon these results, which after all perhaps owe more to chance than to design.

4.—I say nothing regarding the dimensions of the octangular court which surrounds the temple of Jyeshteswara on the Takht-i-Sulimán hill, because its small size was most probably imposed by its confined situation. The space on each side was however exactly equal to one fifth of the diameter of the temple.

4.—The style of these surrounding walls has undergone even a greater change than that of the temples themselves, although the same predominating forms have been preserved throughout the different gradations, from the most simple to the most magnificent. The earliest of these enclosures is that of the temple of Jyeshteswara, which was most probably built about 220 B. C. In this example I think that I can trace the first germs of the Kashmírian style. The walls which

have triangular or pedimental tops are divided into square panels, each containing a pointed arched recess. In the next example, which is that of the enclosure of Zein-ul-áb-ud-din's tomb, the very same treatment is observed, but with some ornamental additions betokening a later date. Thus the pointed arches do not rest immediately upon the upright sides of the recesses; but are joined to them by short horizontal returns; while the most characteristic feature of the Kashmírian arch, the trefoil is here observed for the first time, in the recess immediately on each side of the entrance. The same trefoiled arch is also used in the doorway of this enclosure. In these early examples the lower arcs of the trefoil are of very small size, being only one fourth of that of the upper one. This wall has also the same triangular or pedimental top, but with the addition of two plain mouldings or annulets on each face. Its thickness is also considerably less than that of the other, although its height is somewhat greater.

5.—Between the ancient simplicity of these enclosures, and the majestic colonnade of Márttand, the difference is very great indeed; but so also is the interval between the dates of their erection, which is upwards of 900 years. During this long period there must have been a constant and yet gradual succession of improvements, which at last resulted in the production of one of the noblest enclosures in the known world. Amongst the earliest improvements were most probably the insertion of plain pilasters in the spaces between the panels, and the enlargement of the lower arcs of the trefoil to the same size as that of the upper one. Both of these are well shown in the Srinagar Frieze of Plate VIII. In this specimen, as well as in those of the Márttand friezes, are first observed the small triangular-headed recesses in conjunction with the trefoil; from which I conclude that the next improvement was the addition of the pediment over the head of the trefoil, and the consequent enlargement of the wall in all its parts. This increased size would naturally have led to the successive enlargement of the recesses until they had attained their present dimensions of distinct chambers. The next step in advance was perhaps the gradual disengagement of the pilasters from the walls until they became independent square pillars. After this the change to round columns was easy and natural; and the insertion of new pilasters in the old places, must have quickly followed upon the disengagement of the others.

6.—Such I presume must have been the gradual improvements and additions that were successively introduced into the Kashmírian style of architecture until the simple enclosure of the old temple of Jyeshteswara, was expanded into the magnificent peristyle of Márttand.

7.—The pillars of all the colonnades now existing in Kashmír are similar in style and in general appearance, but somewhat different in their relative proportions, and in the mouldings of their bases and capitals. As these columns are, in my opinion, the noblest specimens of the Kashmírian architecture, I will now examine them in minute detail, for the purpose of comparing them with some of the classical orders.

XXIX.—*Pillars.*

1.—There are several Sanskrit names for a pillar, but the most usual one is *stambha* स्तम्भ, which is derived from *stha* स्था, "staying," or "standing," and is an exact equivalent to the Greek στυλος. As this name is still used throughout India for a pillar, I do not think it necessary to notice any of the numerous Hindí names which are of less common occurrence.

2.—The Kashmírian pillars are of two kinds, round and square: and are distinguished from the numerous varieties of Hindu pillars generally by being always divided into the three distinct members of base, shaft and capital. The square pillars are used in all corner positions where superior strength and solidity are required to support the greater weight of those parts of the superstructure. In the only existing examples at Márttand and Avantipura, their faces are panelled.

3.—The round pillars are used throughout the colonnades, and for the support of porches of all kinds. They are always fluted, the number of flutes being 16, but sometimes 20, and even 24. These fluted pillars would seem to have been the favorite ornament of all the Kashmírian buildings, both Hindu and Mahomedan, as they are found, more or less perfect, in every place of note throughout the valley. Sometimes they are discovered lying by the road-side; occasionally they are seen standing amidst the ruins of the temples which they once surrounded, but more generally they are found attached to the doorways of Mahomedan masjids and tombs.

4.—The relative proportions between the heights and breadths of the Kashmírian pillars are given in the following table:

		Lower Dr. Inches.	Height, inches.	Multiple of Dr.	Inter-coln.	$1\frac{1}{2}$ Inter-coln.
Márttand	Gate	25.940	209.250	$8\frac{1}{16}$	138.00	207.000
do.	Porch	24.430	155.500	$6\frac{3}{8}$	102.57	153.855
do.	Peristyle	21.500	113.250	$5\frac{1}{4}$	81.56	122.340
Avantipura	Gate	24.430	233.235	$9\frac{3}{16}$		
do.	Porch	20.750	171.375	$8\frac{1}{4}$	114.25	171.375
do.	Peristyle	17.875	122.750	$6\frac{7}{8}$	85.62	128.430
Pámpur	Pillar	11.250	71.500	$6\frac{3}{8}$		
Bhaumajo	Pilaster	10.375	66.250	$6\frac{3}{8}$	44.250	66.375

The lowest multiple amongst these is that of the peristyle columns of Márttand, which is almost the same as the $5\frac{1}{4}$ diameters of the Doric columns of the Parthenon. In the Márttand and Avantipura examples the proportions increase rapidly, and not according to any rule that I can discover, although no doubt some rule must have been followed by the architects. I will hereafter show that the intercolumniation is always two thirds of the height, and I think it very probable that the height was dependent upon the interval, which was itself dependent upon the number either of pillars or of recesses, that the architect had determined upon introducing on each side of the quadrangle.

5.—In the above table I have given a column of heights, calculated at $1\frac{1}{2}$ intercolumniation each, which correspond almost exactly with the measured heights. I have therefore but little doubt that the practical rule followed by the Kashmírian architects was to make the height of the pillar equal to one half more than the width of the interval.

XXX.—*Flutes.*

1.—All the peristyle columns of Márttand, Pámpur and Avantipura have 16 flutes: the larger columns of the porches have 20 flutes; and the still larger ones of the gateways have 24 flutes. But the number of flutes did not always depend upon the size of the columns; for there is a fragment of a pillar standing near the tomb of Zein-ul-áb-ud-din's mother, which has 24 flutes and is only 1 foot in diameter. This how-

ever is the sole exception to the general rule, that the number of flutes should increase with the diameter of the column, sixteen being the least number that is ever used. Thus the Pámpur pillar, which is $11\frac{1}{4}$ inches in diameter, those of the Márttand peristyle, which are $21\frac{1}{2}$ inches, and those of the Avantipura peristyle, which are $17\frac{7}{8}$ inches, have all sixteen flutes. Of the 20-sided pillars there is a fragment of one near Zein-ul-áb-ud-din's tomb, which is only $19\frac{1}{2}$ inches in diameter; while those of Márttand and of Avantipura are respectively $24\frac{1}{2}$ inches and $20\frac{3}{4}$ inches. Of the 24-sided pillars the Márttand and Avantipura examples are respectively 26 inches and $24\frac{1}{2}$ inches.

2.—The flutes of the Kashmírian pillars are extremely shallow, none of them being more than from one quarter to three-eighths of an inch in depth. They must therefore, as nearly as I can determine, have been formed by radii of the same length, as those of their respective pillars. In this, as well as in the number of their flutes, they assimilate more closely to the Doric column than to any other of the classical orders.

XXXI.—*Bases.*

1.—The base of a column is called *Adhastambha* अधस्तम्भ, or "beneath-pillar" in Sanskrit, a name which is exactly equivalent to the Greek ὑποστυλιον. The following table exhibits the relative heights and breadths of the different Kashmírian bases, side by side with the lower diameters of their respective pillars :—

		Lower Dr.	Height.	Multiple of Dr.	Width.	Multiple of Dr.
Márttand	Poreh	24.43	29.75	1.21	31.50	1.28
ditto	Peristyle	21.50	25.75	1.19	26.75	1.24
Avantipura	Peristyle	17.87	28.00	1.57	27.00	1.51
Pámpur	Pillar	11.25	18.00	1.60	15.00	1.33
Bhaumajo	Pilaster	10.37	14.25	1.37	13.75	1.32

According to the results shown above there would appear to have been no constant rule observed by the Kashmírian architects for determining either the heights or the breadths of the bases. The former range from 1.2 to 1.6 diameter, and the latter from 1.25 to 1.5 diameter. In

Márttand the relative proportions were exactly the same for both of the existing examples: namely, $1\frac{1}{5}$ diameter for the height, and $1\frac{1}{4}$ diameter for the width.

2.—There are but five different specimens of the Kashmírian base, of which that of Avantipura is almost plain. (See Plate VI.) Those of Márttand and of Pámpur agree generally in the character of their mouldings, which may be thus described. The upper member is an ovolo with a straight fillet above, and an apophygé below. The next is a filleted torus, with a fillet both above and below, and surmounting the straight face or neck of the pillar. In the large Márttand pillar the torus is plain. Beneath this is a quirked ovolo with a straight fillet above and below, and the last is the plinth. In all of these the upper and lower members are of the same height; that is the ovolo and apophygé are equal to the plinth.

3.—In figure 8 of Plate VI. there is another variety of base belonging to a broken pillar near the flight of steps leading from the river to the tomb of Zein-ul-áb-ud-din's mother. In this the central member or filleted torus is omitted, and a plain face is inserted between the ovolo and the plinth. There is no clue to its date: but whether it be of an earlier or of a later period than the other examples, it is by no means an improvement upon them.

XXXII.—*Shafts.*

1.—The shaft is the portion of the pillar to which the name of *stambha*, or "stay," more especially belongs. It is an exact equivalent of the Greek στυλος. There would appear to have been no fixed and unalterable rule for the height of the shaft; at least I can discover none. The various examples range from $3\frac{2}{16}$ to $4\frac{3}{16}$ diameters in height, the average being 3.88, or as nearly as possible 4 diameters. This indeed is the height of all the finest specimens of the porch pillars of Márttand, of the doorway pilasters of the perfect little temple of Bhaumajo, and of some well preserved columns in Nowa-shehra of Srinagar.

XXXIII.—*Capitals.*

1.—In Sanskrit the capital is called *Adhistambha* अधिस्तम्भ, or "above-pillar," which is precisely the same as the Greek επιστυλιον. According to Vitruvius, the Doric capital was half a diameter in height, the

Ionic capital three-fourths of a diameter, and the Corinthian capital, the last improvement of the Greeks, one whole diameter. Now in all the examples that I have seen, excepting only that of Avantipura, the height of the capital is made equal to the upper diameter of the column. If this was not borrowed, the Kashmírian builders would seem to have decided upon the same proportion as the Greek architects for the height of a capital. For the Greek capitals were made in parts of the upper diameter, and not of the lower diameter. Thus the Parthenon Doric capital is exactly one half of the upper diameter in height. Such also are the Doric capitals of the Propylæa, of the temple of Theseus and of the old temple at Corinth. From the annular channel it is true that the height is one half of the lower diameter: but measured from the lowest annulet, the height is exactly one half of the upper diameter. And this was undoubtedly the capital of the pillar; for I believe that the annular channel was intended solely for the reception of a metal ring to prevent the splitting of the columns at top from the insertion of stone or metal fastenings for the purpose of holding the architraves. And yet these channels are slavishly copied now-a-days, and left empty. So also did the Chinese tailor copy the sailor's jacket, *patches and all.*

2.—In the Márttand examples the capital is divided into three nearly equal parts, of which the lowest consists of an *astragal* and an ornamented *echinos;* above which is the neck of the same width as the upper diameter of the column. Over this is a fillet and a high *apophygé* surmounted by two fillets, and a second *echinos,* or *quirked ovolo.* In the square pillars the apophygé is made straight, most probably to assimilate it more closely to the straight-lined character of the columns. In the Avantipura example the same triple division is observable, but in unequal parts; the upper portion being the least, the middle one somewhat larger, and the lowest portion the greatest.

3.—In the Pámpur example the upper member is only one-fifth of the height, while the central and lower members are each two fifths. In this specimen the lower *echinos,* which has thus been enlarged, has a row of lotus leaves surmounting the egg ornaments, which are themselves separated by rows of small beads. The central portion has also been altered; for the epitrachelium, or *adhikantha,* is here divided into two portions, the upper one being, as in the other examples; while the lower portion is made to swell out into a filleted moulding. In all these

examples the lower portion of the capital is round, and the upper portion, square.

