No. IX. JANUARY, 1845.

JOURNAL

OF THE

BOMBAY BRANCH

OF THE

ROYAL ASIATIC SOCIETY.

JANUARY, 1845.

ART. I.—*Observations on the Mahomedan Architecture in Cairo.* By A. B. ORLEBAR, M. A., Elphinstone Professor.

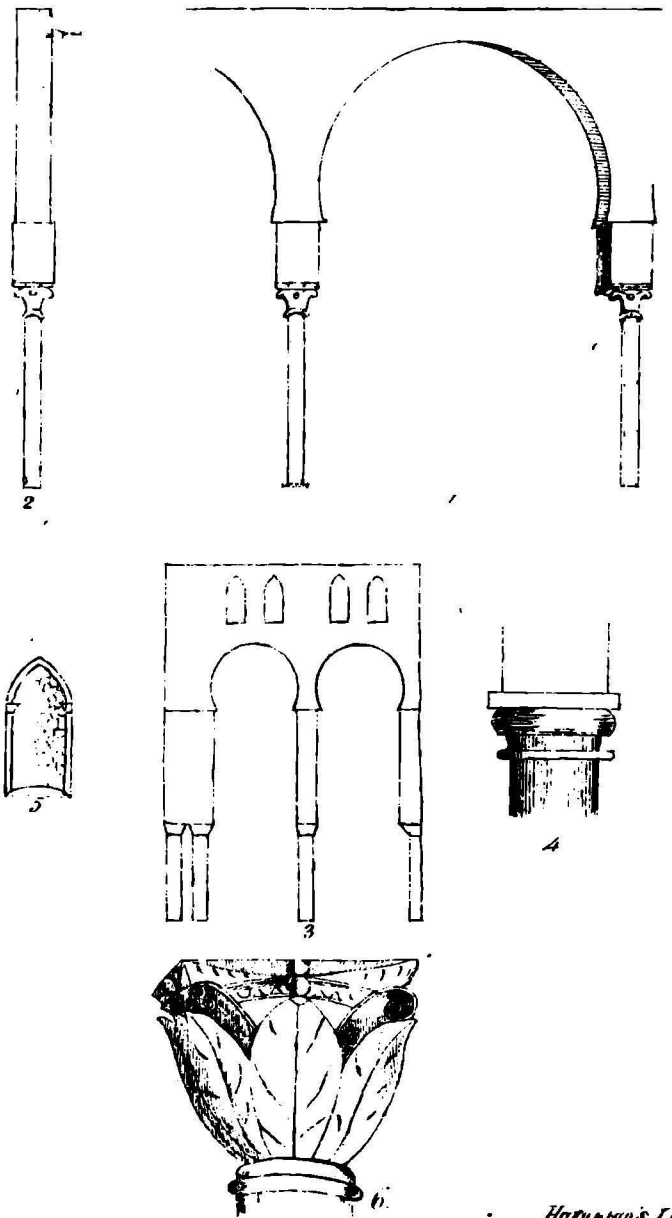
MOSQUE OF AMRU.

Old Cairo contains the first building, which was erected, in any country, by the disciples of Mahomed for the general duties of their faith. It was built under directions of Amru, the son of Nasi, in the year twenty-one of the Hejira, immediately after his conquest of Egypt in the Khalifat of Omar. In it the armed converts of the Arabian reformation were to be assembled, to hear the sermons of their chief against the prevailing idolatry, and to receive the commands of the successors of their apostle for the prosecution of divine vengeance upon idolatrous and schismatic Christendom. To accommodate preachers was the chief object of the building; but the convenience of worshippers as well as of hearers was to be considered. The mosque erected for these purposes is a large quadrangle, surrounded on all sides externally by a plain wall, and internally by a colonnade of many rows of pillars, which being roofed over affords protection from the heat of the sun; the whole of the enclosed quadrangle being a large open court. In the centre of the court is a fountain, by which the worshippers are made secure of a sufficient supply of water, which the apostle had determined to be all but indispensable for orthodox worship. In the eastern wall is an arched recess, which is the *mehrab*, towards which the worship-

pers direct themselves. The colonnade on this side contains many more rows of pillars than on the other sides of the quadrangle; so that a much larger space is there roofed over: for here on account of the *mehrab*, the Mahomedans offer their devotions; and the pulpit being near the *mehrab*, it is here also that they assemble to hear preaching. The *mehrab* is essential to a Mahomedan place of worship; for Mahomedans not assembling for congregational worship as Jews and Christians, but each individual offering himself at the stated times of appointed prayers by and through himself, it becomes necessary to preserve unity of spirit, among those who pray, by directing their thoughts towards one point in the building; which, being towards Mekka, may continually present to their minds the one apostle whose commands they obey, the one God whom they worship, and the reform of corruptions which ought to be the one object of their zeal.

These parts, viz. the open quadrangle with enclosing colonnades deepened on the Mekka side, the central fountain, and the *mehrab*, are common to every mosque in Cairo, and I believe to every mosque elsewhere, which is originally of *Muslim* construction. They are all necessary results of the peculiarities of the religion, and the general plan of Amru's mosque must be that of all others until mosques cease to be built. But the details of the architecture in this edifice differ much from those in other mosques.

The shafts of the pillars are all round, some of alabaster, and others of various stone. A black pillar, near the *mehrab*, is said to have been brought from Mekka, and there is shewn upon it an impression said to be of Mahomed's hand. Be this as it may, the pillars in general are evidently the spoil from more ancient edifices of Greek or Roman architecture: for put upon the shafts in a most rude manner are capitals of various kinds, the greater number being modifications of the Corinthian. These capitals are for the most part exceedingly beautiful, and indicate their having been wrought by hands much more skilful than those which have so barbarously cemented them to their present shafts. The shafts are in general without bases. Some shafts are supported by a single square plinth; and some short shafts are supported by very tall bases. The Mekka pillar is surmounted by a sculpture (fig. 4,) which is immediately recognized as an antique base; nor is this a singular instance of a base misplaced for a capital. In short, a walk round the quadrangle is sufficient to cause full conviction, that the architect required for his roof supports of equal height, that he robbed the existing temples and palaces for materials, that



Hamptons Lith. Bl'ey

he spoiled many capitals in pulling down the works of better architects, so that he was obliged to make some of the bases do for capitals, and thus was obliged to make his average height a capital and a shaft, that some of his pillars were broken, and becoming too short he then put a plinth under them, and that when he had only a portion of a pillar he was necessitated to build up several antique bases to make a sufficiently high base in the new structure.

In order to give some idea of the beauty of the misused sculptures, and to explain the internal evidence that the architect of the mosque could not have been the deviser, or competent in any degree to understand the value of his materials, I have made a sketch of one of the capitals (fig. 6).

Whenever a single pillar is not strong enough to support the masonry raised above it, two are placed very close to one another. This occurs at the entrance, where the pillars are sufficiently apart to allow a thin man to pass between them. Another instance is at the north-east corner of the quadrangle, at the entrance of a small chamber, which is said to have contained the tomb of a son of Amru.

Each capital is surmounted with a plinth of brick.

These brick plinths support a mass of brick, whose horizontal section is a square, and whose vertical section is nearly a double square; and as this mass must be hereafter referred to, I shall call it the stilt.*

The supercolumns support horse-shoe arches, which are longitudinal, or parallel to the walls of the quadrangle. A row of columns, therefore, with their arches form an isolated range; which supporting the roof is quite unconnected to and unstrengthened by the next row, or by the external wall, just as the pier walls of a church without a roof: and as such a row of columns, with their arches, will require often to be mentioned, I shall speak of them hereafter as pier walls. All the arches are alike, and rest upon the stilts; whose breadth is greater than that of the arch walls, but less than the interval between the extremities of two adjacent horse-shoe arches.

The stilts are not always of the dimensions above described: for instance, on the north side of the tomb of the son of Omar, the pillars being unusually short, and the span of the horse-shoe arches unusually small, it became necessary to gain the required height by lengthening the stilts, which here are longer than the pillars.

* I am indebted for this term to Mr. Clarke.

The arches support a flat roof of wood.

There are two *mehrabs*. They are both arched recesses in the wall, and the arches are pointed. The masonry is very rude, being of small pieces of marble put together without any order. Each of Amru's companions is said to have placed one piece with his own hand.

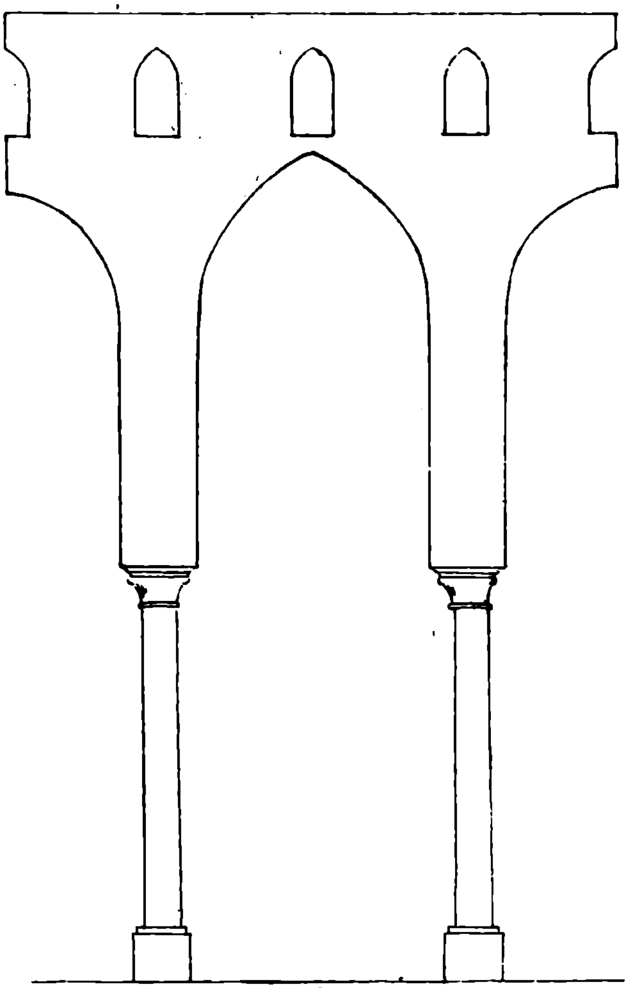
These are not the only instances in this mosque of the pointed arch. Over the two arches which are on the northern side of the tomb of Amru's son, there are four small openings with pointed arches.

The external wall is quite plain, and without any openings besides the doorways.

The principal entrance is to the west. The minaret at this doorway is covered with a rather acute conical cap.

The most striking appearances in this mosque are explained by the history of the conquest. A wild army of Arabian robbers conquered and plundered a wealthy and civilized country; and, incapable of appreciating the beauty of structures existing before them, applied their materials to any urgent use. Their chief requiring a building, in which his soldiers might conveniently assemble, it became necessary to protect them from the sun; it was proper to cover and roof in a sufficient space round and about the enclosure. Pillars from the neighbouring edifices were taken to support the simplest form of roof—a flat roof. But the pillars were not high enough; and the semi-circular arch was that which was almost the only arch then in use: as this would have raised the roof considerably but not sufficiently, the horse-shoe arch was therefore invented, as giving a much greater height with the same span. The figure is ugly for the purpose, but probably the dissimilarity of it to the round Roman arch recommended it to the reforming spirit of the barbarians. Still sufficient height was not gained; and the monstrous stilts were inserted between the columns and the spring of the arches.

This mosque has ever since been regarded as a most sacred edifice and has been continually repaired. Mouslema bin Mokhad extended it eastward, and built the four minarets, Hejira 21. Abd el Aziz enlarged it eastward in Hijira 79. The Khalif Walid (who is celebrated as a builder and converted the church of Saint John at Damascus into the well known mosque) roofed it. A new pulpit, four gates, the treasury, and a fifth gate were added in Hejira 92. It was injured by fire in Hej. 275, but restored by Kamourieh, who added the present fountain and a portico. But I am



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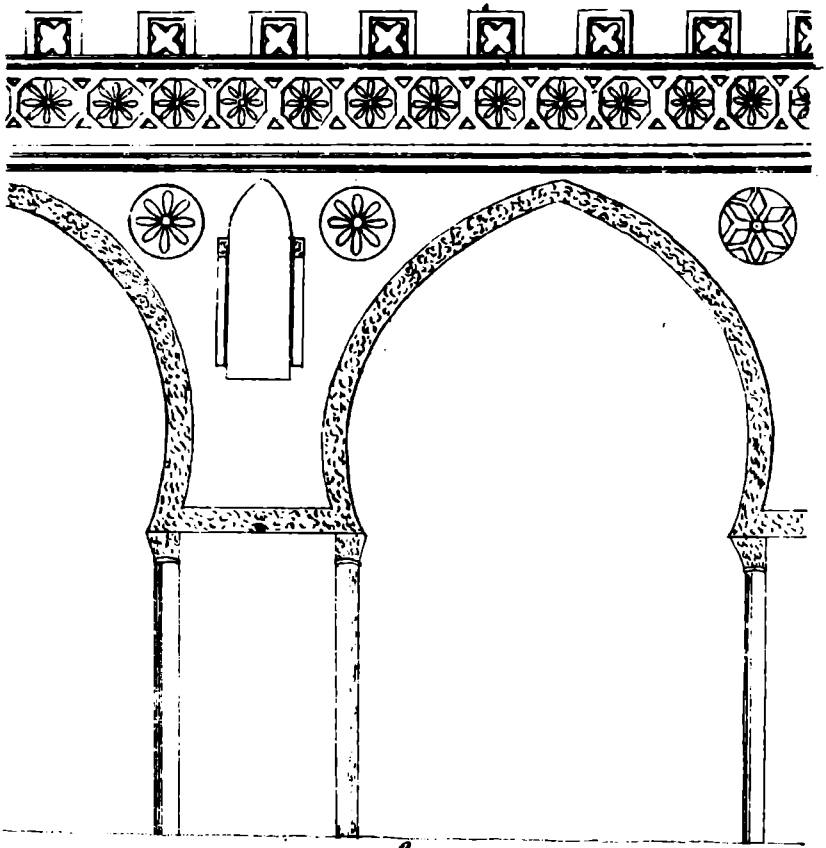

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Masque of Ahmed.

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Hamptons Lith. Bbay.

fully persuaded that none of these repairs and additions have affected the architectural character of the building as originally designed. Now, indeed, by order of the present pasha, it is undergoing repairs which are entirely revolutionizing it.

The general plan of a mosque, the horse-shoe arch, and the stilts originated then in a desire to erect, at the least expense, the most convenient meeting-house for the Arab army of Amru. He was probably his own architect, and history would not lead us to expect, from the destroyer of the Alexandrian library, much elegance or grandeur of design.

Mosque of Ahmed.

A mosque was erected by Ahmed bin Toulon, who is also called Kamourieh, about Hejira 261, in a style entirely different from that of Amru.

The large quadrangle with its covered colonnades around is essential to a mosque. And in Egypt, where there is little or no rain, it would be a waste both of skill and expense to construct any but flat roofs. The arch also is universally used for the support of the beams, so that pier walls are essential. So simple a structure admits of little variety but in the details of the pier walls. In Ahmed's mosque the arches are not supported by columns, but by cubical masses of brick work. The height of the mass is to its longitudinal breadth in the proportion of three to two, and the transverse breadth is also great. I mean by longitudinal breadth the breadth in the direction of the pier walls; and by transverse breadth, that at right angles to the same. These massive piers are plastered perfectly plain except at the edges, where they are slightly relieved by pilasters. These pilasters have no bases; but they have capitals of foliage which is quite flat, being worked in plaster, and hence lose the object of capitals for want of depth of shadow. (See fig. 10).

The plaster is very inferior, and it must not be supposed to convey any of the effect of the beautiful chunam work of India.

These piers support pointed horse-shoe arches, whose height equal that of the pier. A broad border of flat foliage, or chainwork in plaster, follows the arch, and is continued across the pier from the spring of one arch to the spring of the adjacent arch. The vertex of the border reaches nearly the top of the pier wall. The great breadth of the pier causes a vast space between the arches, which would have had a very naked ap-

pearance notwithstanding the border, had not the architect filled it up with a lancet window, in the centre, and circular openings, one on each side of the window.

The front pier wall is surmounted by a battlement, the design of which will be best understood by the figure.

The central fountain is enclosed in a square building surmounted by a cupola. The upper part of the square building is formed into two octagons, in order to destroy the abruptness which would be caused by the immediate transition from a square to a circular shape.

We have an historical account for the eccentricity and faults of this mosque. The rulers of Egypt, under the Baghdad Khalifs, had in Ahmed's time become powerful and wealthy; as a consequence of wealth, they wished to leave behind them monuments which might perpetuate their memories. Mahomedan architecture presented nothing worthy of being imitated, nothing capable of improvement; still a strong prejudice against every thing of Christian or of Pagan use was an insuperable bar against adopting the style either of churches or of temples. Ahmed had long been perplexed with these difficulties, when at length a Christian prisoner offered the plan of a mosque, which was acknowledged by the Mahomedan court to be equally beautiful and free from religious objection.

As seen in the building, which is even now little injured by time, the characteristics, which may have been adopted from Amru's mosque are,

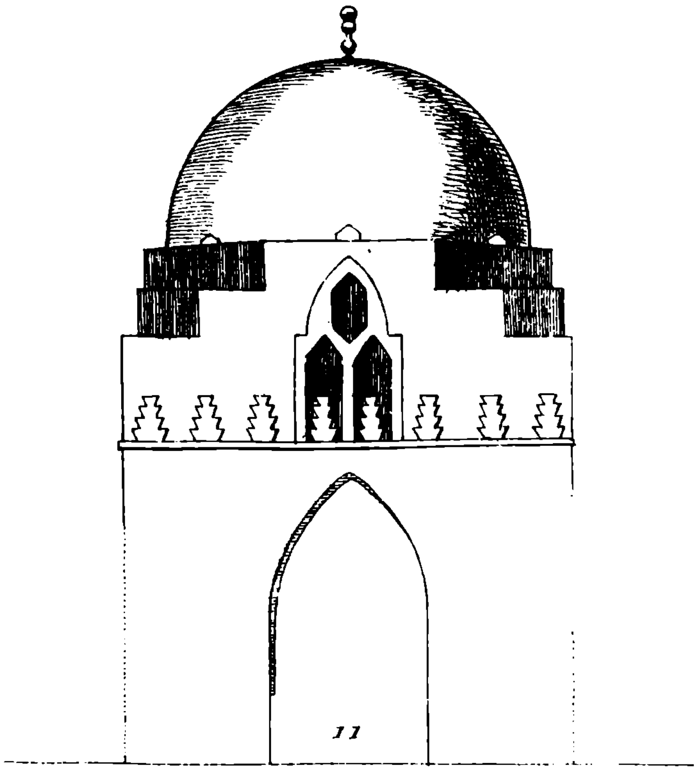
1st the general plan.
2nd the horse-shoe arch.
3rd the small pointed arch.

And the novelties, which the architect introduced, are,

1st the pointed horse-shoe arch.
2nd the substitution of piers for pillars.
3rd the foliage and chainwork in plaster.
4th the octagonal ornaments in the battlements.
5th the round ornaments in the wall.
6th the transition from square to round by means of the octagon.

TOMBS.

Mahomedan tombs are another class of religious buildings which, being more numerous and not being so liable to repairs or alterations in ages subsequent to their erection, promise a larger amount of historical information. There is generally a tomb, or more than one tomb, erected at the



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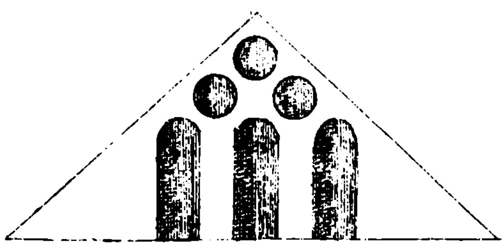

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Hampden Smith
R. bay

northeast and southeast angles of a mosque; but the tombs, to which reference is now made, are not subordinate parts of a mosque. They are independent of other uses than the service of the dead; a small space only being left, on the east side, for worship, and which I suppose is only used for offering up prayers for the dead. The ground plan of Kelaoun's tomb will suffice to give an idea of all. In figure 23, D D D, are the three western doors; K is the *mehrab*; T is the coffin enclosed by rails, which are marked by the dotted lines; S S S S are square piers; P P P II round pillars which with the square piers support the roof. These tombs are always entirely roofed over.

In the mosques and tombs, which I examined, I found no architectural characters, which were not essentially the same as those above described; but the principles, which originated in the mosques of Amru and Ahmed, developed and underwent great modifications in subsequent years. To understand these it will be convenient to consider in order:—

1 Arches.
2 Piers and pillars, pilasters and capitals.
3 Pediments.
4 Corbel supports.
5 Roofs, vaulting and cupolas.
6 Windows.
7 Geometrical ornaments.

The Arch.

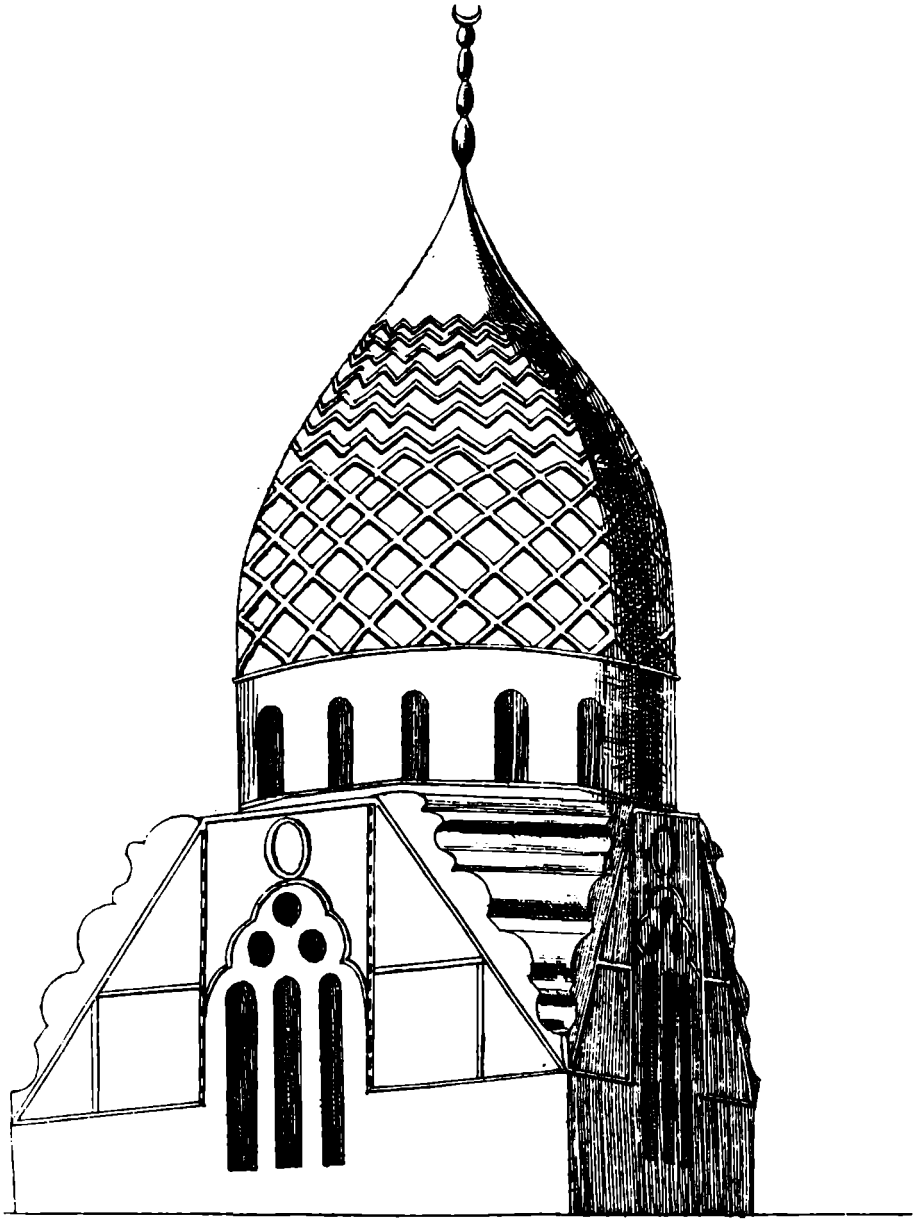
The pointed arch is to be seen in buildings of every date. Whether the pointed openings in Amru's mosque are a part of the original structure, may be doubted; but the pointed *mehrab* certainly is, for it could not have been introduced into the wall of which it forms the lowest part. Repairs and additions have been recorded above; but among these the only one which could have affected the *mehrab* is the extension eastward by Mouslema bin Mokhad. If the *mehrab* was then built, it is of no consequence to the present argument, for this alteration is stated to have been in the same year as the erection of the mosque. It is likely enough, however, that by this extension eastward is meant an enlargement of the eastern colonnade, which is more likely to have been enlarged inwardly than outwardly, as the increase in the number of pier walls inwardly would have been effected without any disturbance of the previously existing walls; and if

this supposition is correct, Mouslema did not build the outer wall in which the *mehrab* is. I do not remember a round arched *mehrab* in any one of the tombs; and as there is necessarily a *mehrab* in every tomb, and as it is very improbable that any alteration should ever be made in a tomb, or indeed any repair beyond what is absolutely necessary to preserve it, this would prove that the pointed arch is co-eval with tombs. But on a hill not far from the mosque of Amru is a tomb, (said to contain the remains of Abu Saad el Ghazi) in which the architecture is so similar to that of the mosque, that it seems impossible to deny it an equally early date. It is built with the same rudeness, and with like materials from more antique buildings. Its minaret is similar; its arches are round horse-shoe; certain piers also, which are substituted for columns, afford strong evidence of antiquity, as will be explained under the proper head. None of the architectural characters, which are known to be of late date, are to be seen; and this tomb has a pointed *mehrab*. Some Arabic scholar may determine the age of Abu Saad el Ghazi, but the above marks will hardly allow a doubt as to the date about which his tomb was erected. Ahmed bin Toulon uses the pointed arch very freely; and we henceforth find it commonly used in all ages.

