

# PART II.

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ART. I.—*Observations on the Grammatical Structure of the Vernacular Languages of India.* BY THE REV. DR. STEVENSON.

No. 2.

THE INDEFINITE ARTICLE.

It has by many been taken for granted that none of the Vernacular languages of India have any thing corresponding to the Article, for no better reason apparently, than because there is no Article in the Sanscrit. Yet in Clarkson's Gujaráthí, (a.) Campbell's Telugu, (b.) and Lambrick's Singhalese, (c.) Grammars; in Hunter's Hindostání, (d.) Molesworth's Maráthí, (e.) Candy's English and Maráthí, (f.) Ram Komul's English and Bengáli, (g.) Garrett's Canarese, (h.) and Rottler's Tamil, (i.) Dictionaries, as well as in other authorities, the numeral adjective corresponding to *one*, like the French *un* and the Turkish *bir*, is stated to have occasionally the character and power of an Indefinite Article.

(a) p. 13. (b) p. 42. (c) p. 113. (d) under the word **یک** (e) under **एक** No. 3. (f) under A. (g) under A. (h) p. 147. (i) Vol. I. p. 287.

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As this indefinite use of the numeral in the Vernacular Dialects of India, differs very considerably from the Indefinite Article of European languages, it may be necessary to notice briefly in what the difference consists. In European languages the Article is used to point out one individual of a species indefinitely, without any emphasis. In the Indian tongues there is emphasis joined to the want of definiteness. To express unemphatically and indefinitely that there is one individual in the mind of the speaker, the Hindus use simply the Noun without any addition. Thus "he gave me a rupee", is simply in Hindostání, *Usne mujhe rupaiya diya* (उसने मुझे रूपया दिया). To use *ek* before *rupaiya*, in this sentence would make it mean, "he gave me one rupee." When *एक* is used indefinitely in India, it has frequently the power of the English Article with the emphatic word *certain* affixed; thus, *एक सिंह* means not "a lion," but "a certain lion;" and in Marathi *एका समयी* means on a certain occasion, though in this case the idioms of the two languages nearly coalesce, and we could properly translate the phrase by the words, "once on a time," where the emphasis is given by the adverb *once*. Another use of *एक* is to express emphatically any one of a multitude; thus in Marathi, a person who had got some urgent business on his hands might say, (एका गड्याला बोलाव) *eká gadyála boláwa*, "call a servant," meaning any one you can find. These or similar uses of the word will be found, according to the authorities above referred to, in the other languages of India, though I am unable from personal experience to speak more particularly on the subject. It will be admitted that the French *un* and the German *ein*, used for the Indefinite Article, are nothing more than the first number in the series of numerals, modified and adapted to a particular purpose; and I think the same may be said of the English *a*, which in the form of *an* was anciently written *ane*, a word still used for *one* in the Lowland Scottish dialect. If the French and Spanish and Italian *un*, used as an article, be undoubtedly derived from the Latin *unus*, we are furnished with an illustration of an important principle in such enquiries; namely, that the construction of a language is much more stable than its Vocabulary. There is no article in the Latin language, and no such use of *unus* as of *un* in these tongues, yet the latter is most certainly derived from the former. So

there is no such use of एक in the Sanscrit as that above described, though the word is pure Sanscrit. This idiom, then, belongs to the Vernacular languages of India, all of which as well as that of Ceylon it pervades, and therefore must have belonged to an aboriginal dialect spoken throughout the whole country before the language of the population was influenced by the Brahmanical tongue. The substitution of *ek* in the Northern languages for the *ondu* of the Southern, changes merely the word without affecting the idiom. The classic word has found insertion into the aboriginal language in the same manner as many an old baronial castle still retains its mediæval configuration, though one battlement after another has had its old crumbling stones replaced by fresh materials; or as in the classic land of Greece, or amid Egypt's massive monuments, the traveller descries some Turkish castle, constructed after a barbaric model, repaired with stones which once adorned a Parthenon or Osirian temple, and sees where the rough plastering has fallen off, the chaste sculpture of some disciple of Phidias, or the pictured hieroglyphics of Egyptian sages.

#### THE DEFINITE ARTICLE.

In the same manner that the word, which expresses the numeral *one* is frequently used for an Indefinite Article, there is a particular particle that when affixed to a word supplies the place of a Definite Article. As in the former case, the laws of this article differ very considerably from those of the Definite Article in European languages, and to explain its full import is attended with a difficulty similar to that which we noticed in reference to the Indefinite Article. It at one time corresponds to an emphasis placed on the Personal Pronouns in the English, where frequently the demonstrative *that* may be substituted as *wuhi chor hai*, "He is the thief," or "that is the thief." At another time it points back to some one mentioned in the preceding context, and may with the pronoun to which it is attached, be rendered by "the same;" as *wuhi sakshi ke liye aya*. "The same came for the purpose of giving evidence."

This particle in Hindustani and Bengali is ए (i.); in Tamil, Cana-

rese and Telugu it assumes the form of ए, (e); in Gujaráthí and Marwárí ज, (j); in Maráthí च, (ch).

It is true that we have something of an analogical particle in the एवम्, of the Sanscrit, which may be used much in the same way as the abovementioned particles in the vernacular tongues, and some of them seem easily derivable from this very word. But others of them cannot be traced back to a Sanscrit origin, and are probably parts of the aboriginal Indian language, as the ज of the Gujaráthí and the च of the Maráthí, which have no connection in sense with the च of the Sanscrit. The inference in this case is not however so strong, and I would not lay so much stress on it as in the case of the use of *ek* for an Indefinite Article.

#### THE NOUN.

In as many of the Vernacular languages of India as have been subjected to Grammatical analysis, it has been usual to reckon seven cases besides the Vocative, as is done in Sanscrit; though it might have been as easy to make out twice seven in most of them. A more rational practice has, however, been adopted in reference to some of the languages belonging to the northern family, and the genius of the particular tongue under analysis observed and followed, as is always done in respect of the Numbers, which are universally acknowledged to be but two, and of the genders, in reference to which some of the more northerly have only a Masculine and Feminine, as the Hindustání, which in this particular agrees with the French; others, like the Gujaráthí and Maráthí, have three Genders, depending a good deal on termination, as in Sanscrit and the ancient European languages; while the southern family with the Oriya follows the law of nature, as is done in the Turkish and English.

What are called cases in the languages of antiquity, are apparently nothing more than the noun with particles, which when separated have no meaning, affixed or prefixed to nouns to point out their various relations to other words in the sentence, serving the same purpose that Prepositions do in the modern languages of Europe. That purpose is served in the Indian Vernacular tongues chiefly by what have been

called Post-positions, because they are affixed to nouns. The only difference then between a Post-position and the sign of a case, will be that the one is by itself significant, while the other is not. In the Latin we have something in the shape of a Post-position affixed to a Pronoun, in *nobiscum*, when the particle *cum* is affixed to the sign of the case. If *dis* the sign of the Ablative, were elided and the word written *nocum*, we should have an exact parallel to the construction of many of what are called cases in the modern Indian languages. Indeed, even in the Latin language itself there are three Sanscrit cases included in what is called the Ablative, viz. the proper Ablative, expressed by the preposition *de* (from), the Locative by *in*, and the Instrumental by *ab* (by) : and the Greeks include all these and the Dative also, under one case. In all the languages of India, the terminations for all the declensions are the same with a few rare and trifling exceptions, and in the same manner, except in about two instances in some of the languages, the terminations for the plural are the same as those for the singular. In both of those points they differ greatly from the Sanscrit and ancient languages of Europe, and agree with our modern languages and with the Turkish. It is true that, as in the Turkish *ler* is introduced before the terminations of the singular to distinguish between the two numbers, so in Tamil गळ (gal), in the Canarese गळु (galu), and in the Telingee लु (lu), are inserted. This is not improbably an abbreviation of the Sanscrit word सकल (all), which in Tamil becomes सगळ and in Marathi सगळे. In the Bengali, in the same awkward way दिग (dig), except in the Nominative, is inserted, probably a corruption of the Sanscrit आदि. This word is often employed where we would use, &c. and in Marathi in the middle of a word it becomes आदीक, from which to आदीग, and last of all to दिग, the transition is sufficiently easy. In most of the northern languages, however, except in the Nominative plural, there is a nasal sound introduced before the termination to mark the plural, instead of the abovementioned syllables. Yet in all, the scheme is identical, and unlike any thing found elsewhere except in the Turkish and Tartar dialects.

In turning to the consideration of the particular cases, we may begin with the Accusative or Objective case, which in the Sanscrit Grammars follows the Nominative. In reference to the Nominative

itself, there is no place for remark ; since in the northern family there is usually no termination that marks it, and the terminations which are used in the southern tongues, vary in every particular language. In the Hindustáni, Gujaráthí, Maráthí, and Singhalese, there is no separate termination for the Accusative. In the Panjábí, it is formed by affixing (ॢ) *au* as in the Telugu, which is almost the same as the Canarese (ॢ) *anu*. In the Tamil, the sign of this case is (ॢ) *ai*, closely allied to the Turkish (ۛ) *i*.

What however is especially to be remarked, as shewing a family resemblance running through them all, is the rule that the Nominative is used for the Objective, in nouns when we speak of inanimate things, and for animate beings the Objective, in those languages that have a separate form for this case ; while in the others the Dative supplies its place. So singular a rule as this, especially in the use of the Nominative for the Objective even when the latter case exists in the language, could not have been the result of accident, and yet the reason is so recondit that we cannot suppose it occurring to the framers of a number of different and discordant dialects. This I esteem one of the strongest proofs of an aboriginal vein running through the Vernacular Indian tongues ; for the rule is a constituent part of them all, and as such is noticed in all the Grammars. "The Instrumental case formed in Panjábí, Hindostáni and Maráthí by (ॢ) *ne*, in Bengálí by (ॢ) *ne*, in Gujaráthí by (ॢ) *e*, all most probably corruptions from the Sanscrit or Pracrit, follows next in order. This case in the southern tongues is formed by different affixes.

The next case, the Dative, seems in all the Vernacular tongues to be purely an aboriginal inflexion, and can be traced from Cape Comorin to the Himalaya. In the Tamil and Oriya, we have (ॢ) *ku*, which is also frequently used in Hindi, though (ॢ) *ko* be more common. In Bengálí, (ॢ) *ke* is properly speaking the sign of the Objective, yet it is frequently used instead of the Dative. (ॢ) *ko* in the language of the Bodo a Himalayan tribe, is in the same predicament. In the Canarese for the Dative we have sometimes (ॢ) *ge*, and sometimes (ॢ) *ke* ; in Telugu (ॢ) *ki*, (ॢ) *ku*, and (ॢ) *ko*, *ki*, *ku* and *ko*. The Marathi Dative is (ॢ) *la*, for a parallel to which we are obliged to pass the Himalayas to Tibet, in the language of which (ॢ) *la* is the sign of the Dative ; or cross

the Indus to Afghanistán, for the Pashtu Pronouns have ( ल ) *la* the same as in Maráthí, leading us to the Syro-Arabic prefix *la*. The common Pashtu termination for nouns is ( ट ) *ta*, the same as in Singhalese. Whatever may be said of these three last partial agreements, though still sufficiently striking, I think no one acquainted with the principles of philology can venture to affirm that the first mentioned could have existed without an original connection.

The Ablative case, which comes next in order, seems in the northern family clearly derived from the Sanscrit, from the ( तः ) *tah*, of which may be derived the Bengáli ( इते ) *ite*, the Gujaráthi ( धो ) *thi*, and the Panjábí ( ते ) *te*, and even the Hindostáni ( से ) *se*. The Maráthi ( उन ) *un* may be derived from the उ *u* of the Pracrit (*a*). The Tamil ( அல் ) *al* does not influence either the northern tongues or the Canarese and Telinga, which make out the case by means of Post-positions.

For the Genetive the Gujaráthi *nu* ( नु ) is probably connected with the Tamil *in* ( इन ), with ( न ) *na* frequently used in Canarese, and with the old Marathi ( चेनि ) *cheni*. From the Telinga ( योक्क ) *yokka* by contraction may be derived the ( का ) *ka* of the Hindostani, the ( चा ) *tša* of the Maráthi, the ( जा ) *ja* of the Sindhi, and the ( गे ) *ge* of the Singhalese, as the principal letters have all a great analogy with one another. It is a singular fact in regard to the northern family, that the Genetive is a regular Adjective agreeing in gender, number and case with the Substantive with which it is connected. This, however, is not the case in the southern family. Such are the principal things worthy of notice that have occurred to me in reference to the Noun and its inflexions in the Vernacular languages of India.

a. See Kalpa sutra, Appendix p. 141.



ART. II.—*Memoranda on Mud Craters in the district of Luss.*—By CAPTAIN A. C. ROBERTSON, H. M. 8th, Regt. (Communicated by CAPT. S. V. W. HART.)

The following observations were made by Capt. Robertson in the months of August and September 1849 when he visited these extraordinary Craters in the district of Luss. They had been seen before by Capt. S. V. W. Hart, and those called the "Rama Chandra Koops" had been described by that officer in his interesting "Pilgrimage to Hinglaj," published in the Transactions of the Geographical Society of Bombay for 1839-40. Vol. III. p. 77.

Capt. Robertson has divided his observations into sections headed "Groups (of craters) Nos. I, II, III, &c.," which will facilitate the reader in finding them in the annexed plan. (Plate I.) Ed.

GROUP No. I.

I visited this Group of Craters on the 11th of September. It is situated in the range of the lesser Hara Mountains \* opposite to the Kattewara wells, from which the Craters are distant about six miles. At this point of the Hara range the continuity of the sandstone ridges is broken on their eastern side, by the occurrence of an immense mass of whitish clay. The mass consists of two distinct hills rising with a steep ascent from a great sheet of clay, which descends with an extremely gentle slope, about  $1\frac{1}{2}$  miles in length, to the foot of the mountains.

In several places sandstone rocks protrude through this sheet, thus apparently indicating that the clay is super-imposed on the sandstone. Seen from the plain, the sheet has the appearance of being divided into channels by the sandstone rocks. It seems as if a stream of liquid mud, descending from above in voluminous masses, had filled the hollows and covered the lower part of the sandstone ridges, leaving nothing visible but their highest rocks.

\* Of this range Cap. Hart states:—"Although their height is not very great, yet they present a singularly wild appearance, from their rising at once from the plain at an angle of forty-five degrees on their eastern side, with a greater slope to the west-ward, and being totally bare of all verdure. They are composed of sandstone, and their summits are broken into rugged peaks of the most fantastic shapes." Ed.

s. कूप Kūp, a well.

The surface of the sheet of clay is honey-combed like that of the detached hills or Kooops. It is also intersected by numerous deep fissures and chasms.

From the largest of these fissures, (which penetrates into the heart of the mass and winds round the base of the southern hill), there issues a stream of water which is perfectly clear and very inviting in appearance, but which, on being tasted, is found to be so salt as to be quite undrinkable. This stream, after leaving the fissure, flows through a ravine formed by the low sandstone ridges, and after leaving the ravine, is quickly absorbed in the sandy desert, which stretches from the Haras to the Pooralee. Several kinds of shrubs and plants flourish in the ravine; and on the banks of the stream a white salt is deposited. A yellow sediment is also found in the higher part of its course, where the stream traverses the mud fissures.

The northern Hill, which, in ascending the sloping sheet of clay, lies on the right hand, has a round unbroken outline and on its summit an uneven plateau of considerable extent, presenting several circular depressions which no doubt mark the sites of craters, formerly filled with liquid mud, but we were unable to discover any active mud fountain at present existing on the plateau.

The left hand or southern Hill, differs very much from the other in appearance and conformation. It is broken into numerous peaks and ridges and its whole surface is covered with clusters of the remarkable sugar loaf protuberances which form the characteristic feature of the Dowlaghur range.

A group of active mud craters is situated on, and in the vicinity of a sharp pointed cone on the north-eastern side of this Hill, and on the summit of this cone (which is extremely difficult to reach) is a perfectly flat, circular area about 50 or 60 paces in diameter, having on its western side an elliptical basin which measures 48 feet by 30.

This basin is filled with mud of the consistency of a thick paste. In one part of the mud was a small liquid spot from which gas escaped by large bubbles, rising at intervals to the surface, in the same manner as in the "Chandra Kooops," of which hereafter. At a point at the foot of the cone, where a narrow ravine or fissure which separates

two ridges terminates, is another basin of a circular form, and about 40 feet in diameter, and filled with very liquid mud.

On the left side of the ravine at the height of about 70 feet from the bottom is a small hole from which trickles a little stream of muddy water. This hole is inaccessible and I was unable to see its interior; but I distinctly heard within it the noise of ebullitions, caused by the escape of gas. A small stream of muddy water descends by the ravine leading from the foot of the cone to the great fissure, from whence issues the salt stream that flows through the valley at the foot of the Hills.

From the edge of the crater at the summit of the cone the Katterwarra wells bear nearly east, (N. 86°, 30' E.). The Koops in the Great Hara range bear nearly west, (N. 266° E.).

The height of the crater above the plain I should estimate to be certainly not less than 700 feet.

#### GROUP, No. II.

##### THE "RAMA CHANDRA KOOPS."

In this Group\* I include the three cones visited by the Agwas † and their followers.

Excepting the record of a few measurements I have nothing to add to the accurate and graphic description of these cones given in Captain Hart's "Pilgrimage to Hinglaj."

The description there given of their appearance and of the phenomena they present, with the exception of two very trifling differences, corresponds exactly with our observations.‡

\* Visited 24, 25, 26, 27th August and 9th September.

† "Spiritual Guides of the Pilgrims." Capt. Hart, loc. cit.

‡ "Crossing the Phor river in which water is occasionally found in pools, and can always be procured by digging, we halted at the Tilook Pooree wells, where an extensive marsh was formed by the late rain. One koss from them in a westerly direction, three hills of extremely light coloured earth rise abruptly from the plain. That in the centre is about four hundred feet in height, of a conical form with the apex flattened and discoloured; its southern and western sides rather precipitous, but with a more gradual slope on the others. It is connected with a small one of the same form, but not more than half its size, by a causeway some fifty paces in length. The third bears the appearance of the cone having been depressed and broken, and

When we visited the Koops, the two basins in the crater of the detached cone were not separated by a neck of land.

They communicated with one another and both were filled with mud of the consistence of a thick paste. In the north-western part of the circumference of the large basin and in the south-western part of the small one, the surface of the mud was depressed and covered by pools of clear water.

We did not observe any spring of water issuing from the northern side of the Hill, but a stream exactly of the character of the rill described in the "Pilgrimage" oozed from the eastern slope. It trickled for a short distance, moistening the clay and converting it into a narrow belt of mud. If this be the same spring as the one noticed

covers a greater extent of ground than the others. All three towards their bases are indented with numerous fissures and cavities, which run far into their interior. Their sides are streaked with channels as if from water having flowed down them. On ascending to the summit of the highest one, I observed a basin of liquid mud about one hundred paces in circumference, occupying its entire crest. Near the southern edge, at intervals of a quarter of a minute, a few small bubbles appeared on the surface; that part of the mass was then gently heaved up, and a jet of liquid mud, about a foot in diameter, rose to that height. Another heave followed, and three jets rose; but the third time only two. They were not of sufficient magnitude to disturb the whole surface, the mud of which at a distance from the irruption was of a thicker consistency than where it took place. The pathway around the edge was slippery and unsafe, from its being quite saturated with moisture, which gives the top a dark coloured appearance. On the southern side, a channel a few feet in breadth was quite wet from the irruption having recently flowed down it. I was told that every "Monday" the jets rise with greater rapidity than at other times, and then only did any of the mud ooze out of the basin. The entire coating of the hill appears to be composed of this slime baked by the sun to hardness. No stones are to be found on it, but near the base, I picked up a few pieces of quartz."

"Crossing the ridge which connect this hill with the least of the three, I climbed up its rather steep side. In height or compass it is not half the magnitude of its neighbour, and its basin, which is full of the same liquid mud, cannot be more than twenty paces in diameter. The edge is so narrow and broken that I did not attempt to walk round it. One jet only rose on its surface, and it is not more than an inch in height or breadth. But a very small portion of the mass was disturbed by its action, and although the plain below bore evident marks of having been once deluged to a short distance with its stream, no irruption had apparently taken place for some years. At times the surface of this pool sinks almost to the level of the plain; at others it rises so as to overflow its basin, but generally it remains in the

in the "Pilgrimage," it is evident that it is not of so ephemeral a character as its appearance indicated.

As the "Pilgrimage" does not notice the derivation or meaning of the term *Koop*, it may be worth while to mention that by referring to Shakespear's Dictionary it will be found that, *کوپ* is a word of Sanscrit origin and signifies "a well."

During our stay at the *Koops* we made the following measurements :—

Height of the highest cone above the level of the plain :—	
By first set of observations.....	320 feet 8 inches.
.. second..... do. ....	307 — 1 —
.. third..... do.....	309 — 6 —
Mean of the three sets..	312 — 5 —
Diameter of the crater of the highest	
Koop.....	57 — 6 —
Do..... do. of the smallest	
Koop.....	59 — 4 —

quiescent state in which I saw it. Two years ago it was many feet below the edge of the crest."

"On my way to the third hill, I passed over a flat of a few hundred yards which divides it from the other two. Its sides are much more furrowed with fissures than theirs are, although their depth is less, and its crest is more extended, and its height about two hundred feet. On reaching the summit I observed a large circular cavity some fifty paces in diameter, in which were two distinct pools of unequal size divided by a mound of earth; one containing liquid mud, and the other *clear* water. The surface of the former was slightly agitated by about a dozen small jets which bubbled up at intervals; but in the latter one alone was occasionally discernible. A space of a few yards extends on three sides from the outer crust to the edge of the cavity, which is about fifty feet above the level of the pools. Their sides are scarped and uneven. On descending the northern face, I remarked a small stream of clear water flowing from one of the fissures into the plain. It had evidently only been running a few hours. The mud and water of all the pools is salt. A fourth hill, situated close to the great range of Haras, and distant from the rest upwards of six miles, was pointed out as having a similar cavity to that last described. Its colour is the same, and although the surface is more rounded, its summit appears broken. I regretted not having time to visit it."

"The name given to these singular productions of nature is the "*Koops of Raja Rama Chandra*," by which appellation they are known to all tribes."—Capt. Hart; loc. cit.

Transverse diameter of the smaller basins of the detached Koop . . . .	112 feet 7 inches.
Transverse diameter of the larger basins of do. . . . .	181 — 0 —
Longitudinal diameter of the crater including both bases . . . . .	231 — 2 —
Greatest height of the edge of the crater above the mud . . . . .	32 — 8 —

During the days we remained at the Koops the mud in the craters of the two connected cones was slightly elevated above the rims of the craters, and at several places slightly overflowed, trickling in small quantities down the sides of both cones.

The 27th August, one of the days we spent at the Koops, was a Monday.\* On that day we did not observe any unusual activity in the escape of the gas, nor did there seem to be any increase in the quantity of the mud which was trickling from the crater.

On the 8th of September, I in two minutes counted seven ebullitions in the mud of the crater of the large Koop. The intervals between three successive ebullitions were 10, 15 and 45 seconds.

#### GROUP, No. III.

This Group† is the one situated close to the Great Hara range.

On the evening of the ninth, having staid behind the rest of the party in order to complete a sketch of the Tilook Pooree (Chandra) Koops, I lost my way in the dark, and thus missed the opportunity of personally inspecting them.

The Group of craters is situated on the summit of a detached ridge of clay, which rises from the plain at a short distance from the Great Hara range of mountains. The ridge is of an irregular oblong shape, and forms a mass of very considerable dimensions.

Captain Anderson, who on the morning of the 10th. ascended the ridge, reported that the ascent was steep but that the surface was tolerably smooth, being less broken than that of the detached Tilook Pooree (Chandra) Koop. The ascent occupied an hour and 16 minutes, the decent about 35 minutes. He estimated the height of the ridge

\* See Note p. 11.

† Visited 10th September.

at not less than 800 feet. On the top he found an extensive plateau, on which several tamarisk trees were growing. Some of them were in a state of decay, others were in a flourishing condition.

The group of craters or fountains consisted of three small circular basins, which measured respectively 20, 18, and 9 inches in diameter.

The mud in the second was extremely liquid, and seemed well suited from its fineness for the purposes of plastic art.

Besides these three basins, there was a small oval aperture, the largest diameter of which did not exceed half an inch.

A small quantity of clear water was discharged from it, which escaped by a long smooth groove of about the same diameter as that of a common sized cedar pencil.

#### GROUP, NO. IV.

##### CALLED BY THE NATIVES "KAMAL-I-PAT."

The craters of this Group are situated on the summits of two low mounds, which rise from a flat at the distance of about a mile from the sea.

The rock of Gorab-i-Sung is about two miles from the largest mound. From the crater of this mound the rock bears nearly south-west, (N. 220° 30' E). I estimate the height of this mound to be about 18 or 20 feet. On the summit is a circular area about 60 paces in diameter. A small cone about 5 feet in height rises near the centre of the area; from this point to the edge of the mound there is on every side a slight fall.

The small cone is perforated by two apertures. In one of them we heard the gas bubbling beneath us, but in neither aperture did the mud rise to the surface. On the edge of the area extending in a semi-circle from S.S.W. to N.N.E. is a cluster of 49 papillæ, each having an aperture about an inch in diameter. Gas escaped from all of these, and from some of them a small quantity of mud.

About 200 yards to the westward of this mound is a smaller mound, about 12 or 15 feet in height.

The area on its summit is 16 paces long and 5 paces broad.

At its eastern end is a small basin about 3 feet in diameter from

which gas was disengaged in greater quantities than from any other crater which we visited. In the space of a single minute we reckoned 31 bubbles, each about a foot in diameter.

Close to this basin is a smaller one of about two feet in diameter in which the ebullition was also very active.

At the opposite or north-western extremity of the ridge is another basin  $3\frac{1}{2}$  feet in diameter. It is filled with mud and water, but I did not observe any ebullition in it. Near it are two minute apertures of about an inch in diameter from both of which gas was escaping. About 300 yards from the large mound in a north-easterly direction, are two small mounds about 10 feet high and ten or twelve paces in diameter at the summit. A still more diminutive mound is situated close to the base of the large one on its south-eastern side. On none of the three is there any aperture, basin or crater.

The liquid mud in the basins of this group is of a light blue colour, and seems precisely similar to that found in the other craters.

But the colour of the mounds on which the basins are situated, is a dark reddish brown, whereas all the other craters are found in masses of very light coloured whitish clay.

#### GROUPS, Nos. V. & VI.

These two Groups are situated in the Dowlaghur range. Owing to its great extent we were unable to explore this singular region minutely, or to ascertain its limits with accuracy. As a rough approximation I should say that its length is 20 or 23 miles, and that its breadth varies from 3 to 5 miles.

We ascertained trigonometrically the height of two of the peaks situated in one of the extensive ridges; one of these peaks we found to be 542 and the other 712 feet, above the Aghor river.

From the exterior ridges there is a gradual rise towards the centre of the mass. The central peaks cannot therefore be much less than 800 or 900 feet above the Aghor river. About 10 miles from the mouth of the Aghor river the range terminates in the sea; from this point it stretches inland in a direction parallel to that of the Hara mountains. Between the sandstone cliffs of the Haras and the clay ridges of Dowlaghur, there intervenes a strip of perfectly level



land, about two miles in breadth; both ridges rise abruptly from this plain, and the clay and sandstone formations are not on this side connected by any lateral offshoots.

On the opposite side, the intermediate space between Dowlaghur and the Hinglaj mountains appears more broken, and the clay and sandstone formations are probably blended at the junction of these lateral offshoots. I had not, however, an opportunity of exploring this side of Dowlaghur, nor was it in my power to examine the north-eastern extremity of the range, so as to ascertain its extent and the manner in which it terminates.

Along the line of its intersection by the Aghor river, I observed several detached masses in which layers of clay and sandstone occur alternately, in some places arranged vertically, in others horizontally, and in others in inclined planes.

At the extremity next the sea also, the ridges are partly composed of sandstone strata. With the exception of one or two elevated spots in the central parts of the mass, where clusters of rounded knolls occur, the whole region of Dowlaghur is broken into steep, narrow ridges. The surface of these ridges is entirely covered by innumerable clusters of sugar-loaf shaped protuberances, which the Agwa told me are regarded by the pilgrims as natural *lings*. These protuberances vary from 10 to 25, or even 30 feet in height. They are connected together at their bases, and many of the larger ones are surrounded by groups of smaller ones, which spring from the sides of the central mass. These ridges are extremely difficult to surmount, owing to this peculiar conformation of their surface. Many of them are altogether inaccessible. The groups of craters are situated in the central parts of the mass. In their vicinity, the surface, though extremely rough, is destitute of the conical protuberances which characterize the rest of the region. The areas of these clear spaces are of considerable extent; each is occupied by a cluster of large rounded knolls, on the summits of which, the craters are situated. The apertures are in some places level with the ground, in others, at the summits of small cones, varying very considerably in their dimensions, some being merely small papillæ of soft clay, others being conical mounds 12 or 15 feet in height and 5 or 6 in diameter at their summits.

The cones appear to have been formed by the gradual accretion of the clay discharged from their orifices.

The appearance of these smooth knolls surmounted by groups of conical mounds, and each mound in a state of growth, immediately suggested to me a notion, which whether well founded or not, I am inclined to think would be the first impression of every observer. It seemed to me very probable that the singular sugar loaf conformation of the surface of the neighbouring ridges may have been produced by a process similar to that now going on upon the smooth knolls, and that every one of the innumerable protuberances with which the ridges are covered, may have been at some former period the site of a fountain or volcano of mud. Admitting this theory to be a plausible account of the manner in which the protuberances were formed, the question would occur, whether the formative process was gradual or simultaneous,—whether the active fountains in times past have always been as at the present time, few in number, and confined in their action to narrow spaces,—or, whether by some vast eruptive effort, countless fountains were opened, and throughout the whole extent of the region, all the protuberances on all the ridges were at once thrust out.

The region is so extensive and the rugged tracts lying in its centre have been so little explored by the country people, that we could neither ascertain by observation nor learn from report, in how many places groups of active fountains are still to be found. We visited two other groups, and two other places were pointed out to us where similar groups were said to exist, but which places the natives told us were almost inaccessible.

We visited one of the groups on the 3rd and 4th of September.

The approach to it is by a ravine, the mouth of which is situated at the point where the Aghor river first touches the base of the Dowlaghur range. The path is extremely difficult, being interrupted by numerous chasms, fissures and perpendicular breaks. In some places it leads through natural tunnels, in others, over chasms by narrow arches of clay of very moderate thickness.

About  $\frac{3}{4}$  of an hour is the time necessary to climb to the top of the ravine.

At the top are five or six rounded knolls, covering a tract of land

of an irregular oval figure, about  $3\frac{1}{2}$  miles in length and  $1\frac{1}{2}$  miles in breadth.

A little to the east of the ravine, on the summit of one of the knolls, is a rugged mass of clay about eight feet high and five or six feet in diameter, which at a little distance is exactly like the stump of a tree. Gas escapes and mud oozes from an aperture in the side of the mass. There is at present no aperture on the summit but formerly there must have been one.

The mud discharged from it has accumulated around the top of the stump in lumps and ridges like the lumps of tallow which accumulate around the wick of a candle exposed to a current of air.

Near the base of the mass are several small protuberances a few inches in height, each having a small aperture in its summit from which mud and gas is discharged.

On the summit of another eminence still farther to the westward, is a basin 30 feet in diameter and nearly level with the ground. It is filled with liquid mud. Around it are a number of small cones similar to those on the other hills.

Still proceeding westward at the distance of about half a mile, on the summit of another knoll, is a cluster of nine or ten cones, from 8 to 12 feet in height. The apertures of two of the cones have been closed, but on the summit of each of the others is a basin of liquid mud, about 5 or 6 feet in diameter from which at intervals the gas escapes in bubbles in the usual manner.

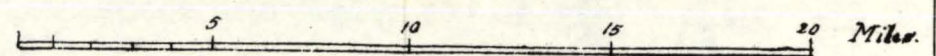
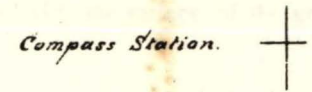
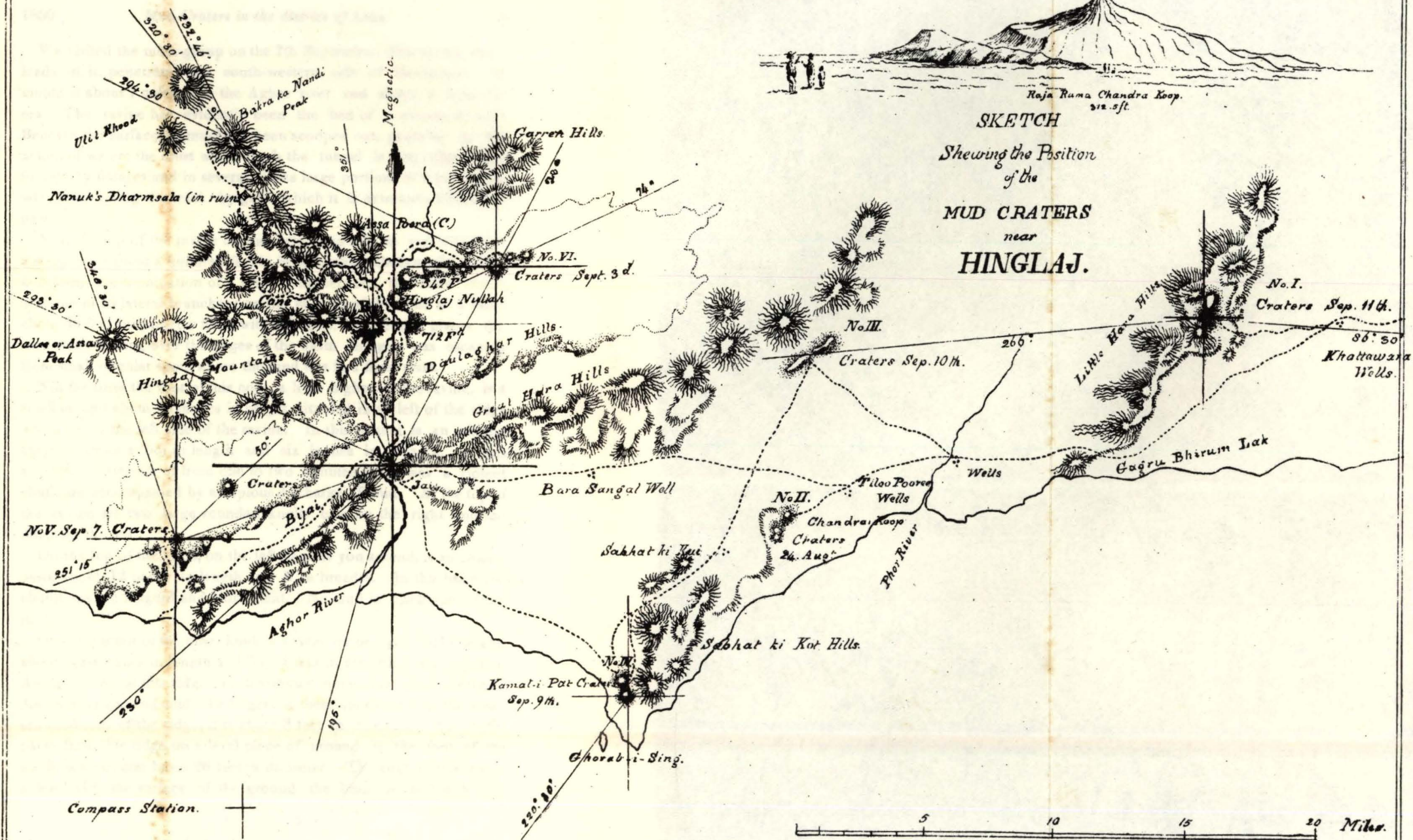
Besides the large cones there are at this place a number of small ones of a few inches in height. There are also numerous small apertures level with the surface. From one of these, water of a yellow tinge is discharged, and the clay in the vicinity of this aperture is discoloured, apparently by ferruginous matter.