4.—Vitruvius says that the practical rule followed for obtaining the width of the Doric capital was to make it one sixth more than one diameter. But the Doric capitals were only half a diameter in height, while the Kashmírian capitals are exactly one diameter. If therefore the same rule was followed by the Kashmírian architects, the excess over one diameter should be the double of one sixth, or one third of a diameter; and such in fact is the case, as will be seen by an inspection of the fourth column of the following table. The theoretical rule regarding the width of the Cornithian capital, according to Vitruvius, was to make the length of the diagonal of the abacus equal to twice the height of the capital. This rule however will not apply to the other classical orders, nor to that of Kashmír. But there is another one which gives results so nearly corresponding to those of the practical rule, that there can be no reasonable doubt that it was the theoretical rule followed by the architects of both countries, although I am not aware that it has hitherto been noticed by any author. This is to make the width of the capital equal to the hypothenuse or diagonal of the square of the upper diameter. In the fifth column of the annexed table I have given the different dimensions according to this calculation. On the whole, the results of the practical rule appear to agree better with the actual widths of the capitals than those of the theoretical one, although both of them correspond with the real dimensions within fractions of an inch. In Kashmír as well as in Greece, I should suppose that the architect made his calculations by the theoretical rule, while the mason worked by the practical one. In my opinion the coincidences are much too remarkable to have been accidental.

		Lower Dr.	Upper Dr.	Width of capital.	Practice. D+ $\frac{1}{3}$	Theory Hyp.of dr
Márttand	Porch . .	24.430	22.910	32.500	32.570	32.395
Ditto	Peristyle	21.500	20.600	28.500	28.666	29.133
Avantipura	Peristyle	17.875	16.875	27.000	23.865	23.833
Pámpur	Pillar . .	11.250	10.625	14.250	15.000	15.026
Srinagar	Pillar . .	14.500	14.250	19.500	19.332	20.153

XXXIV.—*Diminution.*

1.—The rule laid down by Vitruvius, for diminishing the thickness of a pillar, is to make the upper diameter one sixth less than the lower one in a column of 15 feet in height, and one eighth less in a column of 50 feet. According to Rám Ráz, the practice of the Hindu architects* was to divide the lower diameter into as many parts as the number of diameters in the whole height of the column, and to diminish the thickness by one of those parts.

2.—In the following table of comparison I have given the actual diminutions of the Kashmírian pillars side by side with the calculated diminutions according to the Greek and Hindu rules. But as all the Kashmírian pillars are under 15 feet in height, I have taken the proportional parts of $\frac{1}{6}th$ D, according to the different heights. Thus the Márttand porch pillar being 13 feet high, I have taken $\frac{13}{15}ths$ of $\frac{1}{6}th$ D; and the peristyle pillars of Márttand being only $\frac{2}{5}ths$ of 15 feet in height, I have taken that proportion of $\frac{1}{6}th$ D. for the diminution, and the same for the others, according to their relative heights.

	Lower Dr.	Upper Dr.	Calculated Dimn.		Actual Dimn.
			Vitruvius.	Rám Ráz.	
Márttand Porch ..	24.430	22.910	3.528	3.840	1.520
Ditto Peristyle	21.500	20.600	2.583	4.096	0.900
Avantipura Ditto,	17.875	16.875	1.986	2.648	1.000
Pámpur Pillar ..	11.250	10.625	0.750	1.760	0.625
Srinagar Ditto,	14.500	14.250	0.483	———	0.250

Both the Greek and Hindu rules would appear to be based upon the same principle, that the diminution should lessen as the height increased. But neither of these rules apply to the Kashmírian pillars, in which the diminution increased with the height. The practical rule would appear to have been, to lessen the thickness by one quarter of an inch for every cubit of height of *shaft*, and not of pillar. This is certainly the most simple as well as the most natural mode of diminution; for as the shaft is the part that is diminished, the amount of diminution should be made dependent upon its height, and not upon the total height of the pillar.

* Hindu Architecture, p. 38.

3.—The following table exhibits the diminutions of the Kashmírian pillars, along with the heights of the shafts, and the total heights of the columns. Beside these I have placed the scale of diminutions calculated at one quarter of an inch per cubit of height of shaft. The remarkably close agreement of the numbers in this last column with the actual measured diminution, is, I think, a sufficient proof of the correctness of my deduced rule. The practical rule amongst the Kashmírian architects was most probably to lessen the thickness of the shaft by one third part of a finger, or *angula,* (=$\frac{1}{4}$ inch) for every cubit, or *hasta,* of its height.

		Total height.	Height of shaft.	Actual dimn.	Calculated diminution.
Srinagar	Pillar.	4.1$\frac{1}{4}$	1.5$\frac{1}{4}$	0.250	0.239
Pámpur	Ditto.	5.11$\frac{1}{2}$	3.6	0.625	0.586
Avantipura	Peristyle. ..	10.2$\frac{3}{4}$	6.5$\frac{1}{4}$	1.000	1.072
Márttand	Ditto.....	9.5$\frac{1}{4}$	5.7	0.900	0.930
Ditto	Porch.	12.11$\frac{1}{2}$	8.7$\frac{3}{4}$	1.520	1.441

XXXV.—*Intercolumniations.*

1.—The distance between the pillars of the Kashmírian colonnades, measured at the base of the shaft, is never less than 4 diameters. After a careful examination of all the examples, I have been unable to discover any rule, founded upon multiples of the diameter, that is suitable to the Kashmírian order. But I have found what appears to me to have been the practical rule used for determining the distance between the columns, which is, to make the interval equal to two-thirds of the total height of the pillar. The following table shows the results of this rule, side by side with the measured intercolumniations :—

		Height. Inches	$\frac{2}{3}$ Height.	Measured Intercols.
Márttand	Gate	209.25	139.50	138.00
Ditto	Porch	155.50	103.66	102.57
Ditto	Peristyle	113.25	75.50	81.56
Avantipura	Porch	174.17	116.11	114.25
Ditto	Peristyle	122.75	81.83	85.62
Bhaumajo	Pilaster	66.25	44.07	44.25

I suspect however that the height was determined from the intercolumniation, and that the latter was altogether dependent upon the number of pillars, or of recesses, which the architect was obliged to introduce within the limits of each side of the quadrangle.

2.—The Sanskrit name for an intercolumniation is *antarastambha*, अन्तरस्तम्भ, or *antarapáda*, अन्तरपाद्, both of which are exactly equivalent to the Greek μεσοστυλιον,, or "between-pillars."

XXXVI.—*Pilasters.*

1.—Pilasters, or *kudya-stambha*, कुड्यस्तम्भ, "wall-pillars" as they are aptly called by the Hindus, are used in all the ancient buildings of Kashmír. They have the same three divisions of base, shaft, and capital, which distinguish the pillars of Kashmír from those of India generally. They have also the same proportions and the same mouldings of base and capital, and differ only in the decorations of their shafts. The earliest examples in the cave temple of Bhaumajo, have a plain simple panel upon the shaft. Those of the Páyach and Pándrethán temples are quite plain, while those of the great temple of Márttand, Avantipura and Pathan are divided into several panels, each decorated with a miniature relievo of the Arian temple.

XXXVII.—*Isolated pillars.*

1.—*Column at Srinagar.*

1.—On the outside of the Jama Masjid, in the city of Srinagar, there is a small isolated pillar, which has not to my knowledge been noticed by any former traveller. Its top is crowned by a nearly perfect little temple with a roof of four stories, which alone is sufficient to render it one of the most interesting remains of the Kashmírian architecture. The base is nearly all hidden beneath the ground; but it was most probably a plain cubic block like that of the Avantipura pillar. Its shaft has sixteen sides, and its capital is similar to those of Márttand, but somewhat plainer and more massive. The little temple which crowns its summit is invaluable for the illustration of the Kashmírian style of sacred edifice, as it offers the only existing specimen of a four-storied roof—and of porch-pediment divided into two distinct portions, of which the upper half overlaps the under one. The same style of

pediment was undoubtedly used for the porches of Márttand, but only the lower portions of the horizontal mouldings are now remaining.

2.—*Pravareswara Symbol at Pándrethán.*

1.—The gigantic fragments which in plate VII. I have joined together into one lofty pillar, have attracted the notice of most European travellers. The largest piece, marked No. 1, in my Plate, is thus described by Moorcroft*—"One large stone of a conical shape had the appearance of a *lingam;* but the peasants said it was a mark for the ball used in playing *chaugán,* employed by a race of giants who formerly dwelt there." Vigne also calls it a *lingam,* which it undoubtedly is, as may be seen by a reference to Plate VII. This fragment is $16\frac{1}{2}$ feet in height, and 6 feet 10 inches in diameter; the upper part being a spheroidal topped cylinder, and the lower portion a poligon of sixteen sides. There is also another large *lingam* 6 feet in height, but only 6 feet in diameter, and with no more than eight sides. I presume therefore that it was most probably not connected with the larger pillar.

2.—The fragment marked No. 4, in my Plate, is by far the most interesting of these remains. Moorcroft, continuing his former account, thus describes it:—"Another was pointed out as the goal, but proved to be the upper part and capital of a huge polygonal pillar, the shaft of which was seven yards in circumference. Traces of figures on its upper part were distinctly perceptible." Vigne† calls it the "capital and five feet of the shaft of an enormous limestone pillar." "The plinth," he adds, "is much damaged, but enough is left to show that it was composed (at least I thought so) of four gigantic female busts." The upper part is undoubtedly composed of four busts, or rather half-length figures, but they are most unequivocally males, and not females. The fragment is now lying upon its side on the top of a low flat spur which puts out into the plain, opposite the village of Lajan, between Pándrethán and Panthasok, and at rather less than half a mile from the Pándrethán temple. A view of its situation is given, at the top of Plate VII. where it is seen lying to the left of the restored pillar. This fragment is also a polygon of sixteen sides, with a diameter of 6 feet 10 inches. Vigne† states its thickness at "about 5 feet;" but the more

* Travels, v. 2.—p. 241.

† Kashmír, v. 2—p. 36.

accurate Moorcroft makes the shaft "seven yards in circumference." My diameter of 6 feet 10 inches gives a *circular* girth of seven yards and somewhat less than six inches. The true diameter may therefore perhaps be only 6 feet 9 inches, which would give a circumference of 7 yards and $2\frac{1}{2}$ inches; for Moorcroft's measurement was the aggregate of the 16 sides, which would of course be somewhat less than the circumference of a circle of equal diameter. The difference between our measurements is therefore almost too small to be worth notice.

3.—Moorcroft's statement* that no other remains of sculpture were discoverable in the immediate vicinity of this large fragment, shows that he did not, on that occasion, make use of the same active research as was his wont. For by cutting away the bushes behind the upper part of the stone, I found two different portions of the heads of these gigantic busts, of which unfortunately the more perfect one fell to pieces in turning it over. The other fragment is that which I have inserted as No. 3 of Plate VII. in the restored sketch of the pillar. The mouth is ten inches long. The portion marked No. 2 in my sketch is conjecturally supplied from a large head which I found amongst the ruins of Avantipura. As the treatment of the hair is similar to that observed with the human-headed birds in all the temples of Kashmír, it is probable that my proposed restoration preserves the general style, although perhaps not the actual details of the original.

4.—The upper portion or great *lingam* No. 1, is situated at a few hundred yards from the last, on the side of the sloping bank; and on the plain below is the fragment marked No. 5 in my Plate. This is called *baror*, or the "cat," by the Kashmírians, from some fancied resemblance to that animal. Vigne† calls it a "large block on which are rudely sculptured the knees and legs of a gigantic sitting figure." The knees are certainly not visible now, and I fancy that Vigne must have been mistaken in his supposition about them.

5.—In restoring the different portions of this pillar to what would appear to have been their original positions, I have been guided chiefly by the identity in the dimensions and in the number of the polygonal faces of the two principal fragments, and partly by the near positions which

* Travels, v. 2—p. 241.

† Kashmír, vol. 2, p. 36.

the different pieces now occupy with regard to each other. Vigne calls the distance from the principal fragment No. 4, to the base piece No. 5, about "half a mile." But he is certainly wrong; for the whole distance between the hill upon which No. 4 fragment is lying, and the Pándrethán temple, is somewhat less than 700 yards, and the base piece No. 5 stands about half way between them.

6.—My belief is that the pillar originally stood in its present position as shown in the view in Plate VII.; and that it was cut out of the solid rock by the quarrying away of the hill on all sides. The total height must have been fully 36 feet; for I have not added a single piece to the remaining fragments, excepting only the necessary restoration of the upper parts of the heads. The style of long-plaited tresses appears to be similar to that which was usually given by the Greeks to their caryatid figures; a specimen of which from Athens is shown in Plate VII.