The origin of the horse-shoe arch has been already accounted for; and the general principle upon which Ahmed's mosque was designed, explains why the pointed and horse-shoe character were there combined. But the horse-shoe arch is so very ungraceful, that subsequent architects dispensed with it; for they observed that the use of the horse-shoe, in increasing the ratio of the height to the span, is equally well accomplished by the pointed arch, which form Ahmed's mosque had now made fashionable. Hence in the mosque of Muiz (whom I suppose to be the first Fatamite Khalif who established the seat of his government at Cairo), the pier arches are pointed but not horse-shoe. The arch is a blunt arch, having its centres somewhere about the quartering of the span. But to increase the height the supercolumns are more lengthened than in the mosque of Amru, and their sides made continuous with the curves of the arch. The effect is good; and the pier wall of Muiz (fig. 7) is in its design a carrying out and improvement upon the pier walls both of Kamourieh (fig. 9) and that of Amru (fig. 1).

The arches in other and later buildings are both pointed and round, without any decided preponderance of either form.

The pointed arch is either equilateral or obtuse. I remember no instance of an acute arch.



Hamptons Lith. - B'hay.

Piers, Pillars, Pilasters and Capitals.

For supports the Greeks, Romans, and Egyptians, had used only columns, and almost always round columns. Ahmed, in his zeal against ancient architecture, invented the square pier; decorated as it was with pilasters however it did not please; and it has been seldom adopted in subsequent buildings. Muiz imitated Amru, and borrowed round columns and capitals from the temples and palaces of unbelievers. He improved however upon his example, by raising all the shafts upon neat and uniform bases. Each base consists of a square plinth, a few inches thick, supported by a cube, which may be two feet high; no mouldings enrich them or round off their edges; but they have the good quality of neatness which is sadly wanting in Amru's mosque.

In the mosques of the Khalif Hakim and of Sultan Bakok, Ahmed's principle has been observed; but a new contrivance has been made to avoid the round pillars and capitals of other faiths. Ahmed's architect felt the necessity of rounding off the vertical angles, which he effected by means of pilasters, and was certainly guilty of offence against the grand principle. Hakim and Bakok avoided even this by simply cutting off the angles of the square piers, so as to form an octagonal pier, and escaped the necessity both of capital and of base, by rounding off the upper and lower ends of the octagon into hollows, as shewn in figure 14. Although so much more plain than Ahmed's pier, yet this has much the better effect; for its height and diameter are brought much nearer to classical proportion.

We find the same struggle to avoid infidel models in pillars through every age. Kelaoun has used, for the main support of his cupola, large square piers ornamented with horizontal mouldings, mosaic, and various colors. At the edges they are ornamented with round pilasters, which have capitals and bases of the most fantastic device, gaily painted with red, green, and yellow. Pillars and pilasters of this strange character serve various purposes in this tomb; their beauty may be appreciated by figures 17, 18, and 19.

Kelaoun's cupola is also partly supported by four round pillars, which are surmounted by Corinthian capitals. These pillars are tall, but not out of proportion to their diameter, which I found to be 3 feet 3 inches.

Kelaoun's son Ashraf seems to have been possessed with the same

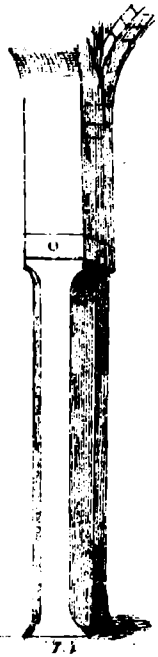
spirit of incongruity. His tomb is fantastically adorned with mosaic, and the shafts (which are round) are supported by inverted Corinthian capitals as bases.

Abu Saad's tomb contains pillars and capitals of another fashion. The round pilaster (fig. 16) is on one side of a doorway leading into a tomb, the arch of which is shewn in fig. 22. A round shaft is here required to support a square. To form a pleasing transition from the round to the square is one of the great problems of architecture. Greek temples are essentially composed of round pillars upon which square edged beams rest; and the classic architects perfected their successive devices, to accomplish this problem, by the Corinthian capital, in which the eye, losing itself among the foliage, is gradually curved away from vertical to horizontal lines, and from the round to the square. The Mahomedan solution of the same problem will be better understood by reference to figure 16 than by description. It will be observed that the change is effected by a succession of bevelments, so that the intermediate figure, which the circle changes to a square, is a re-entrant polygon of sixteen sides. Figure 15 represents an octagonal pillar which supports the roof, of which the upper part may be considered as a supercolumn. The transition from the octagon to the square is here effected by similar bevelments as that from the circle to the square; and forms an incipient capital, not quite so complete as on the pilaster above described.

Thus an entirely new and Mahomedan capital was invented. But it seems to have been little imitated, although it appears to have given the idea of important peculiarities in Cairo architecture.

PEDIMENTS.

Over the fountain, in the centre of Ahmed's mosque, is a square building surmounted by a cupola (fig. 11). In such a case there is the same necessity for a transition as in a pillar; and the same system of bevelment, or cutting off angles, was adopted as in the capitals of Abu Saad. In Ahmed's mosque the angle is twice cut off, so that the whole building is a square prism, upon which is an octagonal prism, over which is a second octagonal prism, and above which is the round cupola. Thus in this instance, the angle of the square is cut off in two steps. In later buildings, as in the tomb of Muiz, the number of steps are increased, and in those of yet later date, the number of steps are so multiplied that at a distance they



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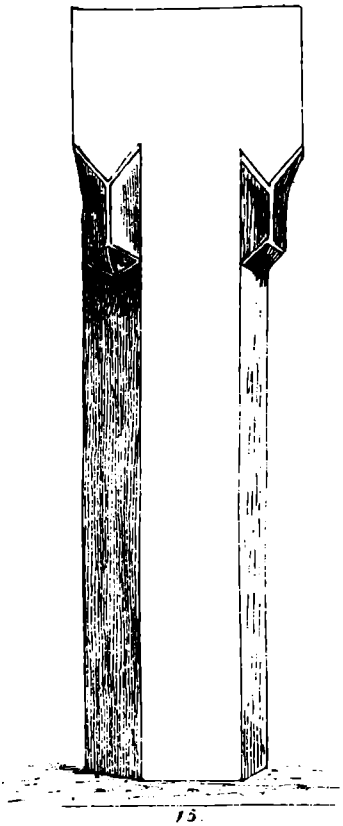

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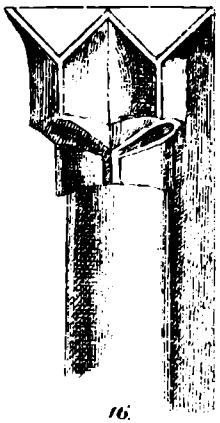

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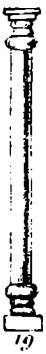

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Hampton's Lith. B'bay

are not perceptible, and the upper part of the square face appears as a pediment. In the modern tombs they become a real pediment, as in that of Sultan el Ghori, fig. 12. Sultan Mahomed has ornamented the angles of his tomb by rounding off the steps into horizontal mouldings.—The pediment is sometimes complete (fig. 12), and sometimes truncated (fig. 13).

Corbels and Minarets.

This principle of bevelment was extended to every case where transition from a horizontal plan of straight lines to another horizontal plan of curved lines, was required. Thus the interior of tombs required the same transition as the exterior, and a system of bevelments, exactly the same as those of Abu Saad's pillars, is generally used. The rows of re-entering prisms are of course increased, and each row is increased in the number of its cells, from one at the base, in arithmetical progression, the common difference being one. So that a pleasing triangular assemblage of cells is formed. A fine example may be seen in the tomb of Sultan Bibars, where the cells are very large. In other buildings, as in the tomb of Bakok, the number of cells is increased.

These bevelled cells were further used, wherever an overhanging balcony or room was required. Thus they served the purposes of corbels and corbel tables, and may be called cellular corbels.

Cellular corbel tables are used for the support of the balconies which surround the minarets; the balconies being always round, and the minarets themselves almost always octagonal.

Roofs, Vaulting, and Cupolas.

The roofs of all the mosques, excepting two, which I examined, are flat; but the tombs are always covered in with a cupola. The cupola over Ahmed's fountain is hemispherical (fig. 11); Mahomed's cupola (fig. 13) is *ogive*, and raised on a cylinder. Ahmed's cupola is quite plain. *Zigzag* ornaments the exterior of the cupola of Muiz. Sultan Mahomed (fig. 13) has used the zigzag and chevron. Sultan Ashraf has embossed his dome with flowers. Sultan Bakok uses the zigzag; and again Sultan Aawad's cupola is quite plain. No universal law has therefore been observed; but in general the more ancient cupolas are hemispherical and plain, and the more modern are elevated and ornamented

I did not notice any large cupolas of the horse-shoe shape, although minarets are usually surmounted by them. But these little cupolas are rather ornamental finishes to the whole than coverings.

One of the deviations from flat roofs is found in the aisles and temple of Sultan Bakok, built about A. D. 1382. Here the pier walls are connected by transverse arches, and every square of four pillars supports between them an hemispherical cupola: so that the whole roof of the colonnades is formed of a multitude of little equal cupolas.

One other deviation is found in the mosque of Sultan Hassan, about A. D. 1310. This mosque is entirely different from every other, and is the only aberration, (which I observed,) from the type of Amru's mosque.* The ground plan is a Greek cross. The central square is open to the sky, but the four arms are roofed by a simple pointed vault.

The minarets of Abu Saad's tomb and of Amru's mosque are covered by simple conical caps. The simplicity of this form would refer it to the earliest stage of architecture, and is another evidence of the antiquity of Abu Sadd's tomb.

WINDOWS.

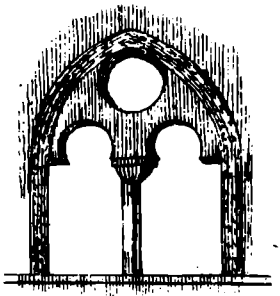
In the tomb of Amru's mosque are small pointed openings, and also in the upper part of the pier walls of Muiz. These are without mouldings.

Between each pier arch, Ahmed's architect has placed a lancet window; and has made a first attempt at mouldings, by introducing, at each side, a pilaster similar to those at the edges of the pier.

No further approach to the idea of mouldings has been made in subsequent years. The window (fig. 21) in the tomb of Sultan Bibars, has also pilasters on the sides; and the window (fig. 20) in the upper part of Kelaoun's tomb, has a rich but flat border round it: but in general the edges of windows are, like those of arches, perfectly plain.

The opening of the whole window is generally filled up by a wall, thinner than the rest of the building, and this wall is pierced with smaller openings. There is an early example of this in the fountain of Ahmed, where the openings are angular, and nearly fill up the whole window; so that the parts of the wall remaining are almost nothing more than the simplest form of geometrical tracery. But in the tomb of Sultan Bibars

* It is remarkable that this mosque, which is quite abnormal, should be shewn to strangers as a specimen of such buildings.



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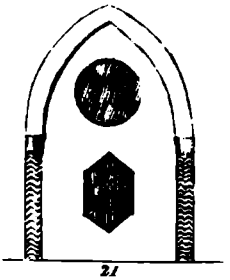

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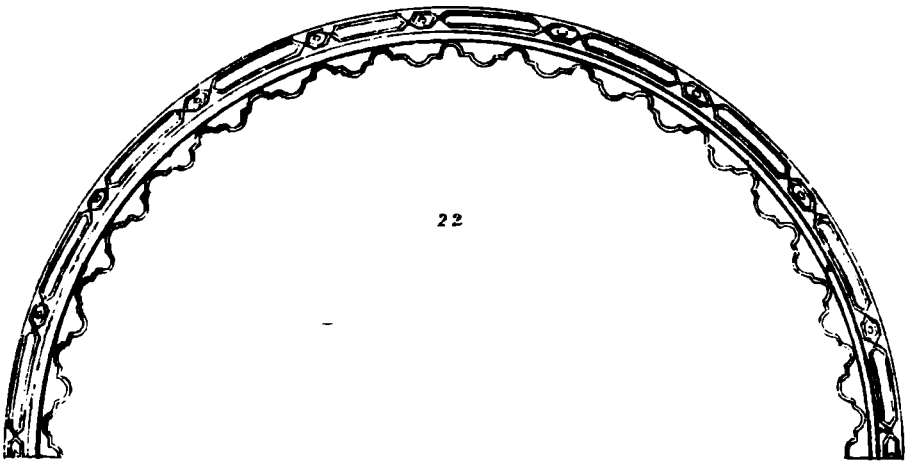

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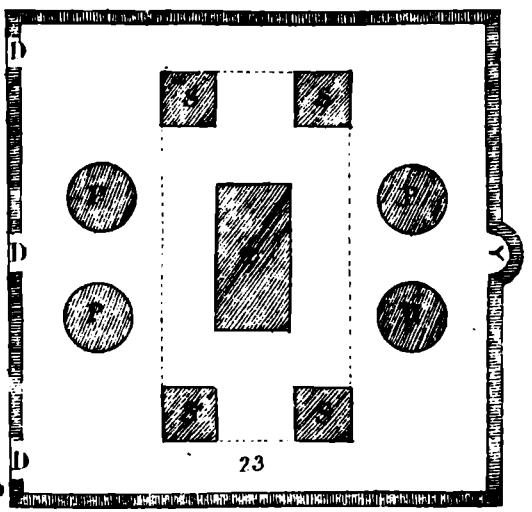

23

Hampton's Lith. B'bay.

(fig. 21), this window wall occupies nearly the whole space, and there are only two small openings, one hexagonal and one circular. The window (fig. 20) of Keloun's tomb is on the contrary much opened; the upper part only being walled, and the lower part divided by a small pillar which supports the wall above, and made very light by one circular, and two horse-shoe, openings.

The windows consist of either round headed, or blunt pointed arches; and I did not observe any acute pointed ones.

Pediments require a different style of window. In complete pediments, three narrow round headed openings, of equal height, pierce the lower part of the pediment, and the remaining upper space is occupied by three round openings, so that the centres of all six circles are in a triangle similar to the pediment.

In truncated pediments (fig. 13), the same combination is preserved, apparently only for the sake of the fashion introduced by the complete pediment; since, in order to preserve the fashion, it was necessary to introduce the panelling which we see in Mahomed's pediment.

Round windows admit light through the cylindrical base of Sultan Bibars's cupola.

Geometric Ornaments.

The Mahomedans of Cairo have admitted flowers and foliage among their architectural ornaments; while there was a tendency to discard even these, and to confine all decoration to combinations of the straight line and circle.

Amru's mosque is entirely without ornament; but this must be attributed more to rudeness than to principle; for the former cause would even forbid the use of ancient capitals. Abu Saad's tomb has much ornament and all geometrical; both *zigzag* and chain work (fig. 22) occur over the doorways, as also combinations of semicircles and straight lines. Zigzag and chain work are most common ornaments of every age and are every where seen. Ahmed's mosque is profusely enriched with geometrical combinations, all of which bear some relation to the octagon.

The lattice work, with which the openings of the windows are generally closed, is always geometrical; and for the most part combinations of straight lines only.

The innermost pier wall is generally surmounted by a battlement, (figs.

8 and 9), which also has afforded opportunities for the exercise of geometrical skill.

CHARACTER AND ORIGIN OF CAIRO ARCHITECTURE.

Thus the manner of Mahomedan worship, the climate of Egypt, the desire of princes to perpetuate their memories after death, and the spirit of antagonism to Christianity and paganism, gradually produced an original and peculiar style of architecture. It is recognized by cupolas, minarets, geometric ornaments, the horse-shoe and pointed arch, stilts, windows in triplets, and windows of geometric openings in a plain wall, square massive piers, pediments, and corbels of bevelled cells. The general plan and minarets must be attributed solely to the necessities of the Mahomedan form of worship. Horse-shoe arches and supercolumns owe their origin to the climate, which required a high roof to preserve a moderate temperature under the colonnades. Square massive piers, fantastic capitals and bases, the two styles of windows, and all that originated from the principle of bevelment, whether in pediments or in corbels, must be attributed to the spirit of antagonism against other faiths. In all these points the Cairo style is original, and in some peculiar; but it borrowed from others the cupola, the pointed arch, and most if not all its geometric ornaments.

Constantinople had set the fashion to the Christian temples, which were built, in every part of the Roman Empire, under Constantine and his successors, (1) in consequence of the nearly total annihilation of previously existing churches during the Diocletian persecution (2). The ground plan of these churches was a Greek cross, the centre of which was a cupola supported upon four arches. It is to be observed that the cupola is used by the Mahomedans over tombs only, until the fourteenth century, when Bakok employed it to vault his mosque. They may have been mystical enough to consider that the churches of Christians were but the mansions of the dead: or more probably the wish of leaving their bodies under the richest edifices which their age could produce, overcame the spirit of hatred to Christian form, and caused the Mahomedan Princes to yield to the judgment of infidel architects: since it is known that Christian architects were employed in Mahomedan countries, and even requested by Mahomedan Princes from the Greek Emperors.

(1) Hope's architecture, p. 121.

(2) Lactantius de morte persecutorum.

The *zigzag ornament* is as old as 456 A. U. C. and is a corruption of the Greek dentile (1). A careful enquiry into these geometric ornaments will probably trace most of those used in Cairo to a more ancient period; but their general use is certainly a striking feature and peculiarity of Mahomedan architecture.

It has been shewn that the pointed arch is coeval with Cairo architecture, but that it did not come into general use until Ahmed bin Toulon's time, after which it occurs every where. Hope says, "in buildings of the earlier Byzantine, nay still more antique Roman style, the pointed arch had already appeared." If this be correct, it was without doubt borrowed from Constantinople and the Christian churches, as well as the cupola. In the earliest buildings we have found the arch of the *mehrab* to be the only pointed arch. There is certainly no architectural reason for its use in this position; but the considerations, that the Mahomedans had ever in their thoughts the hated structure of the Christian temple, and that their leaders ever laboured to increase the feeling that there could be no peace between the two religions, suggested a reason for its adoption as the arch of the *mehrab*. All the early churches, both of the east and of most countries in the west, terminated with a round *apse* having a semi-domical roof; (I use the nomenclature of Dr. Whewell proposed in his notes on the Architecture of German churches,) and in the centre of this was the altar towards which the eyes of all the congregation were directed; the domical roofed *apse* therefore became the *mehrab* of the Christian. Now the Mahomedan *mehrab* is an *apse* in miniature, but pointed; and this pointing may have been adopted to contrast with the round arch of the Christian *apse*, and to keep up in the minds of the worshippers the contrast between the two faiths. The history related above of the foundation of Ahmed's mosque leaves no doubt that this spirit caused its universal use in that edifice; for at that time and for centuries after, the round arch was almost exclusively used both in Eastern and Western Christendom. Ahmed's mosque must have been designed in the latter half of the ninth century, and there is not an instance of the pointed arch in Western Europe before the eleventh. The examples quoted by Hope prove its occurrence, only as a rarity, in the Byzantine churches; whereas from Ahmed's time it becomes a characteristic of Mahomedan structures.

(1) Hope, p. 75.

INFLUENCE OF MAHOMEDAN ON CHRISTIAN ARCHITECTURE.

While the Mahomedans were thus producing an original style of Architecture, Christians were enriching the Byzantine style; which in Italy, Germany, England, and France, was assuming local forms and introducing new styles, named by different authors, Romanesque, Saxon, Norman, &c. &c. These were definitely forming into a new order, which was distinguished by the leading principles of the Gothic, when the crusades brought the nations, who were most actively engaged in improving their national forms, into contact with the East and with Egypt. Immediately after the first crusade, the pointed Gothic, in its earliest form suddenly and rapidly developed itself in France and England. English and French barons, (one nation at that time in every moral sense,) were the chief leaders of the early crusades; and in England and France the pointed Gothic first and chiefly flourished. Such coincidences afford a strong presumption that the active minded northerns did borrow the pointed style from the East. Upon this subject much has been already written, but internal evidence, derived from architectural peculiarities, will be much more convincing than external evidence derived from the probabilities of history; and to consider this we therefore now turn.

The pointed arch, in the earliest specimens of early Gothic,* through Germany, France and England, is obtuse and sometimes equilateral. The acute arch appears only in the later early Gothic. Now the acute arch is much more suited to the essential idea of Gothic, which is the predominance of vertical lines; and this is the essential idea both of the Romanesque, Gothic, and of the pointed Gothic; while there is no reason against the use of the acute arch where the obtuse has been actually employed; but the former could have effected all the purpose of the latter. If the pointed arch was borrowed from Cairo, this difficulty is explained; for there it is always obtuse or equilateral, never acute.

The windows of the earliest pointed and even of the lingering Romanesque are frequently in triplets, with round windows often above them. This arrangement has not been traced up to any cause in Europe; but in Cairo,

* The Pointed Gothic is now always distinguished in England into Early English, Decorated, and Perpendicular. The Early English is the development, the Decorated is the perfection, and the Perpendicular the decay of the style. The development of the style in all countries may be called Early Gothic.

where it occurs of an earlier date, a sufficient cause has been found in the forms and position of the pediment.

The window of two lights, with a circular opening above, (fig. 20 Kelaoun's tomb,) is even more common than the triplet in early English. In the Gothic the round horse-shoe becomes obtuse pointed, and the thin wall becomes tracery. Now Gothic tracery is perfect when all the lines flow easily into one another, and imperfect in proportion to the neglect of this principle. But the combination of two obtuse arches with a circle is made to accomplish this with much difficulty; and notwithstanding, this is the most common window in use, during the predominance of early English—I have seen only one instance where the easy flow is effected in this construction, viz. in the triforium of the nave of Lichfield cathedral. It seems inconceivable that the Gothic architects should have invented a window so unsuited to their principles; but it is comprehensible that it should have become fashionable after having been once adopted from others.

In early Gothic, and in the perfect Gothic, we observe a fondness for geometric ornament, which seems hardly consistent with the tendencies then existing in the Christian church, but which is easily accounted for on the supposition that her architects were gathering ideas from the opposing faith. When the crusades had ceased, and the perpendicular and *flamboyant* succeeded the perfect Gothic, this tendency to geometrical form became weaker, and imagery was profusely used.

The architecture of Cairo may have influenced that of Christendom, through another channel besides the crusades. The Saracenic kingdoms of Italy and Spain may have introduced the new principles; and this may explain the few (if genuine,) instances which are quoted, of early Gothic anterior to the crusades.

But the Gothic Architects were far from being mere copyists. They adopted the pointed arch, and made it subservient to the great principle of verticality which had existed previously in the Romanesque. They also applied it to vaulting: and this reacting again upon the arch produced its more beautiful forms. Geometrical ornaments were increased in number and new combinations formed. Windows in triplets were coalesced into beautiful windows with flowing tracery, filled up with pointed glass in the place of lattice work and void spaces. Mouldings decorated the sides of windows and doors, and combined with the lines of shafts and panelling,

which pointed up beyond the concealed roof. The flat floored border of Ahmed's arch was moulded into rolls, whose deep shadows fixed the eye, and aided to carry it upward from the ground. Piers were adopted to support the mass of masonry which did not exist above the Mahomedan pier, and decorated with clusters of thin shafts and mouldings, they kept up the effect by destroying the tendency of every necessary horizontal line to depress the eye. Nor did they adopt the deformities of the unbeliever's creation; the bevelled capital and the unmeaning capitals of Kelaoun were looked upon only to be rejected; and corbels, more beautiful than those of Cairo, were invented. But they did not reject the Romanesque capital, and modified it into their own uses, by making it a mere knob, by which the eye might be assisted up the shafts. The cupola, on the other hand, was rejected for a more susceptible form of vaulting; and fan tracery was developed out of a system, which the adoption of the cupola would have prohibited for ever.