In order to ascertain if the gas discharged from these apertures was inflammable we held a lighted stick over one of them, in which the ebullition was considerable ; no effect was produced.

At the time of our visit both the gas and mud were discharged in small quantities from the fountains of this group, but the appearance of the surface indicated that at some former period considerable masses of mud had been poured from the summits of the knolls.



SKETCH  
 Shewing the Position  
 of the  
 MUD CRATERS  
 near  
 HINGLAJ.



Scale  $\frac{1}{4}$  of an Inch to a Mile =  $\frac{1}{263.440}$ .

NB. The distance A.B. (estimated at  $5\frac{1}{4}$  Miles) was assumed as known to serve as a base for constructing the Sketch. Coast-line fr. Wild's Map of N.W.P.

We visited the other group on the 7th September. The ravine which leads to it, penetrates the south-western side of Dowlaghur. Its mouth is about 7 miles from the Aghor river and about 4 from the sea. The ravine has evidently been the bed of a stream of mud. Beneath the surface a tunnel has been scooped out, probably by the action of water; the crust which roofs the tunnel is everywhere perforated by fissures and in several places large portions of it have given way, interrupting the track by gulfs, which it is extremely difficult to pass.

Near the top of the ravine on the right hand side as you ascend, is a steep cone about a hundred feet in height, which abuts on the ravine, and forms the termination of a ridge lying between the main ravine and one of its lateral branches; on the summit of the cone is a basin about 30 feet in diameter filled with soft mud. At several places the mud was trickling over the edges of the basin and gas was escaping from small circular spots where the mud was in a fluid state.

Not far from the foot of this cone, a little higher up the ravine, is a small mound about 18 inches in height, situated in a cleft of the ridge which forms the left side of the ravine. In this mound is an oblong aperture about a foot in length and six inches in breadth. In this aperture at intervals of from one to two minutes there was a violent ebullition accompanied by a copious discharge of mud. At the top of the ravine are two large rounded knolls one on the right and the other on the left.

On the top of the knoll, on the left hand as you ascend, is an oblong basin about 12 paces in length and 5 in breadth. In this basin the ebullitions are languid and unfrequent. No mud is discharged from it.

On the summit of the other knoll is a ridge six or eight feet in height, about thirty paces in length and 3 or 4 feet in breadth at the summit. Along the top of this ridge are distributed numerous small apertures discharging gas and mud; the largest of these apertures is at the western extremity of the ridge, it is about 3 feet in diameter. About 300 paces from this ridge on a level piece of ground at the foot of the knoll, is a circular basin 26 feet in diameter. The edge of this basin is level with the surface of the ground; the basin is filled with ex-

tremely liquid mud, the ebullition is very languid ; about 160 paces to the north-west of this basin, is another aperture. It is only a few inches in diameter but more mud is discharged from it than from any of the other fountains which we visited.

In a hollow near the orifice which I sounded with a stick upwards of three feet of mud had collected.

From the ridge at the top of the knoll at the distance of about 2 miles and bearing N. 50,° E. we observed a steep lofty cone, on the summit of which we were told was a large basin of mud, but as this cone was separated from us by several difficult ridges we did not attempt to visit it.\*

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ART. III.—*Some Account of the Bhatti Kāvya.* By the REV. P. ANDERSON. M. A.

There is a poem which is better known in the Bengal Presidency than in the West of India, but with the name at least of which the Pandits even here are well acquainted. I refer to the Bhatti Kāvya, or poem of Bhatti, which, I believe, has never been translated into English nor in any way been brought to the knowledge of European readers. In the Government College at Calcutta it is read by students who have been engaged three years with Grammar, but does not form a part of the course which is followed in the Sanscrit College of Púna. It claims our attention, not from its poetic merits, but from the peculiarity of its object. It is intended to illustrate the Grammatical rules of Panini and the Kaumudi. At the same time it is a connected history of the well known adventures of Ráma and the groundwork of the story is the same as that of the different Rámáyanas. The poetry of such a work must necessarily be constrained and formal, but it is real-

\* *Note.*—Of two specimens of mud which have been forwarded to me from these Craters, one is marly, the other purely argillaceous ; both are extremely fine, light, powerfully plastic, and of a pale grey color.

Captain Robertson also forwarded a shark's tooth which had been taken from the mud ; it is broken off at the shoulders, but is  $1\frac{1}{4}$  inch wide there now, and  $1\frac{1}{2}$  inch long, with serrated edges.—Ed.

ly surprising that it should possess so many beauties as it does. It would be a severe tax upon European learning to write a poem which should supersede all the examples of the Eton grammar and should in itself illustrate the application of its rules, and we should never expect from it so much poetry as is really to be found in the Bhatti Kāvya.

By way of imparting an idea of it to English readers, I shall take a sketch of the two first books, as they are expounded by the commentators Jayamangala and Bharata. To the uninitiated these commentaries are extremely obscure on account of the technicalities of native grammar. We should be very much mistaken, if we were to suppose that Hindu grammarians condescended to any thing so simple and comprehensive as an ordinary rule of syntax. The plan was this. A teacher stood up and delivered himself thus—I give the first rule in the second section of Panini's first book—

“ Gánkutádibhyonindit.”

The pupil very probably understood as much of this and no more than does the reader. But then the teacher would proceed to expound his text thus, “ Gán”—that means the root “ín” for which “gá” is substituted, and “kutádi” means the class of roots which are conjugated like “*kut*”, and ‘Gánkutádibhyo’ signifies the inflexions of these roots which are ‘*anindit*’, that is, although they have not the affix *nit*, or a silent ‘n’, are inflected as though they had.

The enigmatical words which the teacher thus pronounces are styled a Sūtra, and Panini's grammar is composed of no less than 3996 of them, all made up of the driest technicalities. Now the Bhatti Kāvya is designed to exemplify these, and the writer who could under such circumstances construct any figures of imagination, must, to say the least, have had great ingenuity.

The poem at once opens with the narrative which serves for an illustration of the various uses of the third preterite or indefinite tense, thus:—

Once the Eternal One designing  
Great blessings on our earth to bring,  
To human form himself consigning  
For his own father chose a king ;

That friend of gods was Dasharatha named,  
 For virtues rare, and for his conquests famed,  
 He read the Scriptures, with exactness nice,  
 Brought to the Ever-young his sacrifice, (1)  
 His father's manes with holy rites appeased,  
 His living kinsmen by his kindness pleased, (2)  
 Delighting in all royal virtues knew,  
 How foes to conquer and his passions too; (3)  
 Exalted as the Thunderer of the sky, (4)  
 He scattered wealth like showers from on high,  
 In archery above all men renowned,  
 Save the three-eyed one (5) he no master owned,  
 Like mystic fires which consecrate the hearth, (6)  
 So he brought heavenly blessings on our earth,  
 So he by Brahmans was attended well,  
 So pleased the gods who in Elysium dwell;  
 Equal in wide spread fame to Indra great,  
 He lived in splendour like to Indra's state, (7)  
 There in Ayodhya, city ever bright,  
 With Brahmans learning for unfailing light.  
 That glorious town the world's great sire.

(1) The ever-young—literally, they who exist in the third state or youth, meaning the gods.

(2) This passage contains an allusion to the five great sacrifices which according to Manu are, 1. Sacred study. 2. Libations to the manes. 3. Burnt offerings to the gods. 4. Offerings to all creatures. 5. Hospitality.

(3) Compare Prov : xvi. 32. Literally it is, he had conquered the six vices, which are lust, wrath, covetousness, bewilderment, pride, and envy.

(4) Indra king of the inferior gods in Swerga.

(5) The three-eyed one—Siva as represented in the great triad of Elephanta.

(6) In the Raghuvansa, v. 25. Raghu addresses Kanta thus, " O thou, who like a fourth fire lodgest in my honoured dwelling of fires."

(7) The description of Indra's heaven is enchanting, at least for a Hindu; its pillars are composed of diamonds; its palaces, beds and ottomans of gold, ornamented with jasper, chrysolite, sapphire, emeralds and other precious stones; it surpasses twelve suns in splendour; it is surrounded by gardens in which the tree of paradise flowers, the fragrance of which extends eight hundred miles; bright lakes, refreshing breezes and a temperate climate combine to render it perfect; music and dancing entertain the inhabitants; neither sickness, nor sorrow, nor sudden death are there, neither do they hunger nor thirst any more.—Ward on the Hindus, vol : i. and see the account of Vaikuntha or Vishnu's heaven in the Bhagavat Purana, Book iii. c.16.



Pronounced the limit e'en of his desire ;  
 Beaming with gems aloft it seemed to mock  
 Indra's resplendent city of the rock ; (1)  
 Its towering halls with pearls and diamonds bright  
 As those far mansions on Summeru's height,  
 Where tender nymphs amidst their native skies  
 Smile in their beauty for immortals' eyes.

The poem then gives an account of the triple marriage of the king Dasharatha, of the ceremonies which were performed with a view of procuring from the gods the gift of offspring, of the birth of Rāma and his three brothers, of their education under the superintendence of Vashishtha and of the excellent qualities which they developed.

“ Till known by all for sound and brilliant parts,  
 The rising warriors lived in people's hearts.”

At that time a certain sage whose religious abstraction had been impeded by the jealous interference of demons, applied for assistance to the king Dasharatha, who at first hesitated until reminded that, according to the legal code, the Brahman and military castes are bound to render mutual assistance (2). The struggle in the aged father's breast between duty and affection is depicted with much pathos and truth. At last he consents to send his favourite son Rāma, who with his younger brother Lakshmana, accompanies the sage and commences a series of adventures in knight errantry.

“ See the lion of great Raghu's race,  
 Eager demons to lay low ;  
 Variegated thongs his hands encase,  
 And he grasps the dreaded bow.

(1) On the summit of Meru is the vast city of Brāhmā extending fourteen thousand leagues and renowned in heaven, and around it in the cardinal points and the intermediate quarters are situated the stately cities of Indra. Vishnu Purāna B. ii. c. 2.

Where Himakoot the holy mount on high,  
 From mid earth rising in mid heaven  
 Shines in its glory like the throne of Even.”—Curse of Kehama.

(2) There is probably a reference to Manu, Book ix. c. 322. “ The military class cannot prosper without the sacerdotal, nor can the sacerdotal be raised without the military ; both classes by cordial union, are exalted in this world and the next” ; a highly politic rule which the military and clerical orders of our Christian community would do well to observe.

Weep not Ayodhya's virgins, soothe your pain,  
 Pray that in triumph he may come again.  
 Hear the crowded city's mingled hum ;  
 Brahmans high their voices raise,  
 And blessings pour ; others beat the drum,  
 Others softly flute his praise ;  
 His throbbing arm speaks omens good ; he sees  
 E'en birds good wishes chaunting from the trees."

The second book is entitled " The Marriage with Sita," and thus commences:—

Leaving the city gates behind him far  
 He saw the Autumn <sup>(1)</sup>—season fit for war ; <sup>(2)</sup>  
 O'er all the country wide in soft moon light  
 Trees, lakes, and streams were beautiful and bright.  
 In all their loveliness red lotus beds  
 Shone as the light itself, and o'er their heads  
 The black bees hung in swarms like clouds of smoke  
 O'er places where fierce flames have newly broke ;  
 And as the heaving waters gently laved  
 Their broad leaves, to and fro they slowly waved. <sup>(3)</sup>  
 From river banks the swollen waters tore  
 Their shady groves and all their rustic store ;  
 The mallows from the angry banks seemed sneering,  
 And their sweet rivals the white lilies jeering.  
 O'er the sad willows the first dawn was breaking,  
 A gale the hoar frosts melting drops was shaking  
 From their leaflets points, whilst the wood birds' throats  
 Poured from their graceful boughs complaining notes ;

(1) The commentator explains that here the cause is placed for its effects.

(2) Compare 2 Sam. xi. i. ; i. Chron. xx. i. " The time when kings go out to battle." This passage is added from the commentary.

(3) There is a fine passage in Southey's " Curse of Kehama," which reminds us of this, and shews the versatility of the poet's genius in describing oriental scenery.

" Around the lotus stem,

It rippled and the sacred flowers that crown  
 The lakelet with their roseate beauty, ride,  
 In easy waving rocked from side to side ;  
 And as the wind upheaves  
 Their broad and buoyant weight, the glossy leaves,  
 Flap on the twinkling waters up and down."

'Twas thus those willows wept, and told the flowers  
 Their sorrows for the loss of moonlit hours.  
 The woods and lakes by bright eyed flow'rets graced,  
 The flow'rets by the honey bees embraced,  
 Each for the other filled with mutual love  
 With smiles each other's charms to heighten strove ;  
 Save a white lily which waved to and fro  
 As the first winds of morn began to blow,  
 When a gay bee came tinged from lilies red,  
 Seemed like a jealous spouse who turns her head,  
 And from her truant lord withdraws in shame  
 When he comes perfumed by some rival dame.  
 The chased deer paused to hear beneath the trees,  
 With rapture the low chorus of the bees ;  
 The hunter too regardless of his prey,  
 To hear wild swans absorbed in song must stay.  
 A hill top which a drifted cloud had rest,  
 And robbed of all the moisture which was left,  
 In snowy beauty—like the mountain king—<sup>(1)</sup>  
 And gushing river-springs, was glittering.  
 The lion in his damp and leafy den,  
 Roaring, was wroth when echo roared again ;  
 Thinking he heard another forest king,  
 He gathered up his limbs, prepared to spring.  
 The prince beheld the lily beds with glee,  
 And heard the drowsy murmurs of the bee,  
 Stayed the white lily's fragrance to inhale,  
 Wafted by its lost paramour the gale.  
 Off graceful creepers various buds he stripped,  
 The cooling waters of the river sipped,  
 Then smiling on that beautiful retreat,  
 He sought with eagerness a rustic seat.  
 Not far from him the eastern waters lay,  
 Enamelled by the beams of opening day,  
 The ground by show'rs of golden rays made bright,  
 Was flooded to a sea of liquid light.  
 O'er scattered patches that so trim appeared,  
 When from the wilderness the grass was cleared,  
 There he beheld the ripening grain crops lie

(1) The Himavata or snowy range.

Distilling love and ravishing the eye.  
 He saw the huts where simple shepherds stay,  
 A race adorned with nature's beauty they,  
 Domestic beings who few troubles knew,  
 Who rendered to the king his legal revenue. (1)  
 Erect and graceful milkmaids in his sight,  
 Invited trust and filled him with delight;  
 One ornament—true modesty—was theirs,  
 That brightest jewel which fair woman wears.  
 Maidens, with movements like the graceful turns,  
 Which dancers use, were working at their churns,  
 As up and down they moved he gazed with pleasure,  
 And heard their churning handles beat the measure  
 His admiration rose, as bounding near,  
 Swifter than wind, passed herds of timid deer,  
 Their variegated hides adorned the plains,  
 Decked in all rural beauty by the rains.  
 Where the white lotus's and foam spread o'er  
 The waters sleeping near the sandy shore,  
 There water birds in lines of jasmine white  
 Concealed from view the wanderer's ear delight.  
 No lake was there which charming lilies did not grace,  
 No lilies which the humming bees did not embrace,  
 No bees which were not round and round with murmurs wheeling.  
 No murmurs which were not the mind and senses stealing.

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**ART. IV.—***A Descriptive list of Rock-Specimens from Maskat in Arabia, Persia, and Eabylonia.* Presented to the Society by CAPTAIN T. J. NEWBOLD.

- No. 1.—Serpentine, from Maskat.  
 2. Pitto..... ditto.  
 3. Light green spotted variety of Serpentine, from Guano Rock near Maskat.  
 4. Calc-spar, from veins in Serpentine of Maskat. The spar imbeds fragments of the rock, proving the posterior origin of the veins.

(1) That is, as Manu lays down, a sixth or eighth or twelfth part of the produce which the king could legally claim. Manu. vii. 130.

The spar is often blended with magnesian matter derived from the serpentine ; steatite, nephrite, and sulphate of lime are commonly found associated with it, and sometimes common salt.

These minerals occur frequently in thin lamellæ, filling seams of the rock almost invisible to the naked eye, penetrating it in every direction, and rendering it friable and unfit generally for building purposes.

Whole masses of serpentine are often separated at the planes of the more vertical and highly inclined seams, and slide down in avalanches of crumbly fragments to the base. The smooth crystalline, or steatitic surfaces, thus exposed on the rocks left standing, are often of considerable extent. Their white, grey, and whitish green colours exhibit striking contrasts with the prevailing sombre hues of the Serpentine, viz. black, deep green, rusty, and purplish brown.

5. Conglomerate, overlying the serpentine, interstratified with grit and sandstone, and underlying sandstone and nummulitic limestone, from the range supporting the elevated deserts of Arabia at the back of Maskat ; imbeds no pebbles of serpentine but many rolled fragments of white quartz, quartzite, and some pale green chlorite sandstone.\*

6. Reddish Ferruginous Sandstone, overlying No. 5.

7. Nummulitic Limestone overlying Nos. 5 and 6, all slightly disturbed by the last upward movement of the serpentine.

8. Recent Conglomerate, now in process of formation on the seabeach of S. Arabia, consisting of lime and sand cementing fragments of corals, marine shells and black pebbles. The specimen is from Mattarah near Maskat.

9. Dark brown Ferruginous Rock, from the island of Hormuz, Persian Gulf. This rock passes into a pure hematitic iron ore, and occasionally imbeds specular iron ore and iron pyrites. It is sometimes whitened by an incrustation of common salt.

\* Mr. Carter, to whom I showed a pebble of the chlorite sandstone from this conglomerate, tells me he thinks he has seen the rock itself *in situ*, underlying the limestone at Ras Sajar midway between Ras al Had and Aden. This, as well as those rocks from which the white quartz pebbles and pink quartzite have been derived, are doubtless anterior to the conglomerate, superimposed beds of sandstones, and nummulitic and other limestones about Maskat.

10. White friable Rock, slightly dotted with greyish and reddish spots, exhibiting a few, small, angular bits of quartz and glassy felspar.

These minerals have resisted the process of disintegration more successfully than the substance of the rock, which appears to have been originally a trachytic variety of No. 11.

11. Like Nos. 9 and 10 from Hormuz. It is a pale blueish grey, highly indurated lava imbedding pale decaying crystals of olivine, and a few of glassy felspar.

The crystals in weathering fall out, leaving cavities which impart a variolated aspect to the surface of the rock.

The middle and southern portions of the island are said to abound in deposits of pure, common salt, which forms an article of commerce and is farmed out by the Imám of Maskat. The island, as well as the Persian Coast from Minnow and Bunder Abbas to the sulphur mines of Khamir, nearly opposite the centre of Kishm island, is held by him, on payment of a certain annual sum, to the king of Persia. The salt is, as usual, associated with deposits of crystallized gypsum.

A variety of reddish, brown, and greenish cherts, clays altered apparently by volcanic heat, and earthy and crystallized sulphur are found on the island. Copper pyrites are said to occur.

12. Ferruginous Sandstone of the Persian main, from a sandstone ridge intervening between the city of Bunder Abbas (Gombrún), and the lofty mountains of Gebel Shemil, and the Koh i Ghinnow which constitute part of the great mountain rampart of Southern Persia. The sandstone forming the subordinate ridge, has generally much less iron in its composition than the specimen now sent. It is usually of a loose, friable texture, and imbeds here and there fragments of marine shells of existing species. It is overlaid by a loose, pebble conglomerate, evidently an ancient sea beach; and rests on marls often saliferous, which in their turn often repose on sandstone.

13. Arenaceous Shell-limestone, imbedding existing species of marine shells; from Bassadore.

14. Ditto..... ditto..... from Reshire near Bushire on the Persian main.

15. Indurated Bitumen, from the bitumen springs of Nimrúd near Mosul.

16. Indurated Bitumen from the vicinity of the flaming springs of Abu Goghuid, between Bagdad and Mosul near the city of Kerkuk, —the ancient Corcyræ.

This specimen is more indurated and crystalline, than that from the springs at Nimród. The mineral issues in a liquid state, and is the Naft i Siyah, the black naphta of the Persians. It was used as a cement in the boats and buildings of the ancient Assyrians, Babylonians, and Chaldæans; and by the moderns for much the same purposes. Many of the houses in the towns on the banks of the Tigris and Euphrates still have their foundations protected by bituminous cement from the saline damp, which rise up by capillary attraction from the alluvial soil. It is used in the inside of watercourses, flat terraces of wells &c.; for lining the round basket or Gopher boats still plying on the Tigris and Euphrates as in the time of Herodotus; and for paying the ordinary timber built boats. It is also used to burn in lamps in a few places, as at Kerkuk where my Kúrdish host supplied me every night with a large antique shaped terra cotta lamp fed with bitumen, and supplied a roll of cotton rag for a wick. Medicinally the bitumen is applied as a balsam to sore backs, &c. of camels, mules, &c.

The bitumen, like lignite, often contains fragments of bituminized reeds, grasses, and leaves, indicating an almost similar vegetable origin. Both the specimens of indurated bitumen now sent, sink in water. Their colour is brownish black.

17. Arragonite, from the marine limestone of the bitumen springs near Abu Goghuid.

18. Diluvial Gravel, from the plain of Babylonia. This gravel is composed of small rounded pebbles, few of which exceed an inch and a half in length, much rolled, and of the hardest portions of the rocks from which they have been washed. A few angular fragments of gypsum are occasionally seen among them, but this rock is generally on, or near, the situs of the gravel beds, and distinctly underlying them. A large number of pebbles examined by Mr. Loftus on the Perso Turkish Boundary Commission and myself, consisted of:—

1st. Quartz,—white, reddish, and yellowish.

2nd. Flinty Slate,—gray to black. Some varieties of the black pass into Lydian stone, and have a shining, semiconchoidal fracture.

3rd. Chert,—of many tints from light grey to almost black and green, approaching jade.

4th. Jasper,—chiefly red, impure, also brown and veined.

5th. Agate, (rare)—generally semitransparent.

6th. Flints,—with white and reddish coating.

7th. The most indurated parts of serpentine rocks.

8th. Waxy silicious Limestones,—of various shades, of grey, green, and white; some nearly black. Some varieties approach marble in their semicrystalline structure.

9th. Quartzite Sandstone,—brown and pinkish.

10th. Brown, indurated Clays passing into jasper.

11th. Angular fragments of Gypsum, evidently not transported from a great distance.

12th. Two pebbles of finely grained Granite, greenish gray; composed of quartz, mica, and a little greenish felspar.

We found also among the gravel a few slightly rolled fragments of black indurated bitumen.

The above mentioned specimens we found in the principal gravel bed of the Babylonian plain near Misrākchi Khan, north of the site of ancient Babylon. In another of these gravel beds at Akkar-koof, the supposed site of the Accad of Genesis [one of the cities of Nimrod, and cotemporary with Babel, Erech and Caluch], we found, in addition to pebbles similar to those just enumerated, two small pebbles of a light, yellowish brown nummulitic limestone, and also one of a coralline limestone; also one of a pinkish granite consisting of quartz and felspar with a little iron, and two pebbles of porphyry and hornblende rock.

Per centage of the principal pebbles in the gravel bed of Akkar-koof, taken by Mr. Loftus and myself:—

Quartz,—white, milky, reddish and yellowish . . . . .	30
Chert, flint, jasper, flinty slate, indurated clays. . . . .	40
Limestone, quartzite standstone, and indurated varieties of serpentine . . . . .	27
Nummulitic and coralline limestone . . . . .	1
Granite, porphyry, and hornblende rock. . . . .	2
	<hr/>
Total. . . . .	100
	<hr/>



I have been thus particular in the examination of these gravel beds of Babylonia, inasmuch as I consider them as intimately connected with the most interesting geological phenomena on historic record,—namely the Deluge of Scripture.

The circumstance of some of the oldest cities in the world being partly built either on these gravel beds, and the pebbles themselves in having been employed in their construction, as at Babylon, Nineveh, Accad, &c. proves their antiquity.

2nd. The position of the beds and their extent prove that they are no fluvial deposits.

3rd. Their nearly N. and S. longitudinal axis, and the nature of the pebbles, show that the course of the flood which deposited them rolled from the northward, from the direction of Mount Ararat, towards the present head of the Persian Gulf, washing fragments from the rocks of the Taurus and Kúrdistán, and grinding their softer materials into the vast, flat, mud deposits which now cover the sea-like plains of Assyria, Babylonia and Chaldæa. In this light brown and grayish mud are blended the component parts of all these rocks, whether calcareous, argillaceous, siliceous, or ferruginous, with a small portion of vegetable and saline matter, into one undistinguishable mass; but we can easily learn, from the fossil and mineral character of the pebbles, the sources from which they were originally transported; and, from their being exclusively of the hardest portions of the parent rocks, we are enabled from their small size and roundness of contour, to estimate with some approach to truth, the distance they have travelled, and the amount of friction they have undergone. In the nummulitic and other limestone, granite, and serpentine pebbles, I distinctly recognize the rocks of the Taurus and Kúrdistán. The absence of pebbles of lava or basalt is remarkable; but previous to any speculations being hazarded on this head, further search for them is necessary.

With regard to any theory touching the date of the Deluge deducible from an examination of these deposits, I have only to observe that this must be reserved for a future and better opportunity than is afforded by this “*List of Rocks*,” already too long and tedious.

19th. Nummulitic Limestone, from the vicinity of Shiraz (Persia). It resembles exactly the nummulitic limestone of Arabia, near Maskat. Mr. Carter, the learned, and indefatigable Secretary of the Society.

has found nummulitic limestone on the island of Maseera, and *Orbitolites* in the cliffs fringing the shore of Southern Arabia between Aden and Maskat. I have traced it from the Lybian desert over Egypt to the opposite or Arabian shore of the Red Sea, and by Maskat and the mountains of Shiraz in Persia, to the banks of the Indus. It has been traced still further to the Eastward by Capt. Vicary and into Cutch by Capt. Grant. It occurs also *in situ* near Mardin in Upper Mesopotamia and some of the Sculptures at Nimrúd I observed were chiselled in it. It is there of a light yellowish, brown colour, and compact in texture. I am decidedly of opinion that these nummulitic formations must be referred to the *supracretaceous* group, and not to the *cretaceous* series as has been done by some geologists. It is often capped in the deserts of Egypt, Arabia, Persia, and Scinde by loose sandstone and gritty conglomerates imbedding fragments of indurated clays, jaspers and silicified wood. In the lofty ridge of the Bakhtiari mountains between the Persian Gulf and Shiraz, it often contains marine shells of the eocene period.

T. J. N.

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ART. V.—*On the Red coloring Matter in the Salt and Salt-pans of Bombay.* By H. J. CARTER, Esq. Assistant Surgeon, Bombay.

I have much pleasure in bringing to the notice of the Society a red substance which is found in some of the Salt-pans of Bombay, and which is sometimes so plentiful in them as to impart a blood red color to the whole of their contents. It is found at the bottom and mixed with the salt which floats on the surface of the lixivium contained in them.

When this substance is examined under a microscope, it is observed to be composed of minute spherical globules of a light ruby red color, and averaging the 1500th part of an inch in diameter.

These globules, which are found in a state of aggregation, probably adhere for the most part to the crystals of salt, but as that cannot be seen when the latter is in solution, they are then observed adhering to crystals of carbonate of lime, which were previously mixed with the

salt, and in this state may be separated from the salt, and washed and dried.

They consist of a transparent tunic or cell-wall, in which is contained a great number of granules.

The tunic of the globule is colorless and so tenacious as to hold together after having been ruptured and its contents eliminated.

The granules, which vary in diameter from the 19,000 th part of an inch to a mere point, are round or ovoid, and of a pink color *en masse*, but colorless when isolated. They are imbedded within the globule, in a transparent mucilage, and occasionally evince a vibratory or monadine motion, both within and without the globule. This motion is most perceptible in the smallest and least in the largest granules.

From this description, I think, there can be no doubt that this globule is the *Hæmatococcus* of Agardh,—the *Protococcus nivalis* of Greville;—and if so, its habitat which has hitherto been considered to be chiefly confined to *eternal snow*,\* either in the Arctic Regions or on the tops of mountains, may now be extended to the Torrid Zone.

In addition to Bombay I saw it frequently in the salt-pans on the south eastern coast of Arabia, but neglected to bring away a portion of the salt with me for examination. It is curious that it should be found in profusion both in the coldest and hottest parts of the globe. If we were to judge from analogy in this instance, we might be inclined to say that its predilection is the smooth surfaces of crystals, rather than any thing else,—whether of water, of salt, or indeed, of carbonate of lime. Baron Wrangel obtained it from the surface of limestone rocks; and Captain Carmichael, in greater perfection from the calcareous rocks (than from other parts) on the borders of the lake of Lismore, which were within reach of the occasional inundations.† It is also not a little remarkable that, it should be found living in a cold, which on the one hand almost bids defiance to all organic life, and on the other hand, in a briny fluid which is almost equally destructive to it. Such apparently discordant facts, however, are no doubt in perfect unison with the laws of creation, if we could but understand them.

\* Endlicher "*in nive æterna, polari et alpina.*" p. 3, Gen. Plantarum.

† P. C. Vol. xxii. p. 107.

All are aware of the circumstances which have rendered this little organism so notorious, and I need hardly add the general opinion of its being considered one of the lowest forms of vegetable life ; that is, —a simple cell—“ which lives *for* itself and *by* itself ; and is dependent upon nothing but a due supply of nutriment, and the appropriate stimuli, for the continuance of its growth and for the due performance of all its functions until its term of life is expired.”\*

There are some remarks however, connected with *Hamatococcus* which I should not omit to mention here, for they tend to cast a doubt over the position this little organism holds in the organic world. They are by Agassiz and Vogt,† and by Meyen.‡

Agassiz and Vogt, most carefully examined the red snow in the glacier of the Aar, and stated that the globules of the *Protococcus* were the ova of a rotiferous animalcule called by Ehrenberg, *Philodina roseola*. Dr. Vogt has added that the *Philodina* is found abundantly with the globules of *Protococcus* in several places, and that the latter are observed with the *Philodina*, and to be deposited by it ; that they are outside the digestive cavities, because they are not colored by indigo when the *Philodina* is fed with that vegetable matter, and, therefore, that they are connected with the reproductive organs and are the *Philodina's* eggs. That, moreover, as there is a difference in the size of the globules of *Protococcus*, so they accord with the eggs of the *Philodina roseola* which are deposited at different stages of their development.

Meyen, again, has stated that the *Protococcus nivalis* is the *Euglena sanguinea et viridis* of Ehrenberg, and that the reason of its being so often taken for a plant, is, that it naturally passes the greater part of its existence in a passive state, only occasionally under favorable circumstances starting into activity.

Thus it would seem to be still an unsettled question, whether the *Hamatococcus* has reached its last phase of development in its spheroidal form, or whether it passes into another shape and becomes locomotive.

Now, so far as my own observations extend, neither the remarks of

\* Carpenter, Man. of Physiology p. 123. ‡ P. C. vol. xxii. p. 168.

† New Edin. Phil. Jl. vol. xxxi. for 1841 p. 239.

Agassiz and Vogt, nor those of Meyen, apply to the *Hæmatococcus* of the salt-pans in Bombay. In the first place, I have never, with the exception of a minute animalcule traversing the field of the microscope now and then, seen any organism in the lixivium of the salt-pans of Bombay which contained the *Hæmatococcus*,—but the *Hæmatococcus* itself. In this case then, at least, these globules cannot be considered the eggs of the *Philodina roseola*, more particularly as Ehrenberg states\* that, this rotiferous animalcule, which is 30 times as big as the *Hæmatococcus*, deposits its eggs in heaps and remains a long time with the young ones produced from them. Neither have I seen Meyen's remarks verified here ; for although I have frequently, for six months together, examined the same globules of our *Hæmatococcus*, kept in its natural lixivium, and others kept in a dried state, I have never seen them move in either instance, nor have I ever recognized any appreciable difference in their shape.

As to the resemblance in color of the salt of Bombay containing the *Hæmatococcus*, and the pink rock-salt of the mountains, all that can be stated is that, in the former there can be no doubt of the coloring material, while in the latter it has been said by some to be due to the presence of the pink remains of animalcules,† and by others to the presence only of the red silicate of iron.‡ After what has been stated respecting the source from which the red color of the salt in Bombay and that on the Coast of Arabia is derived, it would not be surprising to find that the “ blood red ” color of the earth about Kalabagh,§ which is in the midst of salt rocks, was also owing to the presence of the *Hæmatococcus*.

\* Pritchard, Infusoria, liv. et fos. 8 vo. p. 407 para. 705. † Silliman's Jl.

‡ Dr. Giraud, this Jl. No. vi. § Introduction to Elphinstone's Cabool.

ART. VI.—*Memoir on the Cave-Temples and Monasteries, and other Ancient Buddhist, Bráhmanical, and Jaina Remains of Western India.* By JOHN WILSON, D. D., F. R. S., Honorary President of the Bombay Branch of the Royal Asiatic Society.

The Royal Asiatic Society of Great Britain and Ireland having, on the suggestion of James Fergusson, Esq. to whom we are so much indebted for the artistic and critical illustration of the architectural antiquities of India, represented to the Court of Directors of the East India Company, the propriety of taking steps for the preservation, as far as possible, of the cave-temples and other ancient religious memorials of this country, and for their full delineation and description, before the work of their decay and destruction has made further progress, that Honorable body has promptly responded to the call which has been addressed to it, and already taken certain steps for the accomplishment of the objects which are so much to be desired. With reference to the latter of these objects, it has determined to appoint a general Commission of Orientalists to direct its accomplishment in the way which may best tend to the illustration of the history, literature, religion, and art of ancient India. Preparatory to the commencement of the labours of that commission, and the issuing of instruction for its researches, another of a local character, has, with the approbation of the Government of India, been formed by the Bombay Branch of the Royal Asiatic Society, to make such preliminary inquiries about the situation and extent and general character of the antiquities which are to be the subject of investigation as may facilitate its judicious commencement and prosecution. By this Bombay Commission, the following notes, prepared by Dr. Wilson, are issued, in order briefly to indicate what has already been done in the North-West of India in the departments of research referred to, and to call forth information, where it is wanted, from parties who have access to the remains mentioned and to others of a similar character, or who already may have made themselves familiar with their general features.

## EXCAVATIONS.

The ancient religious excavations of India, forming its most interesting remains, it has been found, belong severally to the Buddhist, Bráhmancial, and Jaina religions.

The BUDDHIST excavations are the most numerous, ancient, and diversified. They consist of oblong *Chaityas*, or temples,—generally, though not always, with lofty roofs excavated in the shape of a horse-shoe,—enshrining what have been called *Dahgobs*\*—masses of rock or erections in the form of a bell or beehive enclosing some supposed relic or emblem of a Buddha ; *Viháras* or *Mathas*—monasteries containing the cells of Buddhist devotees associated as cœnobists, frequently with a principal figure of some Buddha as an object of devotion, and various other sculptured figures for worship and ornament ; *Shálás*—square or oblong halls for public instruction and consultation ; detached *Grihas*—cells, intended for solitary hermits, or the accommodation of their stores ; and *Vinhást*†—reservoirs for collecting water for the personal consumption of the monks and their disciples, and use in their religious rites. Exterior to the excavations now referred to, and particularly the temples, are frequently to be found, ornamental or commemorative *Stambhas*—pillars, generally monoliths hewn like the temples out of the living rock ; small *Dahgobs*—either monoliths consecrated to the Buddhas or their worshippers, or built like the preceding, in the ordinary manner ; and *Stúpas* or “Tops” resembling these Dahgobs—mounds covering the ashes of distinguished Buddhist worshippers.

The figures of Buddha connected with the excavations now referred to, are almost uniformly destitute of such monstrosities as a plurality of heads, legs, arms, etc. as are to be observed in Bráhmancial images. They are represented as receiving worship and enthronization, as dispensing blessings, or as engaged in contemplation ; and as

\* The word Dahgob is supposed by some to come from *Dhátugarbha* the receptacle of elements ; and by others from *Dehagupta*, the holder or concealer of a body.