7.—Vigne* has hazarded a conjecture that the large fragment No. 4 is the capital of a great *Garuda* pillar, which was erected at Parihasapura; and that it was removed to its present position perhaps by Sankara Varmma. But as it has already been shown that the largest stones which the Kashmírian architects were in the habit of using in the temples do not weigh more than 17 tons, it is scarcely possible that this vast fragment, which contains 375 cubic feet and weighs upwards of 28 tons, would have been selected for removal from Parihasapura to Pándrethán, a distance of 20 miles. I have already stated my belief that this gigantic *lingam* was cut out of the solid rock in the very spot where it now lies prostrate. Vigne mentions the "flat surface" which has been cut in the rock close to it; but he does not notice the existence of a large rough square plinth upwards of seven feet across, which is also hewn out of the solid rock in the middle of this platform, and on which I believe that the pillar formerly stood.

8.—If I am correct in my restoration of these various fragments into one gigantic *lingam*, the period of its erection is, I think, ascertained beyond all doubt in the following verse of the Raja Tarangini, B. 3—v. 99:—

समाश्चक्रं निर्मायः पूंवं प्रवरेश्वरं।
पुण्याः पुराणाधिष्ठाने प्रतिष्ठा विविधा व्यधात्॥

which is thus rendered by Troyer:

* Kashmír, vol. 2, p. 37.

"Après avoir erigé un symbole dedié à la divinité suprême, joint à un cercle mystique, il consacra plusieurs-sanctuaires dans l'ancienne capitale."

In this version the words "la divinité suprême" are a translation of *Pravareswara,* which was the name of the Saiva symbol erected by king Pravareswara; and the words "l'ancienne capitale," are a translation of *Puranadhishtána,* which is now called Pándrethán. The consecration of a famous *lingam* at Pándrethán is therefore clearly attributed to this Prince, and as it is the only one mentioned throughout the history, there is every probability that the gigantic Priapian fragments now existing are the remains of the Pravareswara symbol. This Prince reigned from A. D. 400 to 415. His pillar is therefore the oldest authenticated column in Kashmír.

XXXVIII.—*Concluding Remarks.*

1.—I have now given a complete description of all the existing temples of Kashmír, with a detailed account of the different parts and various mouldings of which these edifices are composed. I will therefore close this long notice with a few general remarks upon the Kashmírian style of architecture, to which I have ventured to give the name of the ARIAN ORDER. Even at first sight, one is immediately struck by the strong resemblance which the Kashmírian colonnades bear to the classical peristyles of Greece. This first impression is undoubtedly due to the distinct division of the pillars into the three members—base, shaft, and capital, as well as to the fluting of the shafts. On further inspection the first impression is confirmed by the recognition that some of the principal mouldings are also peculiar to the Grecian orders, but more especially to the Doric. Thus the *echinos,* which is the leading feature of the Kashmírian capital, is also the chief member of the Doric capital. A still closer examination reveals the fact that the width of the capital is subject exactly to the same rules as that of all the classical orders excepting the Corinthian.

2.—Even the temples themselves, with their porches and pediments, remind one more of Greece than of India; and it is difficult to believe that a style of architecture which differs so much from all Indian examples, and which has so much in common with those of Greece, could have been indebted to chance alone for this striking resemblance.

Professor Willis admits the probability that the Kashmírian pediments may have been borrowed from those of the Syrian Greeks, and he founds his opinion upon the fact that the trefoiled arch of the Kashmírian temple rises high into the tympanum of the pediment; a practice which was not introduced into the classical architecture until after the commencement of the Christian era. But the Professor had not I believe, seen any examples of the older Kashmírian buildings, such as the enclosing walls of the temple on the Takht-i-Sulimán and of the tomb of Zein-ul-áb-ud-din, as well as the perfect little cave temple of Bhaumajo. Of these specimens the first dates as early as 220 B. C. at which time the Kábul valley, and even the western Punjáb, was occupied by the Bactrian Greeks under Euthydemus and his son Demetrius. If therefore it is admitted that the Kashmírian architects have been indebted to those of Greece for their pediments, for their fluted columns, or even for any of their minor details, I think that they must certainly have borrowed them from the temples of their immediate neighbours the Bactrian Greeks, and not from the buildings of the distant Syrian Greeks. I think also that had these pediments been imitated from the later Romanized examples, the copyists would scarcely have overlooked the structural arches which occupy their pediments. In fact the forms of the principal Kashmírian mouldings, which are all *quirked ovolos*, or *echini*, could only have been borrowed from the pure Greek style of an earlier period than the Roman innovation of circular segmental mouldings.

3.—Another striking resemblance between the Kashmírian architecture and that of the various Grecian orders is its stereotyped style, which during the long flourishing period of several centuries remained unchanged. In this respect it is so widely different from the ever-varying forms and plastic vagaries of the Hindu architecture that it is impossible to conceive their evolution from a common origin. I feel convinced myself that several of the Kashmírian forms and many of the details, were borrowed from the temples of the Kabulian Greeks, while the arrangement of the interior and the relative proportions of the different parts were of Hindu origin. Such in fact must necessarily have been the case with imitations by Indian workmen, which would naturally have been engrafted upon the indigenous architecture. The general arrangement would therefore still remain Indian, while many of the details, and even some of the larger forms might be of foreign origin.

4.—As a whole I think that the Kashmírian architecture, with its noble fluted pillars, its vast colonnades, its lofty pediments, and its elegant trefoiled arches, is fully entitled to be classed as a distinct style. I have therefore ventured to call it the "ARIAN ORDER," a name to which it has a double right; firstly, because it was the style of the *Aryas* or *Arians* of Kashmír; and secondly, because its intercolumniations are always of four diameters, an interval which the Greeks called Araiostyle.

Narrative of a Journey to Cho Lagan (Rákas Tal), Cho Mapan (Manasarówar), and the valley of Pruang in Gnari, Hundés, in September and October 1846. *By* HENRY STRACHEY, *Lieut. 66th Regt. Bengal N. I.*

(Concluded from page 182.)

10*th October.*—Parties of Hunias, mostly Khampa, frequent Byáns at this time of the year, for the usual traffic, bringing sheep with salt and borax to be exchanged for grain. One of these, now encamped at Gárbia, inform me that they are Khampa, natives of "Chang," i. e. the province of which Digarcha is the capital; Kham proper, the original seat of their tribe, is a long way off, between U', i. e. the province of which Lhássa is the capital, and Gyánák, i. e. China, and they know little or nothing about that country, as their families have been long since settled in the vicinity of Digarcha, and their trading excursions have always been in this direction, away from Kham.

Immediately east of the mountains which bound that side of Cho-Mápán near the *Sámo-tokchim Tarjum*, in the district of Hor Tol, rises a stream, *Chima-Yungdung*, so named from the profusion of the sand, "*Chima*," which covers the ground about, probably the same granitic debris that spreads for miles around the base of Momonangli. This river flows eastward past Digarcha and Lhássa, and informants recognize the name of "Bráhmápútra," as applied to it by the Hindus of Nipál; or pretend to do so, for I am not sure that the Nipalese do identify the river as the Bráhmápútra.

The Gángri range of mountains subsides at *Tankcham-Tarjum*, the next east from *Sámo-tokchim*. Hor Tol is *Jang-tang*, i. e., untilled pasture ground, and belongs to the province of Gnari, subject to the

Garpun of Gartokh: the people of that ilk have the reputation of being great thieves; their head-man is "Goba Lobjang."

Beyond Hor Tol, eastward, lies the district of Tosher, by some pronounced Doshel, also *Jang-tang;* it is subject to the Zungpun of Sáku Zúng, or Sáka, which is the centre of the province next east of Gnari; how far from the Nipál frontier uncertain.

Bhotias brought me the skin of a *Barji*, the brown bear, which Traill has improperly called "Tawny:" the color is not tawny, i. e. tenny, which implies a tendency to yellow, but a fair umber brown: some people have an idea that this beast is white or turns white in winter, which the Bhotias assured me is never the case. Maximum thermometer in sun 92°; in shade at sunset 46°.

11*th October*.—Hoar frost at sunrise; thermometer 32°; maximum in sun during the day 82°; at 4 P. M. 50°, boiled at 194°; elevation of Gárbia 10,272 feet.

The barley here is now under the sickle, but much of it seems still imperfectly ripe, and I doubt whether all of it ever can ripen properly, the due quantum of sunshine being so much curtailed by the high surrounding mountains at all times, and throughout summer by the constant clouds. The gooseberries appear to be in the same predicament; no great loss, for they are utterly worthless.

I must mention, once for all, a strong south wind prevails here, and which is of universal occurrence in all the Alpine valleys of the Himálaya, penetrating also to the north side of the snowy ranges, where there is an opening through the chain of mountain, as I observed it in the valley of Pruang, and other travellers have noticed the same in Kunáwar.

In Jwár the village of Martoli is notorious among the Bhotias for its "*Pon*,"* being from its elevated site towards the bottom of the valley particularly exposed to the current of air from the lower regions. This wind appears to be the end of the great westerly current which prevails over the continent of northern India, and here impingning on the south-western face of the Himálaya, enters all the valleys that debouch in that direction. It here follows the universal custom of rising at mid-day and attaining its greatest intensity in the afternoon. They say that this Bhotia "Pon" reverses its direction, blowing down the valleys at

* "Wind."

night; I was always too fast locked in sleep to attest this fact myself, but I had it from the best Bhotia authority, Hirdu Budha, Thokdar of Chaudáns.

It is also observable that immediately over all the principal mountain-torrents, a very strong wind blows in the direction of the current, and in strength proportioned to the volume and rapidity of the stream; this I take to be a mere mechanical action of the moving water by which it drags along with it the superjacent stream of air in contact with its surface. On my way up here in the beginning of September, when distressed with the great heat of the lower vallies, I often experienced much relief, by sitting on the banks of the streams or on the bridges, in these cooling currents of air.

Budhi, 12th October.—Maximum Thermometer in sun during the afternoon 104°; at 2½ P. M. in shade 62°, boiled at 197°; elevation 8600 feet; the village is 150 feet higher, i. e. 8,750 feet; Thermometer at sunset 52°.

Another party of Khampa Hunias, one of them a decent-looking man, rather intelligent and understanding a few words of Hindustani, gave me the following information.

Four rivers rise from Gangri, according to Tibetan mythology, from the mountain itself or the lakes; in geographical fact (which informant properly distinguished from the legend) from their vicinity nearer or further, they are,

1st. (The Indus); *Sing-Chin (or Jing) Kamba* (*or Kampa*) on the northward, fabled to spring from the mouth of the Lion, (Sing?)

2nd. *Lang-Chin Kamba* on the westward (the Satrudra or Sutluj) from the mouth of the Ox (Lang.)

3rd. On the southward *Mapchu Kamba* (the Kárnáli) from the Peacock (Mapchu.)

4th. The Brahmaputra, to the eastward, *Tamjyak Kamba*, from the Horse (Tám? or Tamjyak?)

In his exploration of the Sutluj in 1819, Herbert obtained the same names for these four rivers, allowing for differences of corrupt pronunciation by illiterate informants. (Asiatic Researches, 1825, Vol. XV. Art. VI.)

Chima Yungdung is the local name of the sandy ground in which the last river rises: it is said to originate in springs. East of its source in

Hor-Tal, this river takes the name of *Eru-Zhungbu*, or as Turner has it, *Erl dwomboo*, by which it is known at Zhigatze and Lhassa.

In Hor-Tal, somewhat this side (i. e. west) of the Tankcham, Tarjum, which is the next east of Samoo Takchin, there is a third lake, the Gungyut. Cho, similar to Lagam and Mapan, but smaller.

The Tarjum, next east of Tanksham, is Tukshum, in the district of Toshel.

Hor-Tal is the most eastern district of the Gartokh Iláka, and Toshel the most western of the next province, (name unknown) under the Zungpun of Saka, (or Saku-Zung.) The boundary between the two provinces is the La of Maryum, i. e. a hill ridge over a village of the latter name. The country to the west of this is called Todh Gnari Lungba, i. e. the province of Upper (or further) Gnari, or simply Gnari. It once formed the easternmost province of the dominions of Ladak, a circumstance which gave a pretence for the claim and invasion of the Sikhs under Zorawar Singh, after their conquest of Ladak proper.

The Gangri mountains subside about Maryum La; probably the La itself is a terminating spur of the Gangri range; beyond that, eastward, extends table-land with smaller, more irregular and detached hills, all the way to Lhassa, and as far as informant knows to the northward.