But in place of the cupola, as a covering for Gothic towers, the spire gradually rose from the same conical caps as we have seen on the minarets of Amru and Abu Saad. The round towers of Ireland are covered in with conical caps, the idea of which seems to have been taken from the stone roofs, which, at the period of the erection of these towers, were framed over the churches. These roofs are formed by horizontal layers of stone, the ends of which are cut off externally at an angle of sixty, so as to form this high pitch for a gable ended roof. * This principle to cover in a round building necessarily produced a conical cap. The blunt spires of the early English are little else but these conical caps set upon a larger base. But as the style improved, the spires ascended with their supporting pinnacles; and crockets and adornments soon became the greatest ornament of the Christian landscape. So much could western energy develope out of so simple a structure as the conical cap; but the Mahomedan extracted nothing from his conical caps, but soon discarded them altogether for the fashionable cupolas.

* St Doulach's near Dublin; St Kevins Kitchen, Glendaloch. It is strange that antiquaries should not have seen that the round towers must be belfries. Bells seem to have been first cast in our western countries; and they were no doubt most necessary in the missionary establishments of Ireland. The architecture of the round towers and of the seven churches at Glendaloch is that which is called Saxon by Rickman, and referred by him to the time of ou Saxon Kings.

As I do not refer the idea of the spire to the minarets of Cairo, so neither do I consider the gabel ends and pediments of the Romanesque churches of Germany to have been derived from the pediments of Egypt; because they are easily traced through Italian churches to the civil edifices of Rome, and thence to the Grecian pediment.

Mahomedan architecture, then, is wholly distinct from both the Romanesque and the pointed Gothic. It borrowed from the one, and the other borrowed from it, while the principles of all three styles are essentially distinct. On this subjet error is committed by those writers who have taken extreme views; some considering the Mahomedan to have been the source of all middle age architecture, and others giving strong reasons for believing that the reverse has been the fact.

The Mahomedan then invented some novelties which the Christian deemed worthy of adoption, but which under his hand gradually improved into a perfection of which the originals seem hardly capable. He made other inventions which were too ugly to be copied, while the latter was compelled himself to make copies, which he was unable to improve, at a time when Christian architecture was making a progress which has astonished all students of history and science.

From the time of Ahmed to the reign of Bakok, Mahomedan architecture had remained stationary. During five centuries, from the first effort to produce something original, nothing of any real value had been produced; while in England, from the reign of Stephen, when the pointed style commenced, to the time of Sultan Bakok, (that is during two centuries and a half), our countrymen wrought out the varied forms of Gothic, which excite the wonder of our age, and afford subject of untiring contemplation to the student.

Such slowness and incapacity may be attributed partly to want of imagination, in which the Arabs appear to be particularly defective: for Arab science is now pretty well known to owe every thing either to Greece or India. Arab history never passed the limits of mere chronicles, and the bulk of their literature begins and ends with Greek authors; while Arab poetry is said to be all of one model.

Egypt has perhaps been more favored than any other Mahomedan country in the enjoyment of peace, which is the nurse of the fine arts. Yet the law, which permits the father to make any favorite son his heir, rendered the succession to the monarchy uncertain, and caused intestine com-

motions which were quite enough to distract the minds of all from the culture of the fine arts. Besides which, Syria being within the dominions of Egypt, her rulers were never allowed to be in peace, on account of the wars which they were compelled to maintain on this side, successively against the Greeks, the Crusaders, the Tartars and the Turks.

In Christendom, during the middle ages, the architects and founders of our temples were men who did not feel themselves isolated individuals in their work. The same motives which caused one to begin, would cause another to continue his work until it was completed. They could therefore lay out and commence magnificent schemes for edifices, which they themselves never expected to see raised far above the foundations. They were members of corporations; and the labor of one was not only the labor of that one man, but of the whole undying corporation. Mahomed destroyed the ancient cathedral and monastic corporations of Christendom, but substitued nothing in their place. The conduct of all Mahomedans hence assumes an individual and selfish aspect. The founder of a new town planned just such a mosque as he could expect to complete himself, and most princes were contented with building for themselves a tomb. Hence the unsubstantial character of the materials of Cairo buildings; for although the nummulitic limestone supplied ancient Egypt with an excellent stone; yet all the Mahomedan remains are of brick. An exception however must be made in favor of Salah-ed-Din's erections. The fortifications of Cairo attributed to him, and also the great aqueduct, is of nummulitic limestone; which evenhe however did not attempt to quarry but carried away from the Pyramids of Ghizeh.

Those travellers, who are able to pursue this subject in Egypt, or those who make similar enquiries in this country, will find M. Coste's work on the architecture of Cairo very useful. It is to be hoped that the Asiatic Society will emulate, in India, those Societies whose architectural researches have thrown so much light on European History.

Comparative Chronology of Cairo Architecture.

Christian Architecture.	A.D.	A.D.	Heg.	Mahomedan Architecture.	Egyptian History.
		640	20	Pointed arch, horse shoe round arch.	Egypt conquered by Amru. death of Amru.
		663	43		
		698	79	Abdal Aziz enlarges Amru's mosque	
		716	98	. . . . .	Khalif Walid dies.
				About this time Kamourich's mosque is built.	
		874	261		
		888	275	Pointed horse-shoe and Piers, Geometrical ornaments. Kamourich repairs Amru's mosque.	
		970	360	Zigzag ornament on the cupola.	Khalif Muiz establishes the seat of the Fatemite Government at Cairo.
Cathedral of Chartres, said to be pointed.		996	386	. . . . .	Khalif Hakim.
		1020	411	. . . . .	dies
Jerusalem taken by Godfrey of Boulogne.	1028	1166	562	. . . . .	Salaheddin puts an end to the Fatemite Dynasty
	1099				
St Cross built by Henry de Bloes, an instance of *pointed* struggling with Romanesque Gothic.	1132				
		1263	662	. . . . .	Sultan Bibars dies
		1290	689	. . . . .	Almansour Kelaoun dies.
		1293	693	. . . . .	Al Ashraf dies.
		1356	757	. . . . .	Sultan Hassan.
		1382	784	. . . . .	Sultan Bakok.

Art. II.—*Geographical and Statistical Memorandum on Beluchistan.* By Major George Lemessurier, of the Bombay Army.

The province of Beluchistan, of which Kelat is the capital city, is situated between the 25th and 31st parallels of north latitude, and the 62nd and 67th of east longtitude: being bounded, on the north, by the Lorah river, which forms the southern limits of Afghanistan; on the west, by the desert of Noshki, Chargye, Kharan, &c. which separate it from the Persian dominions; on the south, by the Indian ocean; and on the east, by the Hala range of mountains, which divides it from Sindh. This country so extensive is perhaps without a parallel, and certainly no portion of India can in any way be compared to it. In its physical features it approximates to Afghanistan, of which indeed it

may be called an integral portion, as well as a dependency; it is like it, a country of mountains, intersected by narrow valleys, and happily described as an extensive and varied system of mountain ranges upheaved through an enormous plain, variously covered with *boulders and shingle*, with here and there deposits of soil, in narrow strips along the lines of drainage. This last remark applies peculiarly to the eastern frontier of *Beluchistan*, but scarcely so much so to the western; where the mountain ranges gradually subside into plains, or rather run, in detached and isolated portions, far into the desert, which divides it from Persia. This part of the country becomes more level and open generally, and with few exceptions sandy. In the report on Afghanistan by Dr. Griffiths, (published in the Journal of the Asiatic Society of Bengal,) the author observes that the system of mountains, which form so remarkable a feature on the eastern boundary of Beluchistan, is referrible to the mountains of the *Koh-i-Safed*; a name given to that portion of the western continuation of the great *Himalaya chain*, which, after forming the southern boundary of the valley of Jallalabad, extends thence, in a general line, southward along the right bank of the Indus, and includes the *Takhti-Suliman*, the ranges commonly called the *Hala*, or *Harbui mountains* of *Brahuistan*, (which stretch away south to the sea,) and all those to the east, south east, and south of Kabul, Ghizni, Kandahar, and Quetta. A system of mountains so continuous, passing into each other, by such numerous ramifications, may be best comprehended and described by noticing the remarkable fact of the entire extent being penetrated, *but by three routes** or passes, practicable for our wheeled carriages. It is true that many other passes occur, but they are not of a nature to admit of any particular stress being laid on them, as available means in a commercial point of view. The two passes however, leading from the neighbourhood of Derah Ismail Khan, and Derah Ghazi Khan, may possibly be considered as forming exceptions to this observation; but, as they are not generally looked upon as practicable routes for carts, they need no particular notice beyond the fact of both being travelled by merchants, trading between the upper and lower countries; while the direct route from Kelat to Sunmiani, which passes to the *westward* of the mountain ranges, can scarcely be included in the list, although it be considered one of three principal routes

* The Khaibar, the Bolan, and the Mulla Passes.

of Beluchistan, the two others being the Bolan and Mulla passes. Both of these are sufficiently well known as available for commercial purposes, and require not here any detailed description. It may be remarked generally that *all the passes*, penetrating the great mountain ranges, from the Khaibar to the sea coast, partake of the same character, and are ascended and descended by means of the river beds and water courses, which are generally dry, excepting during the season of floods, and afford indeed the only practicable routes of transit. One feature peculiar to these water-courses, and probably confined to this remarkable country, is their resemblance to gently inclined plains, covered by moderate sized boulders and shingle; differing however from the ordinary hill-ravine appearance, inasmuch as these water-courses are not impeded or choked up by fragments and masses, torn from their sides; and the absence of which renders such passes comparatively of easy access.

The Hindu Kush, Koh-i-Baba and Koh-i-Safed mountains in Afghanistan, are marked by a barrenness peculiar to themselves, and in carrying out a comparison between them and those of Beluchistan, it is to be observed that this characteristic feature occurs, in a remarkable degree, throughout the entire *Hala range*, and those numerous mountain ramifications from the south of Kelat, to the sea; where there barrenness may be considered almost absolute. The physical features however undergo no change; but continue closely to approximate, in their character, to the mountains of the Hindu Kush, which they resemble by having rocky scarped and inaccessible faces. Some of the offsets are composed of conglomerate, often exceedingly hard, and of friable mica slate, decomposed on the surface. The higher ranges chiefly consist of limestone.

Regarding the elevation of the Hindu Kush, and other ranges forming the western continuation of the great Himalaya chain, we find the highest accessible point viz. the "Pass of Erak, at Bamian," ascends 13,000 feet above the sea, while the higher inaccessible peaks and ranges attain an elevation of 15 to 18,000 feet. In tracing southwards the course of those ranges, running parallel to the right banks of the Indus, and connected with the great chain of the Indian Caucasus, this elevation is found to gradually diminish; and at Quetta the highest peaks, those of the Chihattan and Takkatu mountains, do not exceed respectively 10, 245 and 10,875 feet, while the elevation of the Shawl valley has

been determined at 5,242 feet above the sea. From this point to Kelat the country perceptibly ascends, the valley of Kelat being 790 higher than that of Shawl. Thence to the sea coast, a distance of nearly 300 miles, the country presents a gradually inclined plain, along the lines of drainage; the various ranges and their numerous ramifications are consequently subjected to the same depression, till they subside to an elevation not exceeding 200 feet in the neighbourhood of Cape Monze, situated 20 miles to the S. W. of Karrachee.

The valleys enclosed by these mountain ranges, and their numerous offsets, vary much in altitude and in general character; most of them are narrow and running parallel to the ranges, while the tillable soil, confined to the line of drainage, and the open space between boundary hills, is frequently an inclined plain, strewed over with boulders and shingle. This description applies particularly to the valley of Shawl, to the base of the Chihattan mountain, and the various minor ranges extending south and west towards Kelat and Noshki; at which latter point, the mountain, overhanging that place, to the N. N. E. affords a remarkable instance of that glacis slope, which Dr. Griffiths describes as characterizing the physical configuration of the country in the northern parts of Afghanistan; while farther south, this remarkable feature becomes less and less conspicuous, and ceases to occur altogether 50 miles south of Kelat.

The other form of Valley, and from which the greater portion of the agricultural produce is derived, is, generally speaking, entirely covered with good soil, excepting at the base of the hills; which, as before described, are invariably stony, and the great difference between these forms of valley, is in the amount of the tillable soil. Mustang, Kelat, and Bagwana may be noted as particular instances, belonging to this form of valley.

In a country so remarkably sterile as Beluchistan, a great supply of indigenous timber cannot be looked for. Trees abound in the more remote and sheltered recesses of the mountains, to the east of Quetta; where a description of cedar or juniper, which yields good firewood, is found; but it is difficult of access, collected with much labour, and yields not timber fit for building purposes. The Chelghuzeh or Gurn, described as being found in considerable quantities in the ranges of the *Koh-i-Safed*, is met with from the Shawl valley, to some little distance below Kelat, but the tree seldom exceeds 16 feet in height, and is not fit for the purpose of building.

Excepting the willow and plane trees there are none cultivated that do not bear fruit, and among these the mulberry and apricot, which are not suitable for buildings, seem to be the most common. The mode of planting indeed, by which trees are huddled together in thick groves, stunts their growth and renders them of little value as timber, and such trees as are produced in the country may be considered, therefore, to be reared exclusively for the fruit they yield: which, at Mustang and other places in that neighbourhood, contributes materially towards the subsistence of the lower orders, during the summer months. Fuel is generally obtained from low bushes and the southern wood, which commonly occur all over the country, or from camels dung.

The rivers of Beluchistan, which are few, partake of the character of mountain torrents, and are scantily supplied with water from springs; but where met with, like those of the rivers of Afghanistan, they frequently disappear at various distances from their sources. Such is the termination of those in the Bolan pass, and of many of the rivers met with in the downward march from Kelat to the sea: and we may attribute this result to the very absorbent nature of the soil, which produces the same phenomena in the rivers of Kabul.

Before entering on a description of the principal rivers, some notice of the lines of drainage appears necessary, and these may be enumerated-1st southerly towards the sea; 2nd westerly, towards the desert; and 3rd easterly, towards the Indus.

The principal river of Beluchistan is the *Nal*, which rises 16 miles south of Kelat, and in a plain elevated 6000 feet above the level of the sea, from whence the lines of drainage are to the north and south. The Nal river from Kelat has a general direction S. S. W. flowing by Sorahb and Nal Jowhoo; entering the sea 80 to 100 miles, westward of Sunmiani. The length of its course is nearly 400 miles, and may be considered throughout, a mountain torrent, which is generally dry, and flooded only after violent storms.

The waters flowing north from Kelat form one of the principal tributaries of of the Lorah river, which they join in the Peshin valley; whence flowing west, and south-west, towards the great lake of Seistan, they are lost in the sands of the Noshki and Chargye desert, about half way between these two places. Such also is the termination of all the minor streams which flow westward between Noshki and the sea. They are

all absorbed in the desert, and have no apparent communication with the lake abovementioned.

The line of drainage eastward may be best described by a line drawn south by west, from the *Shawl valley* to the parallel of Khozdar, and thence by another line, running along the course of the Baghwana river, south-east, to the *Manchar lake*, as all the rivers flowing eastward within these limits fall into the Indus. Below Khozdar, however, and generally from the neighbourhood of Wadd, for twenty to thirty miles south, the course of the principal rivers (the Puralli and Oornach,) is generally south; and the confluence of both occurs at the town of Beila in Lus; whence, under the general name of the Puralli, they fall into the sea, a few miles westward of Sunmiani. One other river deserving of notice is the Hubb, which rises in the mountain ranges, south south-west of Wadd, called "Pubb," whence, pursuing a southerly course it debouches into the sea between Sunmiani and Karrachi, about twenty miles westward of that place. Some few of the minor rivers and water-courses, between the *Manchar lake*, and the line of the drainage of the Hubb, generally flow into the Indus. The Puralli has a course of 150 miles, which like that of the Oornach, is usually dry, or only filled during the floods. The Hubb partakes of the same character, though with probably a larger supply of water from springs; but in all cases the quantity is very limited, and confined to occasional spots.

The above comprises a general outline of the physical features of Beluchistan, which may be divided into two distinct and separate portions, forming the upper and lower country, possessed by the tribes composing the *Jhallawan*, and *Sarawan* states. The Jhallawans are the most numerous and influential portion of the population, while the *Sarawans*, from their inferiority in numbers, are in some measure subordinate to the former. Both tribes are split into numerous subdivisions; and the line of demarkation, dividing these two great tribes, centres at Kelat; but running east and west, extends to Katchi on the one hand, and the desert of *Kharan*, Noshki, and Khej on the other. The Jhallawans, or tribes "*living below*," occupy the whole of that portion of the country south of Kelat, extending to that point where the main road to Sunmiani approaches the Puralli river, distant twenty-one miles north from Beila, the capital of the province of Lus; and thence extending eastward, by an imaginary line, they occupy the great *Hala range* of mountains, which divide

Sindh from Beluchistan, and from the Mugzee and other tribes, possessing the southern portion of Katchi. Westerly are the tribes dwelling in the desert of Kharan, Panjgur, Khej, &c.

The Sarawans, or the tribes living above, occupy the country to the north of Kelat, as far as the valley of Shawl and the Lorah river, the ancient boundary of the principality of Kelat, and extend westward, as far as Noshki, Chargye, &c. and eastward to the Hala mountains and northern Katchi. The Sarawans, on the day of battle, claim the privilege of forming on the right of their chieftain, the Khan of Kelat; while the Jhallawans, with equal zeal, bring their numerous clans to form on the left. The chief in person and his body guards occupy the van of the army. The Jhallawans bear a red standard, the Sarawans a yellow, while the Royal standard is green; and the union of the three colors constitutes the national flag, which is borne at the side of the chief, by some distinguished, or favored warrior of the day, who has this honor conferred on him for past services, and retains it only during the pleasure of the chief. The Sarawan and Jhallawan standard-bearers are, however, both hereditary officers, and cannot be deprived of their right, but by the united voice of the nation.

These tribes are held together by a description of feudal tenure, differing from that common among the Rajputs, as well as from the ancient feudal system of the Normans, insomuch as when the various tribes, (and these are all rated at certain numbers according to their strength), are called for by the sovereign on any particular service, they are all maintained at the expense of the state, and on the completion of this service are dismissed to their homes with some trifling mark of favor; while their chiefs, or other distinguished characters, are for important services not unfrequently rewarded by grants of land, on a nominal quit rent. This mode of obtaining feudal right in lands may account for so large a portion of the lands being now held on this tenure; but most of these grants date back to the period of Nasir Khan the Great, though some were held, at a period anterior to this: and the chronology of the Brahui-grants is seldom earlier than the date of the reigning prince.

The inhabitants occupying the upper part of Beluchistan, the Kohistan, and the neighbouring desert, are generally termed Brahuis; but those possessing Sindh, Lus, and the coast of Mekran, are called Beluchis.

These people are distinguished more by their difference of language

than by their appearance, manners or customs; and this difference is marked and decisive, as the Brahui speaks a language which bears little or no affinity to any known tongue of the present day; while the Beluchi converses in a corrupt dialect of the Persian, easily comprehended by those who understand this language. * The Brahuis and Beluchis may not unaptly be termed the Highlanders and Lowlanders of Beluchistan, though many of the latter be found residing in the hill country, while the former here and there occupy the plains. They differ from each other nearly in the same proportion as the Scotch Lowlanders differ from the Highlanders, but do not possess any peculiar characteristic which might mark them, as a separate people, though the dissimilarity of their language would favour an opinion of their origin being different. The long visage, high and aquiline features of the Jews, are common to both, but in a less degree to the Brahui, who is generally a hardier character than the Beluchi. They are both resolute and warlike, implacable in their hatred, and revengeful; but are hospitable, and possess many of the virtues and wild notions of honor among the Arabs, particularly in those parts where, like them, they are the children of the desert. They are also trustworthy, and having once undertaken a trust never betray it.

Numerous as are the tribes which occupy Beluchistan, the country is but thinly populated; as the people are for the most part pastoral, and wander from place to place with their flocks and herds, just as the want of forage and water may render necessary. Their habits are often predatory, and many frequently eke out a precarious existence, partly derived from their flocks and partly the gain of plunder and rapine. They adapt their movements, as much as possible, to meet the changes of the seasons;

* In the first volume of the Transactions of the Bombay Geographical Society will be found some explanatory notes of mine on the vocabularies of languages, spoken in the countries west of the Indus, collected by Lt. Leech.—The Beluchis claim an Arabian descent, but their language, which is Persian mixed with a small proportion of Sanskrit, Pushtu, and Arabic terms, indicates their Indo-Persic descent: and the origin of the *Brahuis* may be traced to the same source, as their language is composed of many Persian words, makes use of the Persian numerals, and forms the gender of its nouns after the rules of Persian grammar.—Several words of the *Brahui* language have been borrowed from the *Pashai* and other dialects of tribes, inhabiting the *Hindu-Kush*, which are cognate with languages of a *Sanskrit* origin, and *Hindu* stock.—*Editor*.

and during the winter descend into the lower and warmer parts of Katchi and Sindh, while in summer they find a refuge, from the great heats, in the higher parts of Kohistan.

Their habitations are well suited to this wandering mode of life; as they generally dwell in tents, called "*Gidans,*" made of a dark coloured felt, or blanket; and a collection of these is termed a "*Toman*" or "*Khail.*" So general indeed are these tents or dwellings, that they are found scattered over the whole face of the country; and strange as it may appear, several places, marked in our maps as fixed towns and villages, are nothing more than "tomans" or "clusters" of tents; among which may be mentioned Noshki, Kharan, &c.

The Government of the country is vested in an hereditary chief, and minister, to whom are occasionally added the leading chiefs of the principal tribes of the nation; but the power is, as may be readily imagined, of a character more or less despotic according to the energy, physical and mental, of the chief who restrains and governs the wild and reckless tribes subject to his control, and more disposed to openly defy than submit to his authority. The chief, who would bind such subjects to his will, must possess high qualifications for command, bold bearing, recklessness of danger, personal prowess, and physical strength; which, while they are well calculated to win the admiration of barbarous minds, overcome and compel them at the same time to obedience. These attributes were conspicuous in the character of Nasir Khan the Great, and in an inferior degree possessed by the late chieftain, Mehrab Khan; but as they are rarely combined in one person, we find but too generally in Beluchistan that the allegiance shewn to the sovereign by his subjects, is mainly regulated by his power to enforce it; and the more distant subjects therefore yield but a nominal, or tardy obedience, while those nearer to his person, and more immediately under his control, are ruled with an iron hand.

In the loose and disjointed system of Government, which prevails generally thoughout Beluchistan, the elements of anarchy and confusion are abundant; being constantly developed by internal feuds, carried on between tribes, with an animosity only known to Asiatics, and which requires the utmost exertion of power, on the part of the Khan to suppress. To this state of things may be attributed the insecurity of persons and property of travellers and traders, so frequently occurring in the neighbour-

hood of the *Baranlakh*, and other remote parts of the country, which, from their distance from the seat of power, favor the commission of such outrages as cannot be punished.

The towns and villages of this country are few and far between, and generally lie on the main cafila roads, varying from forty to fifty miles from each other. They seldom, (Kelat and one or two others excepted,) exceed in number forty to fifty houses, are mud built, with flat roofs, and are seldom of more solid materials except when a chief of note resides in them.

It has been observed that the population of Beluchistan is scanty; and it is impossible from the wandering habits of the people to arrive, at even an approximation of their true numbers. Neither can we ascertain the amount of population by a reference to the numbers of fighting men, that each of the two great tribes, of Sarawan and Jhallawan, can produce for war under their tenure of serving the Suzerain, as during war only a small portion of the population compose the military body.

The sub-divisions of the Jhallawans are forty-two in number, of the Sarawans nineteen amounting in the aggregate to 10,090 fighting men, but there can be no doubt but that a number of able bodied men, capable of bearing arms far exceeding this amount, could be brought together on a case of emergency.

There is an impossibility of large bodies of fighting men subsisting in a country so destitute of forage and provisions as is Beluchistan, and should any rebellious rising happen therefore, it may prove formidable for a time, from the numbers collected together, but can only continue so for a short period, as every individual added to the fighting body tends to diminish the means of their subsistence, and a few additional days or hours will frequently suffice to disperse a Beluchi horde, which must break up for want of provisions, and disperse over the country in search of food. Once disunited it can seldom be brought together again.

Regarding the produce of the country little can be said, as the people chiefly belong to pastoral tribes, seldom occupying themselves in agricultural pursuits, as the little grain they require is drawn generally from the rich plains of Katchí. In the districts around Mustang, Kelat, Baghwana, and Khozdar, &c. wheat and juwarree are cultivated; yet the supply is but limited, and barely suffices for the cultivators and land-

holders, on whom they are dependent. It would indeed be difficult in a country naturally so sterile, and so scantily supplied with water, to look for agricultural produce to any extent, even with the best management.

The staple commodity of the country is wool; which, in the neighbourhood of Wadd, and generally in the southern parts of Beluchistan, is produced of a quality so superior, that, of late years, it has greatly attracted the attention of our merchants as a profitable article of trade; and is found in great quantities all over the country.

The manufactures of the country are scarcely worthy of notice, excepting the carpet, which approximates somewhat to the Persian, and the course description of blanket, made from equal parts of goats hair, and sheeps wool, which is used for tents (or Ghidans,) that are made however south of Khozdar, and to the west, from a description of matting, called "peech", and manufactured from either the leaf of the date tree, or the palm. In certain of the southern districts, the tents of various tribes occupying them are formed entirely of this matting; and from the coast of *Mekran* generally, much of it is annually exported to Bombay. Arms, such as swords, shields, matchlocks, and other weapons of defence, are brought from *Kabul*, and other northern towns, but many of these are of Persian and Indian manufacture.