† This name is taken from an inscription above one of them at the Bhájá caves, copied and translated by Dr. Wilson.

having a variety of postures, standing, sitting, or squatted—sometimes with the feet drawn up and the knees protruded, sometimes with one foot up and another down, and sometimes with both feet on the ground. They are all of one type, as far as the expression of intellect is concerned; and they indicate little life, genius, or reflection. Abstraction seems their general characteristic; various figures representing their attendants, or introduced for purposes of ornament, are sculptured near them in different forms and attitudes, often of a grotesque character. On the ceilings and walls of some excavations, are remarkable paintings, forming groups of men, and certain of the lower animals, with various utensils and instruments, illustrative of the occupations and manners and customs of the former inhabitants of this country, and even of the foreign people with whom they may have held intercourse.

The BRAHMANICAL excavations are principally *temples*,—either representing the interior of such places of Hindu worship, or their complete structure, and generally with numerous pillars supporting a low roof, with rafters above their capitals. They are dedicated to Shiva, and distinguished by the different figures of that deity, such as the *Trimúrti*, or Triad of the deity, representing the functions of expansion, continuance, and reduction; the god in his proper character, attended by his wife Párvatí, and surrounded by the other principal gods of the Hindu pantheon assembled to enhance his greatness, and attended by *munis*, *rishis*, and other devotees and hermits; the god united with Párvatí, as *Ardhanúrish*, half male half female; the god in his more terrific and monstrous forms, as *Bheirava*, the dreadful, *Asht-Bhujákár*, the eight-armed etc.; and the god as the generative principle, in the form of the *Linga*. In these temples, too, *Ganesh*, the son of Shiva occupies an important place. *Brahmá*, and *Vishnu* with most of his *Avatáras*, are also found in some of them, though in a subordinate position.

The *Jaina* excavations are also principally temples. They are not numerous in the West of India; and it is rather difficult to distinguish them from those of the Buddhists, with whom the Jainas are intimately allied. Some one of the twenty-four *Tirthankárs*, or emancipated Jínas,—particularly *Neminátha* or *Párasnátha*,—occupies the chief



places in them ; while the other *Tirthakárs\** occupy the verandahs or secondary positions.

The principal groups of excavations in the West of India which have been brought to notice, are the following :—

#### I. THE CAVES OF SALSETTE.

In the island of S<sub>h</sub>ashtī† or Salsette, contiguous to Bombay, are no fewer than five groups of religious caves, at considerable distances from one another.

I. Of these, the KA'NHERI' CAVES‡ are by far the most important. They decidedly belong to the Buddhists, of the form of all whose excavations, they present examples. They have been described by Mr. Salt in the first volume of the Transactions of our Society under its original designation ; and Mr. Fergusson's notes upon them, in the eighth volume of the Journal of the Royal Asiatic Society, are very interesting, in both an antiquarian and architectural point of view. Dr. Bird opened one of their exterior *Stúpas* in 1639, and found near it some valuable relics, one of which has a Páli inscription. The inscriptions on their verandahs and pillars, he has given<sup>o</sup> in his late work,§ but without a translation ; but his transcript, owing to some mishap or other, has been found to be not sufficiently correct, and the originals will require to be again carefully copied or taken in fac-simile. The form of their letter is that of the more modern type, a fact which well agrees with Mr. Fergusson's opinion respecting their age, founded on the style of their architecture. There are two gigantic figures of Buddha, about twenty feet in height, which front one another in the northern and southern corners of the porch of the *Chaitya*. They represent him as dispensing his blessing with his right hand, and as elegantly raising the slender *Shála* or shawl, with his left. The groups

\* Sometimes written *Tirthakárs*.

† So called from its anciently having "shashti," or sixty, villages. That now nearest the caves on the old Thána road, is called Vihargáum, vulgo Vehadgáum, or the village of the "monastery," evidently having reference to the Buddhist establishment of *Kámhevi*.

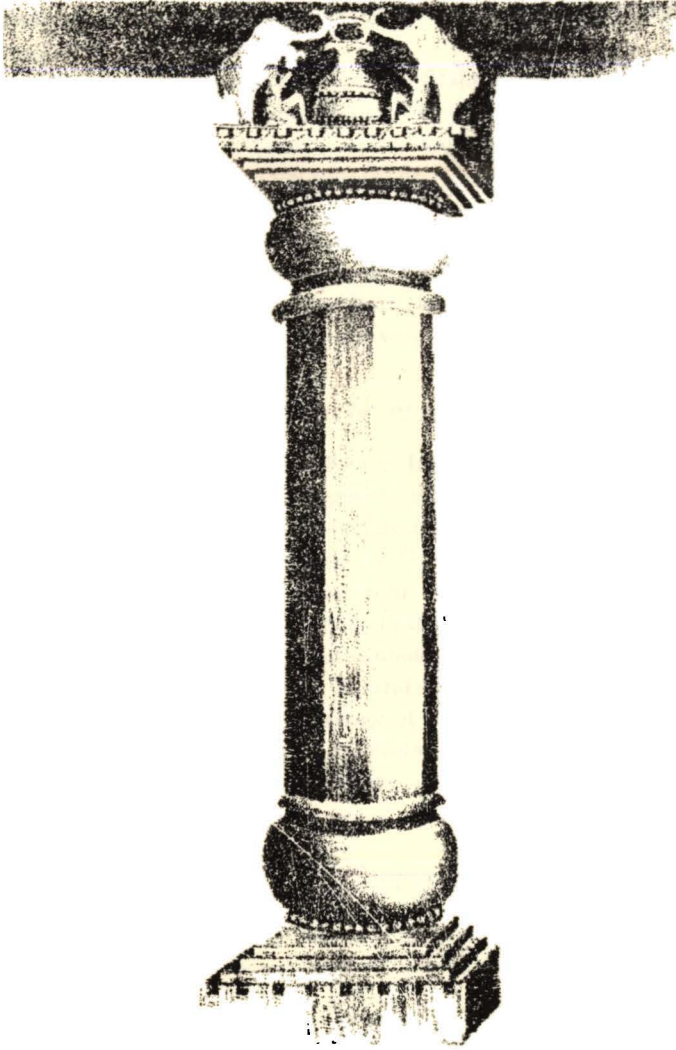
‡ Or, the Caves of the Confused Noise.

§ Historical Researches on the Origin and Principles of the Buddha and Jaina Religions, etc, Bombay, 1847.

of men and women in the front of the music gallery below, are well conceived, though of a grotesque character; and their ornaments, as those in some other Buddhist temples, have been noticed as similar to those now worn by the *Bhils* and *Banjáris*, and other aboriginal tribes. The *Dahgob* within the chaitya is large, but without ornament or neatness. The umbrella with which it must have been originally surmounted, no more exists. The pillars are worthy of notice in an architectural point of view; and a lithograph of one of them is subjoined to this article, as a specimen. The *Shálas*, or halls of instruction, and the cells for the accommodation of the monks, situated on both sides of the ravine descending from the hill, are very numerous; and one of the former, of large dimensions, has many neatly sculptured figures on its walls, well worthy of being portrayed. In two of the smaller caves are remains of some painted figures, of which specimens were lately taken by Mr. A. West. The hill in which the caves are executed, requires perhaps a more careful inspection than it has yet received. When it was lately visited by the writer of these notes, and some of his friends, they found, on the north side of it, what appeared to them the site of a *structural temple*, with a large flight of steps leading to it, and, on the opposite side, a meridional line cut in the rock, with a fragment of a circular stone lying in its neighbourhood.

2. Near the village of *KONDATI'* there a few Buddhist excavations, which are evidently an offset from those of *Kánherí*. They contain a few figures and a *Dahgob*, and have one or two inscriptions. They have escaped the attention of Mr. Salt and Dr. Bird; but their existence has been well known to Europeans for a considerable number of years. Their inscriptions and figures have been lately copied by Mr. A. West.

3. The caves at *JOGESHWAR*, near *Ambolí*, form an extensive *Bráhma*nical *Shaiva* temple, in some respects resembling that of *Elephanta*, but probably posterior to it in point of workmanship. They have not yet been either minutely described or delineated, though they are noticed by Mr. Salt; and a particular account of them will be acceptable. Owing to their subterraneous position and extreme dampness, and the soft nature of the rock of which they are composed, they are fast going to decay. Their name is noticed in a subsequent part of this paper, as forming, with other circumstances, a note of time giving



COLUMN IN BUDDHIST CAVE, KANHERI  
*mastered*

some indication of the date of their excavation. An idol of *Devî* which they contain, is noticed under the name of *Yogeshwari Mahá-Lakshmi* in the twenty-ninth chapter of the first section of the *Sahyádrî Khand* of the *Skanda Purána*.

4. The caves at MONT-PEZIR are also Bráhmancial, and dedicated to Shiva. They have been appropriated by the Roman Catholic inhabitants of Salsette as a church, in lieu of their own structural fabric, which they have allowed to fall into decay.

5. The caves at ΜΑΓΑΘΗΝΑ, near Poinser, are of no great extent. They are also dedicated to the god Shiva. The number of Shaiva caves in Salsette seems to indicate that the Bráhmans, after the overthrow of Buddhism in the West of India, had a pride in attempting to rival the works of their predecessors, and that in the vicinity of these works.

## II. THE CAVES OF ELEPHANTA.

Of all the excavations in the West of India, those of GHARA'PURI,\* or the "Elephanta" of the Portuguese,† are the best known; and little can be added to the accounts of them and the representations of their figures which have been published by Niebuhr in his *Travels*, and especially by Mr. William Erskine in his admirable paper in our own *Transactions*. They are decidedly Bráhmancial, and devoted to the god Shiva, who occupies the most prominent place in them in the form of the *Trimúrti*, the *Linga*, etc. Several of the compartments of their figures—as that in which the marriage of Shiva to Párvatí is represented,—resemble those of Kailás at Elora,—to which it is probable they are of later construction.‡ Diogo de Couto, the Portuguese an-

\* Hill of Purification.

† From the figure of an elephant near one of the landing places.

‡ Of the compartment (No. 7, of Niebuhr) to which reference is here made, and which Pyke and Moor consider as representing a marriage, Mr. Erskine says, "From the most careful inspection of the sculpture, I can perceive nothing to favour the supposition." It must be noticed, however, that Párvatí stands on Shiva's right hand, which among the Hindus is the position of a female only on the occasion of her marriage; and that a priest, or Daksha, seems pushing her forward, to overcome her bashfulness. The group corresponds with another at Elorá, which the Bráhmans interpret as a representation of Shiva's marriage, and adjoining to which there

nalist, mentions that a slab, containing an inscription, was removed from them and sent to Europe by the Portuguese.\* Traces of letters, at one or two places, are distinguishable on the roof. It is worthy of notice that they are in what has been called the Buddhist cave character, which, from this and other facts, appears to have been well known to the Bráhmans. Connected with the caves of Elephanta, which have been so long celebrated, and which are all designed for purposes of worship, there were discovered by Mr. Trotter, a few years ago, upon an adjoining hill, two neatly excavated apartments, most probably intended for the residence of priests or devotees. Doors and locks have lately been put upon them, excluding the public from their inspection ; and it may be well that free access to them should be secured by the authorities of the island or by government. The work of destruction and decay is proceeding rapidly in the great excavations, notwithstanding the fact that they are committed to the care of a pensioned soldier. A barbarous restoration in clay of some of the broken limbs of the figures was recently attempted. It is well that the delineations given by Mr. Erskine are so complete and perfect.

An image of Deví, in the form of a tiger and named *Umá-Wágesh-warí*, which is placed on the hill above the caves, is mentioned in the twenty-ninth chapter of the first section of the Sahyádrí Khand of the Skandá Purána.

is another group of figures illustrative of proceedings on the day subsequent to the marriage.

\* Couto's account of the inscription is the following :—" Quando logo os Portuguezes tomáram estas terras de Bagaim, e de sua juridicção, que foram ver este Pagode, lhe tiráram huma formosa pedra, que estava sobre a porta, que tinha hum letreiro de letras mui bem abertas, e talhadas, e foi mandada a el Rey, depois do Governador da India, que então era, e mandar ver por todos os Gentios et Mouros deste Oriente, que já não conheceram aquelles caracteres ; e el Rey D. João o III. trabalhou muito por saber o que estas letras dixiam, mas não se achou quem as lesse, e assim ficou a pedra por ahi, e hoje não ha já memoria della."—Da Asia de Diogo Couto, Dec. Set. Cap. xi. What a valuable acquisition would this inscription be, now that the cave character is so well known. Perhaps, it may be found in some obscure corner of the Royal Museum at Lisbon, or of some of the colleges at Coimbra.

## III. THE CAVES OF KARANJA'.

These are cells of a very insignificant character, and are now mostly filled with water. They are here noticed only as vestiges of the oriental ascetism in another of our Bombay islands, in all of which, capable of supporting a small population, there appear to have been hermitages, either Buddhist or Bráhmancial.

## IV. THE CAVES OF MAHAD IN THE KONKAN.

Near the town of Mahád, at the head of the Bankot river, some Buddhist excavations were discovered many years ago. Of these Dr. Bird says, "The two caves of Mahar in the Konkan, are situated about a mile from the town, on the right hand of the road leading, by Indapur, to Nagotáná and Bombay. They are very small and rudely executed, but are distinguished by the two lithographed inscriptions of Plate xxxix" [of Dr. B.'s work]. Of the inscriptions now mentioned, the first only is to be found at the place now indicated. The other is at another series of caves, consisting of a pretty considerable monastery with its concomitants, near the village of PA'LA' contiguous to Mahád, visited in the end of December 1848 by Mr. J. S. Law, the Collector of Tháná, and the writer of these notes. Some minor inscriptions exist at the same place. When it was lately visited by the parties now mentioned, other cave temples in the vicinity were brought to notice by natives of whom inquiries were made. Referring to some of these, Mr. Law, in a note to Dr. Wilson, says, "There is nothing but a simple cell with a veranda, and two or three unfinished ones, on the hill near the ferry at Mahád. At KULGA'UM on the other side of the river, there are several cells and one larger cave, which might be called a Vihár, but nearly filled up with earth. Here I found some short inscriptions, of which I enclose a copy." Of the inscriptions now referred to, it may be well to procure a fac-simile.\*

\* It is probably of the caves near *Mahád* or *Pála*, that Niebuhr says, "Pas loin du fort victoire [*Bankot*], il y a (dit on) aussi une grande Pagode, taillée dans un rocher, ou comme un autre s'exprime, 25 maisons avec des chambres, taillées dans le Rocher.—Niebuhr, voyage, tom. ii. p. 32.

## V. THE CAVES OF KUDA'.

These caves were lately brought to notice in the circumstances mentioned in the following extract from the proceedings of the Bombay Branch of the Royal Asiatic Society :—Dr. Wilson directed the attention of the meeting to the interesting fact that several series of CAVE-TEMPLES, hitherto wholly unknown to Europeans, had just been brought to notice in various parts of the Maráthá country. Among these, the most remarkable are those near the village of Kudá, situated on the Rájपुरi creek in the Konkan, between three and four miles west from the town of Thal, and about forty-two miles in the strait line from Bombay. The discovery of these caves occurred in the following circumstances. About the commencement of the rains of 1848, Vishnu Shástri, the Brahman who had assisted Mr. Wathen, Dr. Wilson, and others, so much in the decipherment of inscriptions in the cave character, was appointed Mahákarí of a district in the Konkan. When about to commence his duties, he called upon Dr W. who asked him to make every inquiry in his power about the existence, or otherwise, of a series of caves with a *chaitya*, as the centre from which the caves at Mahad, which are only monkish cells, would probably be found to be only an offset. In a short time, he reported both to Mr. Law the Collector of Tháná and to Dr. W. as the result of his research, the information which he had obtained of the existence of a magnificent series near the village of Thal. Mr. Law at the opening of the season, sent the Bráhman personally to inspect the caves ; and he found them to correspond with the descriptions which he had received of them. He also brought with him a fac-simile of some of the inscriptions, which Dr. Wilson exhibited to the meeting, Mr. Law has been the first, or among the first, of Europeans to inspect these works. In a letter dated the 15th January, addressed to Dr. Wilson he says, “ I visited the caves of Kudá a few days ago, and I may safely say, that they far exceeded my expectations. There are twenty-two caves altogether, great and small, and no less than four of them have *Chaityas*. The principal one is 60 feet in length, with several bas-reliefs of Buddhas sitting cross-legged on lotuses and others on *Sinhásanas* with the usual attendants, dolphins, etc. The most inter-

esting and best executed, however, are of male and female figures, perhaps representing Buddha and his Shakti, the former with a kind of *turban* for his head-dress. This, as well as the other caves containing chaityas, is on the plan of a Vihár, not of a regular temple, as at Kárlá. I found eighteen inscriptions, and have got good fac-similes on cloth of the longer ones and copies of the rest. The larger ones probably excel any that have been found, in the perfect formation of the letters, and are as plain as if they had just been cut. Some of them contain such complicated compound letters, that, I think they must be in Sanskrit. I propose to send a short account of these caves with drawings, shortly to the Bombay Asiatic Society, but in the mean time you are at liberty to mention the purport of what I have stated at the next meeting you may attend, should you wish." This information must be peculiarly interesting to the students of Indian antiquities. Mr. Law has got at these caves upwards of a score of inscriptions neatly copied and taken in fac-simile; and there does not appear to be any great difficulty in executing their translation.

It would appear from an old map lately brought to notice, that the existence of these caves was known to some of the natives engaged in one of the Konkan surveys.

#### VI. THE CAVES OF JA'MBRU'G.

These Caves were first heard of by Mr. Law, who has partially looked at them, without, however, discovering in them any figures or inscriptions. They will soon, it is believed, be carefully examined by himself or some other European. They are situated near the village of *Jámbrúg*, at the foot of the Gháts lying nearly East of Tháná. Dr. Wilson, when on his way to Puná in May 1849, met, at Khálápur, Vishṇu Shástri who was in charge of that district, and asked him to send a trustworthy person to *Jámbrúg* to examine the excavations there. The report received on this occasion simply was, that, "There is a *Lenè* at *Jámbrúg*. The Cave is near a tank, and has only a small door. It is dark within; and in late times an image of *Bahirawanátha* has been established within it, on account of which the ignorant people of the place give it the denomination of the *Nátháchè Lenè*."



## VII. THE CAVES OF KONDA'NA'.

These interesting caves, situated near the base of the *Rájmáchi* hill, were discovered by the messenger sent to *Jámbrúg* in the circumstances mentioned in the preceding paragraph. The following is the notice given of them at the time by *Vishnu Shástri* to *Dr. Wilson* :—

कोंडाणें गावाजवळ लेणें फार चांगलें आहे. तेथील मुख्य ठिकाणीं भात जाण्याचा मोठा दरवाजा आहे, आणि त्याला लांकडांची कमान आहे. भात बुद्धांचे देवस्थानाचा वाटोळ्या घुमट आहे, आणि तो मुख्य सभामंडप वेहेरचे सभामंडपासारखा उंच आहे; व दरवाजाचे बाजूस बुद्धांच्या मूर्ती आहेत, आणि त्या मूर्तींचे वरचे बाजूस एक थोळ अक्षरांची कोरलेली आहे, तिला अकरा किंवा बारा अक्षरें फार चांगलीं आहेत, याखेरीज अधोक्त अक्षरें लिहिलेली नाहींत. मुख्य सभामंडपाचे शेजारी दुसरा सभामंडप लाहान आहे. मिळोन दोन ठिकाणें फार चांगलीं आहेत. मुख्य सभामंडपाचे खोर्ब मुसलमान लोकांचा कल्याणांस अमल होता तेव्हां त्याणी खालून तोंडिले आहेत असें तक्राने दिसतें. हें ठिकाण खालपुरापासून पांच कोश लांब आहे. उोंगरास चडाव बराच आहे. खोपवलीपासून जवळ आहे, परंतु रस्ता फार अवघड आहे. यास्तव जाणें झाल्यास चांगल्या रस्त्यानें जावें झणजे पालखींत वसून जाता येईल. पुढें ज्या ठिकाणीं फार चढाव आहे तेथें घोड्यावर वसून गेले पाहिजे. याप्रमाणें कोंडाण्यांचे लेण्यांचा मजकूर आहे.

—“There is a very excellent excavation near the village of *Kondáná\**. There is a large gateway forming the entrance to the principal apartment ; and it has a wooden arch. Within, there is a circular dome of a Buddhist temple ; and this, the chief assembly hall, is lofty like that at *Veher* [near *Kárjál*]. There are images of *Buddh* at the side of the gateway ; and above these images there is an inscription of eleven or twelve letters well formed, but there is no other inscription. There is a second small assembly hall near the chief one. Both the places are important. There are grounds for supposing that the injury which has been sustained by the pillars of the principal assembly hall, was caused by the *Musalmán*s when they were in authority at *Kalyán*. The place [of the caves] is five *kos* distant from *Khálápur*. There is a considerable ascent. It is near *Khopawalí* [at the foot of the *Bhor*

\* In the *Maráthí* this is *Kondáné* ; but to prevent perplexity and to secure uniformity, it is desirable to give the names of places in their *Ííndí* form.

Ghát] ; but the road is very difficult. If you wish to go to it, the good road must be taken. You will nearly reach it in a palkhí. Where the ascent is great, you must have a horse. So much for the excavation at Kondáná."

Mr. Law has lately been able to visit these excavations, and to procure illustrative drawings of their front and principal figures. They appear to be more modern than those of Salsette. The account above given of them by Vishnu Shástri has been found to be correct.

#### VIII. CAVES OF THE KONKAN UNVISITED BY EUROPEANS.

Vishnu Shástri now alluded to has mentioned to Dr. Wilson, that he has heard of the existence of several excavations in the Konkan, of which nothing is yet known by Europeans. These are said to be respectively in the neighbourhood of *Chipalún*, *Dábhul*, *Sangameshwar*, *Gávhani-Velgaum*, *Wadé-Padel*, *Cheul-Astagar*, and *Chandansar*, near *Agáshí*. It is to be hoped that they will not be permitted to remain long without examination.

Chipalun, one of the places now referred to, is mentioned in the first chapter of the second section of the *Sahyátri Khand* of the *Skanda Purána*, as *Chittapolun*,\* the village at which, according to that curious document, the creation of the *Chittapáwan* Bráhmans was effected by Parashuráma from some ashes or corpses found at the *Chitta*, or place for burning the dead, when the established priests or *Vipras* refused to assist him in the performance of a *Shráddha*. The legend may have originated at the overthrow and conversion of the contemplative Buddhist monks of the locality. Of the forcible conversion of the Buddhist monks in the Konkan some memorials still exist. The writer a short time ago found at a village near Indápur, a pillar, in fragments, representing, in the lower parts, a bloody battle, conducted against the Buddhist priests by men mounted on horseback and with spears and shields, and in the upper, the bull of Shiva, the emblem of Bráhmanism, trampling and triumphing over them when discomfited. The Bráhmans sometimes say that the original name of

\* सद्यस्त्रि च तले ग्राम चित्तपोलन नामतः The village named *Chittapolun* at the base of the *Sahyátri*.

*Chittapola* was *Chittapūrṇa*, or the fulfilment of desires, which has the appearance of a Buddhist name.

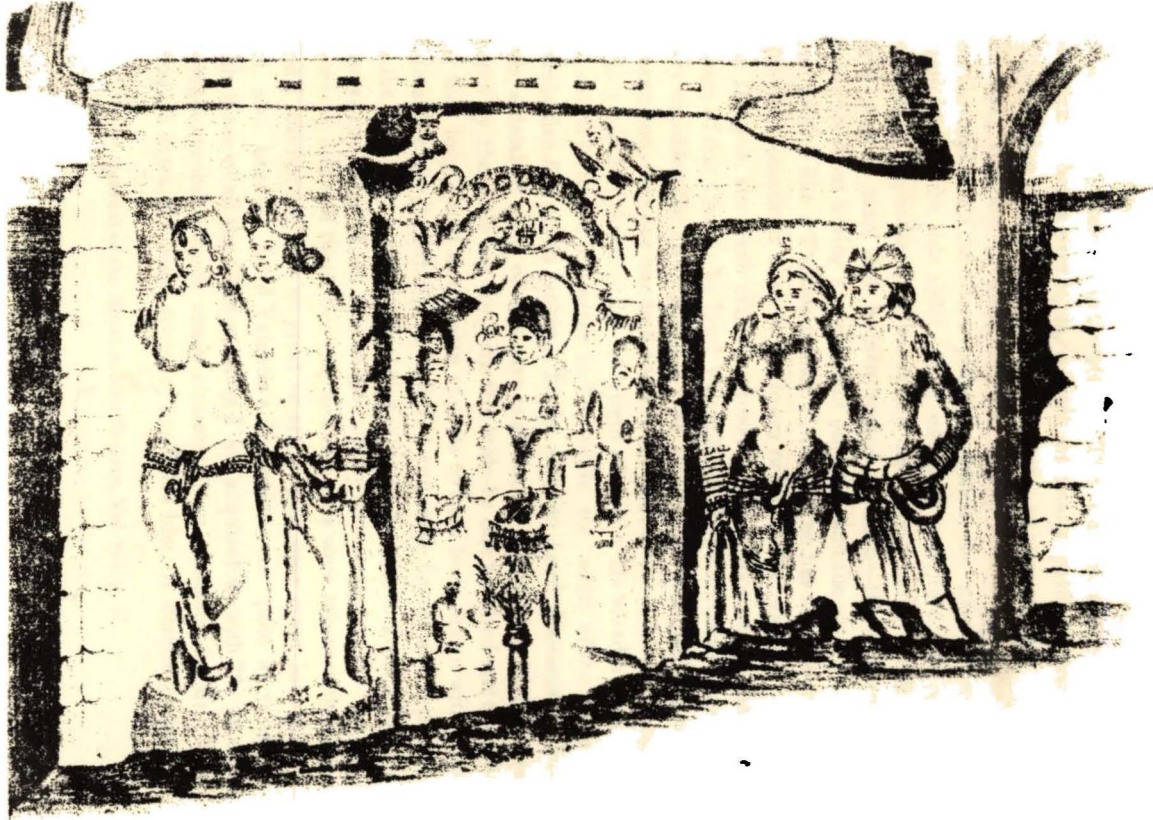
Ascending the mountains by the Bhor Ghát, contiguous to which are the caves of *Konḍāṇá* last described, we come to a very remarkable and famous series, situated in the *Sahyádrí* range itself.

#### IX. THE CAVES OF KA'RLA'\*

1. The peculiarly interesting Caves near the village of *Vehergáum* or *VIHA'RGÁ'UM*, to north of *Kárlá*, on the *Puná* road are those which are commonly known by the name of the *KA'RLA' CAVES*. They are all of the *Buddhistical* character. They have been described by *Lord Valentia* in the second volume of his *Travels*, and ably commented upon by *Mr. James Fergusson*, in his valuable paper already referred to. Fac-similes of their inscriptions were taken on cloth a few years ago by *Dr. Smyttan*, the *Rev. James Mitchell* of *Puná*, and the writer of these notes, who presented them to the *Bombay Branch* of the *Royal Asiatic Society*, along with a transcript and approximative translation of one the most important and legible of them,† Copies of these fac-similes

\* Sometimes but incorrectly written *Kárlí*. The *Marathí* name is कर्ले Karle, which in its *Hindí* form, the best to adopt in the representation of places, becomes *Kárlá*.

† Assuming the word *Vijaya* with which this inscription (above the elephants on the northern side of the porch of the *Chaitya*) commences, to be a proper name, and that of the *Jabudip Maharajotam (Jambudwipa Mahárajottama)*, or emperor of *Jambudwíp*, mentioned at its close to be that of *Vijaya* given by *Mr. Turnour* in the *Maharanso* under the year 543, B. C., and supposing no perversion to exist in the case, this would naturally be the date of the execution of the excavation. *Dr. Bird* has very properly observed on this opinion, which from the first was propounded by *Dr. Wilson* merely as hypothetical, that "since there are undeniable and intentional perversions of historical data, in the first centuries of the *Buddhistical* era, by which *Vijaya's* landing in *Ceylon* is made to agree with the day on which *Sakya* expired, it may be well doubted, whether this cave can be so ancient as the inscription would make it." *Dr. Bird* thinks that he observes on another of the *Kárlá* inscriptions the date of the twentieth year of *Duthama Hara*, which would give about 163 B. C. for the excavation, and thus allow sufficient time for the propagation of *Buddhism*, in the *Maráthá* country by *Asoka's* missionaries mentioned in the *Mahavanso*. The reading is not altogether satisfactory; but a suitable review of the *Kárlá* inscriptions would require a separate paper.



BUDDHA WITH ATTENDANTS (KÁRLĀ).

are given in the late work of Dr. Bird, who has also given his interpretation of some of them. The principal excavation is a *Chaitya*, the largest, best preserved, and most interesting in point of art in India. Its pillars, figures, and other objects of curiosity, are well worthy of the attention of the artist. The Dahgob within has a large wooden umbrella over it, in a state of nearly perfect preservation. The wooden ribs of the roof also remain nearly entire. They are of teak, and are probably as old as the cave itself. The abacus on the capitals of the fifteen pillars by which the nave is separated from each of the side aisles, is of excellent sculpture. It is of two crouching elephants, their heads and necks only being visible, generally with a man and woman seated on each—the woman's hair being shed but having an ornament on front, and the man's collected and twisted like a Turkish turban, if, indeed, he has not a rope-turban like that sometimes worn by the lower orders of the natives. Behind the Dahgob, are seven plain octagonal pillars. Between the measurements of this Chaitya by Lord Valentia and Mr. Fergusson, there is a very considerable discrepancy. "Its interior dimensions," says Mr. Fergusson, "are one hundred and two feet three inches for total length, eighty-one feet three inches for length of nave. Its breadth from wall to wall is forty-five feet seven inches, while the width of the nave is twenty-five feet seven inches. . . In the Atlas to Lord Valentia's Travels, a detailed plan of this cave is given, on which the dimensions taken by the scale are forty-six feet wide by one hundred and twenty-six feet long; and as the plan appears to have been drawn with considerable care, (by Mr. Salt, I believe,) and these figures are repeated in the text, I was a good deal staggered by finding so great a discrepancy, and inclined at first to give up my own as incorrect. I have, however, retained them, not only because they were taken with care, and I cannot see how so great an error could have crept into them; but also because Lord Valentia's dimensions are quite at variance with those of all the Chaitya caves I am acquainted with."\* In this instance, probably from some obliteration or confusion in Mr. Fergusson's notes, his usual accuracy has failed him. A careful measure-

\* Journal of the Royal Asiatic Society, Vol. viii. p. 57.

ment, which we lately made, agrees with that of Lord Valentia within a few inches. The "lion-pillar" (as it is denominated in its inscription) exterior to the Chaitya, is a remarkable object, and is of sixteen sides. Mr. James Prinsep attempted, and partly with success, to translate an inscription upon it, from a transcript of Colonel Sykes.\* Adjoining the Chaitya are some *Viháras* and detached cells; but offering no great extent of accommodation for the monks, though the larger Vihár has three tiers.†

\* Journal of the Royal Asiatic Society, February, 1838.

† The following remarks of Mr. Fergusson, which are of a general character, may be here advantageously introduced.

"As this is decidedly the finest Chaitya cave in India, a few remarks on the architectural ordinance of these caves may not be misplaced.

"However much they vary in size or in detail, their general arrangements, as I mentioned before, are the same in every part of India, and the mode of admitting light, which is always so important a piece of architectural effect, is in all precisely identical.

"Bearing in mind that the disposition of parts is exactly the same as those of the choir of a Gothic round or polygonal apse cathedral, the following description will be easily understood. Across the front there is always a screen with a gallery over it, occupying the place of the rood-loft, on which we now place our organs: in these there are three doors; one, the largest, opening to the nave, and one to each of the side aisles; over this screen the whole front of the cave is open to the air, one vast window the whole breadth of the same section, stilted so as to be more than a semi-circle in height, or generally of horse-shoe form.

"The whole light, therefore, fell on the Daghopa, which is placed exactly opposite in the place of the altar, while the colonnade around and behind, is thus less perfectly lit. The pillars there being always placed very closely together, the light was never admitted in sufficient quantities to illuminate the wall behind, so that to a person standing near the door in this direction, there appeared nothing, but illimitable gloom.

"I do not conceive that a votary was ever admitted beyond the colonnade under the front, the rest being devoted to the priests and the ceremonies, as is now the case in China, and in Catholic churches, and he therefore never could see whence the light came, and stood in comparative shade himself, so as to heighten its effect considerably. Still further to increase this scenic effect, the architects of these temples have placed the screens and music galleries in front, in such a manner, as to hide the great window from any person approaching the temple; though these appear to have been omitted in later examples, as in the Viswakarma of Ellora, and the two later Chaitya caves at Ajunta, and only a porch added to the inner screen the top of which served as the music gallery, but the great window is then exposed to view, which I

2. The CAVES OF BHÁ'JA' lie nearly as far to the south of the village of Kárlá, as those now mentioned do to the north; and both series, it may be inferred from their contiguity, belonged to the same or an allied fraternity of Buddhist monks. Their existence was spoken of by natives to Europeans for a considerable time before they were visited by any of our countrymen.\* Sir John Awdry was among the first particularly to examine them. They were afterwards viewed by Dr. Wilson, Mr. Mánakji Kharshedji, and Mr. Westergaard of Copen-

cannot help thinking is a great defect. To a votary once having entered the porch, the effect is the same, and if the space between the inner and outer screen was roofed, which I suppose it to have been, no one not previously acquainted with the design could perceive how the light was admitted; supposing a votary to have been admitted by the centre door, and to have passed under the screen to the right or left, the whole arrangements were such, that an architectural effect was produced certainly superior to any thing I am acquainted with in ancient or modern temples.

"Something of the same sort is attempted in the classic and modern Hindu temples where the only light is admitted by the door directly facing the image, which is thus lit up with considerable splendour, and the rest of the temple is left in a rather subdued light, so as to give it considerable relief. The door, however, makes but a clumsy window compared with that of the Buddhist cave, for the light is too low, the spectator himself impedes a portion of it, and standing in the glare of day, unless he uses his hands to shade his eyes, he can scarcely see what is within. In the Hypæthral temples, this was probably better managed, and the light introduced more in the Buddhist manner; but we know so little of their arrangements, that it is difficult to give an opinion on a subject so little understood.

"Almost all writers agree, that the Pantheon at Rome is the best lit temple that antiquity has left us; in one respect it equals our caves, that it has but one window, and that placed high up; but it is inferior, inasmuch as it is seen by every one in the temple, and that the light is not concentrated on any one object, but wanders with the sun all round the building."—*Journal of the Royal Asiatic Society*, Vol. viii. pp. 61 62.