East of Maryum La, the general name of the country to Lhassa inclusive is *Bod*, (Unde, Indian name *Bhote ?*) but it is doubtful to me whether this does not comprise the whole of what we call Tibet, including Ladak and Balti on the north-west, and perhaps Kham on the north-east.

Jung Gáldáng Phropang, (i. e. realm of the Emperor's sway, or something of the sort,) appears to be rather an extraneous political designation, than a native proper name indigenous to the land and its people, and if the term was rightly explained to me it looks like a recent introduction by the Chinese since the growth of their power in that quarter.

The Hunias know China proper by no other name than Gyanak, and the Chinese are, Gyami. Guinak, the capital of Chinese Tartary, is in fact a city of Nibelungen, built by Moorcroft. Peking is Tashi-tikur, i. e. the city of ten thousands.

The above may explain the information got by Herbert from the

Sayana of Namja in Hangarang, that the country beyond Shipki is called by the Kanawaris Jang, by the Tartars Galdang Paprang; beyond it is Kamling (i. e. Kham ?) and Gehna (i. e. Gyának ?)

The term *Jang-Tang* merely denotes uncultivated pastoral high lands in contradistinction to *Rung-Tang*, which signifies low lands, with villages and agriculture; thus the people of Ladak call the district of Rudukh on their eastern border, Jang-Tang, as being more bleak and unreclaimed than their own sheltered and less elevated vallies: hence also the appellation of *Rungba*, by which the Hunias designate all the Bhotias from the south-side of the Himálaya. The remains of an old boundary wall at Chirchun (which the Jwaris stupidly omitted to show me, when I was there in June last), are called *Jang-tang*, *Rung-tang*; the wall was raised, according to tradition, to mark the frontier between Hundes and Khasdes, or some fraction of it, for parts of those countries, and absurdly enough at this point, the boundary being defined beyond all mistake by the natural barrier of the snowy range, which here separates the northward and southward rivers by a single mountain ridge; a better debateable land might have been found a few miles to the westward at Laptel, where the river, though rising on the north of the double snowy range of Jwar, in a valley easily accessible to Hundes, turns southward again into the Girthi valley south of the Niti passes.

The southern part of Gnari is called Gugi, (or Gokey,) which includes the valley of the Sutlej, perhaps all the way from Kyunglung, and the plain of Gyanima to the Shipki frontier.

On the north side of the Gangri mountains is a valley hight, Bong, or Bongbwa, Tal, Jang-tang, inhabited by shepherds, and salt carriers. North (and east ?) of that are the salt and Borax fields, and north (east ?) of them the Gold mines, which appear to be the Ultima Thule of Gnari.

Pashm (Shawl Wool), is produced abundantly in the eastern provinces of Bod as far as Lhassa, though not equal perhaps in quantity or quality to that of Gnari. The people of U-Chang, (i. e. the provinces about Lhassa and Digharcha) are so ignorant and unskilful, that they use up their Pashm along with the wool, even for the basest purposes, such as making ropes, &c. The superior quality of the Ruddukh Pashm arises not only from the coldness of the climate there, but also

from the skill of the Ruddukh-pa, in combing it out without shearing the fleece; in Gugi and Pruang, where this article forms a small, and that illict, fraction of their trade, the people are content to shear it along with the hair, from which it is afterwards picked with much trouble. Of late a few Bisehir people have been taking a little Pashm, (twenty or thirty cooly loads yearly) through Pruang by Humla and Jumla to Bairaj, i. e. Baraich, in north-eastern Oude (formerly a flourishing town and mart of importance), whence merchants buy and take it to Lucknow, and it is there disposed of to one or two Cashmiri Shawl weavers, who have lately settled in the city.

Informant thinks that if there were any steady and remunerative demand for the Pashm in Kumaon and Gurwal, it would not fail to find its way across the frontier, notwithstanding the Ladak monopoly; for the Lhassan authorities in Gnari, are not incorruptible (except in matters of foreign intercourse), and have no other agency for effecting the prohibition than the people themselves, who are interested in evading it, most of them having flocks which produce the shawl wool, but no manufacture that can render it worth keeping in their own hands. Moorcroft in 1812, found the Garpan themselves ready to dabble in the contraband traffic, and they are known to do the same to this day.

The Nipalese have little intercourse with Gnari: being ignorant of shawl manfactures, they have no demand for the staple product, Pashm, and for every thing else, they have as good and better markets on their own frontier, and especially in U-Chang, to the eastward. A few of the Gorkhas visit Gangri on pilgrimage, but they seem to be prohibited from mercantile traffic with Gartokh. Of the western districts (as already mentioned), *Dúng* and Marma have a small trade with Pruang through Byáns, and Bazinjia by Dhuli.

The Gorkhas pay tribute to China, their Vakil taking it all, or part of the way to Peking, probably to Lhassa only, every third year; the payment is nominal, being usually equalled or exceeded by the value of presents given in return by the Chinese to Nipal; but it is doubtless still understood as an acknowledgment of the imperial supremacy.

The Humla pass, following the opening made through the snowy range by the valley of the Karnali, is very much easier than any of the other routes, in the British Himálayan frontier at least, though in the middle of winter, the higher parts of this road are of course dif-

ficult and even dangerous. The people of Humla and Jumla are said to be such a lawless set, and so little restrained by the weak Government of the Gorkhas, that traders would have no great security by this route, even if the opening into Pruang were not barred, as now by the Chinese system of Lhassa.

After this the Khampa treated me to one of their complimentary chorusses; the whole party of them, half a dozen men and women, joining hands in a semicircle, sang together, if such an unmusical noise could be called singing, keeping time with a most uncouth swinging and swaying motion,—as good dancing as their song was music. On the British side of the snow, this performance is generally expected to terminate in *bakhshish*, and my Khampa would not stop till I silenced them with my silver.

Budhi, 14*th October*.—Thermometer at sunrise 42°. The air filled with what appeared to be the larvæ of Locusts? or the *Lamæ*, as they might as well be called; they seemed to be the same sort of animals, whose skeletons I saw on the top of the Gori Glacier in Jwar last June. Thermometer at sunset 54°.

Golam La, 15*th October*.—A very stiff march; $6\frac{1}{2}$ miles on the map, occupying $7\frac{1}{2}$ hours. Having started with all my people rather late, i. e. at $7\frac{1}{2}$ A. M. I got my breakfast at Golam La by 4 P. M. The road from La-mare to this is very precipitous, in steep and narrow steps, the greater part of the way, and yet I got over the worst places in a *Dandi** (being lamed by tight shoes). The Bhotias were very clumsy at this work, being quite unaccustomed to it, but managed to tumble along somehow by dint of main strength; and as for ease to myself it was merely a transfer of exertion from legs to arms to keep my seat under the violent tilting to which the Dandi was subjected.

This road would be utterly unfit for riding on; indeed it would be bad for a led horse.

As well as I can make out, *La* in the Bhotia language signifies a large rock, and these two places, La-mare and Golam-la, derive their names from the great boulders lying upon the encamping grounds. Thermometer at sunset 60°.

16*th October*.—*Golam-la*. Thermometer at sunrise 50°; at 7 A. M. 52°; boiled at 198°; elevation 8000 feet; the confluence of the Najanggarh with the Kali is some 15000 feet below.

* A hill litter.

I found the march from Golam-la to Gala easier than yesterday's journey; though in steep steps a good part of the way; one main ascent and descent across Nirpaniah, is less troublesome than the succession of rugged ups and downs, between Budhi and Golam-la; this stage too is better shaded than the other, an advantage even at this season, the mid-day sun being still too hot.

We met a smiling rosy-faced *Tinker* on the top of Nirpaniah, who gave me a drink of water, and informed me that his pass is not so easy as Lipu Lekh, and the snow on it more troublesome, because his village has but 5 or 6 *Man* (families) whose small traffic is insufficient to make a good beaten path, Gala; comfortable quarters again in the cottages which afforded us so opportune a retreat in the three days' deluge of 18th to 20th September. Thermometer at 4½ P. M. 62°, boiled at 199°; elevation 7500 feet; the Kali hidden by the steepness of the ravine, is perhaps 1500 feet below.

Thermometer at sunset 66°; the sudden rise of temperature caused, I believe, by clouds which gathered in the evening.

17*th October.*—*Gala.*—Thermometer at sunrise 49°; marched to Titil Sosa, so Hirdu Budha names the encamping ground between his two villages. Thermometer at 4½ P. M. 62°; boiled at 198°; elevation 8000 feet; Thermometer at sunset 57°.

18*th October.*—*Titil Sosa.*—Thermometer at sunrise 50°: marched to Kela. Dárma Bhotias inform me that they call their river the Dárma Yankti; others say the Gori, which is also the name of the Jwar river. The names Kali and Gori are derived from the peculiar color of the water of those rivers at their sources. The Khasias of Kela call the Dárma river Dhauli, as down on the map; and Patwari Doorga Dutt thinks that this name is supported by the authority of the Puráná, which treat of these localities. Nyne Dhura, the eastern pass of Dárma, is a little stiffer than Lankpya (of western Byáns). The Glacier lies on the north side of it towards Hundes. The one *man* and some 100 laden sheep were lost this year, not on the Glacier, but by an avalanche which overwhelmed them at night in their encampment at Dawa, the *Dakhna* of the pass; this side, Kach, the western pass of Dárma, has Glaciers on both sides: some say it is dangerous and not frequented. Lebun Dhura, from Dárma into N. western Byáns, still frequented, is steepish and snowy; but not so high as Lankpya; the

18,942 feet of the map is undoubtedly a mistake, perhaps for 16,942. The pass into Rálám of eastern Jwar by the Phula Yankti between Sibu and Marcha of Dárma, is difficult or dangerous and rarely traversed. Rálám is a colony from Dárma and the alliance is still maintained between the two (by intermarriage, &c.), the Bhotias of Rálám holding little intercourse with the rest of the Jwáris. Gyuc-Dhura, from Sela of Dárma, to Kunti of Byáns, by the Pechko-Gankti, is difficult but still traversed ; this year, one crossing the pass found the bracelets and other remains of a Dárma woman who eloped this way some years ago and perished in the snow along with her abductor. The Sobhula and Balch route into Munshari (traversed by Commissioner Trail) is always easily passable in summer ; it can hardly be called an inter-Himálayan pass, being below the south end of the Pánch-Chula snowy range, and probably not much higher than Chipula, 13,500 feet, to which the Balch ridge adjoins on the south. Not a single head of cattle, informants aver, is left in Dárma except one or two of this season's importation from Hundes, and many of the sheep and goats have died of the same murrain : the village lands have been thrown out of cultivation for want of cattle to plough.

Kela is renowned for the excellence of its ghee, to which I can myself bear testimony, having swallowed a quantity of it in Bhauna's tea when we were in Hundes.

Thermometer at $4\frac{1}{2}$ P. M. 72°, boiled at 204° ; elevation 4750 feet : the confluence of Dhauli (alias Gori, alias Dárma Yankti), and Kali, about 1000 feet below ; Thermometer at sunset 69°.

19*th October.—Kela.*—Thermometer at sunrise 58°. Patwari Durga-dutt takes his leave ; he is an excellent sort of person, deserving of more Parwasti, than he has hitherto obtained.

March to Relagarh.—Thermometer at $4\frac{1}{2}$ P. M. 78°, boiled at $205\frac{1}{2}$° ; Kali 300 feet below. Thermometer at sunset 68° : elevation of confluence of the Relagarh with Kali river, trigonometrically (?) by Webb, 3794 feet.

20*th October.—Relagarh.* Thermometer at sunrise 57° ; marched to Dharchula. Thermometer at 5 P. M. 69°, boiled at 207° ; elevation 2750 feet ; Kali 150 feet below ; Thermometer at sunset 67°.

21*st October.—Relagarh.* Thermometer at sunrise 56° ; heavy dew; march to Balwakot, very picturesque scenery all the way, through wild

forest, along the course of the river, and climate now pleasant; Thermometer at 5 P. M. 67°, boiled at 208°; elevation 2250 feet; Kali close below; Thermometer at sunset 56°.

Here I found the dirty Jogi, whom I had met at Askot on the 10th September; he grinned foolishly when I had told him what I had seen of Kailas and Manasarowar, and then propounded his own ideas about the lake and mountain, which were silly and superstitious.

22*d October.—Balwakot.* Thermometer at sunrise 53°; heavy dew.