Cotton cloths, which are in general use in the country, are of Indian produce. Woollens are brought from Afghanistan and Katchi; and are frequently of European manufacture, either English or Russian; while the cloaks and *fur* dresses, required for the winter, are exclusively from Kabul and Kandahar. Embroidery and needle work, either in silk, gold, or silver, is in considerable repute; but this manufacture is invariably made by the women, who employ all their time in making up their own, or their husband's dresses.

Horses are bred of a very inferior description, all over the country; but in the neighbourhood of Jeherri, twenty miles south-east of *Kelat*, a strong bony description of animal is found; many of which are annually sent to the Bombay market. They are, however, inferior to the Herat and Persian horses. The district of Shoráwak, to the south-west of Kandahar, is famous for its breed of camels, whence south to *Mekran* these animals are extensively bred. The hill camels, commonly found on the eastern frontier, and bred in the valleys, lying be-

tween the ranges of the *Hala mountains*, are by far the most enduring of this description of animal. They are small and hardy, and well adapted to undergo the difficulties of that country; and far excel, as beasts of burden, those bred in Katchi and Sindh, which last are ill calculated for the hill country. The camels of *Lus* and *Mekran* are much esteemed by the natives, and may be purchased to almost any extent.

Of the revenue of the country, I am unable to offer any adequate opinion beyond that it is limited in the extreme, the district of Mustang is perhaps the most productive, and yields from 40 to 50,000 rupees annually. *Kelat* probably as much, while Baghwana may be rated at half that amount, and Khozdar at one-fourth. But so vague is all information connected with this point, that what is now stated can only be considered an approximation. The principal source of revenue is derived, unquestionably, from the province of Katchi, which is particularly fertile, and capable of yielding much more than it now does; and without which the principality of *Kelat* could not maintain itself. The revenue is generally, if not entirely, collected in kind; money is little known in Beluchistan proper, and indeed there is no coin of the country, excepting the Company's rupee which, within the last three years, has been scattered by us with so profuse a hand, that it is now the only current coin of the country.

Memorandum of Latitudes, and elevation of places in Beluchistan, taken from several observations.

Names of places.	Latitudes.	Elevation in feet.	Remarks.
Kelat	Lat. 29° 00′ 19″ N.	6,040 feet.	
Sorahb and Anjira	" 28° 27′ 15″ N.	. . . . .	A lofty range of hills to the eastward.
Baghwana.....	" 27° 58′ 23″	3,879 "	Lead and Antimony mines in the neighbourhood.
Wadd	. . . . .	3,739 "	
Baran Lakh..	" 26° 57′ 40″	3,000 "	The Lat. the mean of three observations.
Beila	. . . . .	300 "	
Sunmiani	" 25° 25′ 4″	at the level of the sea.	

Art. III.—*Critical View of the Theological and Ceremonial System of Zoroaster. Translated from the French of Anquetil du Perron:—With Introductory Observations.* By the Rev. J. Murray Mitchell.

Introductory Observations.

The religion which is said, by its professors, to have been promulgated by Zoroaster, is entitled to a high place among the objects of antiquarian and philosophical research. Notwithstanding the exceeding obscurity which hangs over many questions connected with the Zand-Avastá and its reputed author, it is on all sides admitted to be highly probable that the religion which is now professed by the Pársís of India has sustained no *essential* alteration for upwards of 2000 years. So extended a duration would, independently of any other reasons, entitle the system to attentive consideration; but the historical interest pertaining to the once mighty Persian Empire invests the study of this religion with an importance, which corresponds to the elevated rank its professors formerly enjoyed among the nations of the earth.

Residents in Western India have a strong additional inducement to prosecute inquiries into the Zoroastrian faith, in the peculiar and important position which its professors hold in this country. This religion has not, like that of ancient Greece or Egypt, perished from off the face of the earth; it is a living creed, moulding the character and the destiny of myriads of an active and intelligent race, the far greater and more influential portion of whom are our fellow subjects, and mingle largely with ourselves in the affairs of ordinary life.

It should seem, too, a fitting thing that any inquiries that need to be instituted into the Zoroastrian system, should be made in India, in which they can be prosecuted with many and obvious advantages, which cannot be enjoyed in the Colleges and Literary Societies of Europe. And, if our own Society is to take a part in Oriental investigation, the subjects of Pársiism and Pársís appear to belong to it by special right. It is unnecessary to say that members of the Bombay Branch R. Asiatic Society have entered into such investigations with zeal and success, or to dwell on the important contributions towards the elucidation of this subject which have been made by Mr. Erskine, Dr. Wilson, and others.

It will readily be understood that the object of the present paper is not to present the results of any new inquiries into the Zoroastrian religion, but to diffuse over a wider circle the knowledge of facts which have already been discovered. The principles of the system are very imperfectly comprehended by the great bulk of educated Europeans in W. India,—and the general mind even of our own Society refuses to enter, with any considerable measure of interest, into the subject, unless it be divested of intricate literary disquisition. The claims of the paper of which a translation is now presented, may be rested, then,—should higher merit not be conceived to belong to it,—on its simplicity and conciseness,—on its affording a popularized view of this very interesting subject. But it possesses a higher character. Having had occasion, in the course of my own studies, to seek a brief, yet comprehensive and systematic, view of the Pársí religion, I found the article, the translation of which is subjoined, to be, on the whole, the most satisfactory of the statements to which I had access.* It is now presented under the impression that it will be found interesting and useful much beyond the circle of professed Orientalists.

Whatever, connected with the present subject, has proceeded from the pen of Anquetil du Perron, is entitled to profound respect. After all that has been accomplished by later inquirers, the writings of Anquetil on the doctrines and history of the Zoroastrian faith are still standard works. While his philological attainments must be admitted to have been rather extensive than accurate, and his ardent temperament predisposed him to form hasty conclusions, still, his laborious research, and indefatigable zeal in every thing connected with Zoroastrianism, enabled him to amass an amount of information connected with his favorite study, which has proved of immense value to succeeding investigators, and the additions to which, although important in themselves, have not *comparatively* been great,—or, at all events, affect the details, not the essential part, of the system.

We may glance, at some interesting facts connected with the introduction of the Zand-Avastá to the notice of Europe. The well known Dr. Hyde, towards the end of the 17th century, had two small Zand MSS., in

* The library of our Society is not very well furnished with works connected with the Zoroastrian system. We want, in particular, Kleuker's translation of Anquetil with its valuable notes, and Rhode.

his possession; but we have no evidence that he was able to make the slightest use of their contents. George Bourchier, &c. an Englishman, obtained a copy of the Vandidád Sáde, at Surat, in 1718. It was brought into England in 1723; but no one could decypher the Zand characters. "Long after this," Mr. Fraser, a Bombay counsellor, procured two Zand books at Surat; but could, by no inducement, prevail on the Pársí priests to teach him Zand or Pahlví. Thus matters rested until 1754, when Anquetil happened to see some Zand words that had been copied from the Vandidád Sáde. He instantly formed the determination to procure and translate, if possible, the whole work. With remarkable resolution, he enlisted as a soldier, sailed to Pondicherry, from which, amid many hardships, he found his way to Surat. He there succeeded in procuring the coveted MSS., studied Zand and Pahlví, and, in 1762, returned with his prize to Europe. His great work, containing a French translation of Zand and Pahlví books, with various disquisitions, appeared in 1771. Besides this, he wrote some valuable articles in the Memoires de l' Academie des Inscriptions.

The original of the paper now presented will be found in Anquetil's Zand-Avasta, vol. ii. p. 592—604. The entire article has not been translated; the second part, which is occupied with a discussion of the *moral* system of Zoroaster, has been, for the present, omitted, but may perhaps be afterwards supplied, if, on fuller consideration, it appear to to possess equal merit with the rest.

The heading which Anquetil has given this article, and which has been retained in the translation, demands a remark, lest it lead to serious misconception. He calls the paper a view of the "System *of Zoroaster.*" In so calling it, Anquetil assumes what it is not possible to prove, viz. that the system propounded by that celebrated legislator is the same as that which is contained in those Zand and Pahlví works from which the present summary is drawn. This assumption is not indeed so extraordinary as another on which Anquetil proceeds in most of his writings, viz. that the Zand-Avastá is the actual production of Zoroaster,—an idea not tenable for a moment with respect to any part of the Zand-Avastá except the Vandidád, and encumbered with many difficulties in regard to the Vandidád itself. Reference has, indeed, been already made to the fact that, in *essential points,* the Persian religion, more than 2000 years ago, was the same as that of the Pársís in the present day,—the notices

of it contained in the Grecian writers from Herodotus downward, agreeing, so far as they go, in a remarkable manner, with what still exists in the chief Pársí books. But that the supposed great founder of the system, Zoroaster, promulgated it in the shape and with the completeness it now possesses, is not probable, or, at all events cannot be demonstrated. In speaking of this religion, it were well to be accurate in the names by which we designate it. In referring to it in its general features, and as a whole, the terms Zoroastrian and Pársí may be used indiscriminately without leading into error. In critical investigation, however, this lax use of terms cannot be allowed. The system of Zoroaster,—the system of the Zand books,—the system of the Pahlví books,—the system of the Persian books written by modern Pársís,— and the system of the Pársís of our own day,—must on no account be assumed to be identical,—but, in every case where strict accuracy is required, must be carefully distinguished from each other. Anquetil, it must be confessed, has failed in this point. He mingles the views of the Bundeshne—a Pahlví work which he himself admits to have been composed as late as the 7th century of the Christian era—with those of the Zand writings, which—to speak cautiously on a point which Orientalists of high name have strenuously contested—are, probably, several hundred yea. more ancient.

Considerable difference is admitted to exist between the Zand and Pahlví works. Speaking of the Pahlví Bundeshne, professor Stühr remarks that "its contents do not agree with those of the Vandidád,"* and Mr. Erskine, that "much of the cosmogony [of the Bundeshne and later works] is evidently Chaldean and later than the Musulmans."† Any inquiry into the very interesting question, *What is the religious belief of the present Pársís,* will be met at the outset by the difficulty of discovering how many and what precise books the community now deem authoritative. The difficulty lies in the want of agreement among the Pársís themselves on this fundamental point.

Before concluding these introductory observations, it may be well to remark that Anquetil du Perron, in his expositions of the Pársí religion, manifests a desire to exhibit it in as flattering a light as possible. He was naturally led to represent his own discovery in a favorable aspect, and the cutting sarcasms of Jones, Richardson, and others, who represented him

* Oriental Christian Spectator for 1840, p. 415.

† Bombay Transactions, vol. ii. p. 322.

as having risked his life, and wasted his time, to procure what was essentially worthless, redoubled his desire to uphold the character of the Zand-Avastá. Much too had been expected from the writings of the far-famed Persian legislator, and the Abbé Foucher and others, who had attentively studied all the classical notices of Zoroaster, could not conceal their mortification when the mystic volume was drawn forth to light.* His anxiety not to disappoint their hopes must have swayed Anquetil, however unconsciously, in his expositions. He earnestly labours, in the paper we now subjoin, to shew that the doctrines and institutions of the Zand-Avastá are consistent with reason;—let the reader judge whether his success is equal to his zeal.

All things considered, however, Anquetil is an able illustrator of the Pársí faith. No one will call in question the great extent of his acquaintance with the facts of the system which he unfolds; and the following production of his pen would, of itself, afford evidence that his mind was not wanting in philosophical insight and comprehensiveness.

The following are Anquetil's remarks. The translation, though not slavishly literal, is pretty close.

I. The theological dogmas, on which the religion of the Pársís is founded, exist in a scattered form throughout their ancient books, and the shape which they assume in these books, will, no doubt, appear strange even to those who are most familiar with the writings of Eastern nations. Without anticipating the judgment which may be passed on these dogmas, and on the manner in which they are presented, I venture here to arrange them in such an order as will convey a sufficient idea of their connexion and relations. These dogmas form a system, the principal points of which, (as I have shewn in a work to which I have already referred,) are the following:

1. *Time without Bounds*, the first principle, which creates the first light, the first water, original fire, Ormasd and Ahriman:—The Word, which preceded all created beings, and by which the creation of these beings was effected:—Ormasd and Abriman, secondary principles, active and productive,—the first, essentially good and the source of all good,—the second, corrupt and the source of all evil.

2. The duration of bounded time, fixed to twelve thousand years, by

* Memoires de l' Academie des Inscr. t. xxxix. p. 714.

Time without Bounds, and divided between Ormasd and Ahriman :—The war between these two principles, and the victories which they alternately gain over each other, terminated by the triumph of Ormasd.

3. The Feruers, [Farohars] or first models of beings, which Ormasd creates to combat Ahriman, and of which the most precious in his eyes are the Feruer of the Law, and that of Zoroaster commissioned to re-establish, by the publication of that law, the glory of the master of Nature :—The successive production, in favour of these Feruers, of the different spiritual and corporeal beings which compose the world of Ormasd, and, in particular, of Iran Vej,—a world to which Ahriman opposes wicked spirits, and a world evil and corrupt like himself.

4. The distribution of the universe, all the parts of which are under the influence of the good spirits, who were created by Ormasd, and are themselves obedient to that principle of good,—so that there is a chain of agents which ascends up to Time without Bounds :—The creation of the first bull, from which human kind, animals, and vegetables, are derived,—that of Kaiomars,—that of the soul, formed pure and immortal,—of man, created just and free :—The sin of Meshia and Meshiane, parents of human kind : —The cause of the mixture of good and evil which appears in nature,—a mixture which results from the contrary operations of the subjects of Ormasd and those of Ahriman.

5. Finally, the consigning of man to death ; the abode destined for the righteous ; that reserved for the sinner :—The resurrection of the body, preceded by the conversion of the whole world to the law of Zoroaster, and followed, according to the order established by Time without Bounds, by new punishments, which open to the sinner the gate of Gorotman :—Sinners purified by the pains of hell, by the fire of metals, and then made eternally happy along with the righteous :—The general re-establishment of Nature ; hell itself renewed ; the world of Ahriman destroyed ; and Ormasd, on one side, with the seven primary Izads, [angels], — on the other, Ahriman, accompanied by the seven primary Dews, [devils]— together offering a sacrifice of praise to the first Being.

It is on this system—the whole of which is understood by few of the Dasturs [chief priests] themselves, which the best-instructed understand literally without seeking any allegorical sense, and of which the Pársi works do not furnish the key—that the religion of the Pársis rests. The whole properly reduces itself to two points.

The first is to recognize and adore the Master of all that is good, the Principle of all righteousness, Ormasd, according to the form of worship prescribed by him, and with purity of thought, of word, and of action,—a purity which is marked and preserved by purity of body, which must always accompany it, and which is found only in entire submission to the law of Zoroaster : next, to have a respect, accompanied with gratitude, for the Intelligences to which Ormasd has committed the care of Nature, —to take in our actions their attributes for models,—to copy in our conduct the harmony which reigns in the different parts of the universe,—and generally, to honour Ormasd in all that he has produced.

The second point of the religion of the Pársís consists in detesting the Author of all evil, moral and physical, Ahriman,—his productions, and his works ; and to contribute, as far as in us lies, to exalt the glory of Ormasd, by enfeebling the tyranny which the Evil Principle exercises over the world which the Good Principle has created.

On these two points bear the prayers, the religious practices, the civil usages, and the moral precepts, which are presented in the Zand and Pahlvi books ; and these different objects arise, as we shall see, from the theological ideas of the legislator of the Persians.

As the Law is, so to speak, the body under which has been manifested the primeval Word which created the world, the reading of the books containing it is homage rendered to that Word, and becomes accordingly of indispensable necessity. Besides, those books, when read with the requisite dispositions, must possess on earth an efficacy which corresponds, in some measure, with that evinced by the primeval Word at the origin of beings.

Prayer is one of the duties most strongly enjoined, because man, continually exposed to the assaults of Ahriman, stands in need of the succour which it procures ; and because it affords opportunity for those Intelligences to whom it is addressed, to fulfil the object for which they were created.

The Priest prays for himself,—for all the Pársís,—and in particular, as in the days of Herodotus, for the king whom Ormasd has placed over his people; and, to give greater efficacy to his prayers, unites them to those of all the Pársís, of all the souls acceptable to Ormasd, which have existed, or shall exist until the resurrection. He declares also that he takes part in the good deeds of all the righteous, and that he joins his

actions to theirs. This communion of prayers and actions appears in all the forms, and all the offices, which compose the liturgical works of the Pársís. It is well adapted to maintain the spirit of peace and union which ought to characterize a people who profess to adore the Author of all good. *

The Pársís commence their prayers with a sincere confession of the sins they have committed. They address them to Time without Bounds,—to Ormasd,—to *the numerous people created in the beginning*, that is to say, the Amshaspands, and other celestial beings, who preside over the different parts of the universe. The prayers made to these are relative to their functions; if they are stars, to the time of their appearance. The sun is prayed to by day, the moon by day and night; Mithra is celebrated because he contends against the productions of Ahriman, and renders the fields fruitful; such an Angel watches over the waters, and such another defends the soul as it prepares to quit the body.

Next to the celestial beings, the whole of Nature exposed to our eyes deserves, say the Pársís, our adoration, because it proceeds from Ormasd. It does not contain any species of being which is not mentioned in the Zand and Pahlví books. Some of these are employed to celebrate others; wood and odours enter into the offerings which are made to the elements, the stars, &c.

In the number of the elements is material Fire, which represents, although imperfectly, the original Fire which animates all beings, forms their relations, and acts from the commencement.

This original Fire was, and still is, manifested on earth in trees, animals, and man, in different modes which are termed *sons of Ormasd*, either because there exists a more intimate relation of nature between Ormasd and Fire, than between other creatures and him from whom they received their being;—or, because that element is, like Ormasd, the most universal principle of life and motion.

Zoroaster, then, regarding Fire as the purest symbol of the ever-active Divinity, was naturally led to recommend that special worship should be paid to it; and as, of all the elements, Fire is the only one which is not perceptible, (unless when kindled), the legislator was led to order the erection of altars, (or fire-places) on which it might be kept up.

* A very unnecessary remark. Anquetil forgets that he is now stating the system, not defending it. This is not the place for controversy; or it would be easy to refute the view he expresses. M.

In this manner Fire became the most usual and striking object in the Persian worship. Hence the remark of Strabo,* that, to whatever god the Persians might sacrifice, they first invoked Fire. We see, in fact, Cyrus sacrificing first to Vesta † (fire), and then to Jupiter; and the Pársís recite the greater number of their offices in the presence of that element; the *Niáish* of Fire is celebrated day and night, and the *Mobed* [priest] is commanded to put wood and odours in the fire in the five *gahs* [watches] of the day.

We cannot, after this, be surprised that he who defiles the element of fire, should be severely punished. It is forbidden, as in the time of Clitarchus, referred to by Diogenes Laertius,‡ to burn dead bodies, because they are impure. The same reason induces the Pársis to remove dead bodies from the neighbourhood of fire. He who blows the fire with his mouth, is worthy of death,—because, the inside of the body being impure, the breath which issues from it stains that element.

The detailed statement of the ceremonies which must be practised for the purpose of restoring fire to its first condition, when it has been defiled, marks its extreme purity. The sap, nourishing the tree, makes it grow,—changes, in some sort, its body,—and thus purifies it, when it has been defiled. Not so with fire; and it is to supply the place of the successive alteration which Nature produces in vegetables, that the Zand books command that the fire, in which a dead body has been burnt, be made to pass in some sort through nine different fires, before it be exposed in the *Dad-Gah* [Fire-temple] to the worship of the Pársís. The fire Behram, protector of the provinces, is the extract of 1001 fires taken from 15 different species of fire.

But the worship which the Pársís render to Fire, as well as to other creatures, is subordinate to that of Ormasd, the ascription of praise to whom begins and ends all offices of religion.

These offices can be pleasing to the Divinity only when they proceed from a pure heart; and purity of heart supposes purity of body. The first consists in the right regulation of the thoughts, words, and actions;

* ὅτῳ δ ἀν θνοωοι θεῷ, πρῶτῳτῳ πυρὶ ἔυχονται. *Geograph.* L. XV.

† ὁ Κυρος πρωτος μεν Εστιᾳ εθυσεν επειτα Δι βασιλει και εἰτινι αλλῳ θεῳ ὁι Μαγοι εξηγουντο. *Cyropæd.* L. VII.

‡ Diogenes Laertius in Proœm. ad vit. Philos. Strabo, loc citat.

it is accompanied by the knowledge of the Law, and maintained by good deeds performed with understanding. The priest, who seeks this purity must do good like the first of the Amshaspands, be wise, true in his words, great, full of intelligence. Such are in fact the dispositions with which Zoroaster presents himself before the Supreme Being. Purity of body is necessary, because it defeats the attempts of evil spirits, and, by obliging the Pársí to maintain a continual circumspection, it renders him more attentive to the duties of the Law, whose principal object is to destroy the empire of Ahriman.

The obligation to preserve purity of body has given rise to a multitude of observances in the Pársí religion. For example, in consequence of being the offspring of Meshia and Meshiane, men are born impure,* because the body of their first parents came from that of Kaiomars, which Ahriman had polluted; and ablutions, although they purify the outside of the body, cannot purify the inside:—whatever, then, issues from the latter, is impure. Hence the obligation, when praying, or when eating, of having the *Penom* on the face, to prevent the spittle from staining whatever it might happen to fall on. Hence, also, as in the days of Herodotus, the prohibition against throwing into the water any thing that comes out of the body of man. Hence, farther, the obligation to render thanks to Ormasd, when the evil spirits who besiege the interior of the body are chased from their domain by the fire which animates man,—a victory of which sneezing is the sign. During prayer, meals, and natural functions, it is not allowable to speak; only inarticulate sounds must be uttered,—such, nearly, as proceed from dumb people. This is called speaking the *Vaj* (Báj). In these various circumstances, the evil spirits seek to distract man, or to insinuate themselves into his body, while his senses are much occupied; and hence the stronger necessity to attend to these observances.

The same principle leads the Pársís now, to remove, as their ancestors did in the days of Herodotus, from inhabited places, lepers and people having contagious maladies,—which diseases came from Ahriman. On the same principle depend the last duties rendered to the dead; the ceremonies then practised drive away the Dews, who besiege the corpses and

* The Pársís maintain that, at a man's birth, Ahriman presents himself to his soul, as he did to Meshia, and says to it in like manner, "I am the Author of Nature." They add that the soul believes him, and so becomes criminal.

pollute every thing around them. Besides, man, when he ceases to live, is exposed to the assaults of Ahriman and unable to defend himself. Hence the rigour of the penalties decreed against those who approach or touch the body, before the prescribed duties are fulfilled. The same precautions are ordained in connexion with the dog when he dies, because that animal, like man, is impure. These obligations render the Pársí attentive both in watching over the life of his fellow-creatures, and in preserving an animal [the dog] that is equally useful to him during life and after death.

But, as the weakness of man scarcely allows this scrupulous guardianship over himself, it was necessary that means should be provided for the recovery of purity when lost. Such is the object of the purifications prescribed by the law of Zoroaster. Water, which forms the principal material of these, chases away all evils and bestows all blessings; and the juice of the *Hom* tree is, during this life, a powerful principle wherewith to oppose the assaults of evil spirits.

Even involuntary defilements require purifications for their removal. Hence the necessity of ablutions before and after natural functions; the order to wash the new-born infant; the purifications prescribed to women after childbirth, their critical periods, &c. But when the person who is defiled, finds it impossible for him to practise what the law enjoins, a sincere repentance, and prayers offered up with a humble and pure heart, supply the place of outward ceremonies: and, if the punishment of death is decreed for certain voluntary legal impurities, it is because man, to whom the law is addressed, as he is a free being and master of his own actions, is the real cause of his own suffering;—and also because the Pársí, being the follower of a religion in which all is directed against the Author of evil, ought to know that faults of this kind give superiority to Ahriman, degrade (so to speak) Ormasd, and, on this ground, are capital crimes. On the other hand, the Dastur believes that, by this severity, he renders the most important service to the erring party; for, when the latter receives punishment, he exhausts on himself the malice of wicked spirits, triumphs over them, and obtains, by submission, a right to be admitted into the abodes of the blessed.

Thus far we have seen Zoroaster prescribe observances connected with his theological views and intended to render man worthy of the favour of Ormasd. But, in this class of precepts, the legislator had still another end

in view, the general good of Nature. These observances had, then, to be, like his morality, directed toward the private good of the Pársí. They thus become, as such, laws of police, frequently relative to the country in which the Pársí legislator dwelt. I stop to notice some of these observances.

Ridicule is often thrown on prohibitions made in certain countries as to the eating of this or that kind of food: while, if one were to examine the soil, temperature, &c. of those countries, the reasons might be discovered which may have led to the prohibitions in question.

In India, for example, no beef is eaten. This has been attributed to the respect paid by the Hindús to the cow, which is worshipped as one of their divinities; or it has been ascribed to the doctrine of transmigration, which is current in the country. I do not, at present, intend to combat this explanation; but the following facts have fallen under my own observation.