\* The earliest allusion to these caves which we can find, is the following. Oct. 27. [1804]. "Very early all the party, except Messrs. Salt and Smith, set off for Low Ghur. The road across the valley was good, but when we began to ascend, the palanquins were of little use. We saw a line of caves facing due west on our left under the hill, on the summit of which is the fort of Esapoor. My servant visited them by my orders, to examine if there were anything worthy of inspection. He reported that there was a small arched temple, similar in plan to that of Carli, but that there was not any inscription or figure of Buddh, and that smaller flat caves were on each side, but uninteresting; we did not therefore take the trouble of climbing to them." *Lord Valentia's Travels*, Vol. ii. pp. 165-6.

hagen, and others. They are inferior in point of dimensions and execution to those at Vehergáum. Approaching them from the north, we find first some wells ; secondly, a small *Vihár* ; thirdly, a *Chaitya* without a music gallery in front ; fourthly, a two storied *Vihár* ; fifthly, a well ; and sixthly, fourteen *Dahgobs*, partly within and partly exterior to some ornamented rooms still unfurnished. The *Chaitya* is about sixty-one feet in length and twenty-six in breadth. It has twenty-seven octagonal pillars, about eight feet seven inches in height ; and a double number of wooden ribs in the arch rising about the same height above them. Its *Dahgob*, which is of the same height as the pillar, is about thirty-four feet in circumference at the base. These caves afford only three small inscriptions, which Dr Bird has given, in the seventh number of our Journal, \* from the transcripts of Mr. Westergaard and Mr. D'Ochoa. That over the well or tank to the south of the *Chaitya* is by far the most distinct. In the lithograph accompanying this paper, we give it as copied in the beginning of 1842 by ourselves, and as lately carefully compared with the original. Our decipherment in the *Nágarí* letters is the following,

महारथीस कुसीक पुतस

बोन्हा दतस दयषमहटी ;

which we translate, " A well gifted by Maháratthi the son of Kusaka, for the sake of the religion of mercy," (a common designation of Buddhism on the cave inscriptions). Dr. Bird makes it

महारथशाक शाकपुतसातानंदातसादय्यादमापादः

" *The righteous gift of a symbol and vehicle of the purified Saka Saka, (Shakra or Indra) the resting place of the giver.*" Here, it must be admitted, " the doctors differ." Without asking a decision in our favour, we may fairly say, that the inscriptions, in the grouping of the words particularly, require greater patience than has yet been brought to bear upon them, even though only a few of the letters can now be doubtful.

#### X. THE CAVES OF BEDSA.†

A short account of these Caves was communicated by Mr. Wester-

\* Journal of the Bombay Branch of the Royal Asiatic Society.

† In *Maráthí*, बेडसे.



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 १३ १४ १५ १६ १७ १८ १९ २०

AT THE CAVES OF BHÁJÁ.

gaard to Dr. Bird. "The caves at BIRSA, (or as it is called, in the map of the Puna Collectorate, Beira) are situated about six miles S. W. from Wargaum. The plan of the temple resembles Karli, but is neither of so great extent nor so well executed, and appears more modern. It contains a *Dahgop*; and its roof, which is ribbed, and supported by twenty-six octagonal pillars, about ten feet high, seems to have been covered with paintings, which are now, however, so indistinct, that nothing can be made out of them. There are four pillars, about twenty-five feet high in front, surmounted by a group of horses, bulls, and elephants. The first pillar supports a horse and a bull, with a male and female rider; the next three elephants and one horse, two of the elephants having a male and female rider; the third three horses and one elephant, a male and female rider being placed on two of the horses; and the fourth pillar is surmounted by two horses bearing a male and female rider. The hall of instruction which is of an oval shape, has a vaulted roof and is situated close to the temple. It contains eleven small cells; and over the door of one of them there is an indistinct and partly defaced inscription,"\* A personal visitation of these caves enables us to add but little to this accurate notice. The length of the *Chaitya* is about forty-six feet; and its breadth at the door is about twenty-five feet and a half, while before the *Dahgob* it is nearly twenty-one. The pillars within the *Chaitya* are twenty-seven, agreeing in number with those at *Bhájá*. The *Dahgob* below is thirty-three feet four inches in circumference and ten feet three in height. It is surmounted by a sort of shaft on a scaffolding, which improves its form. On the sides of the *Chaitya* are one or two symbolic figures. The hall of instruction, or rather *Vihár*, which is semi-oval in form, has seven cells in its sides. Besides the inscription mentioned by Mr. Westergaard, there is another over a well to the south of the *Chaitya*, also given by him in a form which as closely agrees with our own transcript as could be expected.

The coupling of the Caves now mentioned with the village of WADGA'UM, has rendered it a matter of difficulty for some persons to find them. In visiting them we went from *Kárlá* along the *Puná* road to

\* Journal of the Bombay Branch of Royal Asiatic Society, May 1844.

the bridge of the Indrayení (with seventeen arches). We then struck over the hill of Kuṇḍawá to the right, above a tank, at a village of that name; and after passing along some table-land to the southwest, we descended in the same direction to the caves which are about 900 feet above the village of Bṛṇṣá'. They are not very easily accessible, and are not visible at any considerable distance, a mass of rock in front of the vestibule having never been hewn away. We took three hours to reach them from Kárlá; but we got back in about a couple of hours.

#### XI. THE CAVES OF SHAILARWÁDI.

The native guide by whom we were conducted to the caves last mentioned, in reply to inquiries which were addressed to him, informed us that there was a *Lená* near the posting-station called *Shailarwádi* about six miles beyond Waḍgáum on the road from Bombay to Puná. On arriving near the place to which he directed us, we left the road to the right, and ascended a hill called the *Gurodí*. A little below the summit of that hill fronting the southwest, we found an excavation with four small cells, containing a *Yoní*, and at present sacred to Shiva, which appeared to us, from a bench going round the excavation in front of them, to have been originally Buddhistical. On examining the hill more particularly, we came upon a considerable *Vihár* below them, running E. N. E. and containing about a dozen of cells. Here we found a Buddhist inscription of five lines, which we copied, and which we still preserve. It is very possible that some *Chaitya* may be in the neighbourhood.

#### XII. CAVES SITUATED TO THE NORTH OF THE INDRA'YENI'.

The guide to whom we have now referred, and some other natives whom we met on the Puná road, brought to our notice other caves near the Indráyení, which had not been formerly heard of by Europeans. They are so numerous, they said, when pressed for information respecting their localities, that they are to be found nearly in every hill and mountain. Making due allowances for exaggeration, there can be little reason to doubt that many cave-temples and monasteries remain yet to be discovered in the Sahyádrí range of mountains, in the roman-

tic valleys and recesses of which the Buddhists, in particular, seem to have strongly entrenched themselves. Of three series, we got pretty definite intelligence. They are at or near *Buddhwádi*, *Bámachandra*, and the northern *Vehergám*. There can be little doubt, that in the direction now indicated, a large field of discovery exists.

#### XIII. THE CAVES OF PUNÁ.

These caves are situated near the village of BHÁMBURDÁ, not far from the *Sangam* or junction of the Mulá and Muthá. Their principal interest consists in the fact, that they are Bráhmancial, and at a great distance from any others of a similar character. They are cut out of a rocky hillock forming a gentle swell of the ground, and not conspicuous at any great distance. They consist of an open square area, to which there is a descent, with a series of plain and unornamented rooms, now empty,—except in one instance in which there is a *Linga* and *Yoní*—and a *Ghumatí* or shrine for *Nandí*, the bull of Shiva, formed out of the living rock in front. They appear to be posterior in point of age to the Shaiva temples in Salsette. Puná is but a modern city; but it is probable that there may have been some ancient religious establishments connected with the *Sangam*, and the hill of Parvatí lying to the east of the caves.

From Puná, we return to the Sahyádrí range by some others of its recesses, running up in the direction of Mahabaleshwar from the East.

#### XIV. THE CAVES OF WAT.

For the first description of these caves, we are indebted to H. B. E. Frere, Esq., the Commissioner of Sátará, who has furnished to the Bombay Branch of the Royal Asiatic Society all the particulars of them which it seems desirable to know.

1. "The caves," Mr. Frere writes, "are cut in the soft trap rock in the southern face of a hill bearing nearly N. from Wái, and distant about four miles from the town. The hill is within the boundaries of the village of Lohárf; and the best landmark for reaching the caves is a small isolated hill, with a conspicuous Muhammadan tomb on the top, close to Sultánpur, and near the end of a spur, which runs out S.

E. from the hill in front of Pandu-Gaḍ. The ascent to the caves is very easy. The principal cave has been long used as a temple of Mahádeva, who is worshipped here under the name of 'Palkeshwar,' or as the Kunbis call him, 'Palkobá.' The village Guru acts as Pujári, and there is a jatrá on the fourth of Bhádrapad shudh. None of the villagers could give any account of the origin of the name.

"The principal cave consists of one large room, about 28 feet square and 8½ high; open to the S. W. by an aperture which is about 19 feet wide. A low partition, with a bench in front, runs across the entrance of the cave, with a doorway near the left hand corner. At the back of this cave, in the middle of the N. E. side of the room, and raised one step above it, is a smaller room or recess about 15 feet square, in the middle of which is a Dahgob 6 feet 4 inches high, and 26 feet in circumference. It is formed of a portion of the natural rock, which has been left standing when the room was excavated.

"A rude detached stone pillar for a lamp stands beside and a Nandi (also on a detached block) somewhat the worse for wear, in front of the Dahgob, which is now regarded as a gigantic "linga," and worshipped accordingly, as an emblem of Shiva. On either side of the entrance to this Dahgob recess, up a couple of steps, are the entrances to two cells about 7 feet by 9. Each has a small window looking into the large room and opposite the door a small recessed niche or rather shelf [query a bed-place?] about 5 feet 9 inches long, by about 4 feet high, and about 2 feet deep.\*

"To the right as you face the Dahgob, the S. E. side of the cave is pierced into four cells—one up a couple of steps, the others level with the floor of the large cave. Each has its little window beside the door. The two cells in the middle have each a stone bench, on the left as you enter them; while the two corner cells have recessed shelves opposite the doors, like those in the cells before described.

"A bench runs along part of the S. W. or outer side of the large cave, opposite the Dahgob, and along the whole of the N. W. side, or that which is on your left as you enter. On this bench are deposited a headless "Nandi," several fragments of small figures on detached

\* Mr. Frere subjoins an illustrative sketch, which, with others furnished by him, is kept *in retentis* by the Society.

blocks, much decayed. Two of them are apparently the common figure of the seated contemplative Buddha.

“ Separated from this large cave, by a partition about three feet thick, is a smaller and more irregular excavation, about 27 feet deep from the entrance, and about the same in its greatest breadth. It appears never to have been finished, and the sides which have been excavated are much decayed. To the left of the entrance is a small spring, and in front a small tank of tolerable water.

“ A few paces from it, to the S. E., is another cave, much decayed and filled up with rubbish. It is about 27 feet long by 21 feet in depth, with 3 small cells, opening off from it.

“ There is a tank, now nearly filled up, a few paces beyond this last mentioned cave, to the S. E.

“ Retracing your steps, passing the large cave, and proceeding N. W. about 200 paces along the face of the hill, you come to the entrance of another cave which has been very lately cleared of rubbish at the expense of a Bráhmán widow lady. It is about 28 or 29 feet square. The roof has been formerly supported by six pillars, of which only fragments hanging from the roof, and corresponding portions of the bases on the floor, now remain. At the back of this cave have been originally four cells, of the same kind as those in the cave first described, but the partitions separating them are much broken. In the further corner on the left hand side, as you stand in the entrance looking inwards, is one such cell; and a bench runs between the cell, and entrance of the cave. Opposite to this cell are the remains of four human figures, and near them a hole of some size running up to what may have been the commencement of a cell over the roof of the cave; but it is now very much injured by time and does not appear to have been ever finished.

“ The figures appear to have consisted of two males seated and two female standing figures. The tallest fragment is about four feet high. All are now headless, and in the trunk of each is a hole, such as may have served for the socket of a moveable head. As far as can be judged from what little remains uninjured by time or violence, the proportions of the figures and their execution have been good.\*

\* Mr. Frere's sketch of these mutilated figures assures us that these caves are Buddhistical.

“A few feet to the west of this cave is another about 22 feet by 15, divided into two large cells, from which open five smaller ones of the kind above described in the large caves. A few paces further in the same direction is the entrance of another cave. It is at present so filled with rubbish that it is almost impossible to creep in, but it appears to be about the same size as that just described, with but one cell opening off from it, and is supported in front by two pillars. Still further west are the remains of two small cells.

“I could discover no remains of inscriptions, nor of stuccoes or painting, nor learn that the people in the neighbourhood had any traditions regarding the place, further than that, like all excavations of the kind, ‘it was the work of Pandu,’ of much of whose history the scene is laid in the Wái valley.

2. “On the other side of the valley, at the extremity of the spur which branches off from the Mahábaleshwar Hills near Panchganí and terminates near Bádhan, are two or three other excavations. They are difficult of access; but they appear from below to be small cells of the kind usually found near Buddhist temples. I had not time to examine them, nor to visit what was described to me as a larger excavation near Rájpurí on the other side of the village of Bádhan and about eight miles from Wái.

3. “I may here mention that about twenty-five miles lower down the valley are some excavations in the Hill of ‘Pateshwar,’ which rises from the south bank of the Krishna, about six miles west of Sátará. They are of no great extent but evidently Buddhist. Unfortunately, however, for the antiquarian, a rich Bráhmaṇ Saukár, a generation or two back, undertook to renovate what he considered as a shrine of Mahádeva, and executed his purpose with such liberality in buildings and additions of various kinds as to leave little more than just sufficient to show its real character and origin.

4. “There are said to be excavations of the same kind near Phaitan in the valley of the Koiná in the N. of Chipalún; but I have found no educated native who has ever visited them.”

#### XV. THE CAVES OF KARÁD.

These excavations were first brought to our notice by Vishnu Shás-

tri. Mr. H. B. E. Frere, to whom we are indebted for the description now given of those near Wái, seems to have headed the first European party by whom they have been visited. He has furnished our Society with a remarkably clear and distinct topographical account of them, which, with its accompanying illustrations, will be given in full in our Journal. A general reference to them, is all that at present we are required to make.

The town of KARA'D lies about thirty miles to the S. S. E. of Sátará, close on the junction of the Koiná and the Krishna. The caves are found on a terminal spur running off from the Sahyádrí range, and bounded on the north by the former of these rivers and on the east by the latter, after the two streams have been united. They lie along three spiral turnings of a small ridge, at no great height generally from the corresponding valleys, and are divided by Mr. Frere into three series corresponding with these turnings. They seem to be from about two to four miles distant from the town. They form an extensive Buddhist establishment, with at least about fifty distinct excavations, among which are four Chaityas, several Shálas, and a considerable number of Maṭhas and Grihas. The rock out of which they have been hewn, owing to its softness, is not favourable to ornamental sculpture. Only one fragment of an inscription has been found at them ; and it is very indistinct. We are disposed to come to the conclusion, from Mr. Frere's drawings, that they are among the latest works of the Buddhists of the same kind in the West of India. One conjecture we are inclined to hazard connected with them. The Bráhmans of the district to which they belong—the Karádí Bráhmans—are a sect *sui generis*, who seem never to have had the confidence of their co-religionists, by whom they are accused of having long maintained the custom of annually offering up the sacrifice of a Bráhman to *Deví*. In the second chapter of the second section of the Sahyádrí Khandá, they are said to have been formed originally from the bones of some camels.\* The legend, we conceive, is to be interpreted on the same principle as that which we have applied to the origin of the Chittapáwan Bráhmans connected with Chipalán. They


\* According to some of the native *Koshas*, कर्दाज, *Kardáj*, means a camel's bone.



are probably an accession to the Bráhmanhood by conversion, and have merely such local rank as would in all likelihood be assigned to a fraternity of Buddhist priests coming over to Bráhmanism in a body.

#### XVI. THE CAVES OF PANHA'LA'\*

In the front of PANHA'LA' about four leagues to the north-west of *Kolhápur*, there is an excavation which has been known both to natives and Europeans for a considerable time. The following account of it was given to Dr. Murray of Satará by Mr. Broughton, the Civil Surgeon at Kolhápur, on the 9th May, 1849.

“ It is situated in the fort of Panhálá in the face of a large step of amygdaloid, and faces due west. It consists of five chambers opening into one another by narrow doorways; and, each descending about a foot, occasioning the top of the entrance into the fourth chamber to be on a level with the floor of the first. The first is rudely arched and about three yards wide by four long, and not more than two and three quarters high. It contains a raised seat on the right side; that is to say, sufficient of the rock to form a sort of divan is left uncut. The second is a trifle smaller than the first, and has likewise a divan on the right. It opens into the third by a doorway two feet wide by four in height, formed thus ; <sup>b</sup> (a) is the doorway, and (b) the only bit of carving in the cave. The third chamber contains a similar seat on the left side, and is much smaller than the second, and opens into a fourth still smaller. No seat is to be found here; but on each side the rock is hollowed out into recesses, about two feet long; this chamber is only one yard long and one yard wide, and apparently terminates the series, but another doorway again descends into a fifth and much larger chamber, two yards long by three wide; and in the centre is a recess, in the situation occupied by the doors in the other chambers, and behind is a pit four feet deep, cut square into the rock. No figure or carving is anywhere discernible. The whole extent is fifteen yards. The people do not know any thing of the purpose for which the excavations were made.”

\* पन्हाळा in Maráthí. The ancient name appears to have been the Sanskrit पञ्जागाल्य *Pannigālaya*, the Abode of the Serpent.

It is by no means certain that this cave at Panhálá has anything to do with either the Bráhmancial or Buddhist religions. The Bráhmans of Kolhápúr and the neighbourhood give it the name of the Cavern of *Muchukunda*, the sleepy prince mentioned in the tenth Skanda of the Bhágavata and other Puránas, through the touch of whose robes Káliyavana,—some Bactrian or foreign opponent of Krishna,—was reduced to ashes. But, how this cavern should be in the neighbourhood of Kolhápúr and not in that of Mathurá, they do not inform their credulous votaries. Muchukunda's cavern, like that of the seven sleepers, it would appear, has some ubiquitous pretensions. At Panhálá, it is said to be so sacred, that the lizards near it never cheep, and the scorpions never sting.

#### XVII. THE CAVES OF B'ADAMÍ.

The caves are situated below the hill-fort of B'ADAMÍ in the Southern Maráthá Country, taken by Sir Thomas Munro in 1818. They are only three in number and are Bráhmancial in character; but whether they belong to the Shaiva or Vaishnava form of that religion, we cannot precisely make out from any accounts which we have received of them. They most probably belong to the former. They have been often incidentally noticed; and they are pretty fully described by Dr. Bird, who makes an observation about their similarity of form to some of those at Elorá.\* Drawings of their figures are much to be desired, as when compared with others, they may throw light on the origin of that form of Hinduism of which they are the memorials.

#### XVIII. CAVES IN THE SOUTHERN MARATHA' COUNTRY UNVISITED BY EUROPEANS.

Vishnu Shástrí says that there are other caves in the Southern Maráthá Country, as for example near the *Falls of Gokák*, at *Kolá-Narsinghpur*, near the village of *Vedepur*, and in the hill called the *Kamal Bheiri* between *Karád* and *Kolhápúr*. If the information which has reached him be correct, we shall have additional evidence of the wide extension and firm establishment of Buddhism in the west of India.

We now return in our general survey of the caves to the part of

\* Historical Researches on the Buddha and Jaina Religions, pp. 30—31.

the Sahyádrí range lying north of those series which we have already noticed as contiguous to the road leading between Khandálá and Puná. Only a small portion, we are convinced, of those which exist in this quarter have yet been discovered.

#### XIX. THE CAVES OF JUNER.\*

This is a very extensive series of caves, much more so indeed, than any accounts which have yet been published of them would lead us to suppose. We ourselves have been able to make only a very general inspection of them. The following notes of them are principally taken from a communication by Dr. Gibson.

1. In a hill to the northward of the town of JUNER is the most complete series of Buddhist caves. We find first one large plain room at the eastern end, which has had a pillared verandah, now destroyed ; and then a series of smaller caves or hermitages. The Chaitya is like that at Kárlá, but much smaller, and has the usual arched roof ribbed with stone, and a Dahgob surmounted by an umbrella, at the inner end. The capitals of the pillars are formed by grouped figures of the lion, the elephant, and the rhinoceros ; and the workmanship is rather elegant. Over the entrance is an inscription.

Beyond this is a large apartment about sixty feet square, having cells on three of its sides. It appears to have had a Dahgob like the caves now mentioned ; but it has been destroyed, and converted by the accommodating Bráhmans into a figure of *Ganapati*, in honour of whom an annual *Jatrá*, or fair, is held at the spot. Further in advance, is a series of plain rooms with separate doors, and good tanks here and there. These rooms seem to have been intended for dwellings ; while the arched cave (of which there is one in almost every set of caves we meet with) seems to have been intended for a place of assembly for worship. There is an inscription on the front of one of these smaller hermitages.

2. Beyond this hill to the eastward, is another hill which contains a series of hermitages, and one arched Chaitya containing the usual emblem ; but, as is seldom the case, it contains no pillars. The

\* *Junar* in Maráthí.

front of the arch above the door is rather richly carved, and contains many figures of the Dahgob, and also of a wheel with foliage. Several of the apartments are inaccessible.

3. The third set of the Junfr caves is situated in a hill to the westward of the hill fort. They have been much dilapidated by the fall of water from above ; and the fronts of most of them have been destroyed. At each end of the series, is a large square apartment having a range of stone-benches round it and small cells off from it. The temple in this series has a dome supported by plain octagonal pillars, surrounding the Dahgob, which is here quite plain, and not surmounted by an umbrella.

4. On the fort hill, there are many apartments and caves in the scarp of the rock ; but many of them are difficult of access. They seem to be mostly small hermitages. Dr. Gibson examined one series, and found in it a large square apartment, probably of fifty feet, with a lofty roof painted in squares, chiefly of flowers or foliage, the colours of which are still brilliant. This room contains a Dahgob. The other caves in this series are small ; and one of them, at the side of its door, has a figure of a Dahgob in relief, and an inscription.

5. The fifth set of caves is in the hill to the southward of the town. It consists chiefly of detached cells, but has one temple cave, with lofty pillars in front, and arched within, and with the Dahgob of a square form. It may have been left unfinished, on account of the occurrence of a perpendicular vein of lateritious clay. Another chamber, with pillars in front, is filled with mud deposited by the rush of water from above. A gallery to which there is an ascent by steps, contains a range of cells, in several of which are figures of Buddha in a sitting posture. These are a good deal defaced and have been covered over by the Hindus with yellow paint, and are now called by the Bráhmans figures of Bhawáni! The arches of the recesses in which are these figures, are crowned by the bee-hive emblem. Below is seen the figure of the *Hans* (goose), common in Buddhist paintings and carvings, and especially at the present day. In the front of the temple caves, many letters are carved ; but they seem to have been done originally in a very careless and hurried manner, and are now nearly defaced. There is an inscription on the pillars in front of the

temple ; and there is another on the door of a cell, which seems to have been carved with great care, and a third in the pillared apartment now nearly filled with mud.

6. There is another series of caves at some distance in the same hill, having the usual hermitages and temple cave. In the latter the work is rude and apparently unfinished. On the fort hill of Shivanír, are many extensive tanks of fine water carried under ground and pillared. Dr. Gibson considers them co-eval with the temples below.

Some of the inscriptions of the Junír temples, apparently very carefully copied, have been given in the Journal of the Royal Asiatic Society by Colonel Sykes, who also in that work furnishes some valuable notes on the caves to which they belong. \* Some of them also, transcribed by Professor Orlebar, are lithographed in Dr. Bird's Researches, in which of one or two of them there is a tentative translation. A transcript of many of the inscriptions by Dr. Gibson is in the hands of the writer of these notes ; but on collating it with the others published, various discrepancies appear, which suggest the propriety of a revision of the whole, or rather of their being taken in fac-simile.

7. In the NA'NA' GHAT, by which there is an ascent from the Konkan to Junír, a large square excavation is found. It is believed, that it was first brought to notice by Colonel Sykes, who has published its inscriptions. Colonel Sykes, there can be little doubt, has correctly indicated the use of this chamber. "It was probably intended as a resting place for persons passing the Ghát, as there is a stone seat all round the bottom of the walls, and some reservoirs of water, and one or two other unfinished chambers are excavated close by. This Ghát, or pass down the mountains, is on the direct line of communication from the ancient Deoghur near Dowlatabad, passing through Joonar with its city of Boodh caves to Callian, known as the Kalliara of the Periplus, and thence probably the road contained to that other city of Boodh caves on Salsette."† There is a similar chamber, with an image of Ganesha and Hanumán, in the neighbouring Malsej Ghát.

8. Probably connected with the Junír caves, may be a "*monolithic temple*," said to be covered with inscriptions, lately discovered by

\* Journal of the Royal Asiatic Society, vol. iv. pp. 281—291.

† Ut supra.

a peon of Mr. Law, when searching for rare plants near the village of TA'RA'MATI' above the Gháts to the south of Junír. This temple, as far as is known, has not yet been visited by any European.

#### XX. THE CAVES OF HARISCHANDRA.

For the following notice we are indebted to Dr. Gibson.

“ On the hill of HARISCHANDRA situated above the source of the Mul river, which runs into the Godávári, is a set of temples evidently and also traditionally, of very old date. They consist of a central large one, with the oblong dome still common in Hindu religious edifices. The whole are enclosed by a wall of hewn stone. The workmanship of the temples is elaborate and highly finished. The great temple seems to have been dedicated to *Ganesha*, as a representation of him covers the walls. On one side of this temple is a set of *Caves* with extensive tanks of clear water underneath them. These caves have no carving or images. There is another range of excavations just outside the temple-court; and close by is a large tank having stone steps. At one end is a covered-in verandah, containing figures of *Ganesha*. On the northern face of the peak of the hill, is an extensive range of larger caves, some of them having pillared entrances, the pillars carved but not elaborately. Within these caves, I saw no carving or ornament of any kind save in one a figure of *Ganesha*, of natural or elephant size and cut in relief on the wall. There is here no arched temple, such as we see at Junír and other places.”

The caves here mentioned are probably Bráhmánilal. *Harischandra* has been long a place of pilgrimage among the Maráthás.

#### XXI. THE CAVES OF NA'SIK.

NA'SIK is an important place in the Hindu traditions, particularly those connected with the progress of Ráma; and there can be little doubt of its antiquity, as it is mentioned by the name which it now bears in Ptolemy's Geography.\*

1. The principal excavations of the place are situated on a hill named from them PA'NDU LENA' about five miles to the S. S.W. of the town and overhanging the Bombay road. When we first had an op-

\* Ptol. Geog. lib. vii.

portunity of seeing them,—on the 15th March, 1831,—we wrote thus respecting them :—“ They are decidedly Buddhist, and are very extensive. They scarcely fall short in interest, taking them as a whole, of those of Elephanta and Kārṣā. The view from them in the direction of the east and southeast, extends for very many miles, and commands the range of some very sublime mountains of the trap or basaltic formation. The figures in the caves are in a state of good preservation. They are those of Buddha. The principal ones have been newly painted and oiled preparatory to an approaching Jatrā. There is nothing Brāhmanical about them ; but as there are no Buddhists in this part of India to come near them, the Brāhmins for the sake of their own gain encourage the Jatrā.” When we next visited them,—on the 5th June 1840,—we were particularly struck, without altering altogether our opinion of their Buddhist origin, with the comparatively modern character of their architectural forms, which, though of inferior execution and less ornate, resemble those which have been called the Indrasabhā group at Elorā. They awakened within us a sort of mysterious feeling, which we have only got solved, to a certain extent, by the following notice of the Indrasabhā group in Mr. Fergusson’s interesting paper. “ The sculptures to this group have hitherto proved a stumbling-block to antiquaries, and no fixed opinion seems to have been arrived at regarding them. Buddhist they certainly are not, or at all events of so degenerate a type as scarce to deserve that name. Nor are they Brāhmanical ; and though they certainly resemble Jaina sculpture more than any other, I do not think they can be correctly ascribed to that sect either, at least as we know it. In no place in these caves do the twenty-four thirthankars appear, nor have the cross-legged figures the symbols which almost invariably accompany these worthies, and are the only means of distinguishing one from another. If, however, I am correct in supposing Jainism to be a sort of compromise between the other two religions, which did not acquire its present form and consistency till after the downfall of the Buddhists, when they were joined by most of that sect who had not embraced the dominant religion, these caves are doubly interesting as showing us the religion in a state of transition from one set of tenets to another.”

Of the age of the Jaina faith, we here say nothing ; but that the Násik caves must have originated after some revival of Buddhism

following the great victory of the Brāhmins over that faith, and that they belong to some system of transition and compromise, we think evident, not only from their architectural character resembling that of those at Elorá, here referred to by Mr. Fergusson, but from one of their inscriptions forwarded to us by Dr. Gibson in 1836, and also given, from a transcript by H. W. Reeves, Esq. of the Civil Service, by Dr. Bird. That inscription is in Sanskrit, though not of the purest character ; and, though Dr. Stevenson, who has correctly given the scope of it to Dr. Bird, thinks, from his interpretation of its general astronomical date, it points to a construction about B. C. 453, it yet seems evident from its contents as noticed by Dr. Bird, that it indicates such a state of matters as may be supposed to have existed when Buddhism was becoming somewhat assimilated to the rites of the Shaiva Márgis.\* It refers very distinctly to the Brāhmins, and several of their distant and proximate holy places, and to several of their customs and legends.

The following notes, from our memorandum book, refer to the details of the Násik caves, which have not yet been fully enumerated. They commence with the northern extremity, or that on the right hand as the visitor ascends the hill :—

1. Unfinished compartment, with a few steps, but without figures. Workmanship modern in appearance. 2. Chamber, with three four-foot figures of Buddha seated, with attendants with *Chawaris* (Tibet cow's tail) and giving their blessing. 3. A square hall, of about seventeen by nineteen paces, with a Dahgob of about thirteen feet projecting from the wall opposite the door and with eighteen monks' cells at the sides. At the corners of the Dahgob are two figures with *Chowaris*. In the front of this excavation are three doors and pillars, one of which is broken. They are supported by six giants (from the breasts upwards) ; and on their capitals are the figures of the heads of bulls, elephants, lions, owls, goats, etc. and of a man and woman. There are two cells in the verandah. 4. A tank ? 5. Four cells of monks, with two pillars and two pilasters in front, on the capitals of which are elephants, cows, lions, and antelopes. 6. Square hall like No. 3, with sixteen cells, and a Dhagob projecting from the wall opposite the entrance. In the middle of the Dahgob, there is a Bud-

\* See Bird's Historical Researches, p. 61.



dha wearing a *Shálá* about six and a half feet high, and two female attendants like dancing girls, frequently carved within and without Hindu temples. On the capitals of the six pillars at the entrance are figures of elephants, lions, bulls, and owls' heads. Above the three doors are large inscriptions. There are two cells in the verandah, with inscriptions above their doors. 7. An apartment communicating with that last mentioned, with three figures of Buddha, one of which is on an elephant; one, on a lion, with two small figures; and one squatted, with lion's head with curious ears below. 8. Six cells. 9. A small room, with Buddha seated in the centre, and with two attendants, one of which is destroyed. On the south side, are two small squatted Buddha figures, supported by two men bearing a lotus. Above, there is a room nearly inaccessible, with three figures of Buddha, coarsely painted by the Bráhmans. 10. Room, of about fourteen paces by nine, with a Dahgob near the further end. The roof is curved as if arched. The pillars are seventeen in number, and two of them have inscriptions. There is a *Chawarí* bearer near the door. 11. This is a room of about sixteen by nine and a half paces. It is reached by an ascent of a few steps, leading from No. 10 to the right. It has six cells, at the entrance of one of which the Bráhmans have constructed apocryphal images of Ganesha and Hanumán; and contains a seat cut in the rock of about eight paces in length. It has two pillars, and two pilasters, with figures, like some of those already mentioned, in the front. 12. Large collegiate hall, of twenty-nine by seventeen paces, with a platform, four inches high, for the teacher, and a seat for the pupils running along the excavation, except in front. There are twenty-one cells off this room, but without couches. One of them has a small inscription. Behind, there is a compartment, having an inscription in front with two elegant pillars, and two pilasters, with a Buddha seated as if lecturing his disciples, and two *Chobdárs* with *Chawarís*, and two pages or dwarfs. There are six pillars in the entrance to this hall; but some of them are completely worn away by the action of water. There are two cells in the verandah, and an empty chamber above to the left. 13. A large unfinished semi-circular hall, with numerous figures of Buddha, with attendants bearing *Chawarís*. On the sides are cells with Buddhas. . . In the front are five tanks. For bathing? Is this a place for morning ablutions?

These excavations may not all be of the same age.

2. There is another series of excavated temples near Násik. They are on the hill called RA'MSHEJ; but according to Dr. Gibson they are comparatively of little consequence.

3. There are one or two small chambers in a pass on the road leading between Násik and Chándor.

#### XXII. CAVES OF PEIṬHAN.

Násik is one of the *Dharmapuris* or sacred towns of the Godávarí. Toká is a second, in the neighbourhood of which there are several antiquities worthy of examination; and PEIṬHAN a third. At the last mentioned place there are some caves with inscriptions, which, it is understood, have been copied by Dr. Bradley.

#### XXIII. THE CAVES OF UNKA'T'-TUNKA'T'.

There are three series of excavations at the UNKA'T'-TUNKA'T' pass, about twenty-seven miles from Málígáum on the road to Puná, and adjoining the valley of the Godávarí. No account of them, as far as we are aware, has as yet been published; but they have been visited and examined by several Europeans. Dr. Gibson, who reckons them numerous, furnishes the following notices of some of the more remarkable of them.

1. "Number 1 is in two tiers—the upper of which is a plain chamber with a verandah. The lower room has a door with rich mouldings, and a projecting frontispiece. The figures are chiefly of Buddha in a sitting posture. The interior chamber is supported on pillars having capitals headed by the same Bacchus-like bent figure as at Ankolá. On some of the pillars are figures of Buddha, with attendants making offerings. Inside the apartment is a shrine, but no figure remains. No. 2 is likewise of two flats. The upper has a well-cut lozenge screen in front, and at each end of it grotesque figures of the lion, as seen at the present day in Chinese and Burmese images and pictures. In the lower apartment verandah, at each end, are figures of Buddha 8 feet in height, having a tiara on the head and angel-like figures supporting a canopy, and the lotus above. Among the attendant figures we see the crocodile very distinctly. The interior of the

room is much as in that last mentioned. No. 3 consists of one large apartment, with a spacious verandah screened by lattice-work. At one end of this verandah, is a large upright Buddhist figure half-buried in the earth. There is no tiara as in the other figure. The hair is woolly and the features are African, and the attendants are with *Chawaris* and musical instruments. These are females, as is the principal figure, with very prominent breasts. At the opposite end of the verandah is a male figure of similar size, having a tiara or conical cap; but this image is half decomposed. The inner apartment of this cave is supported by pillars, massy and of good proportions, having carved on them figures of the *Hans* and a Satyr-like head. There is a central ornament of the ceiling of this apartment, of the size of a cart-wheel and containing many groups of figures in good preservation. The outer row of figures consists of persons riding, some on the lion, others on elephants and some on bullocks, the latter being in pairs. The inner row of figures consists of musicians. Their features are African, and they have flattish head-dresses like Welsh wigs. At each end of this room is a figure of Buddha bare-headed but having a tiara supported above his head by the trunks of elephants. There is here also an inner shrine; but the image has been thrown from the pedestal. The remaining six apartments contain nothing particularly worthy of note, excepting that in one half-choked cave are many Buddhist images carved in the wall. In none of these caves is the bee-hive like emblem to be seen. The carving of the figures is generally more carefully and nicely executed than in any of the caves I have seen elsewhere.

2. "In the hill of UNKÁÍ close to this, and within the upper fort are several other caves; but the images have been greatly broken and defaced. On the top of both these hills, and also below the scarp, are very extensive tanks seemingly co-eval with the caves.

3. "In a hill forming the opposite side of the Unkái pass is a celebrated place of Jatrá, the deities being Goraknâth and Muchandar-nâth. In the high and steep scarp of the rock is a cave rudely hewn, but bearing marks of art. It extends about 60 feet into the body of the hill, and at the farther end is a small image such as we usually see stuck up about village temples. Still higher in the perpendicular

scarp and accessible only by a four inch path, is the other figure Muchandarnáth. Regarding this figure I contented myself with a verbal report. It is described to be an image sitting cross-legged on a low chair or throne, and is doubtless Buddhist."

Some of the figures in these caves seem worthy of delineation.

The caves of Elorá, and those in their neighbourhood, would now, in the order of their geographical position, fall to be noticed; but for obvious reasons we pass them over for the present.