Bhauna (with Anand) made his appearance this morning. From his delay I had apprehended that something had gone wrong with him at Takla-khar, with reference to our illicit visit to Hundes; but happily nothing of the sort occurred, his stay in Pruang being protracted for his own pleasure, and some delay in collecting the money due to him (from Deba Chakwa and others) on former transactions. Chakwa himself is in Lhassa now, but has an agent still resident in Takla-khar. Bhauna met the usual cordial reception from his old *Mitr*, and *Aradh*, (trading-correspondent) Angdah the Tidya Makhpan, which was the more good-natured as the Makhpan forthwith taxed Bhauna with his contraband introduction of the *Feling*, and seemed well assured of the fact, though stoutly denied by the offender. I suppose that his information must have come from some of the Hunias at Ningri, whom I had there allowed to stare at me without let, and these doubtless passed the report on to Tidya; subsequent notice from the *Dúng* on the north of Toiyon, where we were encamped on the afternoon of the 7th instant, might have shown that we had come from the northward, and passed through the middle of Pruang by night, Bhauna indeed finding the ground safe, sufficiently owned the impeachment by propounding excuses for the act in question, on the score of his necessary subjection to the orders of his English Masters. The Makhpan observed, that as we had not been openly caught in the fact nothing further need be said about it; indeed as we had succeeded in effecting our passage through his district, his own interest required absolute silence on the subject, for if known to the Lhassan Governors their resentment would attribute our success to the Makhpan's negligence or connivance; and in their barbarous code, the admission of the meanest stranger into the country, is high treason. If it were not for this fear of his tyrannical masters, old Angdah said that he would be most happy to give a

welcome reception to any one, black or white, introduced by his friend Bhauna; and this I know is the feeling of many of the respectable natives of Gnari. At the time of our visit Pruang Zungpan was fortunately away from Takla-khar, attending on the Garpun, or Ship-chet, or Garpun, lately arrived from Lhassa, and then encamped at Barka: and this explains the report we had from the shepherds of Chujia Tal on the 2nd instant. I have not been able to ascertain precisely, who these dignitaries from Lhassa were: according to Bhauna, (who is by no means accurate,) there was a Garpun, an officer of higher rank than the Garpun, accompanied by one "Charon." From Jwári Bhotias, (who are better authority,) I afterwards learned that before they had left Gartokh (end of September) "Charon," the same that was Chaprang Zungpun from 1843 to 1845, had arrived from Lhassa, in the capacity of "Ship-chet," a sort of Special Commissioner, deputed to investigate and administer the affairs of the province, on this occasion more particularly to remove from his office for certain previous offences in a former situation, the senior Garpun, Dhinkar-sah, whose successor, Tannakar Gajjun, had not arrived when the Jwáris left Gartokh; perhaps he was now one of the party at Barka.

With some hesitation, after Bhauna hinted at the extreme probability of Angdah being appointed Tokdar of Tidyah on a salary of 50 Rs. per month when the English took possession of Pruang, the Makhpan directed his son Angil to write down some items of information which I had commissioned Bhauna to bring from Pruang: Bhauna being illiterate in the Tibetan language though proficient in the dialect of Gnari colloquially, interlined Angil's notes with a transcript of the Hunia words in Hindee characters, the result of which document I shall give at the end of my journal, much augmented and corrected by other information derived from the most reliable of the Jwári Bhotias.

Garjia Ghat, 22nd Oct.—The valley of the Kali between Dharchula and this, which on my way up—11th to 13th September, was pestilentially hot, has now got cool and pleasant, but I doubt its salubrity yet; the little Quinine I had with me was not a tenth part of what was required by the Fever and Ague patients who crowded round me from every inhabited place this side of Kela.

The Rajbari Karinda (agent) caught two of the *Bán-mánus*, the wild men of Chipula, for my inspection. I saw nothing very remarkable

about them, except an expression of alarm and stupidity in their faces, and they are perhaps rather darker and otherwise more like lowland Hindustanis than the average of Kumaon Paharis. I imagine they were *dressed* for the occasion: one of them brought me a *Nazar*, a miserable fowl, in a wooden bowl of their own manufacture. They are civilized enough to make these wooden bowls for sale or barter in the villages of Askot, whence they supply their few wants. They live under temporary Chappers, frequently moving from place to place amidst the jungles of Chipula; their principal subsistence being certain edible roots of wild plants and what game they can catch, and they occasionally get presents of cooked food from the villagers. They have a dialect of their own, but some of them can communicate with their civilized neighbours of the villages in Pahari Hindi: all that my visitors would say in my presence was in answer to a question on that head,—that there were five or six 'maw' (families) of them. The Askot people could tell me nothing at all about the history of these *Bán-mánus:* but I imagine they are the people whom Traill calls Rawats or Rajis, a small remnant of the aborigines of the Hill country, or of an ancient tribe driven into the jungles by subsequent invaders from the lowlands.

It is a pity that some effort is not made to reclaim them from their bestial mode of life; they are a quiet, inoffensive set of people, and might probably be found tractable to civilization.

The river (Gori) here has subsided very much since we crossed it, 10th September, by a Jhula of cables. A large rock now dry in the middle of the stream affords a pier for two Sangas, which the Askotites have built in such a cutcha fashion, that a few days since some of them were thrown off (by the swaying of the loose timbers), and had a narrow escape of drowning. One of the iron suspension bridges would be a great convenience here, this ghat being the only direct communication with lower Kumaon for the districts of Dharchula and Kela, (Khasia;) Chandans, Darma, and Byans, (Bhotia.)

Thermometer at sunset 63°; boiled at 208½°; elevation of Garjia Ghat, by Webb, 2,094 feet; Barometrically b. t. 1918 feet. The confluence of the Gori with the Káli, 1¾ miles below this, is 2059 feet above the sea level (by Webb's book). Jhula ghát on the Káli, a running distance of 14 miles below the confluence, is 1875 feet, so that the fall between the two is 184 feet, being at the rate of 13 feet per mile.

23*d October.—Garjia Ghat;* thermometer at sunrise 52°; Dew.

Askot.—Camp 50 feet higher than the village. Thermometer at $4\frac{3}{4}$ P. M. 76°, boiled at 204°; elevation, trigonometrically by Webb, 5089 feet. Thermometer at sunset 63°—(elevation b. t. 4519 feet).

24*th October.—Askot.* Thermometer at sunrise 53°; Dew.

Singhali Khan.—Camp 50 feet below the Khan (Pass). Thermometer at sunset 60°, boiled at 202°; elevation of pass, 5,650 feet.

25*th October, Singhali Khan.*—Thermometer at sunrise 50°.

Satghar.—Major Drummond's hut at 100 feet below the top of the pass; thermometer at sunset 59°, boiled at $201\frac{1}{2}$°; elevation of pass 6,000 feet.

26*th October, Satgarh.*—Thermometer at sunrise 50°.

27*th October, Petoragarh.*—Drummond's house (25 feet higher than the fort, which by Webb is 5,549 feet), 5,574 feet above the sea by barometric measurement; Thermometer at 5 P. M. 64°; boiled at $202\frac{1}{2}$°, (Elevation b. t. 5,328 feet).

28*th October, Kantaganu Bungalow.* Thermometer at sunset 64°, boiled at 205°; elevation 3,900 feet.

29*th October—Dhárgárah Bungalow.* Thermometer at sunset 65°, boiled at 204°; elevation 4500 feet.

31*st October.—Lohaghat,* (Ramsay's house.) Thermometer at sunset 63°, boiled at 202°; elevation b. t. 5,630 feet. Webb makes one of the houses here 5,649 feet, the Hospital, I believe; they are all near the same elevation.

1*st November—Pharka Bungalow;* elevation by Webb 5,914 feet; Thermometer at sunset 61°, boiled at $201\frac{1}{2}$° (b. t. 5,880 feet).

3*rd November.—Deo Dhura,* (vulgo Dee) *Bungalow,* elevation by Webb, barometrically 6,867 feet. Thermometer at sunset 53°, boiled at $199\frac{1}{2}$° (elevation b. t. 6948 feet.)

4*th November—Dol Bungalow.* Thermometer at sunset 52°, boiled at 201°; elevation 6,100 feet.

5*th November.—Almora.*

APPENDIX.

The present ruler of the Lhassan dominions, Bod-chi-Lama, is Kushu Gewah Ringborchy, of which terms the first and last are titles, and perhaps the *Gewah* also; as imported in the general title here given (by Tidya Makhpan), he is the ecclesiastical head of the Budhists of Tibet, of the prevailing sect, at least; the *Gelukpa*, the same as called elsewhere Dalai Lama, and Putala Lama, *Putalah* being the name of his monastic residence near Lhassa. The Bod-chi-Lama, is properly vested with the supreme control in temporal, no less than spiritual affairs throughout his own dominions, and in former days I imagine, that it depended very much upon the personal character of the reigning individual, what part of his temporal power was delegated to subordinate ministers; but of late years the predominance of Chinese influence at Lhassa has probably relieved the Lama from all the cares of governing his own dominions; under color of his name, and through the agency of Lhassan ministers, the country is ruled in fact by the Resident Imperial Commissioners.

Formerly the Chinese Deputy at Lhassa was an *Amba*, Military Resident (?), with a regiment of 500 Chinese soldiers. Two or three years ago two Gyámi, came to Lhassa, of such mean exterior that they attracted no notice, till after some time spent in private enquiries and observations, they suddenly produced their commissions and assumed the supreme authority under the style of "*Tungtang*," which they still hold; the Amba with his regiment of 500 remaining under their orders.

Kushu Panjan Ringborchy, is the present *Chan-i Lama*, (that is, superior of the province of "Chang," of which Digarcha is the principal town, Zhigatz Zung, the fortress, and Teshu Lumbu, the monastic residence,) a degenerate successor, and according to the superstitions of Tibet, a re-incarnation of the great Teshu Lama, Punjun Irtinnee, of Turner, who 70 years ago was in the fullest exercise of the political administration of his province and enjoying great influence beyond it, throughout the countries of Tibet and China. Chinese usurpations must now have reduced the Lama of Chang to the insignificance of a mere monk like his senior brother of Bod.

The principal officers of state in Lhassa, and actually employed in

the executive under the control of the Chinese "Tung-tang, are as follows :

1. The *(Bod-chi) Gelpu*, now by name Dorchey-chang ; the Wazir, or Prime Minister.

2. The *Kalan Sechu*, and

3. *Kalan Sheta*, according to Angil ; but the Jwaris say, that there are four Kalan, whose personal names, or sur-names rather, are

Sheta,

Dhuril or Dhuring,

Rakshya, and

Thomba. The particular functions of this office are unknown to my informants, but a "Kalan Sheta," is said to have come to Gartokh 8 or 9 years ago, with plenary powers for settling the affairs of Gnari.

4. Four *Debun*. These appear to be Military Officers, Generals. One of them came with the (so called) army from Lhassa to annihilate the Sikh invaders of Gnari in 1841, which being accomplished (whether by the Debun and his troops, or by frost and starvation), he continued to reside at Gartokh with the principal authority, civil as well as military, till 1845-46, when order and security being restored, the Debun was recalled to Lhassa, and the administration of the province left as formerly, to the two *Garpun*.

5. Four *Rúban ;* also Military Officers of secondary rank, equivalent to Colonels ? Inferior to these are *Gyakpun*, i. e. Centurians, a *Gya*, Centum, 100.

6. Four *Garpun*. Office unknown.

7. The *Ship-chet*, (not given in Angil's list,) is an Officer well known to the Jwáris ; one of this rank came to Gartokh, (as previously mentioned) in August or September last, with Commission amongst other things to remove from his office the senior Garpun : he appears to be a sort of Special Deputy, with extensive powers, superior to the local governors.

Next to these come the *Garpun* and *Zungpun*, the local Governors of provinces and districts.

Gnari is said to be the only province dignified with the superior rank of Garpun (?) The title is said to be derived from the name of their head-quarters, Gar. The place of the fair is called "Gartokh," also

Gar-Yarsa, which signifies the residence for summer, (from *Yar*, heat or summer), the winter quarters being at Gar, "Gunsa," (from Gun, cold or winter), two or three days further down the river north-west from Gartokh. The two Garpun act jointly, and the court so formed for the administration of the public affairs is termed "Lankya." There is some trifling difference in the rank or authority of the two Garpun; the senior is styled *Urku-gung*, in writing abbreviated to *U-gung;* and the junior *Urku-wa*, written *U-wuk:* they are also called *Urgu-Ma* and *Urgu-Ya* respectively, as mentioned by Traill. The Garpun have each a Sherishtadar, *Zungnirh*, and these two sometimes form an inferior Lankya, for the disposal of minor cases. Nirba (mentioned by Moorcroft,) denotes simply an "Agent" or man of business, of any sort; *Dunik*, a writer or Secretary.