1. The ground, in countries lying under a burning sun, has less moisture; the pasturage is less rank and nourishing, so that the animals are proportionally less numerous than in cold or temperate climates. Besides, oxen in India are employed for carrying burdens and for draught; there are few private persons in large towns, and even in small ones, who do not keep them for these purposes, and to give milk; so that, all things considered, there is no greater number of oxen in the country than is required; and, were people to eat beef as is done in Europe, the race would not suffice even for labour.

2. Beef is too rich a kind of nourishment for those climates. The French rarely eat it in Bengal; they have it not at the coast, and are all the better for the want of it. The English eat beef in all their factories, and we sometimes see at Calcutta in Bengal, the fourth part of the colony carried off by dysentery in two years. Independently, then, of religious reasons, the people of India do well to abstain from beef.

In putting in the number of the productions of Ahriman, venomous creatures, reptiles, insects, and wild voracious beasts, such as the wolf, Zoroaster has, in like manner, had in view the special good of the Pársí. He thus orders him to destroy such animals, and, at the same time, forbids him the use of their flesh, which is naturally unwholesome.

Of all known religions, that of the Pársís is perhaps the only one in which fasting is neither meritorious nor allowed. * The Pársí conceives

* Porphyry informs us (De Abstin. LI) that Darius ordered it to be

that he honours Ormasd by eating plentifully; because the body, when fresh and vigorous, renders the soul stronger to resist the attacks of evil spirits; and because man, feeling less uneasiness, reads the word with more attention, and has more courage to perform good works. Accordingly, several celestial beings are specially employed to watch over the [bodily] good of man. Rameshne, Kharom, Khordad, and Amerdad, supply him with abundance and pleasures, and it is the last-mentioned Izad who produces taste in fruits,—the savour which leads to their being used in the way that Ormasd intended in creating them.

Purifications, in warm, or moist and marshy, countries, contribute to health,—and these terms describe the climate of Persia: the provinces of Guilan and Mazendran, situated in the north, are full of unhealthy exhalations, while a fierce sun burns up the southern provinces. And, if the most efficacious purifications are first made with ox's urine, it is on account of the virtue which the cure of Jamshid had shewn to exist in that liquid, or rather, because the bull gave birth to the human race. But purifications are always concluded with water, after the application of earth, which must dry up the last drop of the urine, when it has become impregnated, as it were, with all the strongest part of the defilement.*

But, be the motive of this institution what it may, it obliges the Parsi always to keep an ox [or cow] in his house. He must also, on account of the *Sag-did*, [dog-gaze] have at least one dog; and the qualities of the cock, who is the wazir of Serosh on earth, and defends men against the snares of evil spirits, impose on him the necessity of having a cock too. These three animals are the most necessary to a Parsi; indeed they supply all his wants. The ox serves in labour and draught; the cow supplies milk; the dog guards the flocks by day, and the house by night; the hen gives eggs;—the cock gives the signal for commencing prayer, the labours of the field, and other duties.

The place to which dead bodies are conveyed ought to be on mountains, or at a fixed distance from great roads, cultivated fields, and inhabited places. Now, we know that, independently of the legal impurity

inscribed on his tomb *that he had been the master of the Magi;* and, according to Athenæus, (Deipnos. L.X) it also bore *that this prince could drink deep and carried his wine well.* These are two characteristic qualities of a Persian prince.

* Anquetil here leaves the impression that the urine is used only to wash the body In the greater purifications, it is also drunk. M.

which portions of dead bodies transported by carnivorous animals might produce, the atmosphere surrounding such receptacles of the dead is generally very unwholesome.

Even the festivals of the Pársis, at least the most solemn of them, seem intended only to recal the grand events of Nature, which personally interest the Pársí,—or to mark the seasons. I have spoken of the *Gahanbars*, [the six periods of creation,] which are celebrated in the periods of the years answering to those at which Ormasd, at the origin of the world, created the beings that compose the universe. Next to these festivals, the most solemn are the *Nauroz* and the *Mehergan*. The first of these, in the time of Zoroaster, answered to spring; and the second, which is six months later, to Autumn,—seasons, in which the birth and the fruitfulness of Nature announce the triumph of Ormasd. It was probably for this reason that marriages among the Persians used to be celebrated at the vernal equinox. *

Finally, the ceremonies which accompany interments,—the prayers recited both before and after,—all tend to shew the Parsis that, to the righteous, death is only the passage to a happy life,—and, to the wicked, only the commencement of punishments which expiate their sins, and from which the prayers of the living can deliver them. The love which they bear to relatives, masters, and friends, who are for a time separated from them, is exhibited by these prayers. Their law goes still farther; when a man has committed certain faults, it enjoins on the relatives and friends of the deceased to do pious works,—to give alms, in expiation of those faults. These performances shorten the period which the guilty deceased has to spend in hell.

It was worthy of him who regarded created Intelligences as the ministers of the Eternal, (Time without Bounds)—and the death of man as the short separation of the parts which form his being, and which will, one day, be reunited,—of him who, as I shall afterwards shew, made the essential part of his law consist in that which Nature inspires, and connects with the purest and most tender pleasure, viz. the respect of the creature for his Creator and all that he has made, the reciprocal love of parent and child, husband and wife, ruler and subject, master and scholar,—it was worthy, I repeat, of such a Lawgiver as this, to break down the

* οἱ δε γαμοι κατα τας αρχας της εαρινης ισημεριας επιτελουνται. Strabo, *Geog.* L. XV.

barrier which death but too frequently puts to affections so lawful, and thus render eternal as its principle the bond by which he sought to unite all the parts of the universe. *

Art. IV.—*A Discourse on the object and progress of investigation, into Oriental Literature and Science; Read at the Anniversary Meeting of the Bombay Branch R. A. S. during the year* 1844. By James Bird, Esq.

Nearly forty years have elapsed since the institution of the *Bombay Literary Society*, now a Branch of the Royal Asiatic Society of Great Britain, without the time-honored custom of other Societies, to review at their Anniversary Meetings, the intended objects and progress of their inquiries, having ever been observed in this. It is not too late, however, to introduce into this Institution a practice, found so beneficial to the interests of other similar associations: and, on this interesting occasion of submitting to the meeting of the Society the progress made in collecting subscriptions for "the Malcolmson gold medal," to be accorded, annually, for the best paper, on the Natural History and Literature of India, I will, with your permission, draw attention to the chief objects of investigation, for which this and other similar Societies have been established.

To investigate the Literature and Sciences of Asia; to inquire into the *Geography*, *Palæography*, *Philology*, *History*, and *Arts* of the *East*; to prosecute research into the origin and dispersion of the various *Asiatic races* and *tribes* of mankind, were the objects, which the eloquent and learned President of the *Bengal Asiatic Society* proposed for its labours, and recommended to its attention. Three remarkable and essentially distinct classess of men, separated for ages, and distinguished for diversity of languages, who occupy Asia, the most extensive and interesting portion of the Earth, have been divided into the *Syrian*, or *Semitic*, the *Indo-Germanic*, and *Indo-Chinese* families of nations. With the second of these, the ancestors of the European nations, inclusive of the *Celtic*, the *German*, the *Sclavonian*, and *Pelasgian races*, had a common affinity,

* Another very needless remark of Anquetil's. Were this the place, it were easy to controvert his views. M.

and sprang from the same family of nations, which gave birth, in upper Asia, to the ancient *Medes, Persians,* and *Hindus. Sanskrit,* the sacred and highly refined language of the latter, has been comprehensively compared in Bopp's Grammar, with the *Zend, Greek, Latin, Lithuanian, Gothic,* and *German languages;* and while it has an intimate relation, to the *Greek* and *Latin,* the two last are no less intimately connected with the *German,* the *Lithuanian,* and *Sclavonic* languages, belonging to the *Teutonic, Sarmatian* and *Sclavonic races.* The people of Northern Europe belong, as would appear, to the family of nations which spread itself from the banks of the Ganges to the shores of the Atlantic ocean; and it is an opinion determined, with much probability, that the institutions of the *Celtæ* were analogous to the system of the *Brahmins,* and that the *Gothic* or old *German* mythology was of eastern origin. The fables of the Northmen, preserved in the *Norse* tongue, and poetry of the *Eddas,* have much in common with those of India and Persia: and the *Volu-Spa,* or mystical portion of the poetic *Edda,* which gives an account of the creation of the universe, and of the gods and men inhabiting it, resembles in many parts the superstitions of the East. A late circular, from the Royal Society of Northern Antiquaries, which was published in our Journal, calls the attention of Orientalists to this interesting connexion of Asia and Europe; and doubtless a learned comparison of European with Asiatic antiquities, would make clear many obscure portions in the history of both the European and Asiatic races.

If the *Semitic* families of nations and of languages be less extensive in their range than the former, they are scarcely of less interest to the people of Europe; who through their medium, derived their earliest knowledge of the East, and principles of their faith. The *Aramæan language,* which represents the genuine *Syrian race,* was but a dialect of the *Arabic;* and is now almost lost, in the predominant influence of the latter, being only known, as a spoken language, in a few villages near Damascus. In my Journey through *Syria,* during the year 1833, I learned, at Damascus, that the *Syriac* is still spoken, in some of the villages north east of that city; and that the people of *Malula, Juba,* and *Bakha,* on the road from Damascus to *Yibrud,* (the Ancient *Jabruda,*) use it in colloquial intercourse. Some of the nations speaking this language appear to have had rather a *Chamite* than *Semitic origin,* and to have derived their lineage from Ham and Mizraim. Among the tribes de-

scended from the former, the most distinguished was that of the *Phœnicians*, inhabiting Tyre, Sidon, and the island of Arwad, and who, on the testimony of Herodotus and others, previous to their settlement on the Mediterranean coast, dwelt on the shores of the Red Sea and Arabia. In the Bible they are known by the name of *Canaanites;* a people who at once spread their commerce, letters, and mythology, to the remotest shores of the known world, during the times of the Greeks and Romans. Commerce the chief object of their pursuit, having introduced among them riches, they increased so greatly in numbers as to be obliged to seek, by emigration, the means of supporting their luxurious habits, which the narrow limits of their native country could not supply. In this manner the islands and maritime provinces of the *Mediterranean* were peopled by their colonies. If their language, of which the *Hebrew* and *Syriac* are representatives, be found to enter less extensively than *Sanskrit* into the *Indo-Germanic* family of languages, certain it is that the *Phœnician* gave its alphabet and letters to people now classed with the *Indo-Germanic* family of nations; such as the Greeks, the Persians, and Etruscans. The Egyptians too, who must be considered the most distinguished of the *Chamite* nations, which took the lead in science and in art, were partly indebted to the same source for their writing; to which the *Aramæan* letters in Egypt still bear testimony. At a later period also the *Cushite tribes* of Arabia, claiming the same descent as the Egyptians, and who were subsequently intermixed with the *Semitic stock* of the *Hebrews*, and *Chaldæans* or *Chasdim*, derived the *Hamaiyaric letters* from the *Phœnician stock.*

The *Indo-Chinese* family of languages has been less extensively investigated and compared than those of the other two; but now that our extended relations, with the Chinese and Islands to the eastward, require a more intimate and accurate knowledge of the languages, literature, and customs of the people, labourers will not we hope be found wanting to give a new impulse to Oriental Literature in this direction, and make us acquainted with how much we are to believe as true of the *Chinese* and *Japanese* Histories; and with what right these nations claim a knowledge, in remote times, of Astronomy, and of practical arts, that were not known in Europe previous to the restoration of learning. Some of the earliest Arab authors, and in particular *Masudi*, assert that the Chinese, who occupied the country of *Soghd*,(Sogdiana,) previous to adopting the tenets of

the *Moghaniah*, (magicians or fire worshippers,) relative to opinions on light and darkness, or the dual principles of good and evil, were a truly ignorant people, and entertained opinions similar to the Turks. If the evidence however be admitted, that bottles of Chinese manufacture have been found, in the tombs at *Thebes*, by Sir J. G. Wilkinson, Rosellini, and others; and that such present inscriptions in that language intelligible to the Chinese scholar, Mr. Davis, the present Governor of Hongkong, we must conclude that Masudi's opinion is not warranted by fact, and that Egypt traded with China and India from the earliest times, though the tombs from which those bottles were obtained are of an uncertain date. *

Egypt, the natural boundary between Asia and Africa, peopled originally by a nation having a common origin with the *Cushites* of Arabia, becomes a bond of union for our investigation into the arts of civilization and government, both in Asia and Europe, the progress of Geometry, Astronomy, Architecture, Agriculture, and Philosophy. We find that this interesting country, fourteen centuries before the birth of Christ, was well cultivated; possessed numerous cities; and had a regularly organized government, under a despotic monarch. The order of priests too were set apart from the rest of the people, and taught the transmigration of the soul; the latter were divided into castes; their deities were grouped into triads; the lotus was a common object of worship; and several other analogies existed, of which the Egyptian physiological structure, assimilating with that of the *Hindu*, is not the least remarkable. Relative to this country, the origin of the *Copts*, or *Chaphtorim* of the Bible, and of their language, in which the Hieroglyphics are written, is a subject not yet sufficiently investigated, and well deserving the attention of the learned. Wilkinson with truth remarks that Egypt was more Asiatic than African, and questions the soundness of the opinion that *Ethiopia*, or the land of *Cush*, was the parent of Egyptian science and civilization. Certainly the foreign appearance of nations, with which the Egyptians were at war, represented by sculp-

* The reader may consult Wilkinson's Ancient Egyptians, Vol. iii. p. 106, where he will find an account of these Chinese bottles. One of them was found by Rosellini in a previously unopened tomb of uncertain date, which he refers, from the style of the sculptures, to a Pharonic period not much later than the 18th dynasty: but while this opinion is purely conjectural there are many facts relative to Chinese history inducing a belief, that Chinese civilization cannot be dated, at the utmost, earlier than the origin of the Greek Bactrian Kingdom, about 250 years B. C.

tures in the tombs of the *Theban* Kings, at *Biban-al-Maluk* &c. fully justifies the correctness of his opinion. In the tomb of the great Rameses, the *Shari*, or the Hebrew שׂחוּר *Shihori** of Isaiah, Chap: XXIII. ver. 3, meaning the blacks, or Ethiopians, are represented with bows and spears. M. Champollion has rightly identified them, I think, with the *Bishari*, a nomadic tribe of *Nubia*, and of the same family with the *Bejas*; who were partly of Arabian origin, and possessed the western shores of the Red Sea from the earliest times. It will be a subject in philology of great interest to investigate the languages of these aboriginal people; and a comparison of them with the *Suhaili*, *Sumali*, *Ghiz*, *Dankali*, and *Galla tongues*, is an important subject for research in Ethnography. In the transactions of our Geographical Society, published in May last, Lieutenant Rigby of this establishment has in part performed this creditable task; and collected materials for others to extend the subject, and arrive at more definite conclusions regarding the affinity of these several tribes. *Ethnography*, which has been cultivated by the *Germans* with much learning and success, has now become an essential and important part of *Geography:* and, as our English writers have been charged, with some justice, of neglecting this study, it behoves our future Geographers and Travellers to give that due attention to a subject, which has become so necessary a part of Geographical writing.

I have thus briefly sketched the existing relations of the three great families of nations; and may, at some future period, illustrate in detail the leading peculiarities of the languages, history, and literature, which characterize the principal subdivisions in each. But I might exhaust your patience, and would be trespassing on your time, were I at present to attempt more than to give a short outline of the principal subjects of investigation, which still claim attention; and regarding which further information is necessary to complete the natural and civil history of the several races. In this field of inquiry I may claim a privilege to commence with the *Semitic family*, from which we derived the earliest and most authentic record of the history of mankind, the books of the Old Testament, and whose languages are the *Hebrew*, the *Syriac*, the *Arabic*, the *Ethiopic*, and *Pehlvi*, or the *Semitic* dialect of the Persian.

* In Hebrew *Shihor*, which means blackness was applied as a designation of the *Nile*, and of the *blacks* too on its western bank: for in 1st Chronicles, Chap. XIII. ver: 5, David is said to have gathered all Israel from *Sihor* of Egypt even unto the entering of Hemath.

Hebrew.—The *Samaritan dialect* of this language, considered as the intermediate link of the *Chaldi* and *Syriac;* the direct medium, through which the apostate Jews, or Samaritans, diffused their opinions regarding the worship of the true God, mixed up with an idolatrous reverence for the gods of the Heathen, is a subject not yet fully investigated, and well worthy the attention of Biblical Scholars. The book of *Enoch*, or *Edris*, quoted by the Apostle St. Jude, * copies of which, in Ethiopic, Bruce obtained while in *Abyssinia*, was probably translated into *Samaritan*; and as such, according to Assemannus, contained the principal articles of belief professed by the *Sabeans of Southern Arabia*, search may be made, with some chance of discovering fragments of these books, among the Jews at *Aden*, *Zafar*, and *Sanaa*. One of the Ethiopic copies obtained by Bruce has been translated, into English, by Dr. Laurence Archbishop of Cashel, and one was presented to the library of the King of France. This very curious book is said to have been originally written in Hebrew, and translated into Greek by an Alexandrian Jew; of which a large fragment may be found in Kircher, and the Chronographia of Georgius Syncellus. † It records legends of the angels having descended from heaven, and produced giants from the daughters of men; and of their having instructed this race in the arts of war and luxury; giving a superstitious version of the same story as related in Genesis, chap: vi. v. 2. to 12. Matter, in his history of Gnosticisme, and its influence on the religious and philosophical sects in the first ages of Christianity, remarks that, in the second century of our era, Philon of Byblos, in Phœnicia, published *Sanchoniatho's Phœnician Cosmogony* and *Theogony:* teaching, like the books of Enoch, that mankind, falling from their state of original purity, came under the dominion of the passions and a spirit of discord; and that siderial spirits, by generative creation, descending from heaven underwent successive degrees of degradation. According to Mr. Turnour's *Bauddha Annals*, in the Pali language, ‡ the same story is somewhat differently related, among the Ceylon Buddhists. It is also

* Jude ver. 14, 15.

† Bruce's travels to the source of the *Nile*, octavo edition, Vol. II. p: 414. and Kircher's Oedip. Ægyp. Vol: ii. p: 69: also Dr. Laurence's translation into English, p: 181.

‡ Journal of the Bengal Asiatic Society for August 1838, p. 694. see also the article, on the Bauddha and Jaina religions in this Vol. p. 107.

known in Nepal; regarding which Mr. B. H. Hodgson mentions his suspicion that the legend had been stolen from the Bible, and contains a confused idea of the Mosaic history. * It will be therefore of utility in tracing the history of the Arabian Jews, and those of India on the coast of Malabar, and in the territories of Bombay, to ascertain the nature of that connexion which subsisted between *Arabia* and *India* from the beginning of the Christian era. By this investigation we may be enabled to ascertain why the figure of *Buddha's foot*, which exists at the top of Adam's peak in the island of Ceylon, was identified as a type of our great ancestor, previous to the arrival of the Portuguese on the shores of India. In the fifth No. of our Journal, I remarked that the Mahomedan author Masudi, A. D. 943, makes mention of mount *Rahwan*, on which Adam descended when expelled from Paradise, adding that a race of Hindus, in the island of Ceylon, descended from Adam, derived their origin from the children of Cain; and that the analogy, between the traditions of the *Arabs* and *Bauddhas*, may probably be traced back to that period of early history, when both people were *Samaneans;* maintaining, according to the authority of the *Mefatih-el-olum*, that the world had no beginning, that souls transmigrated from one body to another, and that the earth is constantly declining.

Regarding the chance of obtaining Hebrew books from the Arabian Jews, it is not unworthy of remark, that Dr. Pickering of Boston, in America, and now amongst us a traveller, lately obtained, while at Aden, a Hebrew copy of the Pentateuch with an Arabic translation; but could not inform me whether such was the *Samaritan version*, as he had transmitted it without examination to America. An Arabic translation of the *Samaritan* text appears to have been made by *Abu-Said*, so late as A. D. 1070.

Syriac. The ancient dialect of *this*, which was common to Palestine, and now a dead language, except in the neighbourhood of *Damascus*, and among the *Nestorians* in the mountains of *Kurdistan* and the neighbourhood of *Orumiah*, is of great interest to every Christian Scholar. While the *Syrians themselves* maintain a doubtful opinion, that, in the time of Solomon, the Old Testament was translated into this language for the use of *Hiram*, king of Tyre, certain it is that our Saviour preach-

* Hodgson's Sketch of Buddhism, Transactions R. A. S. London, Vol. II p. 248.

ed in it, and that the New Testament, in the time of *Abgar King of Edessa*, * was translated by *Thaddeus* into Syriac. An American Missionary Dr. Perkins, who resided eight years among the the Nestorians, and has published his account of them at Boston 1843, states that the present written character differs from the western, or *Jacobite Syriac*, and is a rounded form of the Estrangelo; adding that in their vernacular language there are twenty two consonants, united by seven vowels which are points, and not the Greek vowels inverted, as in ancient Syriac. † Such would indicate that this form of the *Syrian Alphabet* resembles, in many respects, the *Hamaiyaric character* of *Southern Arabia*, in which some genuine Nestorian letters are found. In connexion with the Syriac dialect and character, it will be an interesting subject of research to inquire into the origin of the *Palmyrine writing*; with which that of the *Sassanian* inscriptions at *Hajiabad* and *Nakshi Rustam*, in Persia, have a close affinity. The inscriptions too on the Bactrian coins, at *Shah-Baz Ghari*, in the *Yeusaf Zai country* and in the *Topes of the Panjab*, seem to have derived their alphabet from the same source. To trace the gradual developement of this character and to follow it into the countries of *Bactria* and *Tartary*, where it was applied to languages of the *Indo-Germanic family*, will enable us to make clear many obscure points both in Chinese and Indian history. One more head of this subject deserves the attention of the learned, namely, the investigation of the true dates when the Syrian Christians settled in Malabar; or found their way into China and Tartary, where under the name of *Aigures*, they gave letters and literature to the people of *Mongolia*.

The settlement of the Syrian Christians, on the coast of Malabar, and the period of its taking place, have been long subjects of comment and dispute. In number XXX of the Madras Journal of Literature and Science, published in June last, there are fac-similes of the engraved copperplates, possessed by the *Jews* and *Syrian Christians*, who were granted certain privileges by the *Hindu* princes of *Chera*. Various opinions

* The country of *Osrhoene* in *Mesopotamia*, then under the Parthian Government, was, about A. D. 114 sold by *Arsaces Pacorus* to one named *Abgar*, who, according to *Suidas*, took upon himself the title of king.

† Address to the American Oriental Society; by John Pickering Esquire, of Boston, 1842 p. 30.

have been formed regarding the supposed antiquity of these documents, which are written in ancient *Tamul.* The Jewish tables, which are the oldest of them, consist of two copper plates, written on three sides, and are now in possession of Rabbi Samuel at Cochin, who has also an old *Hebrew* translation of the contents. They are dated in the 36th year against the second cycle, or cyclar period of sixty years, which the Arabs call *Tarikh-Zaki,* and *Tarikh-al-Huakma,* or era of the philosophers; dated as would appear on the revolutions of the planet Saturn, and commencing its new year from the appearance of the first new moon after the winter solstice; which was the common mode of reckoning among the *Chaldeans, Egyptians, Chinese,* and *Indians.** The reigning prince of Malabar, who granted this document and had the title of *Peru-mal,* was named *Sri Bhaskara Ravi Varma;* and as the document no where recognizes the existence of the *Brahmanical hierarchy,* the country at that time seems to have been under sovereigns of the *Bauddha faith.* In Asoka's inscription at *Girnar,* it is mentioned under the name of *Pira,*† and associated with *Chola.* While some have dated this document as early as the 31st year of the Christian era, others are disposed to give it no higher antiquity than A. D. 825.

The other documents, in possession of the *Syrian Christians,* consist of six copper-plates, four of which are written in *Tamul,* followed by the names of witnesses attesting to the truth of the grants; and whose signatures are written in the alphabets of three languages; of which the first is *Kufic,* the second apparently *Nestorian Syriac,* and the last *Hebrew.* The well ascertained origin of the *Kufic* form of Arabic, and its existence on these copper-plate grants to the *Syrian Christians,* reduces the probability of the preceding Jewish grant having been given in the third century of our era: as both the Jewish and Christian grants seem nearly of cotemporary origin. The subject however still merits attention as one not definitely settled.

Arabic. The origin of the *Hamaiyaric character,* or the writing called *Al-Musnad,* is a subject still open for the investigation of the curious. Though Fresnel in the Journal Asiatique, ‡ and the Baron Mac

* See Chevalier De Paravey, sur l' identite des cycles Arabes; Indiens et Chinois, applique's aux jours, aux annees et aux eres diverses.

† Mr. Prinsep's correspondence in page 26 of this volume.

‡ Troisieme serie Tome II, III and IV.