#### XXV. THE CAVES OF AJANTA.

This is by far the most important series of Buddhist caves, which has yet been discovered. It is situated in a ravine in a range of hills separating the province of Khándesh, from that of Aurangábád, and near the well-known town of AJANTA and the Ajantá pass, which have been particularly brought into notice in connexion with the battle of Asáí in 1803. The excavations, which are situated in the wild ravine of LENA'PUR, which derives from them its name, were first mentioned, on the authority of Col. Morgan of the Madras Army, in Mr. Erskine's excellent paper on the "Remains of the Buddhists in India," published in the third volume of our transactions. A short account of them, scarcely however adverting to their peculiarities, was read before the Royal Asiatic Society in 1829, by Lieut. J. E. Alexander, who had visited them about five years previously.\* Colonel Twemlow, Captain Gresley, Mr. Ralph, and other officers of the Nizam's Service, have the credit of directing the attention of the residents in Western India, to their varied wonders.† A somewhat interesting and correct topographical account of them, was published in the Bombay Courier by a very faithful and zealous observer, the late Lieut. Blake, which has since been reprinted in a pamphlet published at the press of the Bombay Times. To Mr. Fergusson, we are indebted for the first critical account of them. Many of their figures are delineated in the work of Mr. Bird, who describes them in detail.

The interest of these caves consists not only in their number and magnitude, but in the variety of their age, extending probably from the third or second century before to the fifth or sixth century after

\* Transactions of the Royal Asiatic Society, vol. iii. pp. 62—70.

† See particularly a lively paper by Mr. Ralph in J. B. A. S. vol. v. pp. 557—561.

Christ, in the comparative beauty of many of their multitudinous architectural forms, and in their many wall and ceiling paintings resembling fresco, highly illustrative of the state of ancient Indian society, and the geographical relations of India, of which so little is otherwise known. They unequivocally show that though the Buddhist monks considered it expedient professedly to retire from the bustle of the world, and to shut themselves up in the prison of a narrow chasm, they took care to surround themselves with the representations of the pomps and vanities of the world, either for their own delectification or the attraction of their disciples. Through the efforts of Colonel Sykes, the Ajantá caves have already attracted the attention of the Court of Directors of the East India Company ; and Captain Robert Gill of the Madras Army has been commissioned to delineate their architectural and pictorial remains, with which he is at present engaged. The fruits of his labours are already to some extent visible in the museum of the Company in Leadenhall street ; and they are there considered to be among the most precious curiosities collected from the distant east. The inscriptions at Ajantá are not numerous, and some of them, at least, appeared to us when we examined them to be not of the same age as the excavations to which they are attached. They are not in the best state of preservation. They have been several times copied, but they require to be carefully taken in fac-simile. It is extremely probable that other groups of caves remain to be discovered in their neighbourhood, which, from representations made to the writer of these notes when visiting it, appears to have been but little explored by Europeans. It is probable that it is Ajantá which is referred to by Ptolemy under the name of "Sazantium," and mentioned in connexion with "Ozene," "Tiagura" (*Devagiri*), "Nasica," and other places in the neighbourhood of these towns which can be identified.\*

#### XXVI. THE CAVES OF BA'GH.

These caves were first brought to notice in connexion with the residence of Sir John Malcolm in Central India. They are situated about three miles from the village of BA'GH, on the road leading from Gujarát to Malwá, in a ravine penetrating the hills forming the northern

\* Ptol. Geog. lib. vii.

boundary of the valley of the Taptí. Lieut. Dangerfield's account of them in the first volume of the *Bombay Transactions*, which forms a very interesting article, notices four of them, of which two are in good order. Some others, however, we believe, have been lately discovered by Mr. Impey, of the *Bombay Medical Service*, at present Surgeon to the *Residency of Indúr*, who has promised to bring them to the notice of the *Bombay Branch of the Royal Asiatic Society*.

From the drawings attached to Lieut. Dangerfield's paper, these caves do not appear to be of the oldest type. Mr. Fergusson notices the existence of the *Dahgob* without a *Chaitya* as a peculiarity; but it will have been seen, that we have other examples of this in the caves lately discovered.

#### XXVII. THE CAVES OF DHUMNA'R.

These caves are situated about a mile from the village of *CHANDA-wa'sa'*, and about forty miles south-east from *Nimach*. They are numerous; but owing to the want of depth in the scarp in which they are formed, they are of a diminutive size. They are among the most modern and least interesting of the rock-cut temples. A monolithic *Brahmanical Temple* is in their neighbourhood. They have been described by *Col. Tod* and *Mr. Fergusson*, whose notices of them appear to answer every practical purpose. *Mr. Fergusson* recognizes in them a "tendency to *Jainism*"; and *Colonel Tod's Jaina Gúru* identified them as such.\*

#### XXVIII. CAVES IN GUJARAT.

*Dr. Alexander Burn*, to whom the antiquarians of *India* are indebted for the discovery of some valuable copper-plate charters deciphered

\* Referring to one of the principal groups of these Caves, *Colonel Tod* says, "Fortunately I had my *Jaina Gúru* with me, who gave me more correct notices of these groups than the local *cicerone*. All these figures are representations of the deified pontiffs of the *Jainas*, and the group of five are the most celebrated of the twenty-four, and distinctively called the *Panch-Terootí*, viz, *Rishubdeva*, the first; *Suntnath*, the sixteenth, *Nemnath*, the twenty-second; *Parswanath*, the twenty-third; and *Mahavira*, the twenty-fourth. Each has his separate Mount (*teerut*) or place of pilgrimage; and each is recognized by his symbol, viz. the bull, black antelope, conch-shell, headed-serpent, and tiger."—*Tod's Rajasthan*, vol. ii. p. 724.

and translated by Mr. Prinsep, mentions that he has heard of the existence of some Cave-temples on the banks of the Nirbadá about thirty miles above Baroch, and also of some others in the Collectorate of Kairá. It is very desirable that they should be examined. They will probably be found in the eastern hills of the province to which they belong, as cave-temples are not to be expected in the lower parts of Gujarát.

From the continent of Gujarát, we pass over to the Gujarát peninsula, or Káthiáwád, the Sauráshtra of the ancients. It possesses very remarkable antiquities, some of which will afterwards fall to be noticed; but it has only two series of excavations to which as yet we can point attention.

#### XXIX. CAVES OF TALAJA'.

These caves we first heard of from Henry Young, Esquire, of the Bombay Civil Service, when in the province to which they belong in 1835. We were lately informed by the Rev. Mr. Wallace, who has examined them, that they do not seem to be possessed of any distinctive religious character. They are situated in a remarkable conical hill on the southern bank of the Setranjí river, near the village whose name they bear. They are described as numerous. In the first Number of our Journal, Captain Fulljames, who has occasion to refer to them, says, "There is one large room measuring 29 paces by 23 paces; in height it is about 20 feet with a flat roof: this has originally been supported by four large square pillars, as may be seen by the marks on the ceiling, and also on the floor. There are numerous others, but much smaller. Some of them have been used for cooking, some for sleeping rooms, but by far the greatest proportion are reservoirs holding the purest rain water, and small channels are cut all over the hills for conveying the rain water into these reservoirs as in the caves of Kanary near Bombay.\* Not an ornament or an inscription of any kind could I discover, though I hunted long and diligently for them. Still some other person may be more fortunate, and I really think it worth the while of any person, who can spare the time, to explore

\* Journal of the B. B. of the R. A. S., vol. i. p. 32.

them."\* They seem, as far as yet noticed, to be analogous to those at Panháá.

### XXX. THE CAVES OF JUNA'GAD.

During the month of March 1850, when on a hasty visit to Junágad, and the adjoining GÍRŪA'a along with the Rev. Dr. Duff, and the Rev. James Glasgow, we ascertained to our satisfaction, by a personal inspection, that the caves adjoining the *Uparkot*, so remarkable for its antiquities, consist of a Buddhist Vihár and its usual appendages. Capt. Postans, in his Notes of a journey to Gírnár, published in the Journal of the Asiatic Society of Bengal, Oct. 1838, says of these caves, "The excavations, of which there are several at the base of the *Uparkot*, are made in the face of the same soft stone, and consist in some of three or four low apartments; in others there are as many as six, with a large or principal one in the centre. These apartments are small, flat-roofed, and supported by square pillars without ornament; the entrances to many are through small and low door-ways, but the greater number are quite open. These places are said by some to have been the haunts of a tribe of robbers called *Kaphriá*, and it is a curious coincidence, that an inquiry respecting some similar excavations in a sandstone hill, which I observed near *Lakhpát* at the western extremity of *Kach*, I was told exactly the same story. In the neighbourhood of Buddhist records, any thing approaching to a *Vihára* becomes of great interest; but I fear the very soft nature of the stone from which these are excavated, will not allow of their being considered of any great antiquity. I may however be mistaken in this, and perhaps my sketches of one or two of these caves may assist in determining, how far they are worthy of being considered ancient. In one was the following inscription, 'शाकि 'ALI', the servant of the servant of God, took up his abode in this place, in the year H. 940.'" Of the drawings here referred to, Mr. James Prinsep, the Editor of the Journal, says, "The Sketches sent by Lieut. Postans appear to establish his theory, that the caves were heretofore *Viháras* of a Buddhist monastical establishment; but they exhibit nothing curious or unusual, being similar

\* Can it be from these tanks that the village receives the name which it bears?



in every respect to those found at *Dhaulī* in *Katak* and the number of other plates of this article compels us to omit them." The stone in which the caves are found, though easily wrought, is of a durable character; and the workmanship in them, though plain and simple, is undoubtedly ancient. A small inscription which they bear, in the very oldest form of the *Girnar* tablets, only a few hundred yards distant from them, seems to have escaped the attention of Captain Postans. A specimen of it is given by Colonel Tod in his *Travels*.\*

The existence of these ancient Buddhist caves in this precise locality, is a fact of the greatest importance, as will appear, when we come to speak of the character of the *Girnar* rock inscriptions.

#### XXXI. THE CAVES OF LAKHPAT.

The only authority which we have for the existence of excavations at this northern extremity of the province of *Kach* adjoining to *Ká-lhiáwád*, is contained in the extract from the paper of Captain Postans quoted in the preceding notice. We make a separate entrance of them here, that attention may be directed to them and their exact character ascertained.

#### XXXII. THE CAVES OF SEHWAN.

During a late visit to the banks of the Indus, we were informed by Captain Partridge, a diligent observer, that there is a small excavated temple, *Ek-thamb*, or the one pillared, between the town and bandar of *SEHWAN*, much revered by the Hindus, but at present in the possession of the Muhammadans. We had an opportunity of inspecting it. There can be no doubt that it is of great antiquity; and that it is more like the work of the Buddhists than the Bráhmans. There are said to be some ancient excavations at *Rani-ká-koḷ*, in the hills further to the south, which are not to be confounded with the works there of one of the late Amírs.

Sehwan is one of the most ancient towns in India which can be identified. It is the "Sindomana, the metropolis of Sambas," or Sabbas, of the historians of the expedition of Alexander the Great.† We

\* Tod's *Travels in Western India*, p. 368

† Vid. Arrian de Exped. Alex. lib. vi

lately ascertained from the learned Bráhmans of the locality, that it is the *Shavoír* of the Mahábhárata and the Puránas, a locality which our best orientalists have not yet been hitherto able to identify. We may here mention, in passing, that the same Bráhmans told us that according to the local legends which they have in the Sanskrit language, Kábul is the ancient *Shishapálapura*; Multán, *Praládpur*; Thátá, *Deval*; and Haidarábád, *Neran*, and more anciently *Patolpuri*, or the city of *Patola*, doubtless the *Pattala* of Arrian, of which they had never heard. The last of these identifications is particularly worthy of notice, as it agrees with that formed, on purely geographical considerations, by Sir Henry Pottinger in his excellent work on Beluchistán and Sindh, which unfortunately has been long out of print. It is quite adverse to the opinion which has been current since the days of Dr. Robertson, who would identify Thátá with Pattala, even though it cannot be urged that the delta of the Indus, referred to by Arrian, commences at or near that city.

#### XXXIII. THE CAVES OF BA'MIAN'.

These caves, which are situated in the outposts of the Hindu Kush, or Caucasus in Afghanistan, on one of the principal roads leading between Ghazní and Balkh, are exceedingly numerous. Somewhat exaggerated accounts of the gigantic idols, which are their appendages, have been given by several Muhammadan authors. To the late Sir Alexander Burnes, we are indebted for the first precise notice of them. "Bamian is celebrated," he says, "for its colossal idols and innumerable excavations, which are to be seen in all parts of the valley, for about eight miles, and still form the residence of the greater part of the population. . . A detached hill in the middle of the valley is quite honeycombed by them. Caves are dug on both sides of the valley, but the greater number lie on the northern face, where we found the great idols: together they form an immense city. . . . These excavated caves, or houses, have no pretensions to architectural ornament, being no more than squared holes in the hill. Some of them are finished in the shape of a dome, and have a carved frieze below the point from which the cupola springs. There are excavations on all sides of the idols; and below the larger one half a regiment might find

quarters."\* Mr. W. Erskine had long before the visit of Captain Burnes to Bámíán hazarded the statement of his opinion, that the remains at this place are probably Buddhist.† The observations of Burnes, Masson and others have evinced its correctness.‡

It is a remarkable fact, that it was by the extension of Buddhism to Bactria and its neighbourhood that the Alexandrian divines, Clemens and Cyril, became acquainted with its existence.§ Through this line in particular, Buddhism seems to have come in contact with Christianity and encouraged its corruption by the introduction of the monastic institution.

#### XXXIV. CAVES IN THE VALLEY OF JELA'LA'BA'D.

Connected with the numerous *Stúpas* or "Topes" and other Buddhist remains in the valley of Jalálabád in Afghanistán, as at DURANTA, there are many caves, which are noticed, on the authority of the observant and enterprising Masson, in the *Ariana Antiqua* of professor H. H. Wilson, which casts so much light on the antiquities of the provinces of which it treats. These "Caves," it is there said, "are always lined with cement, but are otherwise devoid of ornament. Some of them have a recess at their upper extremities, a feature also to be remarked in many caves at Bámíán. The domed caves or temples only have, in some cases, been surrounded with belts of mouldings or distinguished by ornaments at their apices. The most interesting of the Daranta collections of caves is that attached to Tope Gudára, and excavated in the scarped front of the eminence confining the river on which that structure stands."|| It is not improbable that similar caves may be found in the newly acquired British territories of Pesháwar, where some Buddhist remains are known to exist.

A most able and philosophical digest of all that is known of these

\* Travels into Bokhárá, vol. ii. pp. 158-9.

† Transactions of the Bombay Literary Society vol. iii. p. 518.

‡ A couple of papers by Mr. Masson on the Bámíán antiquities are in the Journal of the B. A. S. for 1836.

§ Clemens Alex. Strom. lib. 1. p. 239; Cyrill. Alex. ii. p. 133. These passages have been referred to by Dr. F. Buchanan and Mr. Erskine.

|| Ariana Antiqua, p. 98.

interesting regions, both from ancient authorities, oriental and occidental, and modern research, and which should be in the hands of every observer, is to be found in professor Lassen's "Indische Alterthumskunde."

Passing over all the Buddhist excavations and other ancient remains which are to be found in the provinces with which the Bombay Presidency has little intercourse, and which properly fall to the consideration of our learned and zealous friends in Bengal, Agra, and Madras, we now return to the caves of Elorá and their contiguous groups, which we have purposely reserved to the last.

#### XXXV. THE CAVES OF AURANGÁBAD.

The caves of Aurangábád are situated in the hills lying to the north of that city. Their existence has been long known to Europeans; but the first printed account which we remember having seen of any of them is in the work of Dr. Bird, who notices four of their excavations. They belong to the Buddhist faith. Mr. Ralph, and other residents at Aurangábád, have seen a good many more near the same locality; and Colonel Twemlow, the Brigadier of the station, lately mentioned to the writer of these notes, that so numerous are they that very few hunting parties go out on an excursion without discovering some which are new to Europeans. It may be safely concluded, that there is yet a large field of discovery in this quarter, which, from its proximity to Elorá, must have special interest.

#### XXXVI. THE CAVES OF DAULATÁBAD.

The excavations of Daulatábád, the writer of these notes is persuaded from a partial inspection, are not altogether military, as is commonly supposed. At the entrance of the celebrated excavated ascent to the fort, where the scarp of the rock occurs, some pillars resembling, or rather identical in form with, those of the cave-temples, are visible, and more would probably be discovered, were this part of the excavations cleared of rubbish. The ancient name of Daulatábád, *Devagíri*, the "hill of God," the "Tiagura" of Ptolemy, favours this supposition, which is recommended to the notice of those able to make research in this interesting quarter. General Fraser, the Resi-

dent at Haidarábád, has already offered to procure for observers all needful assistance from the Nizám's Government.

#### XXXVII. THE CAVES OF ELORA'.

The Caves of VERÚL, or ELORA', it is superfluous to observe, are the most famous in Western India. The first considerable and tolerably correct, though not minute, account of them which we have, is that by Sir Charles Malet, published in the sixth volume of the Transactions of the Asiatic Society of Bengal. The imperfection and inaccuracy of the drawings, made by a native, accompanying that article, are compensated for by the superb delineations of Mr. James Wales. Colonel Sykes's paper on these Caves in the third volume of the Bombay Transactions, is one of peculiar accuracy and interest. Particular figures or groups of figures, have been represented and criticised by Colonel Sykes, Captain R. M. Grindlay, and Colonel Tod.\* Mr. Fergusson's notes upon the caves, in the article already referred to, are most valuable, both in an architectural and antiquarian point of view. Dr. Bird's notices of them, which are of considerable length, form the most valuable part of his Researches. To the student and general observer, they possess special interest, not merely because of their number and magnitude and comparative excellence of workmanship; but because of the varieties of the form and use of their several groups, devoted as they respectively are to the Buddhist, Brahmanical, and Jaina religions. They are generally surveyed from north to south; but Mr. Fergusson has suggested, that the reverse order is the more appropriate, as the spectator thus sees them in the order of their formation, the Buddhist, at the south, being the most ancient, the Bráhmanical, in the centre, being next in point of antiquity, and the Jaina, at the north, being the most modern. The hint of Mr. Fergusson was acted upon by Messrs. Smith and Murray and the writer of these notes in a visit paid to them in August 1849; and they observed certain imitations in the workmanship of the three divisions, all bearing testimony to the soundness of the opinions which he has expressed.

\* Transactions of the Royal Asiatic Society, vol. ii. pp. 326, 328, 487. Journal of the Royal Asiatic Society, vol. v. p. 81; viii, pp. 73.

It is a remarkable fact that no *ancient* inscription has yet been discovered at the Caves of Elorá;\* and it is only by referring to their position, and by comparing them in an architectural point of view with similar works elsewhere, that any opinion can be formed of their comparative antiquity. Though the southern Buddhist group has a special interest in the second and third stories of some of the Viháras, its Chaitya is not worthy to be compared with that at Kárjá; and it is now robbed of its painted figures, if indeed they ever existed. We are inclined to believe that it may be the oldest Buddhist establishment to be found in the West of India. It is, comparatively speaking, in an open country, while the other establishments are principally in mountain recesses, which would likely not be penetrated till the Buddhist faith had made some progress in the adjoining districts. It is of great extent and of general simplicity; and it is evidently the nucleus around which, as an ancient undertaking, the other excavations, Buddhist, Bráhmanical, and Jaina have been aggregated. We venture to attribute it, with all the older Buddhist works of a similar kind, to imperial patronage, to the sovereigns of the Magadhí line, with their Ceylonese allies, who made such efforts to propagate Buddhism during the three or four centuries which preceded the Christian era. The following passage of the *Mahavanso* precisely mentions the commencement of the Buddhist missionary efforts in the Maráthá country and other districts which we have been called upon to notice in this paper. After recording an embassy of the Ceylonese Devánánpiatisso to Dhammasoka of Magadhá, and the intimation of the latter to his messengers that he had taken refuge in Buddha and that Devánánpiatisso should follow his example, it thus proceeds:—"The illuminator of the religion of the vanquisher, the thero [patriarch, in Ceylon] son of Moggali,

\* An apocryphal Devanágari inscription is given by Colonel Sykes. Dr. Bradley has forwarded to our Society copies of some other inscriptions which have probably hitherto been overlooked. These have been examined by Dr. Stevenson, who has found in one of them, from the Chaitya cave, an imperfect copy of the famous Buddhist formula expounded in the fourth volume of the Journal of the Asiatic Society of Bengal by Csoma Corose, Dr. Mill, and Mr. Prinsep. This inscription, Dr. S. supposes, from the form of the letters, to belong to the ninth century of our era. It certainly does not appear older. It must have been written long posterior to the formation of the Chaitya in which it is found.

having terminated the third convocation, was reflecting on futurity. Perceiving (that the time had arrived) for the establishment of the religion of Buddha in foreign countries, he dispatched severally, in the month of 'Kattiko' the following theros to those foreign parts. He deputed the thero Majjhantiko to Kásmíra and Gandhára [Kandahár], and the thero Mahádevo to Mahisamandala [Mysore]. He deputed the thero Rakkhito to Wanawási [in the north of the Karnátik], and similarly the thero Yona-Dhammarakkhito to Aparantaka. He deputed the thero Maha-Dhammarakkhito to MAHA'RATTA; the thero Mahárákkhito to the Yona [Bactrian] country. He deputed the thero Majjhimo to the Himawanta country; and to Sowanabhúmi, the two theros Sono and Uttaro."\* Devánánpiatisso, we shall by and by have occasion to notice in another connexion. The accession of Devánánpiatisso, whose capital was Anurádhapura in Ceylon, is dated by Mr. Turnour at 307 B. C. He reigned forty years.

Mr. Fergusson has made the important discovery that the Bráhmanical *Kailás*, which strikes the beholder as the most remarkable of the whole, is formed after the type of some of the structural temples of the south of India, particularly the great pagoda at Tanjur; and he says, "I have no doubt in my own mind that the Chola, or at least, some of the Karnata rajas were the excavators of this temple, and the restorers [rather propagators] of Sivite worship in the Dekhan; my own impression is, that we must ascribe this either to Raja Rajendra or Keri Kala Cholan, and that consequently the date given by Mír Ali Khan to Sir Charles Malet is very near the truth, if applied to this excavation at least, and that it was made in the first half of the ninth century of our era." Works of such magnitude as the Kailás temples would require the wealth and enterprize of such sovereigns as the Cholás were. The resources of the local princes, the Chálukyás of the Dakhan who preceded them, and of the Devagíri Rájás who followed them, were quite inadequate to their execution, and that of the Elephanta and other Shaiva temples near Bombay. Somewhat posterior, in point of age, to Kailás must be those Bráhmanical temples of Elephanta and Salsette, in which various imitations of the Bráhmanical

\* Mahavanso by Turnour. p. 71.

excavations of Elorá appear. Looking at them collectively, we have long, on mythological grounds, been disposed to limit the age of the Bráhmancial excavated temples by the eighth or ninth century after Christ. On several of their figures, the small box, containing the emblem of Shiva, worn by the *Lingáíts* is represented, and the *Lingáíts* did not appear in the south of India till considerable modifications were made in the course of time in the peculiar forms of Shaivism introduced or supported by Shankar A'chárya. The Cholá rajas were the patrons of the *Lingáíts*, who, to the worship of Mahádeva or Shiva, add the practice of the *Yoga*, without reference to caste, with a view to final emancipation. Professor Wilson notices the profession of the *Yoga* in the eighth century, and he properly observes that the Bráhmancial temples in the subjects of their sculptures, and the decorations of Shiva and his attendants, belong to the same sect.\* It is remarkable that this form of the Hindu religion has vanished from the Maráthá country, which it is not likely it would have done, had it enjoyed the continued patronage of the Devagíri Rajas, reigning over this locality, the last of whom was overcome by the Muhammadans A. D. 1293.

There are evidently imitations of parts of Kailás in the northern group of Caves at Elorá, commencing with the series nicknamed the Indrasabhá. These, then, must be posterior in point of execution to the first half of the ninth century. We agree with Mr. Fergusson in thinking that some of them, as stated in a passage which we have quoted from him in connexion with the Násik caves, belong to a period of transition ; but others of them, we hold, both from their figures and em-

\* Transactions of the Bengal Asiatic Society, vol. xvii. p. 188. Mr. Wilson adds in a note :—" In the temples of Salsette, Elephanta, and Ellora, the principal figure is mostly *Siva*, decorated with ear-rings, such as are still worn by the *Khanphatf Jogis* ; the walls are covered with ascetics in the various *dsans* or positions in which the *Yogi* is to sit ; a favourite subject of sculpture at *Elephanta* and *Ellora* is the sacrifice of *Daksha* disconcerted, and the guests, though saints and gods, put to rout, bruised and mutilated, by *Virabhadra*, and the *Ganas* of *Siva*, in revenge for that deity not being invited, a story told in most of the *Puranas* which inculcate the *Yoga* tenets. The cells attached to some of the temples are also indicative of *Jogi* residence, and one of the caves of *Salsette* is named that of *Jogiscarn*, or *Siva*, as lord of the *Jogis*."

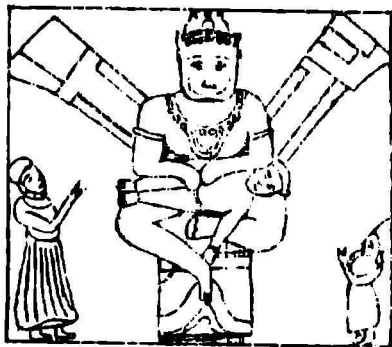


blems, to be decidedly the work of the Jains, by whom at this day some of them are claimed, as that called Párasanátha. These Jaina excavations are probably the workmanship of the opulent Jaina ministers of the Rajput, Elichpur, and Devagíri Rájás. They are probably not older than the eleventh or twelfth centuries, when the Jains of Western India made great efforts, as they are now doing, to extend their faith.

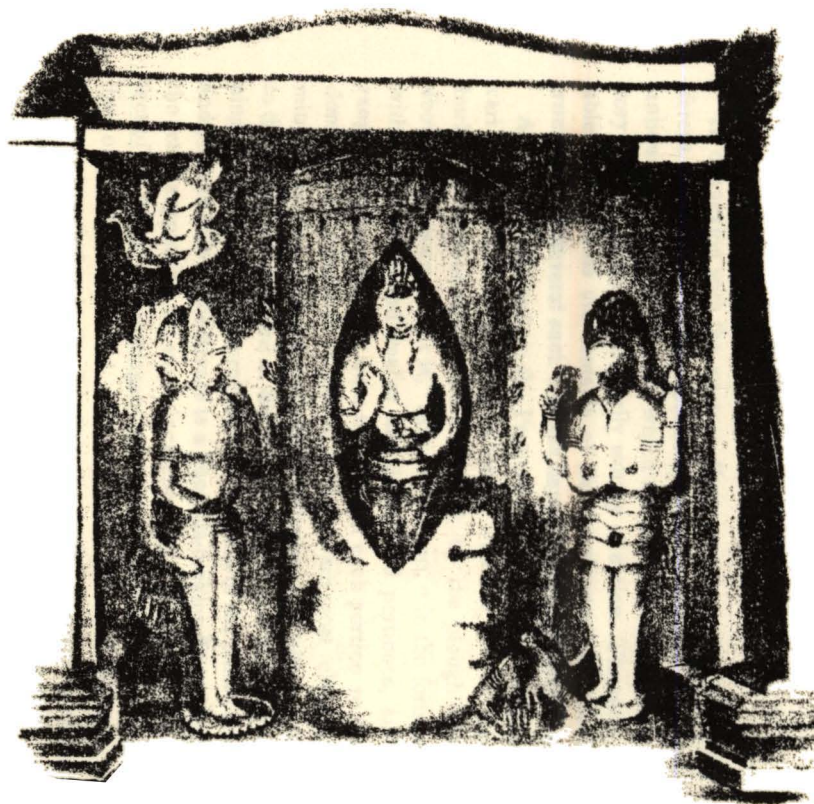
Many of the Buddhist figures at Elorá and elsewhere are quite intelligible from the papers of Mr. Hodgson, standard authorities in the exposition and history of that faith. A Hindu pantheon, it has been said, might be constructed from the Bráhmanical figures, some of which, like that of the Nṛisinha avatára, here represented, differ from those ordinarily current throughout the country. Their full delineation would be useful to the student. The moral exhibition which they make, like that of the other systems with which they are associated, is of a very humiliating character. Even overlooking their position as idols,—objects of a degrading and misdirected worship,—they have nothing of the dignity, purity, delicacy, and beauty which we associate with right views of religion. As works of art, even the best executed of them are quite unworthy of the architectural elaborations by which they are enshrined.

Information respecting the Cave-Temples and Monasteries of India in general, we may remark, in concluding this section, is particularly desiderated in connexion with the following matters of observation :

1. Their position, size, and numbers.
2. Their form, dimensions, and religious character.
3. The peculiarities of their architecture, as illustrative of their age, and the progress and history of art.
4. Their inscriptions, original and apocryphal, of which both copies and fac-similes are needed.
5. Their mythological figures in their forms and attitudes, and their general mythological and moral import.
6. Their ornamental figures.
7. Their contiguity to other groups.
8. The light in which they are viewed by the natives, who inhabit the localities in which they are situated.



NRISINGHA AVATÁRA (TOKÁ).



NRISINGHA AVATÁRA (ELORA).

## STRUCTURAL. TEMPLES.

In connexion with the ancient **STRUCTURAL TEMPLES** in the different provinces of India, a boundless field of research is open to the antiquarian. Those of them which are illustrative of the religious history of the country are primarily worthy of notice. The most remarkable of this class are remains of **BUDDHIST TEMPLES COEVAL WITH THE CAVES**. Several such temples have lately been brought to notice.

At Ankolá, situated on the Prawará river which falls into the Godávari near Toká, is a very ancient temple which is said to have been buried for an unknown period till struck by the plough of a Kunbí about 80 years ago. "It is," says Dr. Gibson, "in the form of a cross with large central and smaller side domes and porticoes, and having ranges of pillars running from the sides of each portico to the central dome. The whole of the pillars, roof, etc. are most elaborately and minutely carved, with rich foliage in festoons, and with heads similar to those you see depicted of the ancient satyrs, and other figures dancing and playing on instruments. The capitals of the pillars are square; and on each side of the square is a Bacchus-looking figure, bent as if in the act of supporting the super-incumbent weight of the roof. The effect of the whole is very elegant, without the heaviness too often attendant on excess of ornament. On the side of one of the veranda pillars is a long inscription in the Sanskrit character. I regret I had not time to copy it. Attached to the temple are the remains of a built tank, a *dharmashálá*, etc. such as we usually see attached to those ancient buildings. Some ancient authors describe the Indians as worshippers of Bacchus. May not the similarity of decorations in temples like this, and of the ceremonies which we may suppose to have been performed in them, the music, dancing, etc. have led to this supposition? There are many mounds of earth round the town of Ankolá, and it is possible some of these may contain other remains."

"The great temple of **TRYAMBAKESHWAR**," writes Dr. Gibson, "the various extensive built tanks in and around the town,—some of them having colonnades with many carved figures,—are asserted by the Bráhmans,—and their assertion is verified by the general appearance of the buildings,—to date from a very ancient period. Many of

them, however, have been repaired in subsequent times, and many altogether renewed. The period of their origin they state to be that of the Shepherd Kings.\*

“Five miles from Tryambak is the hill fort of ANJANA’ or ANJANI’. Below it are the remains of temples very extensive and very highly finished. They seem to have been in their present ruined state for several hundred years. These, too, are said to date from the time of the Shepherd Kings and to be more ancient than those of Elorá. In the centrepiece of the door of all of them is a figure of Buddha in a sitting or a standing posture, having the hooded snake as a canopy, and surrounded by rich foliage and highly finished cornices. In one, and only in one, could I find an image of Buddha still remaining. It is of a large size and in the usual cross-legged posture. There have been many others, however, but they are thrown down and broken. Among the ruins of some others, I saw figures of Ganesha and the Linga, as worshipped at the present day; and the temples in which I observed these latter seemed to be of the same date as the others. From one of those having Buddhist figures, I copied a long inscription in the Sanskrit character and in excellent preservation, a copy of which I had also the pleasure to send to Mr. Wathen in whose hands it now is.

“Adjacent to the town of SHINAR,† situated on a river which runs into the Godávarí, there are more extensive remains than I have seen at any other place. One temple is entire, and has the oblong dome at one end, but is in other respects very similar in workmanship and figures to the temple at Ankolá, except that it is more lofty and on a larger scale. Over the doors, are figures of Buddha. In the spacious walled court which surrounds this temple, are several smaller ones of workmanship equally elaborate. Of the groups of human figures here, dancers and musicians are the most frequent. On the western side of the town are the ruins of three other temples equally rich.

\* By these Shepherd Kings, we presume Dr. Gibson means the chiefs of the Gavalis, or herdsmen, a tribe of wandering Aborigines, often referred to by the Maráthás.

† Sometimes called SIXUR.

Many remains of stone-built tanks are also found here ; and various figures of Buddha are strewed about, or half buried. From the number of mounds which exist on the western side of the town, I think that digging might bring to light many other remains. On the whole, I would say, that Shinar must have been a great town in ancient times."

" In many other parts of the Godávari valley," continues Dr. Gibson, "are remains similar in feature to the temples now described. I may mention of those I have seen, a temple at MÍ'AI' below the Díwar Ghát on the road from Ahmadnagar to Paithan and another at GOTAN farther on the same road. There is a curious and highly wrought tank on the road to Paithan, and a similar one at Bamní and a third near Kopergáum." Dr. G. is of opinion that there are the remains of an ancient Buddhist temple at NA'SIK of the same age as the caves in its vicinity.

A valuable temple inscription found near NA'GPUR by Major Wilkinson, supposed to be of A. D. 657, is translated by Dr. Stevenson in the fourth number of our Journal. It testifies to the existence of Buddhism in Central India at that period.

The celebrated temple of Vithoba near PANDHARPUR is supposed to be a Buddhist structural temple now appropriated by the Bráhmans. It certainly has the appearance of great antiquity. The oversight of the distinction of caste among the natives who frequent this shrine, when in the presence of the idol, would seem to indicate some compromise with the Buddhists. In the villages near Pandharpur, we have noticed other ancient temples probably Buddhist, which are entirely forsaken, and which bear the marks of violence, probably Brahmanical or Musalmán.

At BIJA'PUR, there are the remains of a Buddhist temple.

In CENTRAL INDIA, the Buddhist remains are numerous, as for example at Sanchí, and Airan in Bhopál, and Amaravatí in Berár. Some of these have been noticed in the Journal of the Asiatic Society of Bengal.

Captain Postans has given a minute and correct account of the temple of SOMNA'TH in the peninsula of Gujarát, captured, robbed, and injured by Mahmud of Ghazni, A. D. 1025-6, and called upon the writer of this brief memoir, who has examined that temple, to pronounce

a judgment on his (Capt. P.'s) impression, that "it was originally a Buddhist temple, afterwards appropriated to the worship of Shiva."\* This judgment, with due deference but without hesitation, is given as adverse to this theory. The temple is entirely similar in its form, construction, and ornamental figures, to the older Shaiva temples in various parts both of the peninsular and continental Gujarát.

From a temple near PESHAWAR, some figures, of workmanship resembling that of the Greeks, which are evidently Buddhist, have just been forwarded to our Society by Lieut. Miller of the Bombay Fusiliers. Among these figures is one like the Bacchus-looking figure noticed at Ankolá by Dr. Gibson.

Next in point of antiquity to the Buddhist temples of the class now mentioned, are the BRAHMANICAL TEMPLES, principally of the times of the Chálukyá dynasty, having tablets with inscriptions in the *Hala Kanadí*, or ancient Canarese character. These tablets are possessed of great interest in a historical point of view. A large collection of them has been made and ably analysed and illustrated by Walter Elliot, Esq. of the Madras Civil Service, to whom all copies of others should be sent.

Colonel Tod, in his *Rájásthán* and in his *Travels in Western India*, has described many remarkable Bráhmanical temples in the provinces to which his researches extended. Many others of a similar character, remain to be noticed both in RA'JPUTA'NA' and GUJARA'T, and indeed in all the North-western provinces of India. The greatest desideratum is a copy of their inscriptions.