The Zungpun derive their title from *Zung*, signifying either Fortress or Government, or both; and most of them still have their head quarters in quasi-forts, most frequently, in Gnari at least, without garrison. They also hold the general government of their several districts. In many places there appear to be two Zungpun acting jointly like the two Garpun of Gnari, as at Saka, centre of the province next east of Gnari, and (according to the man of Lamjung,) at Kirong and Nyanam (?) on the Nipal frontier; and this perhaps is the usual arrangement where they have independent charge, in direct communication with Lhassa. In the province of Gnari there are four Zungpun, entirely subordinate to the Garpun, in single charge of the four frontier stations, viz. on the northward, Rudukh, which includes supervision of the communications with Ladak.

South-westward Chaprang, including control of the Bisehir frontier, the communication with Chongsa, the Alpine valley of the Jahnavi Ganges, of which Nilang is the principal village, and that by the Mana pass with western British Gurhwal.

Central, Southward, Daba, (*Dapa* is a provincialism of the Niti Bhotias,) the Zungpun of which has charge of all the Niti and Jwar passes on the British frontier of east Gurhwal and western Kumaon; and south-eastward, Pruang; head-quarters in Takhla-khar, with surveilance of the Darmá and Byáns passes into eastern Kumaon, and of the road to Humla of Nipal, at the bottom of the Pruang valley.

These provincial Governors, Garpun and Zungpun, come from Lhas-

sa or the adjacent country, and, for Gnari at least, are never natives of the province under command. Their regular term of office is 3 years, at the expiry of which, being relieved by successors similarly appointed, they return to Lhassa to give an account of themselves, which if satisfactory may result in further appointment. E. G. Deba Phundu, Pruang Zungpun from 1843 to 1845, is now, (according to the man of Lamjung) one of the joint Zungpun of Kirong. Dhinkar-Sah (i. e. Son of Dhinkar) late Garpun of Gnari, came from the Zung of Kirong, and before that was Zungpun of Chaprang. Sometimes merit or interest may extend the tenure of the same office by one individual to double the ordinary period. Deba Chakwa, a wealthy trader, well spoken of by our Bhotias, was Garpun of Gnari for 5 or 6 years from 1840 to 1845.

Some say that the revenues of the provinces are farmed to the Garpun and Zungpun, who may make what they can for themselves above the state contract, being paid no regular salary: it is certain that the people suffer the most arbitrary exactions, approaching sometimes to indiscriminate robbery.

The term *Deba* either above or prefixed to the names of persons or their official titles, answers to the Hindustani affix, "*Sahib*," and is applied particularly to the Officers of the Lhassan Government who are distinguished by the *Top-Knot*, a peculiar mode of tying up the hair (kept long) on the crown of the head with a skewer through the knot, in the fashion of the Chinese; the losing of this top-knot is a form that accompanies deprivation of office. Moorcroft's Deba at Daba was the Gunpun; his Viziers at Gartokh and Daba probably the Zungnirh of the Garpun, and the Nirba or Dunik of the Zungpun, Trail, following Moorcroft in these inaccuracies. Rajas, Viziers and the like in Tibet are, once for all, mere Hindustani fictions, which should not be retailed any further by English writers. The present Garpun of Gnari are—

1. Tannakarh Gajjun (according to Angil's note) Urkugung, recently appointed in place of Dhinkar-Sah, who, as before mentioned, had his top-knot united by the Ship-Chet the other day: the latter, in succession to Jurkwah, had been in office only one year: and his present disgrace, they say is for his having made certain unauthorized remissions of revenue from ryots of Kirong, where he was previously

joint Zungpun, which occasioned disturbances on the subsequent extortions of his successor.

2. Shungdub Lingbo, Urkúwa, appointed in 1845-46 in succession to Chakwa. This Shungdub, says Debu, has been to Calcutta via Nipal or Lo (?) : he is well disposed towards us, and says that the repulsive attitude maintained by the Lhassan Government with regard to the British in India is solely the effect of Chinese dictation at their Court.

Present Pruang Jungpun (succeeded Phundu this year) is Shak Chumba; said (by the man of Lamjung) to be a Khampa from some place 20 days north of Lhassa, and (by the Byánsis) to trouble himself very little with public business, leaving it as much as possible to his Nirba.

Daba Zungpun is Chep-Chungba, also appointed in 1845-46. The Zung-Chungpun is the Government Mercantile Agent, a person of rank and consequence, who comes every year from Lhassa to Gartokh, and thence on to Ladak, before the war with the Sikh usurpers in that quarter. The principal article of this state traffic is tea, mostly of the coarsest sort made up in bricks : and this trash is disposed of by the barbarous expedient of forced sale for double or treble its real value. The whole quantity of tea to be inflicted on the province is made over to the Garpun, who distribute it to the several Zungpun, and they again to the heads of villages and Tals, who finally divide it equally among the families, and payment is realized by the reverse process.

The principal Gold Mines of Gnari (situated east or north-east of Rudukh) are farmed to a Sar-pun (*Sar*, Gold) on triennial contract with the Government at Lhassa.

The Gnari Pungkag *Chuksum*, are thirteen chief districts of the province under their own native hereditary chiefs (*Pun*) subject to the Lhassan Governors : they are

1. Dokachya, and
2. Jimkangnonu, both in the Zung of Rudukh.
3. Chumurthi, on the south bank of the Gartokh Indus, to the extreme west of Gnari, on the Pitti frontier. (?) The best of the ponies (some of them very good) imported into Kumaon by the Jwari Bhotias, are bred in this district, and brought for sale to the Gartokh fair, where the Jwaris buy them.

4. Nabru, also on the south bank of the Gartokh Indus, between Chumurthi and Gar. (?)

5. Chajua, exclusively pastoral, in the west end of the valley of the Shajjan Indus, east of Gartokh, or else in the lower (and southern) part of the valley of the Rudukh Indus, north of Gartokh. With regard to which Rudukh river, the Jwaris assert (positively), that it is a distinct branch flowing past Rudukh from north and south, meeting the Gartokh Indus near Tashigang, a day or two below Gargunsa, whence the united river runs north-westward to Le, &c., and not, as existing maps have it, the lower part merely of the Gartokh river before its entrance into Ladak; but this is doubtful, as others assert as positively the opposite.

6. Bongba (or Bongbwa) Tal, further east up the Shajjan valley and north of the Gnari mountains; consisting of two divisions, viz. Bongmeth, that is, lower, and

7. Bong-toth, that is, upper Bong, the two being under separate *Pun;* one of my informants says that one or other of the Bong Tal is south of the Gnari range, on the east of the province, but Bhauna's version of Angil's note makes this *Bang*, distinct from *Bong*, which he also duly mentions as north of Gnari, and the residence of the *Dok-pa*, who are the carriers of the Salt and Borax from regions further north. Bongbwa Tal is a pastoral district, without villages.

8. Hor Tal, a pastoral district without villages, lying east of Cho-Mapan, between the Gnagri mountains and the Nipal Himálaya, said to communicate by an easy pass (or passes) with Jumla, direct, without intervention of Humla, from which circumstance may be gathered this fact, viz. that the main ridge of the Nipal Himálaya continues to make a great deal of southing far east from Momonangli, and much further than I could see any thing of it, in the course of my route to the lakes and Pruang.

9. Toiyon.

10. Kiron.

11. Tidy; these three are circles of villages, as before described, in the valley of Pruang; and their headmen have the title of *Makh-pan*, which is of military origin.

12. Kyungbuchya, the environs of Daba.

13. Tashikhausar, of Chaprang; and 14, Rakshyanonu, on the

right bank of the Sutlej (?) west of preceding (?) These three are agricultural divisions of the district of Gugi, i. e., the trans-Himálayan valley of the Sutlej (?)

Here are 14 Pun-kag, though my informant started with 13 only; nor can he, nor I either, explain the discrepancy.

There are many other districts of inferior size and note, either included in the above or independent of them. Angil mentions.

Namdung, Majjan, and Jangyu, all north of Gangri, without further particulars. Kyunglung he states to be under the Zungpun of Daba, and informants say that the remains of an old Fort there are kept by a functionary styled *Kharpun*, i. e. *Killadar*, Fort-holder, a native of Lhassa, but of inferior rank, and no power or importance.

Gyanima (whatever it may be worth) belongs to Kyunglung.

The villages of Pruang are distributed as follows:

Keli, Lakun, Dela-ling and Kauru, belong to Toiyon on the left bank of the Karnali, in the north-eastern quarter of central Pruang: the present Makhpan is Pimba.

Tidya, on the right bank of the river in the southern quarter, comprises the villages of

Maghraur, (the Makhpan's residence.) Nami, Chumi-thang, Chiljung, Tashikang, Kaga, and Beli: the Makhpan is "Angdah," and his son (who wrote some miserable notes for me) Angil.

Kongarh-Dawa is Makhpan of Kiron, in the south-eastern quarter on the left bank of the river, the district including the following villages:—

Kongarh, (the Makhpan's own village, I suppose.)

Totakh, Dangya-chin, Manw, Chelugang, Shujey, Dojah, and Gajjan.

Kardam, the northernmost village of Pruang, with a monastery, and quasi-fort, is under a Zungpun of inferior rank, (or else a Kharpun) perhaps a native of the place; he has to furnish the Tarjum at Barka.

The village of Kangjey belongs to Deba Nerchang, a Lama of Taklakhar, who is also proprietor of Churjia Tal.

Taklakhar, which contains a large monastery.

Shaprang, Lwakh, by the Hindustanis called "Loha-Kot."

Chokhrokh and Khajarh, which the Hindustanis call Kachar-Noth, the lowest village at Pruang (south-eastward) with a monastery, &c. a

place of considerable religious resort; these all belong to the Lhoba Lama of Toklakhar and Khajarh, who is perhaps subordinate to the great Lhoba Lama of Dindi (vulgo Gangri.) The latter is superior of all the Gumba about Gangri and Mapan, his own monastic residence being Dindi, in the ravine under the west side of Kailas.

These Lhoba Lamas are, strange to say, (as imported by their title,) natives of Lho (the Indian Bootan, and a fresh relief of them comes all the way from that country every third year; formerly, says Debu, persons of respectability, but of late, unaccountably, grown "snobbish," as though the church were on the decline in Lho.

The Lhassan Government have no other military force in the province of Gnari than a Militia of the country people, in the extremity of disorder and undiscipline; and this even has become very much neglected since the fear of the Sikh invasion died away; at best it is represented to be a most unwarlike rabble, utterly useless against an organized enemy. Magh or Makh is the generic name for this army: Makhmi soldiers; and hence the title Makhpan, originally military chiefs, now peaceful villagers. Formerly three Regiments (also Makh) of 500 men each, used to muster at Gartokh, styled the Igru, Kungru, and Indu; these are now merged into a single Makh, nominally of 500 men, but rarely mustering the full compliment. The Makh is assembled for two or three summer months during the Gartokh fairs and drilled by a *Gyakhpun*, (centurion:) the men get no pay, subsist, arm, and accouter themselves, and at the end of the exercising season are dismissed to their houses with—a fine of 3 Rupees each for their bad performance!

This is an extreme case of rare occurrence it is to be hoped. Bhauna, when late in Pruang, found the soldiery better treated. The quasi-garrison of Taklakhar had been recently discharged, as no longer required in these pacific times, and each man, who had served for the last three years, of course subsisting himself all the while, received six rupees, sum total of his pay for the whole period.

Such are the Chinese Cavalry and Infantry, who repulsed Captain Gerard's invasion of Tartary.

In Gnari there are four chief Kanbu or Kambu, i. e. Bishops? or Abbots? of the Gelukpa sect? viz. at

1. Rudukh.

2. Rabgyaling, or Rabling, probably in the district of Nabru, or elsewhere, west of Gartokh ;

3. Tholing (or Ling), and

4. Shebiling, in Taklakhar ?

Each of which rules 25 *Gumba*, (Monasteries,) the Priors of which are Lamas, with establishment of many inferior Monks, *Daba* or *Gelong*. In Gnari the Nuns are styled *Chemu*, and not *Ani*, which latter word signifies *woman* simply, of any sort.

The Salt and Borax Mines of Gnari, or fields rather, "Lha-lhaka, as Lháli-lhaka, (by Herbert I think or Gerard? erroneously given as the names of districts) lie to the north of Bongbwa Tal, across mountains that round the north-east side of the valley of the Shajjan river, paralled to the Gangri range, and in the eastern part of the Zung of Rudukh. The two salts, I understand, are obtained from different spots in the same vicinity, and both worked in the same way by washing the earth taken from the surface of the ground in which they are developed by natural efflorescence. These salt fields are open to all who choose to adventure their labour in them, on payment of a tenth part of the produce to the Government, which has an excise establishment for collecting the dues on the spot. The proceeds form, perhaps, an item in the general contract for the revenues of Gnari between the Garpan and the Lhassan Government.