Guckin De Slane in his translation of *Ibn-Khallikhan's* Biogrophical Dictionary have usefully combined some of the scattered facts, relative to the state of the Arabs during the times of Paganism, and of their literature after the time of Islamism, the subject has not yet received that degree of attention which it deserves. After the decay of the Roman empire and the destruction of the Alexandrine library by *Amru*, the General of the *Khalif Omar*, the knowledge which the Greeks and Romans possessed of Philosophy, Mathematics, Medicine, Natural history, Astronomy and Geography was transferred to the Arabs, through the medium of translations, by the Greeks of *Harran*, and we may hope that the zeal and learning of European scholars will yet enlighten us relative to these dark periods of history, and shew how far the Muslims contributed additions to the two last branches of knowledge.

Busra, *Kufa*, and *Baghdad* attained great pre-eminence for learning; and in their several schools the study of Grammar, Philology, Genealogy, and History was carried out with great exactness. The dialects spoken by the different Arab tribes of the desert became the special object of investigation, and served as the ground work of copious dictionaries of the Arabic language. In arithmetical calculation the Arabs employed certain letters of the alphabet with a numerical value, but subsequently adopted the Indian ciphers. The Algebra of *Mahomed-bin-Musa* has been translated into English by Professor Rosen, who is of opinion that the author was conversant with *Hindu science*, and though he be the first Mahomedan who wrote on arithmetic, he was not the inventor of the art. Before the accession of the *Khalif al Mamun*, *Mahomed bin-Ibrahim al Fazari* had translated, in Hej: 156, A. D. 773, the work of an Indian Astronomer, called the *Sindhind*, or astronomical tables. Connected with Arabia and its language, an investigation into the comparative Geography of this Peninsula and an account of its Geology and natural history are still desiderata.

Ethiopic. Mon:D. Abbadie, in the Journal Asiatique of Paris, for July and August 1843, has enumerated twenty eight dialects of this language, which are partly of *Semitic* and partly of *Chamitic origin*.* The

* In No. 911 of the Athæneum, for April 1845, the same gentleman has addressed a letter, to the Rev. G. C. Renouard, foreign secretary of the Royal Geographical Society, on the subject of the Ethiopian family of languages, and as this is one of the undetermined subjects in *Ethnography*, and of great interest in the history of mankind, the letter will be found extracted in the present number of the Journal, under the head of *Literary* and *Scientific* notices.—

Ghiz is a very pure dialect of the ancient *Arabic*, and is written, from left to right, in a modern character of the *Hamaiyaric*, consisting of twenty six consonants, varied in sound by seven vowels: to which were added seven other letters, at the period when the *Ahmaric dialect* became incorporated with the more primitive form of this language.

In both sacred and profane history *Ethiopia* is frequently mentioned in conjunction with Egypt, signifying the *Thebaid*, or *Upper Egypt*, and is designated, on the Egyptian monuments, the land of *Cush;* under which title, Isaiah, Ch: XLV. ver: 14, associates it with the country of the *Sabeans*, or people of Southern Arabia. The Ethiopians claimed even superior antiquity to the Egyptians, as their progenitor *Cush*, the son of *Ham*, was elder than *Mizraim*, from whom were descended the Egyptians. Regarding the origin of the Ethiopians, the most probable opinion now entertained is that the Ethiopians, beyond the parallel of *Syene*, or *Assuan*, were *Copts* less advanced in civilization than the Egyptians; and that under *Sabbacon*, or the *So* * of Scripture, who entered into a treaty with *Hosea* king of Israel, and reigned from B. C. 769 to 729, the *Arabs*, or *Cushites*, migrated from the kingdom of *Midian* into the southern part of Arabia, and western shores of the Red Sea or Ethiopia. Juba, who wrote the History of Arabia B. C. 30, says that *Ethiopia* was then peopled by Arabs, who, under the name of *Blemmyæ*, were led on by the generals of Candace, queen of Meroe, against the Roman cohorts at Elephantine, Syene, and Phylœ, during the reign of Augustus Cæsar; and were driven back, as far as Premmis in Nubia, by an army of Romans and Greeks commanded by Ælius Gallus. The Jews had for a long time, and in great numbers, been settled among them, and soon after translated the Holy Scriptures into the Ethiopic, of which the *Ghiz* has many words in common with the *Arabic* spoken by the barbarous inhabitants of *Mahrah*, possessing the mountainous district of Southern Arabia near *Hasik*, *Morbat*, and *Zafar*. This idiom, termed by Monr. Fresnel † the *Ekhkili language*, approximates more nearly to the *Hebrew* and *Syriac* than to the *Arabic;* and appears to have prevailed in the Islands called *Curia Muria*, and in *Socotra*. Herodotus, in Polymnia 70, makes mention both of the eastern and western Ethiopians, or of the *Asiatic* and *African* tribes of this people. The former, who were of Arabic origin,

* 2d. Kings, xvii 4.

† Noveau Journal Asiatique Paris.

served with the Indians in the expedition of Xerxes to Greece; were armed in all respects like the latter, and had straight hair. They wore on their heads, however, the skins of horse's heads, on which the manes and ears were left; and are without doubt the *Aswa-Muchas* of the *Hindus*, or the horse-faced people of the *Haya-wansa*, whom Major Rennel has correctly placed in *Kej-Mekran*, or the Persian province near the sea, west of the Indus. They were the people of *Haur*, or the *Oritæ* of the Greeks, and partly of Arabian descent; of whom the *Beluchis* and *Brahuis*, are the probable remains, though the languages of these two tribes now shew a nearer affinity to the *Indo-Germanic family* than to the *Semitic*, while they themselves proudly claim a Syrian or Arabic descent.

The Philological branch of Ethnography, on the subject of the Ethiopians, appears to have been pursued with considerable success by Monr. D.' Abbadie: and as our Society, so early as 1812, obtained comparative lists of dialects in use on the eastern coast of *Africa*, namely the *Suhaili*, *Sumali*, and *Galla-tongues*, it is my intention to add to these vocabularies of the *Kanuz* and *Bisharin languages*, and to publish them in an early number of the Society's Journal. Others will no doubt assist us in collecting materials for determining this interesting question relative to the origin of the *Ethiopians:* and the Rev. Mr. Isenberg, who is now a resident amongst us, has already printed a Grammar and Dictionary of the *Ahmara* language. He has also compiled and printed a Vocabulary of the Danakil dialect; and the Rev. Mr. Krapf has collected a Vocabulary of the Galla tongue, which has been translated from the German, into English, and published by Mr. Isenberg.

Captain Harris, in his late work on this country, has appended a catalogue of extant manuscripts in the *Ethiopic* and *Ahmaric tongues;* of which the *Sena Aihud*, or history of the Jews in connexion with the history of other ancient nations; and the *Kibra Nijashi*, or the history of the *Kings of Axum*, would repay the labour of translation. The *Didaskalia*, or institutions of the Abyssinian Church, has been already translated into English and published by the Oriental translation fund.

Pehlvi. This ancient form of the Persian, which is of *Chaldaic* or *Syriac origin*, seems to be an ancient dialect spoken in *Khuzistan* and *Pars*, the two western provinces of Persia; which, previous to the rise of the Medo-Persian kingdom, formed the dominions of the *Elamites* of the Bible, who were of *Semitic origin*. It gained an ascendancy, pro-

bably, during the period of the Parthian dominion, and reign of Artabanus III. brother of Vonones II. with whom commenced a new line of Parthian kings, descended from the Governors of *Media*. In Avdall's history of Armenia, the then reigning family is divided into two branches of *Pehlavis*, namely the *Sureni Pehlavis*, or western, and the *Karani Pehlavis*, or eastern. It appears from Vaillant and Josephus that *Media*, the modern *Azerbijan*, came to this second dynasty of Parthian Princes by their father Vonones II. brother in law to *Bardanes*, who belonged to the family of western *Pehlavis*. According to Tacitus * Vologeses the I. by consent of his brothers Pacorus and Tiridates, succeeded to the throne of the *Parthian kingdom*, resigning to his brother Pacorus the chieftainship of *Media*, which his father Vonones held in right of his father's brother Artabanus III. The coins found in *Bactria* and *Kabul*, bearing on one side, in Greek, the names of *Palirisus* and sometimes *Palirius*, with the inscription *Balhara putasa Dhamiasa Bala Farmasa*, published by Wilson and others, belong to this Pacorus, governor of *Media*, and date from the era of the Arsacides 367, A. D. 52.

While it may be shewn that the alphabet of the Bactrian Pali inscriptions, and of the more extensive ones at *Shah Baz Ghari*, in the Yeusaf Zai country, are of *Semitic* origin, and kindred with the Sassanian writing on the monuments of Elymais, or Persepolis, Professor C. Lassen has traced with much learning and ingenuity the affinity between the language of these inscriptions and that of the *Prakrit* in the Indian dramas.† It seems highly probable that the *Sureni Pehlavis*, or western Persians, spoke in ancient times a dialect of the Syro-Arabian stock; but that the *Karani Pehlavis*, or inhabitants of eastern Persia, made use of a language that was intermediate between that of the Indians and Persians, and had a near affinity to the languages spoken in the *Kohistan*, or *Highlands* north of Kabul, of which the *Lughmani*, *Pashai*, *Kashkari*, and *Kafari* idioms are the yet existing remains. The Parthians, according to Justin,‡ spoke a mixed language between the *Scythian* and the *Median*; and the Paropamisadæ of the Greeks, and Parthians of a mixed Persian origin, who had the name of *Karani*, may have obtained this appellation from being of a mixed breed: for we are informed, in the travels of Marco

* Tacit Annal, lib: c: 44.

† Journal of the Bengal Asiatic Society for 1840 p. 380.

‡ Justin, lib: 41.

Polo,* that the Choghtai Tartars of *Nikodar Oghlan*, the son of *Hulaku*, mixing with the dark Indian women, produced a race to whom the appellation of *Karaunas* was given, signifying in the language of the country a mixed people. In classifying the dialects of the Persian language, there are good grounds for assigning a Semitic origin to the Pehlvi, or language of the Elymeans; who were not, according to Strabo,† reduced to obedience by the Parthians, until B. C. 162: when Arsaces Mithridates I. the cotemporary of the Bactrian Eucradites, also added Media to his dominions. This also is the view taken by the learned author of the *Ferhang Jehangiri*, ‡ who enumerates seven dialects of the Persian; four of which the Hervi, Segzi, Zaweli, and Soghdi had become obsolete, or were not used in composing historical and poetical works; while the Parsi, Deri, and Pehlvi were the current languages of the country. The latter was that which was spoken on the Pehlu, or Arabian and Chaldean border; and prevailed in Khuzistan, Kermanshah, and Persian Irak, § while Parsi was a collateral language spoken in the province of Pars, or Persia Proper.

The family of nations, extending from the Ganges to the British Islands, and speaking languages of a cognate origin, has been called collectively *Indo Germanic:* but has been divided into several branches, denominated the *Arian*, *German*, *Sarmatian*, and *Sclavonic*. The old Persian words *Airya* and *Airyana* have been used to designate the region to which the Hindus and Greeks extended the appellation of Aria or Ariana; and Monr. Burnouf explains the name to signify "l'Arie dans sa plus grande etendue, c'est a'dire le pays habité par la race des Arya, oudes hommes nobles."—The ancient Medes, according to Herodotus, called themselves Arii: and Aryavarta, or the Holy Land of the Brahmins, before they spread themselves into Southern India, was the country sit-

* Marsden's Edition of Marco Polo, London, p: 87.

† Lib: 16.

‡ The excellent Persian Dictionary written by Jemal-u-din Husain Ibn Fakhr-u-din Hasan Anju.

§ The author of the Ferhang Jehangiri calls it the border line from Isphahan to Dinavar; thus including the provinces of Persian Irak and Kirmanshah: in which latter district are the remarkable *Cunei-form Inscriptions* of *Be-situn*, which have been lately deciphered by Major Rawlinson. These incriptions are written in three dialects, which must be Parsi, Zend, and Pehlvi, and are said to contain interesting details relative to the campaigns of Darius Hystaspes.

uated between the Himalaya and Vindhya mountains. The principal stems therefore of the Arian race consist of the Hindus, or Indians east of the Indus, and the Medo-Persians, west of this river. The Affghans, the Brahuis and Beluchis, the Armenians, Kurds, and the Ossetes inhabiting the Caucasus, near the sources of the river Terek, belonged to the latter; and though the former people be now limited by the Ganges eastward and the Indus on the west, yet, in the time of Arrian's Periplus and of Ptolemy the geographer, * their cities Minagara in Sindh, Ozene or Ujain in Malwa, Tiagura and Nasica in the Dekhan, were esteemed parts of Indo Scythia; while mixed tribes of Indians speaking Prakrits, or dialects of the Sanskrit language, inhabited the Kohistan and country of Kabul. The mountainous country, immediately west of the Indus, called by Diodorus Siculus Cossea, or the Caucasus, obtained its name from the Khasas or Kas, mentioned in the Kerna Parva of the Mahabarat, and by the Emperor Baber in his memoirs. Hindu and Persian tradition concurs in recognizing the tribes inhabiting this quarter, and even those towards the sources of the Oxus, as members of the Indian family;† while a Philological examination of the dialects now spoken by them will afford strong Ethnological proof that the aboriginal people of Lughman, Kashker, and Kaferistan, belonged to the Indo-Persian stock, though Scythian in their manners. They are known to the Greeks under the name of the Indo-Scythians, and are called collectively, by the Hindus, Haya-hayas, or individually Gandharas and Bhalikas: and as many pure Maharatha words are found in the Lughmani and Pashai dialects, and were primitive parts of these languages, such seem to establish the correctness of an opinion entertained by many, that the Maharathas were of a foreign origin and descended from Naosherwan and the Persians.‡ This is a subject of much interest, and well worthy of further and more accurate investigation than it has yet received; and the labour of tracing the History of the Indo-Scythian tribes, that, under the name of *Sakas*, or *Sacæ*, overturned the Greek kingdom of Bactria B. C. 126, and pushed their conquests into India, will be attended with much new light on the subject of Indian History, and is calculated to dispel much of the darkness which envelopes systems of Hindu mythology.

* Ptolemœi Geographiæ; Lib: vii.

† See Wilson's Ariana Antiqua, p: 125.

‡ Wilford's Essay on Vicramaditya and Salivahana, in Asiatic Researches; Vol: ix p: 234. Quart: edition.

The Sacæ, according to Ptolemy, were a great people, situated between *Casia* or *Kashkar* and *Bylta* or *Little Tibet*; but the name was a general term used, in ancient Persia, for all Scythians situated eastward of the Caspian Sea. The Asii, Tochari, Pasiani, and Sacarauli, who overturned the Greek kingdom of Bactria B. C. 126, were but branches of the same stem; and by Ma-twan-lin and other Chinese authors, who have written on the subject of India, are called the Great Yue-che or Indo-Scythians. Procopius calls them Euthalites; and Cosmas Indicopleustes, visiting India A. D. 535, notices them under the name of Hunni. Arabic geographers and historians name them Hayathelites, or Hayatelas; and place them, at the sources of the Oxus, in the districts of Khutlan and Cheganian.—During the quarrels of Firuz and Hormuz sons of Behram VI. the Hayathelites assisted the former in recovering his right to the Persian throne; and not long after the period when they are mentioned, by Cosmas Indicopleustes, under the appellations of White Huns, their country was conquered by Naosherwan the Great, of Persia, who put to death their king Akhshawan, and carried into Persia the *Kalila Damna*, which was soon after translated into Pehlvi from the original Sanskrit of the Pancha Tantra. This is given on the authority of the Arabic author Masudi; who in his account of the Sassanian kings, states that the Haiyatelas were the same with the Soghdi, living between Bokhara and Samarkand.*

Persian. The country named from this language, which was originally the dialect of Pars, or Persia Proper, extends from the banks of the river Jihun, or Oxus on the east, to the Euphrates westward, and from Bab-al-Abwab, or Derband, on the north, to the sea of Oman or the Persian Gulf, on the south. Several tribes however, whose primitive tongue appears to have been Persian, are situated beyond these limits, and Klaproth † has shewn that while the Nomadic tribes of Bokhara, Khoten, and Khiva must be reckoned as branches of the Turkish stem, the inhabitants of towns, called *Sarti*, or *Tajiks*, are of Persian origin. The Parthians and Arsacides, who had the national denomination of *Dahi* or Dajik, and were partly of Scythian origin, imparted this name to their Persian subjects; and, though it was disavowed by the Persian people, it was afterwards applied to them, in the sense of barbarian, by all the tribes of Upper

* See Masudi's Meadows of gold and Mines of jewels, written in Arabic and begun in A. D. 943; also Histoire Generale des Huns, par M. Deguignes Tome Premier, seconde partie, p: 325.

† Journal Asiatique; No. 9.

Asia, that subsequently overran Persia. The establishment of the *Tajiks* in Sogdiana, and other countries on the borders of Persia, where the original Nomadic population belonged to the *Sacæ*, or eastern Scythians, appears to have been effected during the reigns of several Persian kings; who were probably anxious to form agricultural colonies, in these countries, from among their Persian subjects; who had learned the luxury of fixed habitations, and were capable of teaching mechanical arts to the Nomades, and of weaning them from their wandering manner of life.

It is not certain that the dialects of Persia Proper and of Media were the same, but it is now generally allowed that they were cognate tongues, and that the latter, which was the primitive language of Persia, had a close connexion with dialects of the Sanskrit family. The now obsolete *Hervi*, or dialect spoken in the province of *Herat*, or Aria, may have been the lost original tongue from which the ancient Persic was formed, after the rise of the Medo-Persian kingdom, but continental Philologists are disposed to regard the Zend as the Vernacular idiom of Media and the northern parts of the Persian Empire. The whole of the ancient Media included, besides Azerbijan, the provinces of Shirvan and Gilan; and Professor Rask supposes, with great probability, that the Zend was the old popular language, at least of a great part of Iran,* and not merely a sacred dialect introduced for religious purposes. English Philologists however have been disposed to consider the *Zend* as a dialect of Sanskrit, introduced from India, for religious purposes, and never spoken in any part of Persia. The testimony of so ancient an author as Masudi, that the book called *Asta* and its commentary the *Pa-Zend* were in existence in his time, establishes the comparative antiquity of the *Zend-Avasta*, and that the language of it is not a forgery of modern times. The grammatical structure of the *Zend*, and its system of inflexion correspond with the Sanskrit, but in some instances approach nearer to the Phrygian class of languages, (that is to say, Greek and Latin, with their different dialects,) in others it is quite peculiar, which seems to show that it is a different language, to be arranged between the Sanskrit and Greek: and it is therefore more natural to conclude with Rask that Sanskrit was introduced, as a foreign language into India, from *Aria* or *Iran*, in preference to the supposition that it was brought from India into Persia. Masudi says that *Zardusht* or Zoroaster, a native of Azerbijan, and son

* Transactions of the Royal Asiatic Society; Vol: III p: 533.

of Astiman, composed the book called *Asta* in a language that no one could understand, and afterwards wrote a commentary on it called the Zend: the commentary on which, in another language, was called *Pa-Zend*, meaning what was written interlined with the Zend, the ancient Persian language. This commentary was as appears the Pehlvi version, which, as Burnouf in his commentary on the *Yaçna*, remarks, was composed in an age unknown to us, but esteemed of equal value with that of the original Zend text. The author of the *Ferhang Jehangiri* notices the Zend and Pa-Zend, but does not mention the former among the other dialects of Iran. The Deri was, according to some authorities, spoken by the inhabitants of Balkh, Bamian, Meru-Shahjahan, Bokhara, and the Derahs or valleys at the source of the Oxus; while by others it was called the court language, or a highly polished dialect, used vernacularly in the *Deri-Shah*, or Royal court: where, about the end of the fourth century of our era, or A. D. 351, it was introduced by Beharam-gaur in supercession of the Pehlvi, or language of the country. Ibn Haukal in his geography, called *Masalik-wa-Mamalik*, of which the original was written A. D. 858, only makes mention of two languages besides the *Arabic* spoken in Persia, namely the *Pehlvi* and *Parsi;* the former of which was used in writings, but required, even in his time a commentary, as not generally understood. The Parsi, of which the dialects in various parts of the country differed somewhat, was then the vernacular language of Persia, though discountenanced in the transactions of government and of public affairs. It was, as already noticed, the language of the province of Pars; or Persia Proper, and contemptuously styled the Ajamian (barbaric) tongue, but during the tenth century, under the patronage of Mahmud of Ghaznah, it was restored to its ancient honor by the celebrity of Firdausi, when being mixed up with many Arabic terms and words of Semitic origin, it became the now current language called Persian. Many translations of Historical and Geographical works were made into this language from the Arabic; and many of them hitherto little known are of much interest, and would repay the labour of translation into the European languages. Those of them composed during the reigns of the Perso-Moghal sovereigns, the descendants of Jenghis Khan, deserve particular notice. From among these the *Jama-la-Tawarikh*, a history of the Moghals by Rashid-ad-din, and the *Matla-as-Sadein*, a history of Sultan Shah Rokh's reign will be acceptable additions, when translated, to the history of the east.

Sanskrit. It is now generally admitted by Philologists, that the several dialects spoken in India belong to two great families, the Northern and Southern; or that of India proper, between the Himalaya and Vindya mountains; and that of the Dekhan, south of the Nermada river. The former called the five *Gaurs*, or the *Saraswati*, *Kanyaculja*, *Bengali*, *Tirhutiya*, and *Uriya*, are chiefly derived from Sanskrit, which was introduced into India previous to their origin, and was the precursor of civilization in the countries, where these *Prakrits*, or Provincial dialects of the Sanskrit, are now spoken. These, with the Gujarati and Maharatha languages, are of the Arian family, and intimately connected in their affinities with the Zend, or primitive dialect of the Medo-Persian. But the Southern family of languages, including the *Tamul*, *Telugu*, *Karnataka*, and *Malayalma*, agree exactly, in grammatical structure, with the Tartar dialects of Northern and Central Asia, and are largely composed of words, that are not of Sanskrit origin. A great proportion, however, of these languages is Sanskrit; which, as in the North, was incorporated with them by means of civilization and the progress of literary composition. Mr. Ellis, in his dissertation on *Telugu*, prefixed to Campbell's grammar of this language, observes, that neither *Tamul* nor *Telugu*, nor any of their cognate dialects are derivations from the Sanskrit; but that they form a distinct family of languages, with which the Sanskrit has, in latter times especially, intermixed, but with which it has no radical connexion.* The language of the mountaineers of Rajmahal abounds in terms that are common to *Tamul* and *Telugu*; and throughout India, in the hills of Rajputana, the districts of the Bhills on either bank of the Nermada river, the territory of Gondwana, and the Garrow hills, are tribes of people who, both in manners and in language, are altogether different from the civilized Indians of an Arian stock, speaking languages of the Sanskrit family.

The study of Sanskrit literature, and the principles of etymological affinity which connect this highly learned language with the languages of Greece and Rome, as well as those of the more modern European nations, have contributed greatly to elucidate the history of all languages, and by means of them to make more certain the history of the various tribes of mankind. The history also of philosophy and science has been largely indebted for illustration to the same source; and the cultivation of San-

* Mackenzie Collection, preface p. xxix.

skrit literature is particularly commended to the attention of our countrymen, by their employment and position in this country. Much in this department has been already effected by Jones, Colebrooke, Wilkins, Wilford, Wilson, and others; but a critical examination of the various dialects spoken in India is yet a desideratum; though the labours of Bopp, Lassen, and other continental philologists, have already accumulated materials of great value, which will be highly useful to all future investigators. The Pali language, which is certainly a derivative from the Sanskrit, has received important elucidation, in the "Essai sur le Pali, par E. Burnouf et Chr. Lassen," and all the provincial dialects, or *Prakrits* in other parts of India, are learnedly commented on in Lassen's "Institutiones Linguæ Pracriticæ." The Ethnology of the several wild tribes and mountaineers of India has, hitherto, been too imperfectly investigated, to admit of implicit confidence being placed in the opinions formed relative to the affinity that these tribes bear to each other; and here there is a wide field still open to the inquiries of our Indian scholars. These tribes seem to be the remains of the Indian aborigines; and their present condition, languages, religion, and customs, particularly merit investigation, and will contribute greatly to elucidate the ancient history of this country. Translations of the cave inscriptions, that are found in the various parts of the Dekhan, and of the books of the Jainas written in the same dialect, will be of great interest to continental scholars; and contribute to illustrate the connexion that exists between the religious system of the Bauddhas and Brahmins, and the principles of belief professed by the Jaina sectaries. The language in which these books and inscriptions are written, is that which has been styled *Prakrita "par excellence,"* and is allowed, by all Prakrit grammarians, to have been the original language of Maharashtra, or country of the Maharathas. It is an immediate derivative from the Sanskrit, and intermediate between the latter and Magadhi, or language of Behar, which is the same as the Pali, the sacred language of the Bauddhas.*

There are many other subjects connected with India, but yet imperfectly investigated, which are well worthy the attention of members of our Society, and Oriental investigators generally; and of which those, not least important, are the Statistics, Geology, Botany, Zoology, and comparative Geography, (Hindu and Mahomedan,) of the several provinces and districts. Those of our own Presidency will of course chiefly merit our attention.

* See Lassen's Institutiones Linguæ Pracriticæ, p: 42 and 60.