According to some Jaina authorities, JAINA TEMPLES were first built in the year 662 Virát, equivalent to A. D. 313. The most ancient of these temples we should naturally expect to find on the sacred mountains of the Jainas, esteemed by them their "eternal Tírthas." In none of them in these localities, however, do we see any with *dates* approaching this antiquity, or extending beyond the twelfth century.

The SHATRAJJI MOUNT appears to have been known from olden times, for the river of the same name which has there its source is mentioned by Ptolemy under the designation of "Codrana" or "So-

\* J. A. S. B. vol. vii. p. 868.

drana."\* Its base is about a mile and a half distant from the town of *Páli/háná* in *Kāḥtáwád*; and the ascent to its summits, on which, on varying levels, the temples are situated, is reckoned by the natives at about two leagues. It has been well described by Col. Tod in his *Travels in Western India*; and some notices of it are contained in a *Journal*, by the writer of these notes, published in the *Oriental Christian Spectator* for 1835. Its traditions are collected in a *Mahátmya*, of which Colonel Tod seems to have procured a copy, and which should be translated into English.† The groups of temples for which it is remarkable, are perhaps the most wonderful in India, when their extent and position are considered. Descriptions and delineations of them are certainly desiderata. It does not appear from their inscriptions that any of them are of any great antiquity. Three of them, transcribed and translated by Major LeGrand Jacob, Mr. Orlebar, and Bāḷa Gangádhara Shástrí, are given in the second number of our *Journal*.

The mountain of GĪRNA'Ā, near JUNA'GA'Ā in the same province, we first visited on the 13th March 1835. The following is an extract from the memoranda written by us on that occasion. "After leaving the Nawáb's palace I rested for a little, and then proceeded in a *ḍolá* to the celebrated Girnár hill. I found myself at the base of it (the road leads through thick jungle) about day-break. The ascent is very difficult, and, in some places from the precipitousness of the mountain, rather trying to the nerves. The rock is of granite, containing, particularly near the summit, a large quantity of hornblende. There is scarcely any vegetation upon it, and, indeed from its steepness, no possibility of the formation of a soil. The greatest temples are at an elevation, I should think, of about 3000 feet, estimating the greatest height at 3500. They are built of the granite, though some of the steps and staircases are formed of sandstone from the plain below. They are works of prodigious labour, and are executed in excellent taste. They are at present appropriated by the JAINAS; but the most ancient of them ap-

\* Ptol. Geo. lib. vii.

† This *Mahátmya* according to a date which it bears, and given by Colonel Tod, (*Travels* p. 276) was composed A. D. 421. It thus claims a greater antiquity than the favourite Jaina authority the *Kalpa Sūtra*, translated by Dr. Stevenson, which professes (p. 96.) to have been written A. D. 454.

pear to me, from a kind of *Dahgob* and other arrangements, to be undoubtedly BUDDHIST. The most remarkable Jaina images in them are those of *Neminátha*, not much exceeding the size of a man, black and ornamented with gold, and at present worshipped; and *Rishabhdera* of a colossal size, of granite covered with clunam; and *Párasa-nátha*. In the inferior parts are the images of all the twenty-four *Tirthankars*. There are numerous cells in the courts of the temples, and places adjoining, which were formerly used by the priests. At present the only persons who live on the hill, are the sipáhís who guard the temples, a few *pujáris* (beadles), and pilgrims who come to worship. I was allowed to go through all the temples and even to enter the shrines, and measure the idols. . . . The temple situated on the summit of the hill, though good-looking in the exterior, and evidently of Buddhist or Jaina origin, is very filthy within. In one extremity of it, there is an uncarved block of granite, with huge eyes and a monstrous mouth depicted upon it, sacred to *Deví* under the name of *Ambáná*. . . . The view from Girnár is one which is not dearly purchased at the expense of ascending it. It embraces the adjoining hills (of granite) and one of which, the *Dhátor*, vies with it in height, and an immense range of low country extending in all directions, and towards the west reaching to the sea." Other details of this mount and its temples, with their inscriptions, are given by Colonel Tod in his *Travels*, and by Captain Postans, in his Paper published in the *Journal of the Bengal Asiatic Society for 1838*. One of the temple inscriptions is given in the fourth number of our own *Journal*.

MOUNT ABÚ or ARBUDHA, between Gujarát and Rajputáná, and its JAINA and HINDU temples, though treated of by Colonel Tod in his *Travels* in a very interesting manner, have scarcely yet been adequately described. If the temples of Shatrunjí excel them for extent, and those of Girnár for their substantial and durable material, these Abú Temples, we venture to say from personal inspection, excel all the Temples in Western India for their interior beauty, particularly in their curiously designed and exquisitely carved roofs and pillars. Most of their inscriptions have been translated by professor H. H. Wilson in the *Transactions of the Bengal Asiatic Society*.\*

\* *Transact. of As. Soc. of Beng.* vol. xvi. p. 284.



Various temples in the vicinity of Abú, as those of CHANDRA-VATÍ and KUBADIA', well deserve notice.

The more remarkable shrines resorted to by the cultivators of the DAKHAN, though they have no intrinsic interest, are memorials of religious changes and developments which should not be altogether overlooked.

A general collection of temple inscriptions may furnish some valuable historical data, in a country whose records have only very partially escaped destruction, and have become greatly corrupted.

### ROCK-IMAGES.

In connexion with the ancient excavated and structural temples, we may refer to the gigantic ROCK-IMAGES which are to be found in some places of India and the contiguous countries, as at BA'MIA'N in Afghanistan, at GWALIOR, and at KUSHIA' near Gorakpur.

A remarkable image of this character has been lately discovered by Mr. Impey of the Bombay Medical Service. It is cut in relief, is nearly eighty feet in height, and is situated on a spur of the *Satpudá* range, in the district of BHARWA'NI', on the Nabadá, about a hundred miles from Indur. A full account of it, embracing a comparison of it with other gigantic Buddhist and Jaina colossal images, is given by Mr. Impey, in a valuable paper lately communicated by him to our Society, and also, through the government of India, to the Bengal Asiatic Society, in whose Journal, for September 1849, it appears at length. This image, from its supposed height is denominated by the natives *Báwangaj*, or the image of "fifty-two yards." Some temples and niches, and statues with inscriptions are associated with it, to all of which ample justice is done by Mr. Impey in his interesting communication, to which the reader is referred.

The following is the abstract of Dr. Impey's paper, kindly prepared by himself, recorded in the Society's minutes.

"The Author states the figure to be nearly 100 feet high. It is with one exception the largest known, and certainly the one of greatest dimensions in *India*. The only others that have been noticed are of much smaller size, in the fort of Gwalior, and one near Gorakpur, the height of which is not given, but according to Mr. Prinsep it is

decidedly a figure of Buddha. At Beligula there is a *statue* of Gomal Givara upwards of 70 feet high, but the distinguishing peculiarity of the Bawangaj figure is that it is essentially a rock image, cut in high relief out of the side of a hill, like the Bhuts of Bamián described best by Sir Alexander Burnes.

“The name Bawangaj which has been given to this figure is derived from its supposed height of 52 gaj; but this is much exaggerated. It is, in reality, 72 ft. 8 inches to a little below the knee, and as the body from the pubes to the vertex is 45 ft. 5 inches, the whole ought according to sculptural proportions to be at least 90 ft. 10 inches, but its lower extremities are hidden by the debris which have fallen from the image itself and from the hill.

“It is situated in the district of Bharwání (usually considered in Nimár) and on a spur of the Sápudg rang which runs close to the town of that name. The hill above it is surmounted by the temple of modern *re-construction*; but it is surrounded by a wall in which are 37 recesses still remaining, containing figures of the Jaina Tírthankars, the majority being those of Mahávira, the last deified Saint, whose Apotheosis [they maintain] took place 569, B. C.

“The whole ascent of the hill bears evidences of the Jaina persuasion, images of Párasanátha and others lying about everywhere and neglected, opposite the Colossus. Several are very handsomely carved and sculptured, and apparently subordinate to the great deity, the worship of which is neglected. It is in a niche by itself, perfectly naked, with no ornaments on or about it, and is of the Digambar sect, which is very prevalent and numerous in central India.

The temple is situated on the very summit of the hill upwards of 2,000 feet above the level of the sea, and its present appearance is quite modern. Inside are 20 images, some erect, some seated, but the chief object of worship is the Pádaka or impressions of feet, a favorite characteristic of Mahávira. Of these impressions there are four, two large and two small.

“In rear of the large temple there is a small *Cháwadi* also containing figures of the Jaina Tírthankars, and one of their Sumatí *Tírthankúress*, or else of *Bhawání*.

“All these would tend to the inference that the Temple and Colos-

sus were dedicated to Mahāvira ; but if the latter were his, it would not be likely to be deserted, especially if his worship continued to be performed in the temple. Rishaba the first Tīrthankar, is the only other Dīgambar Siddha, and there are many reasons for supposing the image to have been cut to his honor; but Dr. Impey thinks it is not quite clear which of the two is the presiding deity. The figures should be dug round at their feet, for it is there the chief events of the Devā's lives are represented.

“Inscriptions were found on the temple walls, and at each point of the compass, and one over the door with comparatively modern dates, S. 1,223 and S. 1,516. They are all written in the Baḷbodha character, and the oldest state the temple to have been built by Ramchandra Muni, A. D. 1,166 and the Sovereign's name is appended, —Vāyā Raja,—but unfortunately no such king can be traced at that period.

“The most important inscription met with at Bāwangaj, Dr. Impey states, was one which he picked up, engraved on a foot of Pārasanātha, (which accompanied his communication), which was lying in a heap of broken statues. Though comprising only three lines, it is very important as implying a much older and more ancient form of language than that in which the inscriptions on the temple are written. It is in Pālī and difficult to read from its peculiarities, but through the kindness of Dr. Wilson the author had obtained its decipherment. Almost the whole sentence is in the Pālī form of the Sanskrit, and one letter, the *ha* in the second line, seems to be conformable with the Gujarāt character of the second century.

“Dr. Impey concluded his paper with the description of a route for strangers to visit Bāwangaj without having to depend upon local enquiries. The best way is stated to be by Akbarpur on the Narbadā, from which travellers can drop down the river at all seasons to Chikaldā in about twelve hours, and Bāwangaj is not quite eight miles from the bungalow of that place. Another route is from Mhaw and Indur via Dhār and Bhopāwar. This takes in the Caves of Bhāg and has that advantage, but the other is much the easier and better road.”

## ROCK-INSRIPTIONS.

Of far more importance than the "rock-images" now mentioned are the ROCK-INSRIPTIONS to be found in some parts of India. The most remarkable series of this character which has yet been discovered, is within the immediate sphere of the research of our Society, that of the celebrated GIRNÁ'R ROCK near *Junágaḍ*.

It is proper to give a few explanations of what has already been done for the illustration of its remarkable inscriptions, the "graving of an iron pen," which may probably "last for ever."

When in the province of *Káthiáwáḍ* in 1835, we heard of the visit of Colonel Tod to the remarkable antiquities near *Junágaḍ*, his *Travels*, in Western India not having been then published; and we determined to regulate our movements so as to give us an opportunity of inspecting them. From the notes of our ascent of *Girnár*, on the 13th March, we have already inserted an extract. Our dealings with the rock-inscriptions are thus noticed in a communication to Mr. James Prinsep, published by him in the Asiatic Society's Journal for April 1838.

"I made as quick a descent of the mountain as possible, that I might reach, before the darkness of night settled upon me, the block of granite near *Junágaḍ*, which contains the ancient inscriptions which, though never deciphered, have attracted much attention. I was able to accomplish the object which I had in view. After examining the block for a little, and comparing the letters with several ancient Sanskrit alphabets in my possession, I found myself able, to my great joy, and that of the Bráhmans who were with me, to make out several words, and to decide as to the probable possibility of making out the whole. The taking a copy of the inscriptions, I found from their extent, to be a hopeless task; but as Captain Lang (of the *Káthiáwáḍ* Political Agency), had kindly promised to procure a transcript of the whole for me, I did not regret the circumstance. . . ."

"I suggested to Captain Lang, a plan for taking a fac-simile of the inscriptions. I recommended him to cover the rock with native paper slightly moistened, and to trace with ink the depressions corresponding with the forms of the letters. The idea of using *cloth*, instead of

paper was entirely his own ; and to that able officer, and his native assistants, are we indebted for the very correct fac-simile, which he presented to me, and which I forwarded to you some months ago for your inspection and use. During the time that it was in Bombay, it was mostly with Mr. Wathen, who got prepared for yourself, the reduced transcript, and with a native, who at the request of our Asiatic Society, and with my permission, prepared a copy for M. Jacquet of Paris.\* I had commenced the deciphering of it, when you kindly communicated to me the discovery of your alphabet ; and I at once determined that you, as was most justly due, should have the undivided honour of first promulgating its mysteries. Any little progress which I had made in the attempt to forge a key, was from the assistance which I had received from the alphabets formerly published in your transcendantly able work, Mr. Elliot's Canarese alphabets, and the rigid deductions of VISHNU SHASTRÍ, my quondam paudit, to whom Mr. Wathen has expressed his obligations in his paper on some ancient copper-plate grants lately sent by him to England. VISHNU's palæographical studies, I may mention, commenced with Dr. Babin-ton's paper, which I showed to him some years ago ; and they were matured under Mr. WATHEN. I mention these facts from my desire to act according to the maxim, *sum cuique tribue*.

“The rock containing the inscriptions, it should be observed, is about half a mile to the eastward of [the present town of] *Junágad*, and about four miles from the base of *Girnár*, which is in the same direction. It marks, I should think, the extremity of the *Maryádú* of the sacred mountain. The Jainas, as the successors of the Bauddhas, greatly honor it. They maintain *pinjarápurs*, or brute hospitals, like the *Banyás* of Surat, in many of the towns both of the peninsula and province of *Gujarát* ; and practice to a great extent the *philopsychy* of the long forgotten, but now restored, edicts of ASOKA.”

The fac-simile of the inscriptions executed under the directions of Major Lang here referred to, reached us in 1836. It was executed with the greatest care and neatness ; and, as mentioned in the extract now given, we lost no time in forwarding it to Mr. James Prinsep.

\* Recommended to the notice of the Bombay Branch of the Royal Asiatic Society, by the learned Professor E. Burnouf, of Paris.

Before its reception, however, he had published in his Magazine, the inscriptions as taken from the hasty transcript made from it with our permission by a Bráhma in the service of Mr. Wathen; and though, they were thus given generally in a correct form, several errors appeared, which have been partly corrected from a second fac-simile made by the late Captain Postans at the request of the Indian Government, and from transcripts and revisions very carefully made by Mr. Westergaard and Major LeGrand Jacob. Mr. Prinsep's translations have brought to light the most important discoveries which have perhaps been yet made in Indian archæology and history; but it must be admitted, that though they constitute an era in the study of Indian antiquities, they are,—like most translations of inscriptions in the cave character, very much of a tentative character,—and formed without any very definite grammatical analysis, or even apprehension of the strict meaning of the vocables which are used. In these circumstances, it is matter of congratulation among Indian orientalisks, that professor H. H. Wilson has lately undertaken to form a new text of the inscriptions by a collation of the admirable fac-similes which have been made, and the notes of Mr. Westergaard and Major Jacob, and to execute a new or revised translation, with suitable philological expositions. These inscriptions are the more important that they agree in many respects with those discovered near *Dhaulí* in Katak by Lieut. Kittoe,\* and at *Kapur di Giri* in Afghanistan, by Mr. Masson. The key to the last mentioned inscriptions, which are in a species of *Arian* character;—reading from right to left, was discovered by Mr. Norris, of the Royal Asiatic Society, an orientalist of the most extensive attainments, and the ready and successful assistant of all British inquirers.†

—Since the preceding paragraphs were penned, we have received the first part of the twelfth volume of the Royal Asiatic Society, containing the revised text of the oldest Girnár inscriptions,—those on the eastern side of the rock,—and Professor Wilson's most able and interesting paper "On the Rock Inscriptions of Kapur di Giri, Dhaulí, and

\* See Journal of the Asiatic Society of Bengal, March 1838.

† For Mr. Norris's paper and a most interesting comment upon it, see Journal of the Royal Asiatic Society, vol. viii. p. 303.

Girnár." The learned director of the Asiatic Society acknowledges the labour and care which have been bestowed on the Girnár inscriptions ; and he observes that "Dhauri and Kapur di Giri have not yet been examined under equal advantages." Speaking of the three inscriptions generally, however, he says, "possibly they still require to be re-examined and transcribed." In this statement, even with reference to Girnár, we are disposed to acquiesce, for a partial re-inspection by us of the rock there a few months ago, gives a few variants from the lithographed text which should not be overlooked. Now, when the character of the inscriptions is so well known, and the general import of the text is so well understood from the professor's modestly designated "proposed translation," errors, where they may exist, can easily be discovered by the orientalist.

Professor Wilson does ample justice in his paper to the ingenious and wonderfully successful labours of Mr. Prinsep. His translation, however, is far more precise and exact than that executed in Calcutta. His concluding observations merit particular attention.

He considers the language of the inscriptions to be "Pali, not yet perfected in its grammatical structure, and deviating in no important respect from Sanskrit;" and he observes that since the oldest books of the Buddhists are shown by Mr. Hodgson and M. Burnouf to be in Sanskrit, "it is by no means established, that Pali was the sacred language of the Buddhists at the period of the inscriptions, and its use constitutes no conclusive proof of their Buddhist origin." It is to be remembered, on the other hand, that the Páli of the Rock-Inscriptions is exactly the same as that of the oldest Cave-Temples, which are undoubtedly Buddhist, and that all the oldest *known* Bráhmánil inscriptions are in Sanskrit. The Buddhists, at least in the north of India, seem to have distinguished themselves from the Bráhmans in the use of a popular language for their public and permanent proclamations addressed to the community.\* We agree with

\* In connexion with this fact, we may advert to the following passage from that most important and learned work, *L'histoire du Buddhism Indien, par E. Burnouf*. "The difference (of the Buddhist instruction from that of the Bráhmans) especially appears in the preaching, the effect of which was to bring home to the understanding all the truths which were previously the property of the privileged classes. 1:

professor Wilson in thinking that the language actually selected was that spoken where the sovereign whose edicts are recorded resided, or perhaps that of the head-quarters of Buddhism. It is cognate with the present Gujarátí and Maráthí; but it is probable that the Turanian family of languages now confined to the South of India, and developed in the Canarese, Telugu, Tamil, Tulu, and Malayálam, had its remains among a portion of the inhabitants of the provinces of both Gujarát and Maháráshtra, at the time when the inscriptions were engraved. Though most of the names of places in these districts mentioned by Ptolemy belong to the Arian Languages, a few relics of the other family are traceable in them, as in "Tiauspa," "Nusariya,"† the present Nausári between Daman and Surat,—and others of a similar kind. The mountain and forest tribes still use a few Turanian words; but they seem to have long stood aloof both from Bráhmánism, and Buddhism, its speculative reform.

Professor Wilson does not think that there is anything in the injunctions promulgated, or sentiments expressed in the inscriptions, that is "decidedly and exclusively characteristic of Buddhism." The moral and social duties to which they refer are common to Bráhmans and Buddhists. Tenderness to life is inculcated by the Bráhmanical Manu, and Mahábháráta, and subsequent works, as well as by the Buddhist writings. This must be admitted. The only presumption in favour of the Buddhists, founded on this characteristic of the rock-inscriptions, arises from the fact that the Buddhist and Jainas take the precedence, and are far more ostentatious, in their tenderness to life than the Bráhmans. The first lesson of the Jatis, or Jaina priests, even at present, when they seek to gain converts to their system at the base of the Girnár mountain, as we have heard it from their own lips, is "Observe *daya*, or mercy, ours is the *dayá-dharma*, the religion of mercy," the most common designation of Buddhism on the cave inscriptions. The Girnár inscriptions inculcate reverence for Bráhmans; but they couple Bráhmans with Sramanas, generally under-

(the preaching) gives Buddhism a character of simplicity, and under a literary view, of mediocrity, which distinguishes it from the very profound manner of the Bráhmans."—Dr. Roer's Review, J. B. A. S., 1845, p. 800.

\* Ptol. Geog. lib. vii.



stood to be Buddhist devotees, and probably use both words, in a spirit of tolerance, more in a generic than a specific sense. Though Buddhism opposed from the beginning the exclusive pretensions of the Bráhmán *caste*, existing when it originated, and then seeking to extend its privileges, it admitted the superiority of the two higher classes of the Hindus, the Bráhmán and Kshatriya ; and they appear at first to have favoured the mission of Buddha.\*

Professor Wilson lays considerable stress on the fact that the rock inscriptions of Girnár, Dhauli, and Katak have no allusion to Buddha himself by any of his appellations, Sugata, Tathágata, Gautama, Sákya, or Sákya-sinha, to his family, or to any of his early disciples, or to any of the Bodhisatwas, and to the other fact that no hint occurs in them of Sthupas, Vihárs, or Chaityas, or of the Bodhi, or Bo tree,—everywhere else so frequently adverted to. These omissions certainly would be puzzling in the view of the theory of the claims of the Buddhists to the inscriptions, were the engravings mere solitary remains in the localities in which they are found. They are merely portions, however, of unequivocal Buddhist establishments. The oldest temples on Girnár we took to be Buddhist, when we first inspected them, as will be seen from the quotation from our notes which we have already introduced. A Buddhist *Vihár* we lately found a few hundred yards from the graven rock, an inscription of which as given by Col. Tod in his Travels, is in the same form of character as we find in the oldest of the rock tablets.† The Dhauli rock, too, is associated with a *Vihár*, drawings of which by Captain Kittoe are published in Mr. Prinsep's Journal, and the Kapur di Giri inscription is in a Buddhist locality.

The facts connected with the tenor of the inscriptions which are noticed by Professor Wilson, are most worthy of attention ; but, while they may be a check to rash conclusions, they have not made us sceptical respecting the Buddhist character of the rock inscriptions.

The proclamations on the rock inscriptions run in the name of *Dewánán piya Piyadasi Rájá* and they contain allusions to the terri-

\* Burnouf, Histoire du Buddhism Indien, p. 140. M. Bournouf's remark is founded on the Sútras, which he carefully analyses.

† See above p. 76.

tories of *Antiyako*, *Turamaya*, *Magá*, *Alikasunari*, and *Antikoná*. The occurrence of the latter names fixes a limit to their age. They are obviously not of synchronous kings. "We must look, therefore," says professor Wilson, "not to dates but to notoriety of the names, and the probability of their having become known in India, for the identification of the persons intended. Under this view, I should refer Alexander to Alexander the Great, Antigonus to his successor, Magas to the son-in-law of Ptolemy Philadelphus, Ptolemy to either or all of the four princes of Egypt, and Antiochus to the only one of the number, who we know from classical record, did visit India, and who from the purport of the inscriptions we may infer was known there personally,—Antiochus the Great. In this case we obtain for the date of the inscriptions some period subsequent to B. C. 205." Píadasiná has been identified by a single Buddhist work of the fourth century after Christ,—the *Dipavanso* not free from chronological errors,—as Ashoka, the grandson of Chandragupta, the Sandracoptos or Sandrocottos of the Greeks, the ally of Seleucus Nicator, B. C. 305, and in this identification, Mr. Turnour, Mr. Prinsep and others have acquiesced; but, as remarked by professor Wilson, it seems very unlikely that Ashoka could be living a century later, or that, in his inscriptions, he would substitute a titular appellation for his proper name. That there are anachronisms in the tablets, is obvious from the allusions to the Greek kings who were not contemporaries; and if the tablets were engraved by the alleged authority of a deceased king, it could only be through such a pious fraud as the Buddhists,—though the fathers of Indian history in its proper sense,—have sometimes been guilty of, to give currency to their doctrines and precepts. *Devánámpiya Píadasina*, we venture to take to be the *Devanampiatisso* alluded to in the passage which we have already quoted from the *Mahavanso*, and who seems to have been a great propagator of the Buddhist faith.\* This prince was, during part of his reign at least, the contemporary of Ashoka; and though the chronological difficulty is thus not altogether removed—which in the disposition of the Buddhists to antedate when occasion required seems insuperable,—the nominal

\* See above, pp. 81-82.

difficulty seems to us to be much lessened, while the historical fact of the effort to extend Buddhism is recognized, though with a perverted date. The Chinese traveller Fa Hian (A. D. 399-414), and those who followed him, whose works have been so well illustrated by Remusat, Klaproth, Landresse, and Burnouf, and analysed by Colonel Sykes, attribute most of the Buddhists Vihârs and structures, which they observed in their extensive journeys in India, to Asoko. It is probable that for this ascription, they had some historical foundations.\*

Mr. Prinsep's translation of the western tablets of the Girnâr rock of a posterior age remains yet to be revised.

#### SITES OF ANCIENT TOWNS.

It is much to be desired that the researches of the Commission to be appointed by Government should be directed to the inspection of the SITES OF ANCIENT TOWNS in all parts of the country, and to the vigorous prosecution of research connected with their RUINS and RELICS, their WELLS and TANKS, and even the TRACES OF THEIR FOUNDATIONS. Their larger remains require a regular survey, under European superintendence. Directions should be given to the native authorities in their neighbourhood to preserve all the COINS and COPPER PLATE GRANTS, and SLABS BEARING INSCRIPTIONS, and ancient FIGURES which may be found at them. Of what may be done in this way, even in an incidental manner when other resources are not forthcoming, we have a good example in the success of Dr. Alexander Burn, in procuring at Khedâ (Kaira), by a slight encouragement of the natives, about fourteen pounds weight of coins of the SAURA'STHRA dynasty,—now so thoroughly illustrated, after Mr. Prinsep, by Mr. Edward Thomas of the Bengal Civil Service,†—and four valuable sets of COPPER-PLATE CHARTERS of the same race.‡

The history of all the various tribes in the wide extent of India may

\* See Notes of Colonel Sykes on the Religious, Moral, and Political state of India before the Mahomedan invasion.

† Journ. of the Roy. As. Soc. vol. xii. pp. 1-72.

‡ Journ. of As. Soc. of Bengal, vol. vii. pp. 908-814 ; 966-978.

be illustrated in the manner now alluded to, and that to the great advantage of both rulers and ruled in this country; for certainly the more that is known of its past history, the better will its present state be understood. Speaking of the **ABORIGINES**, or mountain and forest tribes, Colonel Tod justly says, "There are many ancient **SITES OF FORTRESSES** and **CITIES** appertaining to this race, which are well worthy of being explored."\* He might have added **BURYING-GROUNDS**, for some of those connected with even the oldest **TURANIAN** tribes can still be identified, and with their contents are very curious, as those described under the name of the **PANDU KOLS** of **MALABAR** in our own Transactions, and those lately discovered near Kalbargah by Captain Meadows Taylor, and an account of which will soon be published in our Journal. There are scores of ancient **CAPITALS** and principal towns of the **HINDU** princes of various dynasties, and some of which are mentioned in remote times, which have not met with a tithe of the attention to which they are entitled. Colonel Tod's notices of those in *Rajputáná* are the fullest, and in the highest degree creditable to his observation and research; but they, nevertheless, with the progress which has been made in late years in the study of Indian antiquities, may be both much extended and made more precise. Many places, in the south of *Rajputáná*, and the north and west of *Gujarát*, including the Peninsula, he saw only during a hasty journey; and nothing has been systematically done since his day to follow up the inquiries which he originated. *Chandraváti*, *Anhalwádá-Pattan*, *Wala* or *Walabhi*, *Sihor*, *Bháwanagar*, *Pálitáná*, *Junágad*, *Pattan-Somnátha*, *Káthi-Koṭ*, and other places of like celebrity, have still their claims on the antiquarian.† The same remark is applicable to *Ujjayana*, and many other places in central India, and *Devagirí*, *Kalyánpur*, *Vijayanagar*, and other towns in the Dakhan. Even the **MUHAMMADAN** capitals should not be neglected, as is evident from the example of the interesting papers on *Bijápur* by Colonel Sykes and Mr. Bird, and the

\* Tod's Travels in Western India, p. 173.

† Of *Gumlí*, the ancient capital of the *Jaitwa* tribe in *Káthiáwád*, an account has been published by Major LeGrand Jacob. The notes of Captain Postans on *Pattan Somnátha* have also been published since Major Tod's visit.

curious and interesting information collected by Mr. G. H. Briggs in his late meritorious work.\*

Of the importance of a vigorous prosecution of research in connexion with the Antiquities of India, it is difficult to form too high an estimate. A different kind of credit is to be obtained by those who devote their limited leisure, and their incidental attention when travelling throughout the country on their lawful occupations, as auxiliary to this work, than those receive who collect and pile curiosities upon one another without the slightest regard to their historical import, and who devote themselves to mere conjectures about their meaning, as if their own ingenuity would compensate for the want of attention and study,—who simply gather

Intaglios rude, old pottery, and store  
Of mutilated gods of stone, and scraps  
Of barbarous epitaphs, to be  
Among the learned the theme of warm debate,  
And infinite conjecture sagely wrong.

Historical truth is to be found in India, in a state of comparative purity, only in the ancient monuments of the country ;—the temples and habitations excavated from the living rock, or erected with wondrous labour, with the varied and multifarious objects of interest which they enshrine ; the pillars and mounds of victory and religious commemoration ; the impressions of the iron pen, which, in the days of yore, with imperial or sacerdotal commission, recorded irrevocable decrees or pompous proclamations on the plate of metal, or durable stone ; and the images and superscriptions remaining on the tokens of value and of credit, which were formerly current among the people. These monuments, of an unequivocal character, have best withstood the ravages of time the great destroyer ; and religious fraud, repelled by their venerable antiquity or exhausted in the attempt to entomb their magnitude, or to annihilate their multitude, or to efface their permanent records, has failed to destroy them or effect their corruption. They have survived the destruction of their keepers, effected by the Bráhma and

\* Cities of Gujaráshtra, Bombay, 1849.—The account of Mandu by the late Lieut. Blake, published at the press of the Bombay Times, may be referred to also under this head.

Rajput and Maráthá chief; and they tell their own tale in spite of their appropriation by sects and parties which had nothing to do with their origin, and many of which have come into existence subsequent to their execution and completion. They have proved too solid for the sledge hammer of the Musalmán entirely to mutilate them; and too incumbustible for the fires of the Lusitanian to consume or rend them in pieces.\* They still exist for comparison with the ancient literary remains of India, confirming what little of historical truth is to be found in these records, and illustrating their erroneous, though sublimated speculations, and their wild though unpoetical mythology, with all its perversions and exaggerations. They are the credentials of the genius, taste, wealth, and power of ancient India. The interpretation and exposition of them by the European orientalist to the simple natives who have access to them, has destroyed their belief in their divine origin, and deprived the systems of living error around them of that veneration associated with them when they were believed to be the undoubted property of these systems, and the veritable works of the very gods who are now worshipped; and it has taught some of the learned natives the principles of historical investigation. They testify to all of transactions and changes, both civil and religious, which have occurred in ages long gone by among a people too long supposed to be immovable in their creeds and customs, and to preserve an attitude of sublime or stupid repose, and which strengthen the conviction that the obstacles to the important changes which Christian philanthropy leads us to desiderate and solemn duty and delightful privilege lead us to attempt, are in reality much less formidable than they appear to be to the view of the timid and inconsiderate. The few individuals comparatively who have directed their literary attention to them, have received, in their recognition of these facts, a rich reward for what they have done in their elucidation. Our Asiatic Societies observe the highest ends of their incorporation, when their members combine for the prosecution of the work

\* The natives have a tradition, that the Portuguese kindled fires of straw round some of the images at Elephanta, and then split their lower parts by throwing water upon them when they were heated.

of their more extended investigation. The Government of India pursues an economical, as well as a liberal and enlightened, policy, when it determines to adopt decided measures for their conservation and complete or general delineation.

Bombay, 23rd August, 1850.

POSTSCRIPT.—It will be seen that this paper, brief though it be in many of its intimations, brings a considerable number of important Antiquities to light, which have hitherto been entirely overlooked by Europeans. It has been confidently stated, that many such objects of interest yet remain to be discovered in this country.

Since the sheets on the ROCK-TEMPLES were printed off, the writer of this Memoir has heard of several series of ancient works of the same character, of the existence or nature of which he has been hitherto ignorant.

Three of them are brought to notice in the following note from that indefatigable observer Dr. Gibson, to whom this paper is already so much indebted.

Dhápuri, 12th July, 1850.

MY DEAR DR. WILSON,

The Cave of which I spoke to you (at the foot of the Ghát) is at a village called A'MBOLI' near to *Jámbrúg* and *Washá*, below the southern shoulder of the *Bhimá-Shankar* hill. There is there one large apartment having the usual pillared veranda. The pillars, etc. are in excellent order, and have a few letters of inscription in the usual cave character. The main chamber contains five or six recesses or closets; and in each of them is an image or a group of images. But I think that these are much more modern than the cave itself, with one exception. I will send you drawings of the whole after I reach Hiwará i. e., after the 20th instant. The cave is beautifully situated on the face of a low hill overhanging the river. The cave has an easterly exposure.

I do not know that I ever mentioned to you the series of caves at BORG'RÍ', a village three miles east of *Bhimá-Shankar* on the Dakhan

side. They are situated in the scarp of an isolated hill. They contain a double series of the pillars common in such caves; but I could discern neither ornament, images, nor inscriptions.

Also, at a village situated five miles W. S. W. from A'YARA' in the Táluká of Khed (Kheir) I have observed, from a distance, a scarp having a northerly exposure and containing apparently several caves, similar in size to those in the hill immediately south of Junír.

Yours sincerely, ALEX. GIBSON.

These caves are all in a locality to which we have already pointed, as probably having many remains of this character.\* Those at AMBOLI' seem to be a small Buddhist *Vihára* or *Dharmashála*, of the latest type, at present appropriated by the Bráhmans, who, judging from the drawings forwarded to us by Dr. Gibson, have placed within them a small collection of miscellaneous images:—of *Ráma*, *Lakshman*, and *Sitá*, *Lakshmi-Náráyana* (two examples, in one of which the god and goddess are mounted on *Garúda*,) *Náráyana*, *Ranchodjí* (the form of Krishna worshipped at Dwáráká), *Báláji*, *Bhimá-Shankara*, and *Krishna* playing on the lute. These images seem to be the spoils of some destroyed temples.

Another series is in BELUCHISTA'N and is thus noticed by Dr. Stocks, lately returned from a botanical excursion in that interesting province, which has hitherto been but little explored.

Karáchí, July 5th, 1850.

DEAR SIR,—During my late visit to Beluchistán, it chanced that I came across the "Cave Temples" and the "Inscription graven on a rock," mentioned by Masson in his work on Beluchistán (vol. iv. p. 399) as occurring at Nichárá. The cave temple with its corpses on Charpáos, was but a hole in the side of a mountain containing from 25 to 30 *perfect mummies* with clothes, sheets, couches, ropes, etc. in an excellent state of preservation. But, in nearly every case, you could trace on the skeleton, from *sword cuts* and *bullet holes*, that the parties had died a violent death. They were certainly not the remains

\* See above, p. 55.



of fakírs or ascetics. There was a pretty little mummy of a child, about two years old, amongst them. The natives called them the Shahíd, شهيد, and had a tradition that they were killed by Káfirs.—The Nichárá inscription is a curious thing. It is on a rock which has a thin external vitreous rind of a whitish colour. This has been chipped out, so as to leave the inscription easily made out from the difference of colour between it and the body of the rock. But what it is I am perfectly at a loss to say. Hence I send it to you. I got no coins, nor did I see any other thing worthy of notice in my journey, plants of course excepted. I got to Queta, and Mustong, and ascended the giant mountain Chehel Tun, 11,000 feet above the sea, or 5,000 above the plain; on which snow was abundant on the 5th May. I remain,

Yours very sincerely, J. E. STOCKS.