Soda also (carbonate of Soda) Búl or Pul, is abundant in many places, (I saw much of it, as mentioned, about the shores of the lakes,) but appears to constitute no trade like the others, though in Hundes it is used generally for helping the extract of Tea, the universal beverage drunk in vast quantity ; and by the higher classes, who sometimes wash their hands and faces, as a substitute for soap.

The principal Gold Mines, *Sar Chaka*, are ten days journey beyond the Salt Mines, further north, or north-east, (perhaps on the north-western borders of the Kám country ?) in a district otherwise uninhabited ? named Sar-báchyad ? These are farmed by a Sarpún, on triennial contract direct from Lhassa, independent of the authorities in Gnari. Deba Chákwa however held this contract for the last 3 years in which he was Garpan Urku-wa at Gartokh. He paid to the Lhassa Treasury 17,000 Rupees per annum ; had 170 miners at work, for whose subsistence he used to send supplies of Sátu, Ghiú, Tea, &c. from Pruang,

the "Sárbáchyad" country being barren, *Jang-tang*. These mines are worked in shafts and galleries under ground; the gold is found in the pure native state (in silicious sandstone (?) or in quartz rock ?) : it undergoes no other process than washing and sifting before it enters the market, and after that requires little or no refining. The metal is sometimes found in large masses; the Lama of Gangri is said to have one weighing 5 Nega, i. e. near a seer, and there are problematical stories of other masses of such supernatural size and shape that the Lamas pronounced them spiritually dangerous and insisted on their being consigned to earth again. The raw gold grains, as they come from the mines, constitute the main part of the heavy currency of this country, in which there is a great dearth of coined money; that also arising, I believe, from foolish superstitions and state interferences; of late years our Bhotias have circulated some of the Company's Rupees in Gnari, but so infatuated are the people, that they persist in keeping the exchange of this coin down to four timashis, though its intrinsic value is nearer six of them. The *Sar Shu*, by the Hindustanis called Phetang, is 8 masa, 8 or 9 Rupees worth of this gold, tied up in a minute bundle of paper and rag, which passes for money with the trouble of repeated scrutiny and weighment.

The Government Mail Establishment for conveyance of Dispatches between Gartokh and Lhassa is styled *Tarjúm*, and the same name is applied to the several stations of relay. At each Tarjúm, there is a superintendent of some sort, or one or two horsemen, who are furnished, like all the state requisitions in this province, by roster or some equivalent arrangement from the neighbouring villages or *Dúng*. The several stages are from double to treble an ordin ary day's journey for a traveller with cattle, baggage, &c., that 30 or 40 miles, being proportioned to what is considered a day's work for a single man and horse, (the horses being poneys, but good ones.) Under ordinary circumstances, the post travels by day only, and at such a rate as to make one stage daily, sometimes two perhaps. There are no stated times, probably, for the dispatch of the mails, expresses being sent as occasion may require. The establishment is intended for the Government service only : and if private individuals get the use of it, it must be by interest with the Government Officials. There are 22 Tarjum between Gartokh and Lhassa. These places, being about 10 degrees of longitude asun-

der (from $80\frac{1}{2}$ to $90\frac{1}{2}^{o}$ east), and the geographical minute in this latitude nearly equal to the English mile, allowing for deviations from the straight line and for southing of the route from the parallel of Gartokh to that of Lhassa, the whole distance must be seven or eight hundred road miles, which would make the Tarjúm stages average some 35 miles each. My map shows near 40 from Nakyu to Misar, and about as much from Misar to Barka ; the route from Gartokh to Misar being copied exactly from the map after Moorcroft and Hearsay, Nakyu fixed by information with reference to Gartokh, and Barka by my own survey.

Angil has given me the following list of the Tarjúm from Gartokh as far as he knew them.

1. Nakyu ; this is only 5 miles from Gartokh.
2. Misar ; furnished by the people of Kyunglung.
3. Barka ; in the plain under Gangri, north of Cho Lagan ; furnished from Kárdánkhár of Pruang.
4. Tokchin, or Samo-tokchin ; and
5. Tandang, or Tankcham ; these two in the district of Hortol, and thus far in the province of Gnari.
6. Dukshum, or Tukshum ; and
7. Dodum ; these two in the district of Doshel or ' Tosher.'
8. Samku.
9. Saka or Saku ; the head-quarters of two joint Zungpun.
10. Uksey ; the last 5 in the Zung of Saka ; and twelve more, unknown, on to Lhassa.

Digarcha is 2 or 3 Tarjum this side (west) of the capital.

There are no fixed Tarjum establishments between Gartokh and the frontier stations of the Zungpun, dispatches being forwarded on those lines, *Taul*, i. e. *gaonsare*, from village to village, or *Dúng* to *Dúng*, or by single messengers.

Postscript, 25th July, 1847.

The above journal had left my hands and was past revision long before I saw for the first time the valuable notice of Csoma Körös on Tibetan Geography (Article I. No. 4, Asiatic Society's Journal for April, 1832), as also Jos. Cunningham's Article on Kunawar, &c. in the Asiatic Society's Journal (Vol. XIII. p. 172 et seq.) containing much accurate information.

I have no opportunity at present for tracing in detail the agreement or discrepancy between our several statements where we touch upon the same points : but I think I may say generally that my rude oral information is in the whole well corroborated by the literary investigations of the learned Hungarian.

My chief mistake appears to have been is assigning the eastern Tibetans of *Kham* national existence too independent of their common country, *Bod*, and perhaps a geographical extension too far to the north-westward. In the tribe of Brukpa, vulgo Dakpa, mentioned by Csoma de Körös, I recognize the inhabitants of the Jang Thang, north and east from Gartokh, the country of the Salt and Borax fields, and of the Gold Mines.

I have availed myself of Csoma Körös's article to insert the Tibetan name of *Tise* in my map, over the Peak of Kailas, as also to correct my *Kam* and *Lo*, to *Kham* and *Lho ;* I had omitted the aspirates of the initial consonants in these names, because they were by no means clear in the pronunciation of my informants.

Other of my Tibetan names would require correction to agree with the orthography of Csomo Körös, but it is as well to leave them unaltered, as their present form indicates the popular pronunciation current on the frontier of the British Himálayan provinces, Kumaon and Gurhwal, to which locality both my map and journal have particular reference.

Meteorological Register kept at the Surveyor General's Office, Calcutta, for the Month of Sept., 1848.

Lat. 22° 33′ 29″. 33 N. Long. 88° 23′ 42″. 84 East. Mag. Variation 2° 28′ 36″ East. Mag. Dip. 27° 45′.