Pali. This which was the official language of the Bauddha dynasties, once existing in India, and is now the depository of Bauddha religious literature in Ceylon, and the countries beyond the Ganges, has lately attracted much attention from Orientalists, and promises to become daily a subject of greater interest, on account of its connexion with Sanskrit and the history of the Bauddha religion. It is a contested point whether the Pali or Sanskrit be the more ancient language of India; but those who have supported the superior antiquity of the former, seem to have been imperfectly acquainted with the grammatical principles and affinities of the two languages, which have been investigated with great learning by Burnouf, Lassen, and others; whose opinions are opposed to this view of the subject, and claim deference from their profoundness and learning. The Pali grammar and vocabulary of this language, published in Ceylon, by the Rev. Mr. Clough, the "Essai sur le Pali," a Grammar and Dictionary of it lately published at Paris, and the late Mr. Turnour's translation of the Mahawanso, supply abundant materials for the study of this learned language, in which are embodied several metaphysical tracts, fabulous or real biographies of the several patriarchs who succeeded *Buddha*, and systems of Cosmogony and Mythology.

There are plausible grounds for a belief that this language, though a *derivative* from *Sanskrit*, was originally a *western dialect*, spoken by the *Sakya* race inhabiting *Sindh*, *Surashtra*, and *Gujarat*; and that when they emigrated, from the northwest, to *Kapilavastu*, and the *Gangetic* province of *Magadha*, this dialect, called orginally the *Sindhu* language, obtained the name of *Magadhi*, and prevailed along with the religion, which was promulgated through its means, from *Magadha* to the shores of *Kalinga* and island of Ceylon. "In the north-west it approached nearest to the Sanskrit and diverged from it in *Magadha* and *Kalinga*: but was in both places essentially what is now called *Pali*, a word supposed to be derived from पल्ली *palli*, a village, as we should now a days distinguish *gaonwari*, village, boorish, from *urdu* the language of the court." * In the great inscription from the Bauddha caves of Nasik, it is called *Gao-vacha*, or the vernacular language of the cowherds and pastoral tribes of this quarter; and it is confirmatory of the truth of Mr. Prinsep's opinion that the modern dialect of *Sindh*, and

* Prinsep, on the Girnar and Dhauli inscriptions, in the Journal of the Bengal Asiatic Society; Vol: vii, p: 280.

Bhashas, or dialects of western India, present striking analogies to the *Pali*, in the removal of *r* from original *Sanskrit* words, and in the modification of the auxiliary verbs: the admission of which into *Pali* conjugations is considered, by Monr. Burnouf, as a proof of the language being more modern than Sanskrit.* The *Pali* and *Zend* are derivatives of nearly the same grade from the Sanskrit stock. If the *Magas*, mentioned by the *Puranikas*, came originally, as asserted by Wilford, from the *Dwipa* of *Saka*, and gave name to the province of *Magadha*, were the same as the *Sakas* or *Sacæ*, noticed in previous pages, the fact of their identity tends to confirm the opinion that *Pali*, though matured and systematized as a language in India, had its origin like Sanskrit westward of the Indus, and in the districts of the Indian Caucasus.† In the Bhavishya Purana, these Magas,‡ are described as silent worshippers of the sun; and are associated by the compiler of this Purana with the fire-worshippers of Iran under the general term of *Mogh*.§ This identification is quite in accordance with what is known, from the Geography of Ptolemy, that a race of foreigners, denominated *Sadinoi*, from the Sanskrit *Sadhana* lords or masters, inhabited the mountains of the Dekhan, and were otherwise named the *Tabaswi-magi*: whose capital was *Banawasi*; of which the remains are yet to be seen southward of the Dharwar Collectorate, near the sources of the Wardha river, that rises in the Bednore district. From an inscription in the Maga language found at Islamabad, and dated the 14th Magha, in the Samvat year 904, or A. D. 848, they appear to have been Bauddhas.‖ They are also mentioned in an inscription, written with white paint, in one of the side caves at Karli, commencing thus—*Sidharaka vasu thapanasa Sri parma vacha ravinavisa thakara magana pati ganaya—devasavitri*: which may be translated, *The supreme word of the sun-born lord of the Magas of Thakara to the demigods during the established year of Sidhara: O*

* Burnouf on the Pali in Balbi's Introduction al' Atlas Ethnographique du Globe.

† Lassen says, Ut dicam, quod sentiam, uno seculo commode orta esse possunt discrimina, quibus Palica a Prakrita distinguatur. Cohæret autem Palica lingua cum emigratione Buddhaicæ doctrinæ in terras meridionales, ipsa autem in India sine ullo dubio nata est. Institutiones Linguæ Pracriticæ, p: 60.

‡ The Pali word *Magga* signifies *fire*.

§ See preface to Wilson's translation of the Vishnu Purana, p: 40.

‖ Asiatic Researches; Vol: 11, p: 383.

divine sun! From this it would appear that if the Magas were followers of Buddha; they were at least heretical disciples of this faith, since they *adored the sun and fire:* but this union of Buddhism with the principles and practice of the Sabeans and fire-worshippers is manifested by the cave inscriptions of the Dekhan; written in a *Prakrit* which, according to all the grammarians, was the vernacular language of *Maharashtra*, and is not materially different from the Pali, though intermediate between the latter and the Sanskrit.* The comparative antiquity and origin of *Sanskrit* and of *Pali* grammar is a subject yet open for a more perfect investigation than it has hitherto received; and facts seem to warrant the conclusion that the grammatical system of both languages is of nearly cotemporary origin, as the literature of Ceylon recognises *Kachchayano*, or the *Katyayana* of the Brahmans, as the author of the earliest Pali grammar; from which the oldest compiled version, called the *Rupasidhi*, was composed in the *Dekhan*.†

After being widely spread over India, prior to the birth of Jesus Christ, the Pali became a dead language, like the *Sanskrit*, and is now the learned medium through which we must obtain access to the historical and religious literature of Ceylon, and of the countries eastward of the Ganges, now comprehended under the name of Indo-China. The language in which the texts of the Bauddha books of China are written, is named *fan* by the Chinese, and *hendkek*, or Indian, by the Moghals; but it is yet a question whether this appellation, which only indicates that the dialect, in which they are written, is Indian, be applicable to *Sanskrit* or *Pali*.—Monr. Burnouf says that *fan* is a Chinese translation for *Brahma*, and that consequently the *fan* language, or that of *Brahma*, must be the *Sanskrit*; but it is doubtful whether the name be not equally applicable to the *Pali*.

Other Arian languages.—The vernacular dialects of the Afghans, the Brahuis and Beluchis, the Armenians, Kurds, and Ossetes, belong, as already noticed to the Arian family; and only require to be here partially mentioned, though there be some points in their Philological history yet uncertain and calling for further investigation.

The Afghans call themselves *Pushtanah*, and their language *Pushtu*; which is a dialect cognate with the Zend, and strongly evidences the im-

* Lassen's Institutiones Linguæ Praeriticæ.

† Mr. Turnour's Introduction to his translation of the Mahawanso.

mediate relation of this people to the Iranian or Persian branches: but there is no specification of their existence as a distinct race at any very remote period, as Ibn Haukal, about the middle of the ninth century of our era, notices the districts of their country under the names of *Rukhoj Khilij, Kabul,* and *Ghaur*; and further states that, while the *Khiljians* were of a Turkish or Tartar race, the people of *Ghaur* spoke a dialect similar to that of Khorasan. The features of the Afghans are Jewish, though not more so than those of other Caucasian tribes; and there exists no solid support for the tradition of a Jewish descent.—Their language, which has in many instances a near affinity with the idiom of the Kurds, connects their origin with the main Indo Germanic family: the intermediate branch of which, connecting them with the European nations, was the tribe of Khozars, with whom, during the seventh century, many Jews and Christians were associated, previous to their extension from the shores of the Caspian and banks of the Volga into the northern countries of Europe.

The vernacular dialects of Beluchistan are two, namely the *Beluchi proper,* spoken in the lowland country southwards of Kelat; and the *Brahui,* which is the vernacular language of the inhabitants of the upland country, or Kohistan.* The former is a corrupt dialect of the Persian; and the latter, called *Bravda,* in Indian treatises on the Prakrits, is nearly related to dialects of the Indian language and Sanskrit stock.—Both tribes of this people are known under the general appellation of Beluchis, but are divided into the *Jhallawans,* or tribes *living below,* and *Sarawans,* or tribes *living above.* So early as the time of Ibn Haukal they are distinguished by the names of *Beluj* and *Koj;* and are said to have spoken two different dialects. The name by which the *Brahui* tribe was then known, is doubtless a corruption of *Arokhaj,* or the Arachosia of the Greeks, which province included that part of the country, above Kelat, now inhabited by the *Brahuis.*

The Kurds, inhabiting the mountainous tract now called Kurdistan, in the western part of Persia, are composed partly of Christian emigrants from Syria speaking a modern dialect of the Syriac, but chiefly of barbarous Muslim tribes, who speak different dialects of the Kurdish language; which belongs to the Persian stock, and contains many words in common with the *Pushtu,* or dialect of the Afghans; with whom the Kurds have an evident resemblance in feature and character. The mod-

* See page 146, of this Journal.

ern Kurdistan comprehends the ancient Assyria, and parts of Armenia and Media; and may be said to extend from the neighbourhood of the great lakes *Urmiah and Van*, southwards to Luristan, where the *Lur*, *Khogilu*, and *Lek* tribes, belong to the same family as the Kurds; who are considered by the Baron C. A. De Bode,* neither of Arab nor of Turkish descent, but representatives of the old Iranian settlers, or Zend race, who migrated from Media. If the correctness of this opinion could be proved, or that the present inhabitants of Kurdistan are in uninterrupted descent from those Medes, who took Nineveh and possessed the country of Assyria, it would afford curious evidence between the historical and philological branches of Ethnology on the subject of this people, whose language is a rude dialect of the Persian and said to contain many *Zend* and *ancient Persian* words. The identity of the modern Kurds with the *Kardushians*, or *Carduchi* of the Greek historians and geographers, has been disputed; as the latter were clearly a branch of the northern *Chaldæan people*, and consequently of Semitic origin; whereas the Kurdish language affiliates them with the Arian branch of the Indo Germanic family. Masudi, *in* his *meadows of gold and mines of jewels*, assigns an Arab origin to the Kurdish tribes, who, from time immemorial have been wandering barbarians, and keepers of flocks, but in doing so he is in error, as their language, though mixed with many Semitic words, is cognate in grammatical structure with those of other Arian dialects, and affords the safest clue to the origin of this people; whose country Ibn Haukal places on the river *Kurdanah*, and calls their encampments *Ord* or *Ordu*, an Indian appellation for a wandering horde.

The other branches of the Arian stem are the Armenians and Ossetes. Klaproth considers the Armenian language as part of the Indo-Germanic stock, and that it contains many Indo German roots, and points of relation with the languages of northern Asia, which are allied with dialects of the Arian race.

The *Ossetes* or *Osi*, inhabiting the central portion of the western Caucasus, north of Georgia, speak a dialect which contains many words in common with the German and Persian languages; and are considered by the Georgian historians, to be descendants of the Khozars; a tribe of Scythian Nomades, allied to the Soghdians, or Indo-Scythians; who

* Travels in Luristan and Arabistan by the Baron C. A. De Bode, London Vol: 1 p: 275.

about A. D. 625,* penetrated into Azerbijan by the pass of Derband; and, extending themselves between the rivers Kur and Araxes, left a colony of their own in place of the tribes whom they expelled. The districts in which they settled are called by Arab geographers *Alan* and *Aran;* to the north of which between the mountain of *Jabal-al-Fatah* and the Caspian sea, Naosherwan, king of Persia, built a wall in order to shut out from his dominions these Sarmatian tribes; among whom, at an earlier period, Arian colonies from Persia appear to have settled and given to this mixed race the names of *Aran* and *Alan.* They belonged to the same original race as the *Asii* inhabiting the eastern Caucasus, previous to the destruction of the Bactrian Empire; and became known to Europe as the *Alani* of the middle ages; but have been erroneously taken for a Turkish tribe. Masudi classes the Khozars with the Alans, the inhabitants of *Jabal-al-Fatah,* the *Balghars,* the *Khatals,* (inhabitants of Khutlan,) and *Bakars.*† They are probably the same as the *Asii* or Northmen, who were conducted, by Odin, to the shores of the Baltic and Black Sea from their original clime, and carried with them those relations in language and mythology which have been found existing between the North of Europe and Asia.

It is now generally admitted, on the evidence of Philological affinities between the languages of Europe and Asia, that the European nations are successive colonies of the Arian or Indo-Germanic race; of which the most ancient are the Celtic nations. To these succeeded the Germanic family, consisting of two principal branches, the Northmen, or Icelanders; and the true Teutonic, or High German and Gothic race. These two great races, whose descendants can be yet distinguished by their language, appear to have been divided and separated long before they quitted their abodes in Upper Asia: and in Germany, Bohemia, Poland, Russia and Servia, were succeeded by nations of the Sclavonic race. Many subjects of great interest, such as the origin of letters among these nations, the affinities of their languages, and the connexion of their mythologies, are still open for further investigation, and will repay the labours of the learned.

* Histoire Generale Des Huns par M. Deguignes Vol: ii p: 507.

† El-Masudis meadows of gold and mines of jewels, in the original Arabic: my copy of which differs somewhat from Dr. Sprenger's translation into English: Vol: i p. 310.

The northern traditions and songs attribute the introduction of the Runic alphabet to Odin; but the learned differ in opinion regarding the origin of these letters, some thinking that they were used in the North prior to the era of authentic history, and others asserting that they were carried there, by the Phœnicians, during their commercial expeditions. Ancient inscriptions, in this character, are found on the rocks and stone monuments of Denmark, Sweden, Norway, and part of Germany; and are written in the Icelandic or ancient Scandinavian language. The greatest number of them exist near Sigtuna and Upsala, in Sweden; where Odin is said to have resided, and introduced the mythological superstition connected with his name. In the Icelandic language, the word *run* signifies a letter, and *runa* a furrow or line; and as this alphabet has a marked deficiency of curved lines, and abounds in straight ones, it probably derived its appellation from this peculiarity, though some are disposed to trace the import of the name to the *Saxon Ryne*, which signifies a mystery or hidden thing. The Runic characters were used for inscriptions, magical charms, and imprecations; and have been found on arms, trinkets, amulets, buildings, and wooden tablets; but were principally employed for lapidary inscriptions, connected with elegiac records of the dead and the pretended art of magic. The oldest existing record in this character is a digest of the laws of Scania, written in the thirteenth or fourteenth century, which is now preserved in the University library of Copenhagen.

The original number of Runic letters is sixteen; and whether borrowed or invented by the early Goths, they preceded the Mæso-Gothic alphabets, which, derived from the Latin and Greek, were in the third century of the Christian era applied to the Gothic language. The most striking resemblance existing between these and the characters of the Celtiberian and Etruscan alphabets would argue in favour of their Phœnician origin: and it is not improbable that the Runic, though derived from a Semitic alphabet of greater power, was reduced to its present poverty of letters, by writing in the same manner and under one character, like the alphabet of the Aigures, all letters which belong to similar organs. But I cannot further pursue here the existing analogies between the languages, writing, and mythology of Asia and Europe; and must briefly direct your attention to that interesting family of languages called by some Indo-Chinese, and by others Trans-Gangetic.

Trans-Gangetic languages. The American Missionaries, stationed at Sadiya, on the north-eastern extremity of Assam, and Mr. Campbell the Superintendent of Dorjeling in Eastern Nepal, have supplied new and valuable materials for a comparison of the Trans-Gangetic family of languages: under which name may be comprehended the *Bhutiya*, or *Tibetan;* the *Chinese;* the *Indo-Chinese*, or those of ulterior India, beyond the Ganges and Brahmaputra rivers; the *Korean*, and the *Japanese*. A certain analogy existing between the composition and grammatical structure of the Tibetan, Chinese, and Indo-Chinese languages, authorizes their classification into one family; though some Ethnographical writers have affiliated the Bhutiya race with the Nomadic Tartar tribes, inhabiting the central region of Upper Asia: but while the great number of mono-syllabic roots, which are found in the Trans-Gangetic languages, affix to them a certain family relation, they indicate such to be a distant one of remote times. The subject, however, is so extensive as to require for its elucidation volumes instead of pages; and we can therefore only briefly enumerate the principal subdivisions.

Tibetan. The great upland or plateau of central Asia is bounded on the south by two chains of mountains, the Kuenlun and Himalaya, between which lies the highland of Tibet; from whence the two great rivers of India, the Indus and Brahmaputra, originate, and insulate the country of Hindustan. The native name of this valley is *Bhut;* which is divided into *Beltistan*, or *Little Tibet* westward; *Utsang*, or *Middle Tibet;* and *Lassa*, or *Eastern Tibet.* Immediately south of the Himalaya, or Tibetan southern border, are the lower hill countries of *Kunawur, Garhwal, Kumaun, Nepal, Sikim*, and *Bhutan*, which run parallel to the great chain of snowy mountains, and are inhabited by tribes of kindred origin, speaking dialects of the Bhutiya family. Many of the tribes in these districts are Nomadic, and their languages are as yet imperfectly investigated and compared. Their physical ethnological character is Mongolian; being clearly evidenced by their form of features, absence of beard, and yellow color of the skin; and many roots and words of their languages, common to the proper Tibetan idiom, seem to verify the tradition of their origin, that, at some remote period, they migrated across the snows from *Bhut.**

* Notes, on the Limbus, and other hill Tribes, hitherto undescribed, by A. Campbell, Esq. Superintendent of Dorjeling: and on the literature and origin

We have not as yet materials sufficient for accurately determining the family relations of these several hill tribes, and can only venture to speak with certainty relative to the mountaineers of Sikim, and neighbouring countries of Eastern Nepal. Here the mountaineers and men of the *Turai* are partly Hindus, speaking dialects of Hindi; partly Buddhists, speaking languages of Tibetan origin; and partly Pantheistical idolaters, not following the Brahmanical religion, and speaking languages that are referable to the Bhutiya stock. To the first belong the Khas, Mogurs, and Gurungs, or real Gurkhas, who constitute the chief portion of the population of Nepal. The second includes the Lepchas, Murmis, and Bhutias; and the third subdivision comprehends Limbus, Haius, Kerantis, and some other mountain tribes, not within the pale of either Hinduism or Buddhism. A comparison of the languages, spoken by these various tribes, with the Tibetan and Sanskrit; and with the numerous dialects spoken in the countries eastward of the Brahmaputra river, to the borders of China, is a subject well worthy the attention of Philologists, and one which will enable them to extend our knowledge of the several races who peopled India previous to the advent of the Hindu religion; if they but extend this comparison to the language of the Parbatiya races of Hindustan and the Dekhan, including the natives of the Rajmahal hills, the Koles, Gonds, Bhils, and Dhangars.

The real Gurkhas of Nepal, who now form the great bulk of the army, are denominated *Khas*, خس; which is a Persian term, adopted into Sanskrit, for a rustic or mountaineer, and was applied, as we have before noticed, to the Indo-Scythian tribes of *Kashkar* and *Bylta*,* dwelling in the neighbourhood of the *Sakas*, or Eastern Scythians: with whom the Bhutiya race, or native Tibetans of Ladak in Little Tibet, were connected in their origin. In the middle of the sixth century of our era, the Khakhan of Tibet, according to Masudi, sent a letter and presents to Naosherwan king of Persia;† the former of which was written, in gilt letters, on the bark or leaf of a tree, agreeably to a custom yet prevalent

of certain hill Tribes in Sikim, by the same gentleman, in the Journal of the Bengal Asiatic Society for the years 1840 and 1842, pages 379 and 4.

* See page 180.

† See Masudi's meadows of gold and mines of Jewels, under the account of the Sassanian kings of Persia: and again under the section on the Arabs, and other desert tribes.

in the Bauddha countries of Burmah and Siam. The Arabic author further adds, that the Turks and people of Tibet are of one general stock; and a closer Philological examination of the Bhutiya family of languages will serve, I think, to establish that this opinion is not far removed from the truth. But the limits of this discourse will not admit of our entering into a more extended investigation of the origin of the Tibetans, or of their language, and the hill tribes connected with them; though it be certain that the people derived their knowledge, literature, and mythology from India, previous to the sixth century of our era, if facts stated by Masudi be correct.

Indo-Chinese languages. The Indo-Chinese Peninsula, situated between the bay of Bengal on the west, and the sea of China on the east, is formed by mountainous chains, running south eastward to the Gulf of Tonkin; which are continuous branches from the great Himalaya chain. The physical character of the nations inhabiting this remarkable country is Chinese; and the languages spoken by the inhabitants, excepting *Asamese*, evidently belong to the Chinese stock, consisting of monosyllabic roots, whose accidents of case, tense, and mood, are expressed by particles, and are varied by *intonations;* by which sounds originally the same are made to express entirely different meanings. The *Asamese* is a derivative from Sanskrit, and has a close affinity to Bengali; the Singpho, Abor, Burmese, and Manipurean dialects, are spoken by extensive tribes, who appear to have been the aborigines of the country, extending east and south east from the Brahmaputra to China, and contain several words common to them and the Bhutiya dialects; the Siamese, Laos, Khamti, and Ahom, merely dialects of the same original language called Tai, are more closely allied to the Chinese than the others, and evince that the tribes speaking them have a nearer affinity with the Chinese than the Singphos, and others of a Burmese stock.*

Anamese or Cochin-Chinese. This is a mono-syllabic language, having intonations, and all the other characteristics of Chinese; of which it is a coarse dialect. The learning of the natives seems confined to Chinese literature.

* Comparison of Indo-Chinese languages by the Rev. N. Brown, American Missionary at Sadiya, in the Journal of the Bengal Asiatic Society for 1837, p. 1023.

Pl. XXI.

H. J. Carter del. et Sculp.

BENI GARRAH.

Hampton's Lith. Bombay

Japanese and Korean. The Japanese is polysyllabic, and only resembles the Chinese in so far as it has adopted words from that language; but the physical characteristics of the people speaking it is that of the nations who inhabit high Asia. The affinity between the Japanese and Korean languages is not doubtful; but the last is more amalgamated with Chinese, as the people of Korea, since the Chinese conquest of the country, have borrowed much from their conquerors, both in language and literature.

I have thus sketched, imperfectly, the wide field of investigation open to Orientalists; and it is one of such interest that I may venture to hope, however brief the outline may be, it will be sufficient to stimulate to further exertion all those who are zealous and interested in the Geography, Ethnography, and History of the East.

Art. V.—*Notes on the Gharah Tribe, made during the survey of the Southeast Coast of Arabia, in* 1844-45. By Assistant Surgeon H. I. Carter of the H. C. Surveying Brig Palinurus.

The Ghārah Tribe, غارة or *Beni Quorrah*, as they themselves pronounce the word, are a fine race of Bedwins, who occupy that part of the highland on the south east coast of Arabia, which intervenes between the town of Morbaat, and Ras al Sair. Their country is mountainous, and cavernous, and consists of a white stratified limestone formation, rising from four to five thousand feet above the level of the sea. The upper parts of the mountains are covered with good pasturage, and their slopes with a dense thicket of small trees, among which the frankincense and several other species of gum trees are the most plentiful.

The whole tribe are essentially *troglodytes*, from the nature of the country in which they live; which, in every direction, affords them much better natural habitations, than any they could erect for themselves.

They consist of a fixed, and nomadic population; those who still continue to inhabit the caverns of their ancestors, and those who wandering from place to place, chiefly seek their subsistence in a predatory life; of the two, the former appear to furnish the most favorable specimens of their tribe.

The following are their physical and ethnographical characters: They

are quick, active, tall, and well made, but too slender to be termed athletic, being more formed for agility aud enduring fatigue, than for great bodily exertion: their features are,generally speaking, handsome, and their expression pleasing and generous, with a quick and apprehensive eye, but with no deficiency of boldness, or determination in their character. Their skin is of a light brown colour, with a shade of red in it; their hair glossy black, long, crisp, and curling, and principally confined to its natural localities, the other parts of the body presenting little or none; even on the face, there is seldom hair enough to be perceived at the distance of more than twelve paces off. The face is oval, the forehead low, but not receding, the frontal sinuses prominent, and the eyebrows more horizontal than arched: the eyelashes long, black, and thick; the eye itself moderate in size, transparent, and clear, with a deep, brown-black coloured iris. The nose, which is proportioned to the oval figure of the face, is long, and compressed laterally, with a slightly aquiline profile; the nostrils which are also compressed, have their alæ a little elevated, but this elevation appears more than it is in reality, from a prolongation of the *septum nasi* towards the upper lip. The lips are thin, the upper one short, with its superior border slightly elevated. The incisor teeth perpendicular, the chin rather projecting than receding, the posterior angles of the jaw more square than obtuse, and the cheek-bones high and prominent.