The inscription forwarded to us by Dr. Stocks, consists of six letters. Though, from the injury of the stone, they are not very distinct, they appear to be of the Buddhist cave character. Five of them, we readily decipher. The one remaining seems to have sustained some injury. The Sanskrit restoration seems to be खग ऋषि नमः "GLORY TO KHAGA RISHI." A symbol near them is Buddhistical also. The mummies, of course, are of a later age. The character of these caves gives much interest to the discovery of Mr. Masson and Dr. Stocks.\*

At the GANESHA-KHIND, near Puná, there are a few chambers occupied by Bráhmanical images, which should have been alluded to under the heading of "THE CAVES OF PUNA."

\* *Erratum.* For कराड, *Karád*, p. 59, read कराह, *Karád*h.

ART. VII.—*Memorandum on some Buddhist Excavations near Karádh.* By H. B. E. Frere, Esq. Commissioner of Sátára.

These caves are situated on the skirts of the Hill of A'GA'SHIVA, so named from a temple of Mahádeva at the top. It is the last of the range which, running off from the main Gháts near Helwak, forms the southern boundary of the valley of the Koiná, till that river unites with the Kríshná at Karádh. The hill itself rises about two miles from Karádh; and the temple at the top is about four miles from that town. From the temple two spurs run off in an easterly direction, one towards Karádh, the other towards the village of Jakanwáđi. The annexed rough sketch of the hill will better explain the locality.\*

Some of the caves are much scattered, but, for convenience of description, they may be grouped into three series, in the order in which we visited them.

1st. That which overlooks the valley of Jakanwáđi. The caves generally face south, and are the furthest from Karádh. This is the largest and most important series.

2ndly. The caves in the valley between the two spurs above described. They are few and scattered.

3rdly. The caves overlooking the valley of the Koiná and Karádh. They face generally north.

The villagers of Jakanwáđi said no Europeans had ever examined these caves till they were visited by Dr. Murray, Lieut. Lurie, and myself, on the 29th ultimo, and it appears to have been only of late years that the caves have been much known, even to the natives of the immediate neighbourhood. Formerly they were merely used as cattle-sheds by the owners of the fields in the valley below; and it is said to have been not more than about 10 years ago that a recluse devotee of Viṭhobá from Panḍharpur, had one of the caves cleared out, and took up his residence there; others followed, and an image of Viṭhobá was set up in a niche cut out of one of the Dahgobs. There are now seven-

\* In the deposit of the Society.

ral permanent residents including a Gosávi, who according to the statements of his disciples, "every fifteen days makes the journey to Pañḍharpur and back (about 90 miles) measuring his length on the ground, crossing unfordable rivers in the same position, and performing many other wonderful acts." Respectable well informed natives, who had seen him crossing the Krishná in the rains, acknowledged that his manner of doing so appeared to them very like a mode of swimming which they had seen others practice. Nevertheless, the belief in his powers is universal throughout the country round Karáḍh, and his residence bids fair to become, ere long, an established and favorite shrine of Viṭhobá.

The following list of caves commences at the western end of the first series, which may be called that of Jakanwáḍí. More minute search may probably lead to the discovery of many other excavations now covered by rubbish. They are generally excavated in a very soft variety of very vesicular amygdaloid, of a pinkish roan colour, unfavorable for cutting or retaining figures or letters. This may partly account for the generally unornamented character of the caves, and the rarity of inscriptions, of which we were not successful in finding any traces in the caves on this side of the hill.

I. No. 1, called, by nick-name, "Choká Melá," the "Mahár's" cave, the most western of the series at the top of the ascent from Jakanwáḍí. It is at present inhabited by two or three "Mahár Sants," who have lived here for the last six or eight years. The entrance is flanked by something like pilasters of a very simple form, an octagonal band dividing a square pilaster; but the mud and cording additions of the present occupants prevent much of them being seen (Vide ground plan).\* About 20 paces east is,

No. 2. "Mandapchí Wáḍí," the Mandap, or Cutchery; a plain flat roofed large cave; the ground plan may obviate the necessity of a lengthened description.

No. 3, 40 paces further east, is a small apartment 17 feet by 6, with a single small cell at the back furnished with the usual bench or bed-place.

\* In the Society's deposit.

A very few paces further east is.—

No. 4, "Lakshmichí Wádí" Lakshmi's cave, a small apartment 17 feet by 18, with 4 cells opening off it. The cell to the right as you enter has a small door communicating with a Dahgob cave; the ground plan may explain the arrangements of both.

No. 5. The 1st Dahgob cave, is known as "Chandra Suryáchí Wádí," "the cave of the Sun and Moon." It opens to the S. W. The space in front, about 16 feet wide by 25 deep, has been divided into two by two pillars, which formerly supported the roof of an antechamber, but the pillars are broken and the roof fallen in. There is a small tank to the right as you face the entrance; and beyond it, on the same side, is a small square recess with an arched niche within it. On the opposite side near the tank is a square niche with a hole at the bottom, as if for a drain; and further in, on the same side, the aperture before mentioned leading to the cell in No. 4. The door leading into the principal cave is square-headed, with marks of where a wooden door frame may have been; over it is a square window, and on either side of it a rude pilaster; that to the right (as you face it) surmounted by a figure of what the natives call a Lion, that on the left by a wheel-shaped figure, which they call the Sun. The annexed sketch may help the description.

The interior cave is about 30 feet by 12 and about 16 high. It has a covered semi-circular ceiling. At the further end is the Dahgob.—The umbrella part is cut out on the ceiling; but the shaft has been broken away. The present height from the floor to the top of the square below the umbrella shaft is about 11 feet, and the greatest circumference 25 feet. Vide annexed sketch.

About 10 paces east of this is No. 6 "Viṭhobáchí Wádí," Viṭhoba's cave, from the figure of Viṭhobá, which was a few years ago set up in a niche cut in front of the Dahgob. The space in front, which has a small tank on each side, leads into what was formerly an open verandah supported by 4 pillars—the inter-columniations have of late years been built up. From this a door, with a large window on each side, leads to a cave about 15 feet square, beyond which, in a room about 19 feet by 11 feet, is a Dahgob, about 21 feet in circumference. In front of which Viṭhobá's image has been inserted. On each side

of the entrance is a kind of square pedestal ; and on either side of the antechamber are two smaller caves, each about 15 feet by 6, with a small closet, without any bench or bed-place leading out of each, as shown in the ground plan.

About 10 paces further on, is No. 7, a square-cave 20 feet by 20, divided into two with 2 small cells at the back of the further compartment, and a recess at each end of each compartment.

A few paces further east is No. 8, a cave very similar to that just described, but with no cells at the back of the cave.

A few yards from this cave, across the bed of a torrent, the hill side tends more directly south than before, so as to make the entrances to the caves, on this side of the ravine, face nearly west.

The first cave No. 9, is about 19 ft. by 16, with 8 small cells leading from it, all much decayed.

No. 10, is a single small cell.

No. 11, is a small flat-roofed cave, only 22 ft. by 13½, and about 10 ft. high ; but it contains a small Dahgob, very much weather-worn, and only 11 ft. in its largest circumference. A slight outline sketch is annexed.

No. 12, is a small cave 17 ft. by 12, divided into two with a small cell at the back of the further compartment.

No. 13, is very similar, but only about 12 ft. square.

No. 14, is a single cell, and No. 15 like No. 13.

No. 16, is a Dahgob cave ; 2 pillars support a verandah, about 20 ft. by 4 with a bench on the right. Beyond this is an antechamber 20 ft. by 11, lighted by 2 windows, and beyond this a room about 15 ft. square, with a small Dahgob, about 23 ft. in circumference (vide ground plan).

No. 17 is a large square cave now nearly filled up with rubbish. It seems to have had only one small cell leading from it.

Across another Nalá, are Nos. 18 and 19, both single cells.

No. 20 is a large square cave about 34 ft. by 29. On each side, nearest the entrance, are large raised recesses. That to the right, as you enter, has one pillar supporting it in front, with indications of mortices, which may have been used for a wooden partition ; but as the Gosávi before described had taken up his quarters there, we

could not examine it very closely. Beyond these recesses are 2 cells, on each side, and 4 at the further end of the cave, as shewn in the ground plan.

No. 21 is a small cave with 3 cells at the back. No. 22 is a single cell, and No. 23 a small cave with 4 cells.

Most of the benches in these caves have perforations at their edges, so as to form staples, as if for tying animals. Some of the floors have several small round holes, similar to those now used as mortars for husking rice. Most of the doors and several of the windows bear marks of mortices, as though they had been furnished with wooden lintels and door posts, or with window frames, which have been supplied by the present occupants to one or two of the cells which are inhabited.

The general size of the cells in this part of the hill, is 6 ft. by 6; but some are rather larger, the most spacious perhaps 8 ft. by 7. They are almost invariably furnished with either a bench, or recessed shelf at one end, as if for a bed place. Small tanks or reservoirs of water are abundantly scattered about—there being in general one or more near each cave. All the Dahgobs are cut out of the solid rock, from which the caves are excavated, and none of them appear to have been built, or to bear marks of any cavity in the interior, or in front, with the exception of that *recently* made for Viñhobá in No. 6. The workmanship of the caves is everywhere very rough, apparently done with a round pointed pickaxe.

II. Leaving this series we ascended the hill, and just below the temple of Mahádeva, which is at the summit, we found ourselves at the head of the valley which lies between that of Jakanwáñi and the valley of the Koiná, and contains the 2nd series of caves.

The only cave in this ravine visited by the people of the neighbourhood, is known by the name of "Bahirobáchá Dará," No 24. It is situated in the angle at the head of the valley, and very close to the foot of the hill. Scrambling down to it, we found a square Vihára cave, containing 4 cells, in which we observed the peculiarity that the windows (of which there was one to each cell opening into the large cave) were pierced in lattices of square holes. On the right hand side of the entrance as you enter, are sculptured in low relief, what

appeared to be the figures of Dahgobs each surmounted by the outline of the arched front of a cave.

This ornament was repeated, I think, three times on each side. Our examination of this cave was, however, very hasty and imperfect.

The floor has been *built* up with mud and stones, for what purpose we could not learn, but so high that it was impossible to enter except almost creeping. The middle of the cave is a pool of water, and water falls in great quantity from the roof. Added to this the evening was closing in, which rendered the darkness of the cave greater than usual, and obliged us to be quick in re-ascending, as we had a long walk over the hill, before we could reach the valley of the Koiná.

Close to this cave is one of the usual tanks, and in climbing the hill, on our return from it, we observed, in the face of the rock on the western side of the ravine, some openings evidently of caves. They were not frequented by the villagers, and were difficult of access. A path was afterwards cleared to them, but circumstances prevented our visiting them. The following account is from the notes of a Bráhma who was sent to examine them.

“No. 25—a cave 51 feet long by 27 wide, with 10 interior small cells. To the west is a small cave, but too much filled with rubbish to admit of its being measured.

“No. 26—a cave, too much filled with rubbish to be accurately measured, but apparently about 30 feet long by 18 wide.

“No. 27—a cave 24 feet long by 20 wide.

“No. 28—a cave 21 feet long by 18 wide supported by 2 pillars.

“No. 29—a small cave about 13 feet long by 7 wide. Above this are 2 small caves but too much filled up to admit of their being measured.

“No. 30—a cave 19 feet long by 6 wide. Above this are 4 caves, so much filled by rubbish, that it was impossible to measure them.

“No. 31—a cave of 5 divisions (khans) 22 feet long by 12 feet wide, with 2 interior cells each about 6 feet square.

“This last cave is about two miles from cave No. 24.”

Thus far from the description of the Bráhma, which brings us to the end of that spur of the hill which overlooks Karádh, and to the third series of caves, or that in the Koiná valley.

III. It was almost dark when we reached them, after walking over

the hill from those already described (Nos. 1 and 24); but I was able to pay them a hurried visit a day or two afterwards.

They generally face to the northward. I began at

No. 39, which is close to the path leading over the hill to Agáshiva, and the most westerly of the first line of caves on this side of the hill.

It is a small square cave, with a single cell inside, on the right as you enter.

No. 38 is a little lower; and about 40 paces to the east, a single small cell.

A few paces further to the east, you come to the foot of a flight of 14 regular steps cut in the rock, with the remains of a low plain balustrade, the steps lead to No. 37, a cave or rather range of caves, which are over Nos. 36 and 38, (vide plan).

The annexed plan will explain their arrangement. At the top of the steps a narrow space is cleared, in front of the cave, with a small tank, close to the steps. The range is flanked by a cell. At each end 4 square pillars support a verandah 36½ feet long by about 6½ feet wide. A Dahgob cave is in the middle of the range, with 2 cells on each side.

The cells are smaller than usual, being rather less than 6 feet square, and contain no seats nor beds. There is a small square niche at the entrance of that which is on the western flank of the range.

The Dahgob cave is about 26 feet long by 11 wide with a flat ceiling, about 11 feet high at the further extremity and a little higher near the entrance. The Dahgob is 21 feet in circumference. The umbrella is sculptured on the ceiling; a cylindrical shaft connects it with the cube, which rest on the dome of the Dahgob. The faces of this cube have a latticed ornament round the top of the drum. Below the dome, runs a band of 3 horizontal bars, crossed, at short intervals, by single perpendicular bars. To the right of the Dahgob, and a little in front, are the remains of a group of figures, about 5 feet high. The top of the group is flattened; and there is a kind of recess in the wall of the cave, as though the group had served for a bracket to a slab. What was the intended action of the figures, which are very rudely executed, I could not conjecture, nor even at first clearly make out whether there were one or two. The villagers who were by,



said they represented a man who came to rob, and was there bound, hand and foot to a tree. The annexed sketches may give some idea of the Dahgob and the figures also. The large figure was distinct enough, and was apparently intended to represent a male figure, with a cap, terminating in 2 large bows or branches, on his head; ornaments in his ears; bangles round his arms; and a necklace round his neck; drapery round the loins, and upper part of the person; and something of a carved shape in the right hand.

The smaller figure had the appearance of the lower extremities of a man, ending above in a tree, or bunch of excrescences, the design of which I could not conjecture. The figures are indistinct, not so much from injury by time as from original rudeness of execution.

A small door only 3 feet by 2, leads from the left hand corner of the Dahgob cave near the entrance, into the cell next to it, on the east; and the cell beyond this communicates, by an irregular aperture, with the surface of the rock above.

In some of the caves there is a large vein of soft rock, through which water might find its way from above; grooves have been cut in the rock, parallel to the vein, apparently with a view to carry off the water. All the doors have mortices at the top, apparently intended for wooden door frames.

The cell which flanks round to the east, has a curious communication with the hill above. From the back of the cell on the right, a passage leads, first a few feet west, then, at right angles, a few feet south, where it communicates with a perpendicular shaft, about 12 feet deep from the surface, and about 4 feet by 3 in width.

A passage leads sloping up, out of this shaft, on the south side, and turning W. comes out on the hill, above the range of caves. This will be better understood from the plan.

Returning downwards, and descending the flight of steps, close to their foot, on the eastern side is

No. 36, the arrangement of which may be best explained by the ground plan of the last cave.

The principal cell has a bench, running the whole length on each side; at the back is the entrance to an inner cell, which is unfinished.

To the east is a small cell, communicating with the principal one

by a door cut behind the bench. There is also a similar communication between the principal cell and the antechamber, leading from the small cell direct to the outer air.

On the eastern wall of this antechamber, and on the backs of two niches which are recessed, one on each side of the entrance to the principal cell, are traces of inscriptions, the sole remains of the kind observed in these caves, (*vide a. a.* in the plan).

Owing to the coarse grain of the rock, the letters could never have been very finely cut, and are so much decayed that it required minute examination to be satisfied that they were really parts of an inscription. Annexed is the best fac-simile I could make of the very few characters which were distinct enough to enable me to copy them; probably a person acquainted with the character, and assisted by the strong side light of an evening sun, or a torch after night-fall, might make out a few more, and perhaps complete the two lines. The roughness of the rock hardly admits of taking an impression with ink on cloth.

Proceeding east and passing some remains of steps cut into and leading up the rock, you come to No. 35, a large cell with a verandah supported by two square pillars in front, and a small interior cell on the left hand side.

About 40 paces east is No. 34, a small room with two cells at the back.

A couple of paces east is No. 33 a single cell, and a few paces beyond it No. 32, a range of five small cells, two of them with bedshelves, which, as already remarked, are generally wanting in the caves of this part of the hill.

Beyond this, at some distance east round the end of the spur, is No. 31, the last of the series already above described from the account of a Kárkun.

I had just completed my examination to this point, when a cultivator, whose fields were hard by, volunteered to show us some more caves which he said were little known to any except the cow-boys whose cattle grazed on the sides of the hill. He accordingly led us back to the western end of this series, and descending the hill obliquely in a N. W. direction, showed us Nos. 40, 41 and 42, three small cells, ap-

parently single, but too nearly filled up with rubbish to enable us to examine them.

Still proceeding N. W. about half a mile, he brought us to a large and wide ravine, on the eastern bank of which, near the foot of the hill, we found five caves, mostly choked with rubbish and brushwood, and evidently seldom visited except by jackals and bats, of which there were such numbers as to make a minute examination any thing but an agreeable task.

The caves here generally face nearly west.

No. 43—is a large square cave much filled up ; with ten interior cells opening from it, three on either side and 4 at the back. In front is an antecave or verandah, supported by 2 plain square pillars.

No. 44—consists of two single cells.

No. 45—is a cave, 36 feet long by 13 ft. 13 in. wide, with a coned or waggon vaulted ceiling, like those caves which contain Dahgobs, but this has none. To the left of it are two cells very much filled up, and two to the right as you enter.

No. 46—is a large cave, 36 feet long by 28 wide, and containing 18 cells opening off from it. Their partitions are much broken, and the cells much filled up. One of those, on the left hand side, is of larger dimensions than the rest.

No. 47—is a cave, about 20 feet square, with two cells at the back.

On the plain, at the end of a spur, about  $\frac{1}{4}$  of a mile still further N. W. is No. 48, a cave of two small cells sunk below the surface, and a large covered tank—the roof of the tank is level with the surface of the ground, and is supported by two pillars. It was nearly full of water, but, as far as we could judge, it was at least 20 feet square.

Meagre as the above catalogue is, from want of leisure as well as many other defects less easily remedied, it may serve to abridge the labours of more competent observers, by assisting them to find the caves which were shown to us, and probably many more ; for I have little doubt but that a careful and leisurely examination of the mountain, and a few rupees judiciously distributed to the shepherds and cow-boys who frequent its sides, would bring to light several caves besides those enumerated. No doubt also by a careful survey of those shown to us, and by cleaning out such as are filled up, much might be dis-

covered worthy of note which escaped us. Very probably other inscriptions, besides the almost illegible remains above described, may be found, and throw a light on the date of the excavations. The only general features which struck me, as likely to assist such conjectures were, the extreme simplicity of style and general absence of all attempts at ornament, as well as of any human or other image in the places usually appropriated to the object of worship. The measurements will show the relative proportions of length to breadth in the Chaitya caves. We remarked no remains of plaster or painting. The frequent occurrence of mortices, as if for wooden door-frames, etc. has been already noticed.

H. B. E. FRERE.

Camp, Sattara Districts, February 1849.

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ART. VIII.—*Geological Observations on the Igneous Rocks of Maskat and its Neighbourhood, and on the Limestone Formation at their circumference.* By H. J. CARTER, Esq., Assistant Surgeon, Bombay.

The following observations on the Rocks of Maskat and its neighbourhood are presented to the Society for two reasons. First, because they have not to my knowledge been previously described; and second, because they form the type of all the igneous masses between Ras al Had and Ras al Jazira on the south eastern Coast of Arabia, and therefore, probably, the type of most of those which have come to the earth's surface throughout the eastern angle of this peninsula.

It was my intention to have deferred the description of these rocks until I had completed a short geological statement, under preparation, of the whole of the south-eastern coast of Arabia; but as it is doubtful when this will be finished, and after all can only connect Maskat with Ras al Had by description of the intervening coast as seen from the sea, I shall avail myself of this separation to state at once what my notes of Maskat and its neighbourhood will afford.

In a geographical point of view, Maskat, as we approach it from

the sea, is characterized by a group of dark colored rocks, whose peaks become more and more visible as we near them, until one more prominent and larger than the rest points out the position of the town itself. So soon as this peak is recognized there remains no doubt of the course to be pursued, and presently we find ourselves in a deep narrow bay a mile long and half a mile broad, running parallel to the coast and open only to the N. N. W.

Nothing can be more picturesque than this bay, its green water, the dark color of its rocks, their innumerable peaks, the white towers at the bottom, and the white castles at its entrance; all of which are so completely hidden from the sea that, their existence is hardly known until we are within cross-fire of the two outermost batteries.

Much might be said of the beauty and romantic scenery of Maskat and its adjoining coves, but this is not the place for it, all that is now required being sufficient to introduce the present subject.

When at Maskat at the commencement of Dec. 1844, and again at the commencement of Nov. 1845 I went to different parts of its neighbourhood to see its geology, sometimes on foot, sometimes in a canoe by sea. But it was more particularly during my first visit that the few notes were made which are embodied in this paper. I then followed the coast north and south of Maskat, as far as the dark rocks in the midst of which this town is situated extend.

They are spread over an area of about 10 miles long and 3 miles broad and are chiefly composed of serpentine, which is limited on the coast and inland, by a yellow colored limestone formation. Their ridges and summits are sharp and peaked, and seldom exceed 400 feet in height, and their sides and valleys soilless and barren.

The serpentine is for the most part of a dark brown color and interspersed with small laminated crystals of *diallage chatoyante*. When taken from a depth it is tough and not easily broken; but on the surface crumbles and breaks into rectangular fragments, the sides of which are more or less coated with green and variegated serpentine, steatite, or calcareous spar. In some parts it is of a light brown color and earthy, while in others it is darker, more compact and more waxy or crystalline. It is exactly the same as that of the Lizard Point in Cornwall, with the exception perhaps, of the presence of green

diallage, which, however if it exist in the serpentine of Maskat is of a much duller color than that in the serpentine of the Lizard.

Everywhere these serpentine rocks at their circumference are bounded and overlapped by the yellow limestone formation mentioned, which like them is also barren and contrasts strongly with them in point of color, form and stratification.

A more extended examination of this serpentine would of course have enabled me to write more about it, but this I was unable to effect, and had I done so, the character of the rock, its variety of form, structure and composition, are points now so well known, that such information of the serpentine of Maskat, if I gave it, would probably be only a repetition of what has already been much better described, and after all, would not add much to the interest of this paper.

Proceeding southward to the limit of this serpentine, we find it bounded six miles from Maskat by a head-land named Ras Ghissa, which slopes into the sea, and has lying close to its base a little *Island* about thirty yards square, the geological section of which with that of the cape as given at p. 123. I shall now describe.

Commencing with the *Island* (Section No. 1. a p. 123.) for reasons which will better appear hereafter, we find its base (a) composed of brown serpentine, like that already described; interspersed with crystals of *diallage chatoyante*, and intersected in all directions by numerous veins of white quartz, similar to those which are common to cracked basaltic formations. On this rest the following strata:—

(b). A coarse yellow sandy deposit about three feet in thickness, and overlying it,

(c). A bed of pebbles, smoothly rounded by attrition, and frequently measuring a foot and a half in diameter. These pebbles consist of gray, compact, and sometimes variolitic basalt, petrosilex, and quartzite of various colors. I saw no granite, syenite, or even serpentine amongst them, although I sought for the latter much, and am at a loss to account for its absence, unless, from being softer and more easily decomposable than the other rocks, it has become disintegrated and has thus disappeared. Certainly one would expect to find in a sediment of pebbles like this a few portions at least of the funda-

mental rock, but my observations did not lead me to this fact, although a more extended search might perhaps have done so.

This then comprises the strata of the *Island*, and I must now state that I have given them first, because it appears to me that those of Ras Ghissa about to be described, are, if not a part, at least a continuation of them.

Commencing then at the base of Ras Ghissa, (Sec. No. 1. p. 123.) with the lower-most stratum that can there be seen, we find this Cape to be composed of,

(a). A deposit of beautifully variegated sand (grit), the particles of which increase in size towards,

(b). Which is a bed of dark pebbles about 50 feet thick, smoothly rounded, and consisting of the same kinds as those of the *Island* described, but somewhat smaller, seldom exceeding six inches in diameter. Over this is,

(c). A deposit of yellow sand, without pebbles, which gradually presenting the remnant of a shell or two, and the addition of calcareous matter, at length passes into a coarse yellow siliceous limestone containing the remains of many marine shells, among which the most numerous is a small gryphæa about an inch long. Following this stratum is,

(d). A still more calcareous deposit, yellow and ochery, in which are many cellular cavities filled or lined with calcareous spar, and a great abundance of organic remains; chiefly consisting of corals and the casts of marine shells; also in this is seen again, here and there, a thin line of smooth dark pebbles of the kind already mentioned. On this comes,

(e). A pink calcareous deposit with still less siliceous matter, and composed almost exclusively of the remains of delicate polythalamous shells of the genus *Discorbis* (Lam) with the remains also of a few echinodermata (*spatangites*). This is followed by,

(f). A coarse, yellow colored, compact limestone about 60 feet in thickness, which forms the uppermost stratum of the Cape, and which like the foregoing is almost exclusively composed of the remains of white, pulverulent, polythalamous shells.

Throughout the lower strata of this Cape, black basaltic pebbles are

scattered here and there, and only disappear altogether at the commencement of the pink stratum just mentioned, wherein the presence of the remains of innumerable delicately formed polythalamous shells, points out a time at which the sea had become more settled, and the currents had ceased to bring to this spot, any more of the gross material which had preceded their advent.

The fossils which fell under my notice during the short time I had to examine these strata consisted of univalves, bivalves and corals; abundance of small foramiuifera, and a few echinodermata, but no cephalopoda.

Assuming then, that the sand and pebble-bed of the *Island*, if not a part of the lower sands and pebble-bed of Ras Ghissa, are at least subordinate to them, we have the strata of this Cape lying on the serpentine of the neighbourhood; commencing with a sandy pebbly deposit, first without the presence of organic remains, then with the remnant of a shell or two making its appearance, even among the pebbles; the latter diminishing in number and giving place to sand alone; then a slight admixture of calcareous matter; the presence of the remains of more marine animals; and finally, a silico-calcareous limestone; this followed by a great increase in the number of fossils; the calcareous matter beginning to predominate; a pink stratum almost exclusively composed of the remains of polythalamous shells; and lastly, a coarse, but almost pure limestone 60 or more feet in thickness, chiefly composed, as the foregoing, of the remains of polythalamous animals.

At the same time it will be observed by Section No. 1. in the opposite page, that this transition has not been at its commencement, quite so regular as the foregoing description would seem to imply, but that a deposit of pebbles has alternated with the finer material, at unequal distances and at variable intervals of time, diminishing however in thickness until at last it has altogether disappeared.

Thus much for the limestone formation which limits the serpentine rocks to the south of Maskat.

If we now conceive an irregular line extending from Ras Ghissa to a point about three miles inland from Maskat, and carried out again to meet the sea four miles to the north of that town at a little village called Darzit, and then picture to ourselves the limestone formation





just described thrown up upon the serpentine in all kinds of positions along this line or arc, with the cord or coast-line of the serpentine zig-zagged into the greatest irregularities, forming coves and creeks in each of which is a little sandy beach, we shall have some idea of the extent and isolated position of the serpentine of Maskat, and of the principal physical features of its neighbourhood.

At Darzit the serpentine is again limited by the limestone formation, where the latter forms the northern ridge of the valley in which this village is situated.

Here it rises to the height of about 600 feet above the level of the sea, but does not rest on serpentine as at Ras Ghissa, (assuming, for reasons already stated that this is the case with the strata at Ras Ghissa) but, on an irregular surface of greenstone (*diorite B.*) composed of crystals of dull green hornblende in a mass of white, gray, or pinkish semicrystalline felspar. The appearance of this rock, which under a casual inspection for the most part resembles syenite, varies according to the preponderance of one of its ingredients over the other.

On peaks of such greenstone then, (*a.*) rests the limestone formation at this point (Sec. No. 2. p. 123.), and it commences from below upwards as follows:—

(*b.*) A bed of pebbles resembling that at Ras Ghissa in almost every particular, but which are here much disturbed, indicating a subsequent elevation of the greenstone. This deposit gradually passes into,

(*c.*) A coarse sandy stratum (grit), and then into,

(*d.*) A silico calcareous, yellow, coarse sand more or less compact, presenting numerous traces of marine shells, and intersected by veins of gypsum. Next to this comes,

(*e.*) A still more compact and still more calcareous deposit, which is replete with fossilized remains of marine animals particularly corals of *madrephyllia* and *madrastræa*. *Bl.*

Through this passes a remarkably colored, but narrow series of gypseous, marly and arenaceous strata. The gypsum hardly exceeds  $1\frac{1}{2}$  inches in thickness and is of a deep amethystine color, while the other strata present different shades of yellow, blue, and green. This series is about midway between the top and bottom of the scarp. Above it comes,

(f). A coarse, whitish fawn colored, compact limestone, presenting below the remains of many marine shells and corals, and towards its upper part hardly any thing beyond those of minute polythalamous shells.

I regret much that I could not examine this limestone more particularly, for it comprises nearly the upper half of the formation; but I was prevented from doing so at the place where I visited it, by its being so scarped.

Thus, we observe that the limestone formation limiting the group of Igneous Rocks at Maskat, both north and south, commences with a deposit of the same kind of pebbles, lying in both instances on the fundamental rock of the locality; passing into a sandy grit; then into a silico-calcareous deposit; then presenting the remains of marine animals; these increasing in number with the calcareous matter; a gradual cessation of the deposition of coarse material; the increasing purity of the limestone; interrupted in each instance by a pink colored deposit, that at Ras Ghissa chiefly consisting of the remains of foraminifera, and that of the formation at Darzit of a thin series of gypseous, marly and arenaceous strata; then a compact yellowish or fawn colored limestone, terminating the series above at both places, and almost entirely composed of the accumulated remains of polythalamous animals.

May not this deposit in other places be capped by the Miliolite which I have shewn to form the upper stratum of the southern part of the desert of Akaf; to be seen on many other parts of the south-east coast of Arabia; and to be the Poor-bunder stone of Khattayawar;\* thus terminating these deposits upwards in the minutest forms of foraminifera that have appeared.

I saw no gypsum at Ras Ghissa, it is true, but it must be remembered that these are the notes of flying visits, and therefore I am by no means certain that there was no gypsum at Ras Ghissa, in a similar position to that in which it is found at Darzit; at the same time where it should be at Ras Ghissa, there were the cellular cavities filled and lined with calcareous spar as at Darzit.

\* This Journal No. xii. p. 165.

From these many points of resemblance we can hardly doubt that the limestone both north and south of Maskat is the same, and therefore, that, the Igneous Rocks of this locality are surrounded by it inland.

In confirmation of my observations generally as regards the strata of this formation, I would cite the testimony of Captain Newbold page 27 paras. 5, 6, and 7, whose authority in such matters is as valuable as it is undoubted.\*

There is one circumstance however to which I must allude, in the Maskat strata, as given by Captain Newbold at page 27, viz. that, of his having found at Maskat or in its neighbourhood a genuine specimen of Nummulitic deposit, as it exists in Sindh and Cutch. It is composed almost entirely of great and small Nummulites, if not of the same species one most closely allied to *nummularia acuta*.†

This specimen Captain Newbold states in his list, to overlie the conglomerate, (that is the pebbly deposit I have mentioned) behind Maskat. I had not the good luck myself to see it *in situ*, but the specimen presented by Captain Newbold is so genuine that there can no longer be any doubt as to the proper term for the limestone formation in the neighbourhood of Maskat, which for want of this fact only, I had been prevented from arriving at. In my cursory examination of these strata I had failed to meet with this deposit, and therefore the limestone formation in the vicinity of Maskat was an enigma to me ; but it is no longer so now, and must be laid down as belonging to the Nummulitic series, though apparently much thinner here than in many parts on the south-eastern coast of Arabia.

Very much resembling the limestone formation of Maskat is that of the scattered hills of the lower Hala range at Jarrack in Sindh, a village on the Indus about 12 miles below Hydrabad. It is about 100 feet above the level of the alluvial plain, of a deep ochery color, horizontally stratified, and almost entirely composed superiorly of the remains

\* Since this was written Captain Newbold is dead. He died at Mahabaleshwar of consumption on the 2nd of June last, where he was also buried. By his death India has lost her best geologist, and those who knew him well, an inestimable friend. *Author.*

† Grant's Geol. of Cutch Pl. xxiv. fig. 13.

of minute polythalamous shells, and a few echinodermata ; lower down it becomes arenaceous and abounds in a small gryphæa, not the same however as that at Ras Ghissa ; and next to the alluvial plain is traversed by veins of gypsum about an inch and half or more in thickness.

Respecting the inclination of the limestone strata about Maskat, I have already stated that, at its contact with the serpentine, this formation is thrown up in all directions, and into all shapes.

At Ras Ghissa the dip is SE. and the strike NE. At Darzit the uplifted mass presents a table-land at its summit, depressed two or more hundred feet in the centre and tilted up irregularly at all four corners, with its strata bent and fractured in every direction.

North of this uplifted portion, which does not extend more than a mile along the coast, the limestone formation for a long distance has but a small elevation above the sea, and appears to have undergone little more alteration than has been produced by the weather. This low land forms the southern termination of the maritime district of Oman, called Batana or the low country.

To the south of Maskat, however, the limestone formation presents a very different aspect ; between this town and Ras Khoriat, it is apparently all in confusion, and upheaved in masses and ridges like the waves of a troubled sea.

This commences with Ras Ghissa, which is the first ridge bordering on the Serpentine rocks, and behind it in succession are many other long ridges, which present their white fractured faces or scarps towards Maskat, and their original surfaces sloping in the opposite direction, that is, dipping towards the SE. with their strike towards the NE.

Returning to the greenstone on which the limestone formation rests at the village of Darzit, I would notice that, lying between it and the serpentine rocks forming the opposite ridge of the valley, is a mass of green chloritic, steatitic potstone, which is there manufactured into oil-jars, water-jars, etc. I also noticed and brought away with me a specimen of green carbonate of copper, which exists in small quantity, at the contact of the greenstone with the pebble bed ; likewise a piece of green earthy basalt attached to a fragment of green-

stone, which I found among the debris of the latter, and from which I infer the existence of a dyke of it through this greenstone.

Thus we find the group of *Igneous Rocks* at Maskat, to consist of serpentine, greenstone, and basalt, and in these three products we have the type of all the igneous masses on the south-eastern coast of Arabia from Ras al Had to Ras al Jazira, and as I have before stated probably the type of all those which have come to the earth's surface in the eastern angle of this peninsula.

At Ras al Had there are pebbles of one or more of them. At Ras Jibsh in about  $21^{\circ} 27'$  N. they project above the surface of the low surrounding limestone formation called Baten or flat country, and from their contrast in shape to the low wavy limestone hills, obtain also for Ras Jibsh the name of Ras Karun or Cape Horns. Then the island of Masira is, with the exception of a small tract of limestone formation here and there supported on these rocks, almost entirely composed of masses of greenstone, serpentine, trap, and basalt. Lieutenant Greave\* also kindly sent me, among many other valuable specimens and notes which I shall have to mention hereafter, portions of the same kind of serpentine from Ras al Jazira. I cannot tell if these rocks exist at the dark point of Shuamyah in Curia Muria Bay, which is the next place south-west of Ras al Jazira where the igneous matter has burst through the hitherto parallel and horizontal limestone strata of this coast, because I have never been on shore there, but I have been sufficiently near to sketch the dykes, rents, and overflowing masses made by it, as they appear from the sea.

These rocks are not mentioned in the late Dr. Hulton's account of the Curia Muria islands;† nor did I see any of them at Marbat, where there is a grand field of igneous rocks between the base of the mountains and the sea, of which I had not time to explore more than three or four miles. Nor did I meet with serpentine or greenstone between the last named place and Makalla.