Days of the Month.	Observations made at sunrise.						Maximum Pressure observed at 9h. 50m.						Observations made at apparent noon.						Observations made at 2h. 40m. p. m.						Minimum Pressure observed at 4 p. m.						Observations made at sunset.						Maximum and Minimum Thermometer.			Maximum Thermometer in sun's rays.	Rain Gauges. Elevations.		Moon's phases.	Days of the month.
	Barometer reduced to 32° Fahrenheit.	Temperature. Of the Mercury.	Of the Air.	Of Wet Bulb.	Wind. Direction at sunrise.	Aspect of the Sky.	Barometer reduced to 32° Fahrenheit.	Temperature. Of the Mercury.	Of the Air.	Of Wet Bulb.	Wind. Direction at 9h. 50m.	Aspect of the Sky.	Barometer reduced to 32° Fahrenheit.	Temperature. Of the Mercury.	Of the Air.	Of Wet Bulb.	Wind. Direction at noon.	Aspect of the Sky.	Barometer reduced to 32° Fahrenheit.	Temperature. Of the Mercury.	Of the Air.	Of Wet Bulb.	Wind. Direction at 2h. 40m. p. m.	Aspect of the Sky.	Barometer reduced to 32° Fahrenheit.	Temperature. Of the Mercury.	Of the Air.	Of Wet Bulb.	Wind. Direction at 4 p. m.	Aspect of the Sky.	Barometer reduced to 32° Fahrenheit.	Temperature. Of the Mercury.	Of the Air.	Of Wet Bulb.	Wind. Direction at sunset.	Aspect of the Sky.	Maximum.	Mean.	Minimum.	Maximum.	Upper. Feet. 40	Lower. Feet. 4		
1	29.613	80.3	81.2	79.6	S.	Cumulo strati.	29.656	88.3	87.8	81.2	S.	Cumulo strati.	29.625	92.0	90.0	81.5	S. W.	Cumulo strati.	29.563	91.9	89.9	81.7	S.	Cumulo strati.	29.554	90.1	88 3	81.0	S. W.	Cloudy.	29.571	85.9	84.3	81 2	S.	Large cumuli.	93.8	87.6	81.4	..	0.05	0 05		1
2	.667	80.9	81.5	79.5	E.	Cloudy.	.728	90.3	88 2	81.8	S. E.	Ditto.	.703	87.0	83.0	81.0	E.	Rain & thundg.	.654	85.1	85.1	81.3	S. E.	Cloudy.	.654	83.1	83.0	80.6	N. E.	Ditto	.660	82.9	83.0	80.9	N. E.	Cloudy.	91.3	86.5	81.6	..	0 18	0.30		2
3S	.711	79.4	80.3	79.1	E. N. E.	Ditto	.763	86.3	84.3	81.0	E.	Cloudy.	.736	83.1	83.0	79 8	E.	Cloudy.	.680	82.1	82.2	79.2	E.	Ditto	.676	81.9	82.0	79.5	E.	Ditto	.676	81.9	82.0	79.5	E.	Ditto	87.9	84.0	80.0	..	0.08	0.12		3S
4	.701	79.8	80.3	79.1	E.	Drizzly.	.732	82.0	81.9	79.3	S. E.	Ditto.	.695	86.1	84.8	80.9	E.	Cumuli,cloudy.	.645	83.4	81.0	78.9	S.	Rain & thundg.	.637	80.2	79.8	78.1	S. E.	Drizzly.	.668	79.0	79.2	78.0	S.	Raining.	89.4	84.3	79.2	..	0.74	0.82		4
5	.699	79.4	80.2	79.0	E.	Ditto.	.766	82 3	80.9	78.9	S.	Ditto.	.745	80.1	78.9	77.5	S. E.	Drizzly.	.655	80 2	79.9	78 0	S. E.	Cloudy.	.641	80.3	79.9	77 3	S. S. E.	Cloudy.	.671	81.2	81.1	78.1	S. E.	Scat'd clouds.	82.3	80.4	78.5	..	2.10	2.20		5
6	.730	78.7	79.2	78.4	E.	Cloudy.	.768	83.1	82 7	78 6	S. W.	Cirro cumuli.	.749	87.3	85.6	81.0	S. S. E.	Cumulo strati.	.694	84 9	82 3	79 3	S. E.	Raining.	.675	86.8	85.3	80 0	S.	Cumuli.	.694	82.2	82.2	79 0	S.	Cloudy.	87.8	83.2	78.5	..	0.09	0.14	D	6
7	.736	78.8	79.5	78.8	S.	Cirro cumuli.	.776	86.4	85 0	81.3	S.	Cumulo strati.	.749	88 2	86.7	82 3	S.	Ditto	.676	87.4	86.0	81 3	S. W.	Cumuli.	.649	86 3	85.3	80 8	S. S. W.	Cumulo strati.	.657	83.5	83 6	80.5	S.	Scat'd clouds.	88.4	84.0	79.6	..	..	..		7
8	.711	79.9	80.4	78.3	S.	Ditto	.744	87.6	87.3	81.9	S. W.	Ditto.	.706	90.2	89.2	81.0	S. W.	Ditto	.628	90.0	89.2	82.0	S.	Cumulo strati.	.612	88.3	87.7	81.8	S.	Cloudy.	.632	85.1	85.0	80.9	S. W.	Cloudy.	91.5	86.1	80.6	..	..	..		8
9	.704	80.4	81.3	79.4	S.	Cirri.	.758	87.6	87.3	81 9	S.	Ditto	.721	88.7	88 3	82 0	S. W.	Cloudy.	.655	90 5	89.6	80.8	S. W.	Cumuli.	.640	90.2	89.5	80.8	S. W.	Cumuli.	.661	86.1	86.0	80.7	S.	Cumuli.	91.6	86.5	81.4	..	..	..		9
10S	.727	81.0	81.8	79.9	S.	Cumuli.	.779	86.9	86.4	81.7	S.	Cumuli.	.740	89 6	88.8	80.3	S.W.shp.	Ditto	.685	88.9	88 2	82 3	S. W.	Cirro cumuli.	.658	88 2	87.8	81.2	S. S. W.	Cloudy.	.672	85.3	85.5	81.0	S. S. W.	Scat'd clouds.	90.9	86.4	81.9	..	..	..		10S
11	.692	81.7	82.3	79.4	S. S. W.	Cirro cumuli.	.692	87.8	87.5	82 3	S. S. W.	Ditto	.658	90.1	89 4	83 3	S. W.	Cumulo strati.	.569	91 5	90.3	83 0	S. W.	Ditto	.560	90.0	89.4	82.5	S. W.	Ditto	.561	80.0	79.4	77.2	N.	Cloudy.	92.1	87.1	82.3	..	0.38	0.44		11
12	.596	79.3	80.2	78.7	S. W.	Cloudy.	.681	86.8	86.2	82 7	S. W.	Ditto	.639	91.3	90.1	81.7	W.S. W.	Cloudy.	.564	92.2	91.4	83.4	W. S. W.	Gloomy.	..	..	..	..	..	....	.560	88.0	88.0	83.5	S.	Ditto	92.8	86.4	80.0	108.9	0.34	0.40		12
13	.640	78.7	79.3	78.0	W. S. W.	Generally clear.	.691	89.3	87.8	80.4	N. W.	Clear.	.667	91.9	91.0	80 0	N. W.	Clear.	.603	92 8	91 8	81 0	N. N. W.	Cumuli.	.590	92.8	90 7	77.3	W.N.W.	Cumuli.	.597	88.9	87.8	80.7	W.	Clear.	94.0	85.4	76.7	118.8	..	..	☾	13
14	.704	80.7	81.3	78.7	S. W.	Ditto	.746	90.1	88.3	81.2	N N W.	Few Cumuli.	.718	90 4	88 3	80.0	N. E.	Cumulo strati.	.664	90 9	89.7	80.7	W.	Cumulo strati.	.656	91.2	89.2	79 3	N.	Ditto.	.660	88.4	87.3	78 9	N.	Cirri.	92.0	86.8	81.5	113.3	..	..		14
15	.759	80.0	80.9	79.3	S.	Clear.	.800	87.8	86.7	80.0	N. W.	Cumulo strati.	.772	91.0	89.5	80.4	W.	Ditto	.720	89 0	87.9	80.8	S. W.	Ditto	.702	88.0	85.2	78.9	S. E.	Cumulo strati.	.714	87.7	85.6	80.0	S.	Cumuli.	92.0	86.7	81.3	110.4	..	..		15
16	.807	79.5	80.9	79.3	S.	Cloudy.	.840	88 3	87.0	80.2	N. W.	Cumuli.	.807	88.9	87.3	80.1	W.	Ditto	.736	93.2	91.9	79.7	N. W.	Ditto	.714	93.7	91.0	80.9	S. S. W.	Ditto	.737	84.9	84.6	79.4	S.	Cloudy.	93.7	87.1	80.5	119.8	..	..		16
17S	.803	79.8	80.8	78.7	W.	Generally clear.	.839	90.0	88.8	80.2	N. W.	Clear.	.800	92.4	90.4	81.0	W.	Ditto	.734	93 5	92.0	81.3	W.	Ditto	.720	93.5	92.0	79 6	W. S.W	Cloudy.	.737	89.5	88.2	79.5	W. S.W.	Ditto	94.5	87.5	80.4	114.0	..	..		17S
18	.759	81.2	82.0	79.5	W.	Cirri.	.787	90 0	88 9	80.0	N. W.	Ditto	.751	93.1	91.6	79.4	W. S.W.	Cumuli.	.686	93.8	92.0	79 4	W.	Ditto	.679	92.7	91 3	79.3	S. W.	Cumulo strati.	.685	88.6	88.0	80.2	S. W.	Cirri.	94.9	88.5	82.0	115.0	..	..		18
19	.727	80.2	81.3	79.0	N. W.	Clear.	.767	91.8	90.3	79.4	W.N.W.	Ditto	.732	93 6	92 2	78.7	W N.W.	Clear.	.678	94 4	92 6	78 7	N.N. W.	Cumuli.	.665	94.0	92.4	78.4	W.N.W.	Cumuli.	.683	89.6	88.3	79 4	N. W.	Clear.	95.4	88.4	81.4	118.2	..	..		19
20	.751	80.0	81.3	78.3	N. W.	Ditto	.791	92.7	90.3	79.3	N. E.	Ditto	.749	93.7	91.9	77.9	W.	Cumuli.	.703	91.7	90.9	76.8	N. W.	Cloudy.	.692	93.4	91.1	77.8	W.	Ditto	.727	88.8	87.8	79.5	S.	Cirro cumuli.	94.0	87.8	81.5	116.0	..	..	☾	20
21	.772	82.2	83.0	79.9	S.	Cloudy.	.799	84 2	83.3	77.9	N. E.	Cloudy.	.759	92.2	89 9	80.3	S. E.	Ditto	.699	93 8	92.3	81.9	S. W.	Cumulo strati.	.694	90 3	89.6	81.3	S. S. E.	Cloudy.	.717	86.3	85.8	79.3	S. E.	Cloudy.	94.0	88.6	83.2	114.6	..	..		21
22	.811	80.2	81.2	79.5	S. E.	Ditto.	.846	89.6	87.9	81.5	S. S. E.	Cumulo strati.	.804	92.7	90 8	80.7	E. S. E.	Cumulo strati.	.719	91.7	89.4	79 8	E.	Cloudy.	.721	83.2	81.4	78.3	S. S. E.	Raining.	.726	82.2	83 0	79.3	S.	Cumuli.	95.0	88.2	81.4	115.7	0.06	0.09		22
23	.757	79.4	80.3	78.7	S.	Clear.	.780	88.3	86.0	79.9	S. W.	Ditto.	.739	91.9	91 0	81 8	S.	Ditto	.667	93.7	92.8	81.4	S. W.	Cumulo strati.	.649	92.3	91.6	81.3	S. W.	Cumulo strati.	.651	88.9	88.4	80.9	S. W.	Cumulo strati.	94.8	87.6	80.3	119.2	..	..		23
24S	.707	80.8	81.7	79.8	S. W.	Ditto.	.751	88.4	87.6	80.8	W.	Ditto.	.711	92.0	91.3	81.8	S. W.	Ditto	.634	94.1	93.0	81.9	W.	Clear.	.621	94.0	91.3	80.4	S. W.	Clear.	.627	90.2	89.5	82.0	W.	Clear.	95.2	88.5	81.7	117.9	..	..		24S
25	.694	81.4	82.2	80.3	S.	Cirro cumuli.	.730	90 9	90.2	82 3	W. S. W.	Cumuli.	.702	92.5	90.5	82.0	N. W.	Cloudy.	.625	95 3	93.3	83.0	S. W.	Cumulo strati.	.637	91.9	86.5	80.0	N.	Cloudy thundg.	.656	82.3	83.0	78.8	S. E.	Cloudy.	96.4	89.2	82.0	118.0	0.08	0.15		25
26	.693	80.8	81.7	80.2	S. W.	Clear.	.750	90.9	89.4	81.3	S. W.	Ditto	.713	93.8	92 2	83.3	S. W.	Cumuli.	.667	89 2	86.5	79 8	S. S. E.	Cloudy.	.655	86.3	85.5	79.4	S. S. W.	Cloudy.	.656	84.7	84.9	80.2	S. S. W.	Ditto	95.8	88.8	81.7	114.3	..	..		26
27	.711	80.8	81.7	80.2	S. S. E.	Cirri.	.764	90 9	89.8	81.7	S. W.	Ditto	.733	94.0	92 4	83 0	S. W.	Cumulo strati.	.694	89.7	86.8	79 4	S. E.	Ditto	.686	87.0	84 9	79.3	S. S. E.	Ditto	.697	84.8	84.3	79.4	S. W.	Ditto	94.7	88.3	81.8	114.3	..	..		27
28	.760	79.3	80.3	79.2	S. S. E.	Cirro cumuli.	.794	8.95	87.5	81.5	W.	Cumulo strati.	.762	89.4	88.2	81.3	N. W.	Ditto	.686	92.3	91.4	81.3	N. W.	Cumulo strati.	.690	83.4	85.0	79.3	S. E.	Ditto	.714	83.0	82.3	79.2	S. E.	Cumuli.	93.0	86.7	80.3	117.0	..	..	●	28
29	.769	79.4	79.9	78.8	S. E.	Cirri.	.821	88.4	87.0	81.5	E.	Ditto.	.770	91 3	89 2	81.3	N. W.	Ditto	.712	90 0	89.0	79 3	N. E.	Ditto	.719	87.0	84.9	80.7	S. W.	Ditto	.734	82.1	82.0	78.0	S. S. W.	Scat'd clouds.	91.8	85 9	80.0	110 5	..	..		29
30	.786	78.3	79.0	77.7	N. E.	Clear.	.840	88 3	87.4	80.6	S. E.	Ditto.	.803	92 0	90 1	79.8	N. E.	Ditto	.756	86.4	84.8	78 0	E.	Cloudy.	.751	85.9	85 0	79.5	S. E.	Ditto	.760	83.0	82.2	77.9	E.	Cirri.	92.0	85.5	79.0	107.5	..	..		30
Mean	29.723	80.1	80.9	79.1			29.766	88.2	87.0	80.7			29.732	90.4	88.9	80 9			29.668	90.1	88.8	80.5			29.661	88.7	87.2	79.8			29.672	85.2	84.7	89.8			92.4	86.6	80.7	114.9	4.10	4.74		
Mean of the Corresponding month of last year.	29,658	79.2	80.2	79.4			29.704	87.5	86.3	81.1			29.676	89.2	86.6	81.8			29.612	88.6	87.2	80.5			29.598	86.8	85.7	80.0			29.613	84.3	84.0	79.1			90.6			Difference,	9.71 / 5.61	10.95 / 6.21		

These Observations have been made for the most part, with a supply of new and first rate Instruments received into the Observatory, by orders of the Bengal Government; a brief description of the Instruments seems necessary.

1st.—The Barometer is a standard Instrument by Newman, diameter of the tube 0.504 Inches. The following is the comparative shewing of this Instrument and those Barometers which were in use at the Observatory prior to 1st of June, 1844.

Barometer by Troughton used prior to the 1st of June, 1844. Observations reduced to 32o Fahrenheit. 29. 493
Ditto Ditto Col. Everest used from 1st of June to 31st of August, 1844. .... Ditto .....Ditto 29. 637
No. 52 Standard Barometer by Newman used from 1st of September, 1844..... Ditto .....Ditto 29. 654
No. 86.... Ditto.... Ditto ..... Ditto.....from 3d of April, 1847. .... Ditto .....Ditto 29. 667

Ditto " " " " 0.514 Ditto

2nd.—The Thermometer is a Standard Instrument by Newman, on metal Scale and graduated to $\frac{1}{5}$ of a degree.

3rd.—Wet Bulb Hygrometer by Newman, graduated to single degree divisions, the difference between Standard Thermometer and dry Thermometer of this Instrument is + 0.2, the Temperature of the dry Bulb is taken from the Standard Thermometer, and in the event of the quantity moisture, dew point, or dryness, being required, it is necessary the difference adverted to be taken into calculation.

4th.—Maximum and Minimum Thermometer by Newman. The difference between these instruments, and the Standard Thermometer is + 0.7 for the former and 0.23 for the latter.

5th.—The Temperature shewn in Column 47 of a Thermometer, in sun's rays, is acquired by means of a Newman's Maximum Thermometer having a black bulb.—The above Instruments, excepting the Thermometer placed in the sun's rays, are fixed at above 4½ feet from the ground, to a post, in a thickly choppered house, and are freely exposed to the air and sheltered from any influence of Solar reflection.

The height of the Surface of the Mercury in the Cistern of the Standard Barometer in the Observatory attached to the Surveyor General's Office above the Mean Level of the Sea, having been deduced from a Series of Tide Observations taken from a Register kept at Kyd's Dock Yard, the result is recorded for general information.

	Feet
Lowest Monthly Average of Mean Tides in the Months of February and March, above the Zero of Gauge at Kyd's Dock Yard Calcutta, ...	8.38
Difference of Level between the Zero of Tide Gauge at Kyd's Dock Yard, and the Standard Barometer at the Observatory, ...	26.59
Height of Standard Barometer above the Level of the Sea, ...	18.21

H. L. THUILLIER, Captain,
Officiating Deputy Surveyor General,
In charge Surveyor General's Office.