There is one other formation however at Maskat which I should not omit to mention viz. the contemporaneous one, which is composed

\* Commanding the H. C.'s. Surveying Brig "Palinurus,"

† Trans. of Geograph. Soc. of Bombay, for Dec. and Feby. 1839-40. p. 183.

of the debris of recent shells enveloping and cementing together pieces of serpentine. It is found on the borders of the bay of Maskat, from high-water mark downwards, and from its position plainly proves that the serpentine to which it now adheres, has undergone an elevation since this formation took place.

With this paper were exhibited to the Society specimens of all the rocks and deposits alluded to therein. Of the serpentine rocks at Maskat, of the greenstone, green basalt and potstone at Darzit; of the deposits of the limestone formation, with fossils collected from it on both sides of Maskat, and of the Igneous Rocks on the south-east coast of Arabia.\*

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ART. IX.—*Extracts from the Proceedings of the Society for the year 1848-49.*

MEMBERS ELECTED.

FROM 21ST DEC. 1848 TO 26TH NOV. 1849 INCLUSIVE.

F. S. Arnott, M. D.	J. J. Hamilton, Esq.
Capt. H. Barr,	Major E. H. Hart,
B. A. Bremner, M. D.	J. J. Waterston, Esq.
G. W. Campbell, Esq.	A. H. Leith, Esq.
T. H. Coles, Esq.	R. Mackenzie, Esq.
Capt. J. G. Forbes,	Lieut. Col. St. John,
H. Gilmore, Esq.	W. Scott, Esq.
Revd. J. D. Gibson	T. L. Jenkins, Esq.
H. Green, Esq.	J. Yuill, Esq.
R. Hamilton, Esq.	J. M. Joseph, Esq.

Capt. S. V. W. Hart.

\* For "Greave" page 128, read "Grieve."

## PRESENTS FOR THE LIBRARY.

	DONORS.
ABBOTT (Captain.) Some account of the Battle Field of Alexander and Porus by . . . . .	The Author.
BUIST (George L. L. D.) Annals of India by, for the year 1848 . . . . .	_____
BERTRAND (M. l'Abbé) Les Séances de Haidari recits Historiques et Elegiaques sur la Vie et la Mort des Principaux Martyrs Musul- mans, Ouvrage traduit de L'Hindoustani par, suvi de l'Elegie de Miskin traduit de la meme langue par M. Garcin de Tassy . . . .	M. Garcin de Tassy.
COLQUHOUN (Patrick.) Summary by, of the Roman Civil Law, illustrated by Commen- taries on, and Parallels from the Mosaic Canon, Mahomedan, English and Foreign Law. . . . .	T. L. Jenkins, Esq.
COOVERJEE RUSTOMJEE, Essay by, on Female Infanticide . . . . .	The Govt. of Bom- bay.
COTTON-EXPERIMENTS, Summary of proceedings connected with, in the Southern Maratha Country under the Bombay Presidency, from 1830 to 1848. . . . .	_____
CRAWFORD (John.) Vital Statistics by, of a dis- trict in Java. . . . .	The Author.
DANIEL (Bishop of Calcutta.) Charge delivered by, to the Clergy of the Four Dioceses of Calcutta, Madras, Bombay and Colombo, at the second Metropolitan visitation . . . . .	_____
Two Sermons delivered by, in St. Paul's Cathedral, Calcutta . . . . .	_____
ELLESMERE (The Right Honorable the Earl of.) edited by, a Guide to Northern Archæ- ology, by the Royal Society of Northern Antiquaries at Copenhagen . . . . .	The Society.



## DONORS.

ENGINEER'S REPORT, of the Presidency of Bombay for the year 1846-47 .....	The Govt. of B'bay.
FENWICK (Captain.) Journal by, of the passage from Dharee to the Hirnphal.....	The Author.
Ditto. ——— ditto.——— ditto. ..	The Govt. of B'bay.
GANGES, documents regarding the Navigation of, from Allahabad to Revulgunge at the mouth of the Gogra .....	—————
HART (Captain S. V. W.) Memorandum by, Illustrative of the Route from Tankaria Bunder to Rutlam in Western Malwa ....	The Author.
HAYS (Captain Fletcher.) Grammar by, with a selection of Dialogues and familiar Phrases, and a short Vocabulary in modern Arabic...	The Editor.
HODGSON (B. H.) Summary by, of his dispute with Lord Ellenborough on affairs of India.	Lieut. Col. W. H. Sykes.
JOURNAL of the Indian Archipelago and Eastern Asia, Nos. 9 to 12, of 1848, and Nos. 1 to 9, of 1849 .....	The Editors.
———— Ditto. ——— ditto. Nos. 10 to 12 of 1848 and Nos. 1 to 9, of 1849....	The Govt. of B'bay.
LLOYD (W. Esq.) Portland Vase by .....	The Author.
MAISEY (Lieut. F.) Description by, of the Antiquities at Kalinjar .....	—————
MAGNETICAL and Meteorological observations made at the Observatory of Bombay in the year 1846 .....	The Govt. of B'bay.
MEMOIRES de la Société Royale des Antiquaries du Nord 1845-1847 .....	The Society.
NEWBOLD (Captain T. J.) Visit by, to Mount Sinai to which is prefixed a brief Geological Sketch of the Peninsula of Sinai ..	The Author.
NEWSPAPER, Bombay Times, files of, from the 1st September 1815, to 31st December 1846	The Lord Bishop of Bombay.
———— Bombay Courier files of, from 1st	

		DONORS.
September 1815 to 31st December 1848 ..		The Lord Bishop of Bombay.
ORLEBAR (A. B. Esq.) Influence of a Parabolic Moulding upon the Buddhist Architecture of Western India .....		_____
OSTERVALD (J. F.) Recueil par, de Hauteurs des Pays, compris dans le cadre de la Carte Générale de la Suisse .....		_____
OUCHTERLONY (Captain J.) Geographical and Statistical Memoir by, of a Survey Superintended by, of the Neilgherry mountains...		The Govt. of B'bay.
PALMER (Aron H.) Memoir Geographical, Political, and Commercial, on the present state, productive resources and capabilities for commerce, of Siberia, Manchuria, and the Asiatic Islands of the Northern Pacific Ocean, and on the importance of opening commercial intercourse with those countries.		The Author.
PANCHKOUREF KHAN, Revelations of an Orderly by, being an attempt to expose the abuses of administration, by the relation of every day occurrences in the Mofussil Courts ..		_____
PERRY (The Hon'ble Sir Erskine.) Von Savigny's Treatise on Possession, or the Jus Possessionis of the Civil Law, sixth Edition, Translated from the French by,.....		The Translator.
PRINSEP (James.) Useful Tables by, Part. I, & II. ....		The Govt. of B'bay.
RICHARDSON (James) decline of Geographical discovery, being an appeal to the British Public on behalf of Geographical Science .....		The Author.
SHAKESPEAR (A.) Memoir by, on the Statistics of the North Provinces of the Bengal Presidency .....		The Govt. of B'bay.
SMITH (J.) Railways for Bombay.....		The Author.

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SOCIETY Bombay Geographical, Transactions of, from October 1848, to May 1849 . . . . .		The Society.
——— Medical and Physical of Bombay, Transactions of, No. IX for 1849 . . . . .		_____
——— (Bombay Education.) The Thirty-fourth Report of, for the year 1848 . . . . .		_____
——— (Madras Literary.) Catalogue of Books in . . . . .		Cap. T. J. Newbold.
——— Ceylon Branch of the Royal Asiatic Vol. I. Part. I. and Nos. 2, and 3 . . . . .		The Society.
——— (Statistical of London.) Report of a Committee of the Council of . . . . .		_____
——— (Royal Astronomical.) Proceedings of, Vol. VIII. for 1847-48, Vol. IX. to No. 7, for 1848-49, . . . . .		_____
SUDDER (Dewanee Adawlut.) Circular Orders of, for the years 1847 and 1848, Vol. II. Part. I. . . . .		The Govt. of B'bay.
SYKES (Lieut. Col. W. H.) Mortality in Jails of the 24 Purgunnahs Calcutta . . . . .		The Author.
——— Statistics of Civil Justice in Bengal . . . . .		_____
——— Fishes of the Dukhun . . . . .		_____
——— Notice respecting some fossils collected in Cutch by Captain Smee . . . . .		_____
——— Remarks on the Identity of the Personal Ornaments sculptured on some Figures in the Buddha Cave-Temples at Karli with those worn by Brinjaris . . . . .		_____
——— Statistics of the administration of Civil and Criminal Justice in British India from 1841 to 1844 . . . . .		_____
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——— Statistics of the Metropolitan Commission on Lunacy . . . . .		_____

## DONORS.

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——— On the Population and Mortality of Calcutta . . . . .	_____
——— On the Fall of rain on the Table-land of Utree Mullay Travancore, during the year 1846. . . . .	_____
TASSY (Garcin de.) Prosodie des Langues de l' Orient Musulman, spécialement de l' Arabe, du Persan, du Turc et de l' Hindoustani . . . . .	_____
WIGHT, (Robert). Icones Plantarum Indiæ Orientalis, Vol. IX. Part. III. . . . .	The Govt. of B'bay.
——— Ditto. ——— Vol. II. Part. II. . . . .	The Author.
WILSON, (The Rev. John D. D.) Evangelization of India . . . . .	_____
ZEITSCHRIFT der Deutschen Morgenlandischen Gesellschaft, Heft III and IV of 1848 and Heft I, of 1849. . . . .	The Society.

## PRÉSENTS FOR THE MUSEUM.

Antipathes scoparia, specimen of, . . . . .	Cap. Inglefield R. N.
Caryophyllia aurantiaca, specimen of, from Bombay Harbour . . . . .	Major Holland.
Copper, green carbonate of, specimens of, from the Burra Burra Mines in Australia . . . . .	T. J. A. Scott, Esq.
Coins, silver, 12, dug up among the ruins of some old huts at the village of Yerckera, close to the Kamptee Cantonment* . . . . .	Col. Perry.
——— silver, 10, discovered near the village of Sangameshwar in the Collectorate of Rutnagiri . . . . .	The Govt. of B'bay.

\* See the description of these Coins under the head of " Proceedings, Official, Literary and Scientific."

## DONORS.

Coins, silver, 25, found in a field at Wullariah, about 12 miles from Moondiah in Kutch .....	The Govt. of B'bay.
— silver, 2, discovered in the embankment of an old Tank near Sewthur in the neighbourhood of Sattara .....	II. B. E. Frere, Esq. C. S.
— silver, 2 small, from an old Tank near Sewthur .....	The Rev. Dr. Stevenson.
— silver, 2 found embedded in the bank of a Nallah, in the old city of Champanir, (Mogul Coinage) .....	Lieut. Glasspoolc.
— silver, 9, found at Bhagwarra in the Surat Collectorate .....	A. F. Bellasis, Esq. C. S.
<i>Draco volans</i> , specimens of .....	L. C. C. Rivett, Esq.
Foot of an Image of Parswanath found at Bawangaj, bearing an inscription in Pali ....	E. Impey, Esq.
Fossil Tooth of Asiatic Elephant from the neighbourhood of Kurrachee.....	Dr. Stocks.
<i>Madrephyllia</i> , two large specimens of, fossilized from the neighbourhood of Kurrachee.....	H. J. Carter, Esq.
Nine Specimens, shewing the transition of the ordinary green-stone of Bombay into the white rock of Koorla in the Island of Salsette.....	Cap. J. T. Newbold.
Nummulitic pebbles, collection of rough and polished from the neighbourhood of Kurrachee.	Major Hughes.
<i>Retepora Cellulosa</i> and <i>Gorgonia alba</i> and <i>flavida</i> , specimens of, from Bombay Harbour	Capt. Montriou, I.N.
Stone-shell, specimen of used by Mulraj in the defence of Multan .....	Lt. Col. G. P. Lemessurier.
<i>Strombus</i> , cast of, from the tertiary limestone about Barbara on the Eastern Coast of Africa .....	H. J. Carter, Esq.
Wood, petrified a large specimen of, from Egypt	A. N. Shaw, Esq.

## ORIGINAL COMMUNICATIONS.

	COMMUNICATED BY.
Broughton (F. Esq.) Extract of a letter from, to Dr. Murray, relative to a cave in the Fort of Punalla.— <i>19th July 1849. (a)</i> .....	H. B. E. Frere Esq.
Burton (Lieut.) Grammar by, of the Játakí or Baluchki dialect.— <i>22nd Feby. 1849. (b)</i> ..	C. S. The Author.
—— Notes and Remarks by, on Dr. Dorn's Chrestomathy of the Pashtu or Affghan language — <i>21st Dec. 1848. (c)</i> . . . . .	_____
Carter (H. J. Esq.) On the Red Coloring Matter of the Salt and Salt-pans in Bombay.— <i>19th April 1849. (d)</i> .....	_____
Frere (H. B. E. Esq.) Memorandum by, on some excavations, apparently Buddhistical, in the valley of the Khrisná near Wai.— <i>24th March 1849. (e)</i> . . . . .	_____
—— Memorandum by, on some Buddhist excavations near Kudhá (with plans and drawings) <i>19th April 1849. (f)</i> .....	_____
Impey (Elijah Esq.) Description by, of a Colossal Jain Image, discovered in the Satpuđá range.— <i>24th May 1849. (g)</i> . . . . .	_____
Jacob (Major Le Grand.) Observations by, on Inscriptions on copper-plates dug up at Narur, in the Kudal Division of the Sawant Warri State in April 1848.— <i>21st June 1849. (h)</i> . . . . .	The Govt. of B'bay.
Mitchell (The Rev. J. M.) Result of recent investigations of the Religion of the <i>Vedas</i> by — <i>22nd Nov. 1849. (i)</i> . . . . .	The Author.

(a.) See this No. of JI. p. 60. (b.) See last No. of JI. p. 84. (c.) See last No. of JI. p. 58. (d.) This No. of JI. p. 32. (e.) Idem pp. 55-8. (f.) Idem pp. 108-11. (g.) Idem pp. 91-3. (h.) In the Press for the next No. (i.) See this Art. Proceedings, Official, Lit. and Sc.

Mitchell (The Rev. J. M.) Brief Review by, of some recent investigations of the <i>Zend-Avesta</i> by German Orientalists — 24th March 1849. (a).....	COMMUNICATED BY. The Author.
Newbold (Captain T. J.) On the Site of the Temple of Neptune at Alexandria, mentioned by Strabo.—18th Jany. 1849. (b).....	_____
Schmid (The Rev. B.) Remarks by, on the origin and languages of the Aborigines of the Nilgiris, suggested by the papers of Captain Congrave and the Rev. W. Taylor on the supposed Celto-Scythic Antiquities in the south of India published in the <i>Madras Journal of Literature and Science</i> , Nos. 32 and 33 of 1847.—21st Dec. 1848. (c) ..	Rev. Dr. Wilson.
Stevenson (The Rev. John) Observations by, on two Silver Coins from the embankments of an old Tank near Sewthur. — 16th Aug. 1849. (d) .....	The Author.
Stocks (J. E. Esq.) On the Punir Plant of Khorassan.—21st Dec. 1848. (e).....	_____

PROCEEDINGS, OFFICIAL, LITERARY AND SCIENTIFIC.

The Rev. Murray Mitchell, in accordance with a request of the Society, submitted specimens of the Maráthí works alluded to in his proposition of the 23rd. November last and after a short discussion it was resolved, "that the Society agree to take some of the standard Maráthí works which have been issuing from the Native Press at Bombay, and that Mr. Mitchell, C. J. Erskine Esq., C. S. and the Rev. Dr. Stevenson be appointed a Committee to make the selection, and to submit it for the approval of the Society."

(a.) See this Art. Proceedings, Official, Lit. and Sc. (b.) See last No. of this JI. p. 77. (c.) Idem p. 50. (d.) See this Art. Proceedings, Official, Lit. and Sc. (e.) See last No. p 44.

With reference to the twelve silver coins presented by Col. Perry at the last meeting, and which, at the request of the Society had been forwarded to Dr. Stevenson for examination, Dr. Stevenson states, that they all belong to the *Saurarúshtra* Dynasty of Kings or Royal Satraps of Gujarat, five are the coins of *Vijaya Saha*, four of *Visva Saha*, one belongs to *Dáma Saha*, one to *Bhatri Saha*, and the names on the other have been effaced. Further information on them may be found in the last number of the Society's Journal, also in the No. for April of Vol. V. of the Journal of the Asiatic Society of Bengal.—*January 1<sup>st</sup>. 1849.*

Captain Inglefield, R. N., proposed by James Burnes, Esq. M. D., K. H., Major J. Holland, and J. W. Winchester, Esq. was elected an *Honorary Member* of the Society.

The Committee appointed at the last Meeting, to make a selection of the Maráthí works issued from the Native Press in Bombay during the last few years, presented their list, and the works therein mentioned were ordered to be purchased.

Dr. Wilson stated, respecting some *Sáirí* Coins which were discovered near the village of Sangameshwar in the Collectorate of Ratnagiri, and forwarded to the Society by the Government for examination in July last, that he could add but little to the curious notices of these coins given by Mr. Coles of the Civil Service by whom they were sent to Government, more especially as none of the inscriptions upon any of the specimens received by the Society were complete.

They unquestionably belonged to the Sháhí dynasty of Bijápur, whose power lasted from A. D. 1501 to 1689. The name of 'Ali 'Adil Sháh, as remarked by Mr. Coles, was found on some of them but whether this was 'Adil Sháh the first or second, Dr. Wilson had no means of judging. The former prince, who began to reign in 1557, was assassinated A. D. 1579; the second succeeded to power in 1660, and died in 1672. On one of the coins Dr. Wilson observed the date A. H. 1061, corresponding with the Year of Christ 1641 when Muhammad 'Adil Sháh was in authority,

The form of the coins is remarkable. They consist of a silver wire about a twelfth of an inch in diameter, bent nearly in the middle, and not struck, but pressed for about two-thirds of their length, be-



tween the lips of a small vice having Arabic letters cut on its inner surface ; and they are thus flattened and extended to about the eighth of an inch in breadth, except near the extremities, where the two portions of the wire, not having been brought into contact, stand out from one another and make an angle. As they have no figure, and the lettering does not cover all the surface of the coin, and as they are of unequal size and weight, though averaging about three to an 'Adil Sháhí rupee, (with a specimen of which coin of Sulṭán Muhamad 'Adil Snáh now very rare Dr. Wilson had compared them), these marks Dr. Wilson stated must be considered as warranting the quality and not the quantity of the metal, and they must have been tried by weight more than number when circulated. In this respect, they resembled the stamped bars of the precious metals used in remote times. The name " Sâir" which they bear is Arabic and means " custom, or excise and custom-house," and perhaps the original type of them was got from Arabia.

The *Secretary* stated, with reference to the Commission appointed by the Society in August last for obtaining authentic information relative to the number and situation of the Monuments and Cave-Temples of Antiquity in the Territories under the Bombay Government, that no Meeting of the Commission had been held in consequence of the illness of Dr. Wilson, who had kindly undertaken to prepare a series of queries for the consideration of the Commission, previous to their being circulated to the different local Authorities under Government for the purpose of obtaining the information desired, that these queries were now nearly ready, and that the Commission would be assembled in the early part of next week.

Dr. Wilson then briefly noticed what he had drawn up, and the course he thought it desirable to pursue.—*February 22nd. 1849.*

The Hon'ble Lestock Robert Reid, Esquire, *President* of the Society, having resigned his office in anticipation of his intended departure for Europe by the mail of the 1st March next, it was proposed by Colonel George Moore, seconded by the *Secretary* and carried unanimously, " that the Society record its deep sense of the obligation it is under to the Hon'ble Lestock Robert Reid, Esquire for the

ability and courtesy with which he has conducted the duties of *President*, and the interest he has at all times taken in subjects connected with the Society which have been presented to his notice."

*Election of President.*—Moved by Colonel G. R. Jervis, *Vice-President*, seconded by P. W. Le Geyt, Esq., and carried unanimously, that the Hon'ble John Pollard Willoughby, Esquire, be requested to accept the office of *President* of the Society, vacated by the resignation of the Hon'ble Lestock Robert Reid, Esquire, in anticipation of his return to Europe.—7th. March 1849.

A letter dated 9th March 1849, from the Hon'ble John Pollard Willoughby was read, accepting the office of *President* of the Society.

*Election of Vice-President.*—On the motion of James Boyd Esq. seconded by Colonel G. Moore, James Burns Esq. M. D., K. H., was unanimously chosen to fill the vacancy among the *Vice-Presidents* occasioned by the election of the Hon'ble John Pollard Willoughby, Esq. to the office of *President* of the Society.

The Rev. J. Murray Mitchell read a paper entitled, "A brief view of some recent investigations of the *Zend-Avesta* by German Orientalists."—It contained an analysis and brief review of two important articles that have lately appeared in the Journal of the German Oriental Society (*Zeitschrift der Deutschen Morgenlandischen Gesellschaft*) the one entitled "studies on the *Zend-Avesta*" from the pen of Dr. Fr. Spiegel, the other "The Legend of Feridun in India and Iran" by Dr. R. Roth. Mr. Mitchell remarked, that of the strong light that had lately been thrown on so many portions of the field of Asiatic antiquity, scarcely a ray had rested on the early history, whether civil or religious, of Persia, a subject on many accounts peculiarly interesting to the members of this Society. The two articles above mentioned were on this account most welcome. The one by Spiegel comprises much interesting matter, *preliminary* to an interpretation of the still very enigmatical *Zend-Avesta*, or sacred book of the Parsis. It contains an estimate (an unfavorable one) of the celebrated French version by Anquetil du Perron; it states the actual position we occupy as to the understanding of the *Zend-Avesta*, a point far behind that to which we have now arrived in interpreting the *Vedas*,—illustrates at length the sources from which alone a satisfactory acquaintance

with the *Zend* writings can be drawn, and particularly dwells on the importance of the Pahlvi translation both in determining the readings of the *Zend* text and aiding us in its explanation. Dr. Spiegel's article leaves a strong impression on the mind, of the immense difficulties with which the whole of this enquiry is encompassed.

The paper by Roth is singularly interesting as exhibiting a vigorous and apparently successful attempt, to establish a connexion between the *Veda* and the *Zend-Avesta* in a point where no analogy had been suspected. Feridun is one of the most renowned of the earlier heroes of Persian history, and his gallant exploits, as sung by Firdusi in the *Shah-nameh*, are familiar as household words both to the Musulman Persian, and the Parsis. With Feridun and Zohak whom he overthrew, European writers have generally held, that we first emerge out of pure fable into the dawn of true history. Sir John Malcolm identifies him with Arbaces the Mede, the conqueror of Assyria. Dr. Roth however has sought to identify Feridun with Trita, one of the old *Vedic* gods; and if his elaborate and very able analysis be correct, the old Persian hero vanishes (almost without a figure of speech) into air; for Trita is one of those elemental gods, those deifications of natural phenomena, particularly those occurring in atmosphere, which constitute the religion of the *Vedas* in its genuine form. Dr. Roth speaks in strong terms of condemnation regarding the attempt to discover substantial truth in the splendid vision conjured up by the genius of Firdusi; light can be thrown on early Persian antiquity far better from the *Vedas*, than from the writings of Mussalman authors; but this has still to be done,—and we must make the humiliating admission, that we are at this moment *totally ignorant* of Persian antiquity as far down as the days of Cyrus. All that Eastern punters relate of the Pishadian dynasty is mythology, not history; the personages introduced were probably gods worshipped by the Arian race—they were certainly not men.—*March 22nd. 1849.*

The *Secretary*, seconded by J. Smith Esq., proposed, “ that the Society's resolution respecting the Malcolmson Testimonial, passed at its Meeting held on the 13th April 1848, be carried into effect, and that the Committee of Management be requested to submit a list of works for the approval of the Society, to be purchased in accordance

with that resolution." This proposition was carried.—*April 19th. 1849.*

With reference to Dr. Giraud's letter proposing an exchange of certain Mineralogical and Geological Specimens belonging to the Grant Medical College for duplicates of Minerals in the Society's Museum, It was resolved, at the suggestion of the Museum Committee, " that Dr. Giraud's offer be accepted, and that a list of such duplicates as might be transferred to the Grant College under the terms mentioned in Dr. Giraud's letter, be submitted for the approval of the Society at its next Meeting."

The *Secretary* announced the publication of the XIIth. Number of the Society's Journal.—*June 21st. 1849.*

Bryan Hodgson, Esq., of the Bengal Civil Service, late Resident at Nepal, proposed by Colonel. G. R. Jervis, H. B. E. Frere, Esq., Bombay C. S., and James Burnes, Esq., M.D., K.H., was elected an *Honorary Member* of the Society.—*July 19th. 1849.*

The following propositions were made by Col. Jervis, seconded by Henry Young, Esq.

1st. "As it seems that the Society will have discharged its liabilities before the end of the year, and be able to begin the new year with a balance on hand, and with the prospect of a future income considerably more than sufficient to meet all ordinary charges, including the ordinary purchase of books, it is desirable to make an arrangement for slightly increasing the funds annually appropriated to the purchase of Books, especially Standard Works, and for exercising more control over the funds so appropriated, which at present are placed unreservedly in the hands of a London Bookseller."

2nd. "That it is desirable, therefore, to allow a sum of at least £ 320 per annum for the purchase of books instead of £ 300 as at present, and that only half of this be placed in the hands of the Bookseller at home, the other half being reserved in the hands of a Committee, to be appointed annually, for the purchase of such Standard Works as they may select for the different departments of the Library."

3rd. "That any Member of the Society be entitled to recommend to the Committee the purchase of any Standard Work, but that the de-

cision as to whether it be ordered or not, shall rest with the Committee alone, subject of course to a reference to the next General Meeting of the Society."

4th. "That these arrangements be brought into operation from the 1st January 1850, and that intimation of them be immediately given to all parties concerned."

Resolved, "that in accordance with Art. XVIII. of the Society's Rules, these propositions be submitted for the approval of the Society at its next Meeting."

The state of the Society's collection of Coins was discussed, and it having been observed that there was no arrangement of them whatever, neither was there any Catalogue of the objects of Natural History and Curiosities in the Society's Museum, it was resolved, "that the Museum Committee be requested to prepare such a Catalogue, and to give their earliest attention to a useful arrangement of the Society's Coins.

The Rev. Dr. Wilson, seconded by John Smith Esq., moved for consideration at the next Meeting, "that a Committee be formed to prepare a Catalogue of all the literary and scientific communications presented to the Society from the time of its formation, with notices, when obtainable, of the way in which they have been disposed of by the Society, or the Author.

Respecting the two Coins which were found in the embankments of an old Tank near Sewthur, and which were submitted by the Society to Dr. Stevenson for examination, Dr. Stevenson states:—that each weighs about four grains, and that on one side they have *Om* the symbol of the Hindu Triad, and on the other, the figure of a Man with a bird's head, which can only be meant to represent the *Garud* of the Hindu Mythology.

The *Om* is written in the form of a monogram; the principal letter of which will at once be seen to be the Teliuga and Canarese *o*, with the mark over it to shew it to be *long*, as it generally is considered in Sanskrit words. The inscribed figure is the *M* of the cave-inscriptions, called in the Madras provinces the *Grantha* character. It would, therefore, seem most probable, that these fanams belong to the currency of the *Vijayanagara* Sovereigns, who reigned from the 11th

century over the west regions of the Dekkan, and extended their sway as far as Gujarat in the beginning of the 16th century of our era. This, however, Dr. Stevenson states merely as a supposition, not being well acquainted with Madras Coins.—*August 16th. 1849.*

With reference to the Society's request that the Museum Committee would prepare a Catalogue of the objects of Natural History and Curiosities in the Society's Museum, and make a useful arrangement of its coins, the *Secretary* stated, that the Committee had met, and proposed with the sanction of the Society, that two blank-paper books of a convenient size should be procured for this purpose; one to form the Catalogue, the other to form the Minute-Book of the Committee, of the Museum. In the former the Committee proposed as the several departments of the Museum were arranged, to number and enter the names of the objects contained in them, in the latter, all the minutes of the Museum Committee from their commencement and all the letters extant which accompanied the different presents for the Museum, as these records were crumbling away from their having accidentally come in contact with some destructive solution; the Committee would also propose, that the Society should employ an English writer for this purpose.

Respecting the Coins, the Museum Committee wished to place their arrangement in the hands of Dr. Wilson, *Honorary President* of the Society, who had kindly consented to give his attention to the subject at his earliest convenience.

These propositions received the sanction and approval of the Meeting and were ordered to be carried into effect.

In accordance with a resolution of the Society passed at its Meeting, held on the 21st June last, respecting an inter-exchange of mineralogical specimens with the Grant Medical College, the *Secretary* stated, that 77 specimens of Metalliferous Minerals had been selected from the Society's Collection for this purpose; and that care had been taken in their selection not to deprive the Society of the most characteristic specimens of its minerals, nor to leave it without duplicates at least, of such as had been chosen for exchange with the Grant Medical College.

Resolved, "that the 77 specimens be sent to the Grant College and that a list of them be entered on the Minutes of the Meeting."

Captain S. V. W. Hart, Professor Patton, and J. Smith Esq. having been proposed by Dr. Burnes K. H., and seconded by Dr. Wilson as members of the Committee of Management, were unanimously elected to fill the vacancies occasioned by the departure to Europe of the Rev. G. Cook, Captain Lynch, and Professor Harkness.

Colonel Jervis's propositions seconded by H. Young, Esq., respecting arrangements for slightly increasing the funds annually appropriated to the purchase of books, especially Standard Works, and for exercising more control over the funds so appropriated, were then submitted to the Meeting.

These were carried, with the exception, that the selection of "Standard Works" is to be made by the "Committee of Management" instead of "a Committee to be appointed annually for the purpose."

It was proposed by Dr. Buist, seconded by J. Smith Esq., "that a Committee be appointed to report on the state of the Catalogue, with the view of ascertaining whether it fulfils its objects, or whether it might not be desirable to have a new Catalogue drawn up for publication."

Dr. Buist's proposition was carried, and the following Committee appointed, viz., Dr. Buist, Captain S. V. W. Hart, Professor Patton, John Smith, Esq. and the *Secretary*.

For the preparation of a Catalogue of all the literary and scientific communications presented to the Society from the time of its formation, with notices, when obtainable, of the way in which they have been disposed of by the Society or the Author, the Rev. Dr. Wilson and the *Secretary* were appointed.—*September 20th. 1849.*

A letter was read from Captain Kittoe, dated the 12th October last, soliciting the Society's assistance in supplying him with fac-similes or impressions (the latter being preferable) of inscriptions in ancient Sanskrit type.

The Pali of the pillars and rocks Captain Kittoe concludes from his present investigation, to be the parent Alphabet from which all the

rest have sprung ; the changes having been very gradual, more particularly on the Western side of India.

The following is the process recommended by Captain Kittoe for taking impressions.

Good stiff bazar paper is taken, and, after wetting the stone, is placed upon it, and is again sprinkled with water, and patted down with a damp cloth, till all the blisters have gone down ; a piece of coarse gudgee cloth is then folded up thick, and placed on the paper, and hammered well with a smooth wooden mallet till the pulp has settled well into all the letters. When nearly dry, a piece of cloth saturated with either indigo, or reddle and water, is placed over the paper, and patted on with the palm of the hand. This colors the ground and leaves the letters white. Three copies are to be taken (and if imperfect specimens, even more), one only is to be coloured. They must be put loose in tin rolls to prevent the raising of the letters from injury, as it is often necessary to read backwards from the reverse or raised side.

Captain Kittoe further states that he is now engaged in transcribing numerous inscriptions which are at the same time being translated into English by able Scholars at Benares, and he proposes preparing a great table of comparative Alphabets in (as far as possible) chronological order, which he expects to prove useful in finding approximate dates to Temples, Caves, etc. This rule he has already applied, and found correct.

The *Secretary* was requested to acknowledge Captain Kittoe's letter, and in reply to state the Society's willingness to communicate with him on the subject, and to afford him all the assistance in its power.

The following report was read from the Revd. Dr. Stevenson, respecting nine Silver Coins presented by A. F. Bellasis Esq. C. S. at the Society's Meeting held on the 20th September last :—

“The nine Hindu Coins sent me for examination, are those of Mâhâ Kshatrapa Swâmi Rudra Sâha, Son of Mâhâ Kshatrapa Swâmi Rudra Dâma, the 12th and last of the Regal Satraps of Saurarâshtra, mentioned in the Journal of the Asiatic Society of Bengal. Some of them are dated 390, which, if with Mr. Prinsep we suppose to be the era of Buddha, gives us B. C. 153.”



The Rev. J. Murray Mitchell read a paper entitled : *Results of recent Investigations of the Religion of the Vedas.*—Mr. M. stated that the object of the paper was to present a summary of the chief results of the more recent researches of the leading Orientalists of Germany in connexion with the Vedas, particularly of Professor Lassen and Dr. Rudolph Roth, who are probably the highest living authorities on this important subject. The Sanskrit term for God (*devas*) is derived from the root *div*, or *dyu*, to *shine* ; and the fundamental idea of the *divine* in the Veda is drawn from the bright shining sky and its varied phenomena. Essentially, the religion of the ancient Hindus was Nature-worship. The chief god of the Veda is *Indra*, the god of the sky. Next is *Varuna*, whose position and attributes, however, are very different from those ascribed to him in the later mythology of India. Next is *Agni*, the god of Fire. The *Sun* is also much worshipped ; but not the *Moon*, and scarcely the *Planets*.—The Veda, however, exhibits clear traces of another type of religion, the offspring not of a simple contemplation of Nature, but of reflection. Thus the god *Brihaspati* (erroneously identified by the later Brahmans, with the planet Jupiter) is the personification not, like the older gods, of some outward object, but of *devotion* ; he is the “ lord of prayer.” *Brahmá* never was a deity of the people ; he was the product of Bráhmanical thought speculating on a Creator. *Vishnu* is quite an inferior deity in the Veda : he is the god of the shining firmament. *Shiva* seems not to be mentioned in the Veda at all ; *Rudra*, is not originally the same as he. The Veda contains no *system*, properly so called ; it never classifies or defines the objects of worship. This was afterwards done by commentators, who have often greatly misunderstood the old religion.—Of those Pantheistic views of God which have ruled so widely and so long in India, we find indications only in a very few of the latest hymns of the Veda. Of the *Avatáras*, or incarnations of Vishnu, there is no trace in the Veda. There are several allusions to “ the three steps of *Vishnu*,” which have often been supposed to point to the *Vámana avatára* ; but on the whole this is probably not the case. The *Avatáras* would seem to have been originally only two in number. The idea of them apparently arose, not among the Brahmans, but the warlike Kshatriyas.—*November 22nd. 1849.*

## ANNIVERSARY MEETING.

Monday, the 26th November 1849.

*Election of Vice-Presidents.*—P. W. Le Geyt Esq. C. S., and the Rev. George Pigott, were unanimously elected *Vice-Presidents*, in succession to the Right Rev. Lord Bishop of Bombay, who had returned to Europe, and James Burnes Esq. M. D. K. II. whose resignation had been tendered at the last Meeting of the Society in anticipation of his leaving India.

The following gentlemen were elected for the Committee of Management, Museum-Committee, and Auditors of the ensuing year, viz:—

*Committee of Management.*

H. YOUNG, Esq.	C. MOREHEAD, M.D.
S. S. DICKINSON, Esq.	W. HOWARD, Esq.
C. J. ERSKINE, Esq.	A. H. LEITH, Esq.
MAJOR J. HOLLAND.	CAPT. S. V. W. HART.
J. SMITH, Esq.	J. PATTON, Esq.

*Museum-Committee.*

THE REV. G. PIGOTT, V.P.	CAPT. MONTRIOU, I.N.
C. J. ERSKINE, Esq.	H. CONYBEARE, Esq.
A. H. LEITH, Esq.	H. J. CARTER, Esq.

*Auditors.*

COL. G. MOORE; A. SPENS, Esq., C. S.

The "Comptes Rendus" from their commencement and the "Lahore Chronicle" were ordered to be added to the list of Periodicals