Nothing can be more simple than their clothing; a long piece of coarse blue cotton, wrapped two or three times round their loins, and descending towards their knees, in the manner of a short kilt, is all that the men wear; sometimes however, they twist a second piece round their waist, which serves as a belt, and to prevent their untrimmed hair from falling over their face and shoulders, they bind a small black cord round the margin of the scalp, so as to include the whole mass within its turns, and then secure the longer portion at the lower part of the back of the head, where the whole is fastened. This manner of dressing their hair, is more becoming to them than otherwise, the longer and loose portion being allowed to flow down their backs, or to remain between the shoulders in a large bunch, according to the nature of its curl. The band, or cord, with which it is tied, is made from their own hair, and not only serves them for the purpose mentioned, but also for any other use to which it may be applied, in case nothing better is at hand.

The women are much finer, fatter, and lighter coloured than the Arab

women of the coast, and their features are small and regular. They wear a loose frock, which is also made of blue cotton cloth, and is of the same size from the shoulders to the ground; it is open in front for about a foot, where it buttons tightly round the lower part of the neck, and the sleeves are short and large; behind, it trails on the ground, but in front it does not descend much below the knee. In addition to this, they have another portion of the same coloured cloth, which they throw over the back of their head and shoulders in the manner of a *dopattah;* but this they seldom use, and never think of concealing their faces under it, as is the custom with the Arab women. Their hair is divided by a narrow line, braided on the scalp, which passes from the centre of the forehead to the middle of the back part of the head, and they collect the hair into two large tresses, one on each side, which passing down behind the ears, hangs loosely over the breast. Few possess ornaments, not because they despise them, but because they have no money to purchase them. I have seen large pewter rings in the ears of some, though I am certain gold or silver ones would not have been refused for the same purpose.

Both men and women are tattooed over the front of the cheek-bones with three linear, perpendicular cicatrices. This Burckhardt thought to be confined entirely to the Mekkawis, and expressly says "It is called the Meshalé (مشالة). The Bedwins do not follow this practice."* It appears to be performed in Mekka and Djidda by the parents of the child forty days after birth †, but the period appears to be disregarded by the Bedwins, as I witnessed the process taking place in a girl of the Gharah tribe, about eighteen years of age, and being permitted to examine it, I found, that three small pieces of a rush, above half an inch long, had been introduced over each cheek-bone, beneath the skin, and that the exposed ends of each had been tied together: from this it was evident that they had to remain there, until the portion of skin immediately over them had perished, the result of which would be a permanent cicatrix over each of the parts, after they had healed.

The men are all armed with a sword, or matchlock; those who carry a sword, have also in addition, a sharp pointed stick, and shield. The matchlock men carry nothing in addition to their powder horn and pouch, excepting the crooked knife or jambia which all wear attached to

* Trav. in Arabia, Vol. 1. p. 334.

† Ib.

a leathern girdle that encircles their waist; and none ever wear a matchlock and sword together, as the incumbrance of one would interfere with the free use of the other. Their matchlocks need no description as they are like all other matchlocks, and their powder horn is slung against the right side, by an ornamented belt passing over the left shoulder, while the pouch is secured, on the same side, to the belt which holds the jambia. Their sword is about a yard long, with a straight blade, a little more than two inches broad; the hilt, which is bound round with twine for the purpose of making the grasp more firm, is without a guard, and the pommel consists of a cubic piece of iron, about an inch in diameter, through which passes a hole, in an opposite direction to the broad surface of the blade. It has no scabbard, and is always carried in the right hand, sloping over the right shoulder; in the same hand also is carried a smooth round stick, about a yard long, made of a hard piece of wood, seldom exceeding an inch and a half in diameter in the centre, and diminishing gradually towards each extremity so as to end in a sharp point, which is charred; this they use as a weapon of offence, and throw in such a manner that it may transfix the objects at which it is aimed: they do not however appear to possess much skill in using it, for except in one or two instances I never saw it thrown with much precision, and in one of these, the Bedwin refused to repeat the experiment, intimating that he did not wish to risk his reputation a second time. If it were to impinge on the surface of the body, it would create a severe wound, which according to its situation might, or might not prove mortal. Among a crowd probably it would do much injury; but in single combat, the chances against it would be very great, as it could only be used at a distance, and in the hands of the people who are most familiar with it, and to whom I believe it is peculiar, it is any thing but a formidable weapon from their want of precision in throwing it. Each swords-man, in addition to his sword and stick, carries a small conical shield, about a foot wide, made of cane basket-work, and slung behind the left shoulder; this with the other arms mentioned completes the martial accoutrements of the Gharah Bedwin.

Their language is the Bedwin dialect of the Southeast coast of Arabia; being, like that spoken by the inhabitants of the island of Socotra and by those also of the islands in the Bay of Kuria Muria, intensely guttural; and in some of their songs the modulation of the sounds is almost entirely confined to the throat. They do not understand the Arabic

spoken in the towns unless they have had much intercourse with the Arabs, who themselves on this coast appear to prefer conversing in the dialect of the Bedwins. In their singing they display a great fondness for melody, and their guttural articulation, which is never very harsh, is rendered most agreeable in some of their plaintive airs, which accord much with the European taste.

That part of the tribe, who have permanent places of abode in the mountains, live in natural caverns of the rock, which have been hereditarily transmitted to them, through their forefathers, and have been selected near some rivulet, or fresh-water spring, for domestic purposes, and for the sake of their cattle. In these caverns, which are of gigantic dimensions, and in the form and proportion of an interior fourth of a hollow sphere, with a stalactitic ceiling, they have ample room to pen their flocks and herds at night, or to afford them shelter during heavy falls of rain and wet weather; for which purpose they are surrounded by a dense fence of interwoven brushwood. In the different recesses of the interior, the Bedwin and his family live, and towards the outside, still sheltered by the overhanging vault, are the huts of the herdsmen and his dependents.

While the more peaceable part of the tribe are to be found among those who possess large herds of cattle, and are frequently connected with some of the principal people in the Arab towns, to whom in times of disturbance they afford protection, among the wandering or nomadic population, are to be found the poorest and most predatorily inclined; the latter possess but few cattle, have no fixed place of abode, and are the terror of all the industrious inhabitants of the coast; even the cultivator of the soil in the plains goes to his ground with a sword on one shoulder and his hoe on the other. Any insult offered to one of this tribe would afford a pretext for general revenge, when descending into the plains from the mountains, and pitching their miserable tents in the neighbourhood of some unprotected village, where the corn is half grown, they allow their cattle to stray into it during the night, until the whole is consumed, harassing the inhabitants at the same time with repeated thefts: the villagers knowing this and having no other prospect than that of losing every thing they possess, are thus compelled to desert their houses, and seek for safety and protection, in the more populous towns. In this way the village of El-Robaat, with its picturesque mosque, in the district of Dofar, has lately been completely deserted, although it is not

more than two miles from either of the large towns of Dareez, and Silalah.

On the coast opposite the district occupied by the Ghārah tribe, they have acquired a desperately bad name; and my own experience among them leads me to infer, that without the protection of an influential member of their tribe, some of them would murder a stranger solely for the yard or two of cloth that may be on his back. The predatory population by no means afford the best type of their race; in every point of view they are inferior to the fixed inhabitant of the cavern, in whom the purer blood of his ancestors appears to be handed down to the present day.

They acknowledge no head, have no Shaikhs, and yield to no authority except that of an old chief, in the decision of a dispute, or in matters which concern the whole tribe.

They encourage blood feuds, and in an affray which ends in the death of one of the parties, the survivors, or one of his relatives, sooner or later, is murdered by the friends of the deceased, when the feud is at an end. At the village of Thagah, one of the Beni Ghārah came up to the Purser of the H. C. Brig Palinurus, and asked him if he were a Banian, to which the latter answered in the negative, whereupon the Bedwin rejoined, "if you had been one, I would have killed you, for it was through a Banian that my brother was murdered."

Their food consists almost entirely of milk, flesh and honey, and the wild fruits of the mountains; they possess also an intimate acquaintance with all the edible roots and vegetables that are indigenous to their soil, as well as the medicinal virtues of the gums that exude from the trees on the slopes of their mountains, and hold the juice of the aloe in great esteem for every thing. They are much addicted to smoking tobacco, and every one carries a short pipe about three inches in length, made out of a piece of soft limestone rock which hardens on exposure to the atmosphere. This is kept in a little leathern pouch, together with their supply of tobacco, a piece of flint, some tinder, the blade of a razor, and sometimes a penknife. Their manner of smoking is peculiar; it seldom consists of more than one inhalation; the tobacco being well lit, they make a forced expiration, and then inhale as much as possible, allowing the smoke to issue gradually through their mouth and nostrils, while they pass the pipe on to the next person; seldom more than five minutes are allowed to elapse, before a fresh pipe is prepared, and it almost ap-

pears to form part of the ceremony of greeting, when they meet each other on a journey; should there be no pipe present, they make use of the hole which is in the pommel of their sword, by fixing in a little stone on one side, and filling up the remaining part of the cavity with tobacco through the other, then scraping a few shavings with their sword, from off the surface of their pointed stick, they envelope a lighted portion of tinder within them, and rolling the whole up into a ball, apply it to the tobacco in the pommel of their sword, forcibly drawing the air at the same time through that side in which the stone is.

Their mode of salutation consists in placing the tips of the three first fingers of the right hand on those of the persons they salute, and afterwards kissing them audibly; they do this to every member of the assembly, to strangers as well as to acquaintances. It is the first passport and best introduction, and should never be neglected by any one who wishes to establish a friendship among them.

They profess themselves to be Mahomedans, undergo the operation of circumcision, and keep up the ceremony connected with it; but they pay very little attention to the other formalities of the Mahomedan religion. Their chief fear appears to be of ghosts and the devil, and this far exceeds their confidence in the protection of the Supreme Being.

Art. VI.—*Memoranda on the Great Comet of* 1844-5. By William Pole, Fellow of the Royal Astronomical Society of London, Professor of Civil Engineering in the Elphinstone College, Bombay, &c. &c.

The object of the present paper is to offer to the Society a summary of the information obtained in India, respecting the great Comet that appeared in these latitudes in the beginning of the present year. Some of the following details have already been published in the Journals of this and other Presidencies, but I trust it will not be thought inexpedient to preserve them in a more permanent form; and it is with this object I have collected the whole together, and now present the information to the Society.

The circumstance that the Comet was, from its position in the heavens, invisible to the greater part of Europe, renders it more to be desired

that all the information gained respecting it, in these more southern latitudes, should be preserved and recorded. Had it been observed in England, or in those parts of the Continent where the best Observatories and the most skilful astronomers are located, our contributions towards its investigation would have formed but a small item in the general stock; but as it is, they are of much more comparative value. The only Observatories where the Comet could be well seen, excepting in India, were those of the Cape of Good Hope, St. Helena and Paramatta; from all which it has doubtless been observed, but the results of the observations have not yet been published, or at least have not yet reached this country. In some of the more southern of the European establishments, observers may perhaps have caught a glimpse of it, but at too low an altitude and too much involved in the sunlight to admit of their accurately noting it. In India, a multitude of observations have been taken upon it, and from these no less than six separate determinations of its orbit have been made, four in our own Presidency, and two in that of Madras. In Bengal nothing appears to have been done, perhaps for the reason that in the higher latitude of Calcutta, it could with difficulty be seen.

In treating of the present Comet, we may notice (I.) ITS HISTORY; (II.) ITS PHYSICAL CHARACTER; (III.) ITS APPARENT PATH IN THE HEAVENS; (IV.) ITS ORBIT.

(I.) THE HISTORY OF THE COMET, *or, speaking more strictly, of its present visit to our system.* Comets are only visible for a short time before and after they pass their *perihelion*, or nearest approach to the sun; and it is generally after this that they are best seen, owing to the increased brightness they then attain. The Comet we are now describing passed its perihelion about the middle of December: before this we do not find that it was noticed at all. It first became visible in these latitudes, as it emerged from the sun's rays, about the beginning of January 1845; but though it daily outran the sun considerably in right ascension, and acquired a more favorable position for observation, its light gradually diminished as its distance from the sun and the earth increased. About the beginning of February it became invisible to the naked eye, and early in March it was lost sight of altogether.

The first published notice of the appearance of the Comet was contained in a letter inserted in the *Bombay Courier* of the third of January, where it was simply described as appearing in the western sky,

south of the zodiacal light, with a " tail of terrible length," and with the star or nucleus perfectly clear.* The *Bombay Times* of the following day added, that the tail was very distinct, about 7 degrees in length and of a pear shape ; the nucleus also was well defined. The *Courier* of the 10th contained, I believe, the first definite account of the place of the Comet in the heavens. This was a communication from myself, and ran as follows :

" The Comet is at present situated in the constellation *Grus*, between the stars β, and $\mathfrak{Z}$, its right ascension being about 22 h. 45 m. and its declination about 45° south. It passes the meridian about half past three in the afternoon, and sets, bearing S. 41° W. at a quarter past eight. It never rises to those parts of the earth which are of a higher latitude than about 45° north, and is therefore invisible in England, and at most Observatories where the greatest facilities for observation are found. The tail of the Comet points directly to the two stars α and η of the constellation *Phœnix*, and may be distinctly traced for 10 degrees or more."

The *Times* of the next day published also a determination of its place in the heavens on the 30th of December, from observations taken on board the *Anonyma* clipper,† then off the Malabar Coast in latitude 14° 22′ N. Long 74° 18′ E. or her way to China. The writer of this communication describes the tail as 5 or 6 degrees long, and the nucleus as large as a star of the fourth or fifth magnitude.

The first published determination of the *orbit* of the Comet, was given by Mr. J. T. Waterston, teacher of Astronomy to the Indian Navy, in the *Bombay Courier* of the 21st January. This was however only intended to be a rough approximation to the elements of the orbit. The same Journal contained, on the 24th of January, another determination by myself, from different observations, and this latter, although also an approximation, subsequently proved to be nearer the truth than the former one. Many other notices of the Comet subsequently appeared ; the results of the whole will be found in the following Tables.

* The Comet ought to have been visible at Madras before it was seen here. In the *Madras Spectator* of the 4th of January, is an article drawing attention to the Comet of *Mauvais* in the constellation *Cyrus (?)*. Probably " Cyrus" is a misprint for *Grus*, and if so, the new Comet must have been meant, and must have been mistaken by the writer of the article for that of Mauvais.

† By Captain Drinkwater Bethune. C. B.—R. N.

PLACES OF THE COMET OF 1844—5, AS OBSERVED IN INDIA.

Date.	Mean time at Place of Observation.			Right Ascension.			Declination; South.			Observer.
1844.	H.	M.	S.	H.	M.	S.	°	′	″	
Dec. 30th	6	50	7	20	50	43	43	13	0	Bethune.
1845.										
Jan. 4th	7	0	0	21	53	39	44	41	25	Young.
,, 5th	6	47	31	22	5	7	44	49	10	T.
,, 6th	6	48	33	22	18	6	44	49	20	T.
,, ,,	7	12	0	22	18	44	44	48	0	W.
,, 7th	6	53	13	22	30	35	44	42	45	T.
,, ,,	6	56	32	22	30	41	44	40	45	B. O.
,, 8th	6	52	15	22	42	38	44	27	39	T.
,, ,,	6	54	32	22	43	1	44	28	50	B. O.
,, ,,	7	6	58	22	42	59	44	29	41	C.
,, 9th	6	46	23	22	54	31	44	12	16	T.
,, ,,	6	56	25	22	54	56	44	11	45	B. O.
,, ,,	7	4	40	22	54	57	44	11	28	C.
,, ,,	7	15	0	22	54	30	44	15	0	P.
,, 10th	6	46	4	23	6	25	43	50	29	T.
,, ,,	6	57	09	23	6	27	43	50	0	B. O.
,, ,,	7	8	50	23	6	37	43	51	1	C.
,, 11th	6	51	23	23	17	45	43	24	15	T.
,, ,,	6	58	04	23	17	57	43	25	50	B. O.
,, ,,	6	53	35	23	17	53	43	25	6	C.
,, 12th	6	42	27	23	28	46	42	53	54	T.
,, ,,	6	53	42	23	28	57	42	55	13	C.
,, 13th	6	53	54	33	39	36	42	21	45	B. O.
,, ,,	7	0	17	23	39	38	42	21	49	T.
,, 14th	6	50	23	23	49	52	41	43	40	T.
,, ,,	6	56	5	23	49	57	41	45	28	C.
,, 15th	6	47	12	23	59	42	41	6	39	T.
,, ,,	7	5	27	23	59	58	41	6	11	C.
,, ,,	7	15	0	23	57	0	41	40	0	P.
,, 16th	6	35	14	0	9	4	40	24	30	T.
,, ,,	7	17	31	0	9	28	40	24	23	C.
,, 17th	6	50	54	0	18	29	39	40	57	T.
,, ,,	7	8	2	0	18	40	39	41	5	C.
,, ,,	7	12	0	0	19	12	39	40	0	W.
,, 18th	6	40	47	0	27	3	38	56	38	T.
,, ,,	7	0	0	0	28	32	38	55	0	W.
,, ,,	7	2	1	0	27	26	38	56	13	C.
,, 19th	6	43	27	0	35	24	38	8	56	T.

PLACES OF THE COMET OF 1844—5.—Continued.

Date.	Mean time at Place of Observation.			Right Ascension.			Declination; South.			Observer.
1844.	H.	M.	S.	H.	M.	S.	°	′	″	
Jan. 19th	7	6	1	0	35	50	38	9	16	C.
,, 20th	7	0	9	0	43	51	37	21	32	C.
,, 21st	7	17	20	0	51	12	36	30	56	T.
,, ,,	7	38	17	0	51	44	36	31	46	C.
,, 22nd	0	56	17	0	58	50	35	46	43	T.
,, ,,	7	0	0	0	59	12	35	50	0	W.
,, ,,	7	7	49	0	58	57	35	44	10	C.
,, 23rd	6	40	36	1	5	54	34	53	44	T.
,, ,,	7	0	0	1	6	12	35	2	0	W.
,, ,,	7	2	33	1	5	57	34	55	17	C.
,, 24th	6	40	49	1	12	28	34	2	44	T.
,, ,,	7	0	0	1	13	04	34	10	0	W.
,, 25th	7	0	0	1	19	36	33	17	0	W.
,, ,,	7	12	16	1	18	55	33	9	44	T.
,, ,,	7	13	18	1	19	12	33	16	0	C.
,, 26th	6	46	45	1	25	2	32	22	44	T.
,, ,,	7	0	0	1	25	48	32	25	0	W.
,, ,,	7	8	21	1	25	20	32	26	41	C.
,, 27th	6	59	42	1	30	57	31	33	43	T.
,, ,,	7	0	0	1	30	48	31	41	0	W.
,, ,,	7	21	15	1	31	21	31	37	6	C.
,, 28th	7	15	38	1	36	51	30	46	22	T.
,, ,,	7	19	45	1	37	1	30	48	53	C.
,, 29th	6	58	1	1	42	10	29	58	31	T.
,, ,,	7	29	3	1	42	27	30	0	23	C.
,, 30th	6	50	47	1	47	21	29	9	55	T.
,, ,,	7	5	13	1	47	36	29	13	15	C.
,, 31st	7	3	3	1	52	18	28	21	55	T.
Feb. 1st	6	53	43	1	57	16	27	34	55	T.
,, ,,	8	43	9	1	57	49	27	36	50	C.
,, 3rd	8	57	46	2	6	21	26	2	55	T.
,, ,,	8	3	16	2	6	36	26	8	44	C.
,, 4th	6	56	22	2	10	53	25	26	56	T.
,, 5th	6	55	41	2	15	13	24	44	56	,,
,, 6th	6	53	9	2	19	1	24	1	56	,,
,, 7th	7	0	19	2	23	4	23	21	56	,,
,, 8th	6	55	26	2	26	51	22	39	56	,,
,, 9th	6	54	1	2	30	28	21	59	26	,,

PLACES OF THE COMET OF 1844—5.—Continued.

Date.	Mean time at Place of Observation.			Rigbt Ascension.			Declination. South.			Observer.
1844.	H.	M.	S.	H.	M.	S.	°	′	″	
Feb. 10th	6	59	26	2	33	52	21	24	26	,,
,, 11th	7	2	6	2	37	21	20	47	56	,,
,, 12th	7	1	44	2	40	48	20	10	56	,,
,, 13th	6	57	4	2	48	2	19	30	56	,,
,, 14th	7	3	25	2	47	14	18	53	56	,,
,, 15th	7	7	11	2	50	18	18	21	56	,,
,, 16th	6	57	23	2	53	7	17	45	56	,,
,, 17th	7	6	52	2	56	10	17	12	56	,,
,, 18th	7	3	9	2	59	5	16	36	56	,,
,, 19th	7	6	11	3	1	56	16	5	0	,,
,, 20th	7	0	1	3	4	29	15	34	56	,,
,, 21ts	7	1	8	3	7	18	15	2	30	,,
,, 23rd	7	8	40	3	12	15	14	7	56	,,
,, 24th	7	6	35	3	14	44	13	38	56	,,
,, 25th	7	22	37	3	17	23	13	12	30	,,
,, 26th	7	9	39	3	19	37	12	44	4	,,
,, 27th	7	16	4	3	22	3	12	19	4	,,
,, 28th	7	11	57	3	24	19	11	53	4	,,
March 1st	7	11	55	3	26	44	11	27	4	,,
,, 2nd	7	13	6	3	28	49	11	1	4	,,
,, 3rd	7	7	47	3	31	3	10	37	4	,,
,, 4th	7	10	23	3	33	7	10	14	4	,,
,, 5th	7	26	9	3	35	24	9	52	4	,,
,, 6th	7	11	27	3	37	23	9	29	4	,,
,, 7th	7	20	8	3	39	7	9	5	4	,,
,, 8th	7	43	8	3	41	47	8	46	4	,,
,, 9th	7	23	13	3	43	27	8	25	4	,,
,, 10th	7	32	15	3	45	43	8	2	4	,,
,, 11th	7	3	15	3	47	29	7	43	4	,,

(II.) THE PHYSICAL CHARACTER OF THE COMET will appear partly from the quotations already made. The nucleus presented the brightness of a star of about the fourth or fifth magnitude; it was distinct, but not so well defined as to lead to the supposition it was a *solid* nucleus; it had rather the appearance of a condensed nebulosity.

The tail was of the ordinary wedge shape and presented no unusual characteristic. It appeared to extend through a space varying from four

or five to ten degrees, according to the state of the atmosphere and the acuteness of the eyes of the observer; I believe I once traced it for upwards of ten degrees on a very favorable evening.

The only remarkable physical peculiarity presented by this Comet was that, according to some observers, it had two tails. I give the following extract from Mr. Waterston's letter of the 21st January, where this appearance is mentioned.

"There is a very remarkable appearance attending upon this Comet which I do not see noticed by any of your correspondents. It has got two tails!! The second tail, which is nearly in an opposite direction to the principal one, was first seen on Thursday evening last, (16th January) and has continued visible ever since, although the increasing moonlight is very unfavorable. It is extremely faint, but has been recognized by several persons, and I have traced it distinctly for about 3° towards the sun; as the telescope is none of the best, perhaps some one of your readers, with better means of observation, will be able to give evidence on the subject. The only instance on record of a like appearance is the Comet that was seen in January 1824. Two tails were observed in it, diametrically opposite at first, but they soon began to make a visible angle, and when last seen, the angle between them was 130.° The tail towards the sun was then, as in the present case, much the fainter of the two."

It is to be regretted that we have not obtained the results of the examination of the Comet with any really good telescopes; and therefore our knowledge of its physical character is but little beyond what we could have obtained with the naked eye.

(III.) THE APPARENT PATH OF THE COMET IN THE HEAVENS, has been ascertained with tolerable exactness. The places of the nucleus have been taken at three Observatories in India, namely Madras, Trevandrum, and Bombay; and occasionally by private individuals.

The *Madras* Observatory is, as is well known, under the charge of Mr. T. G. Taylor, the Hon. Company's Astronomer, who has kindly favored me with the particulars of his observations expressly for this paper. They have been forwarded to the Astronomical Society of London, but have never before been published in this country. They were taken with a five feet achromatic, mounted as an equatorial; but the circles for time and declination were small.

The *Trevandrum* observations were taken by Mr. John Caldecott, with a seven feet equatorial, and corrected for the effects of refraction. Mr. Caldecott states, that the Comet was first observed there on the 30th of December, but owing to the obscured state of the atmosphere for several nights subsequent, no favorable observations of it were attainable till the 8th of January. Mr. Caldecott's observations, as given in the preceding table, are taken from the *Madras Spectator* of the 1st and 12th of February.

The *Bombay* Observatory is now under the care of Professor Orlebar; but the observations on the Comet were taken while Dr. Buist had charge of the establishment. They were made with an altitude and azimuth instrument by Gilbert, both circles reading to seconds with micrometer eye pieces. The condition of the instrument is not very good, and the support is uncertain; but great care was taken in the levelling and adjustments immediately before the observations. The observers were Keru Lukshman and Janardhan Ramchunder, Native Assistants at the Observatory, and formerly pupils at the Elphinstone College. The time was taken from an excellent siderial clock corrected by transits observed every day.

In addition to these observatory data, isolated observations were taken by several individuals,* and the whole I have been able to procure are collected in the preceding table, in the order of their dates. Those by Mr. Waterston were kindly communicated by that gentleman to me for this memoir.

The first column of the table gives the date: the second the *local* mean time of the observation. The third and fourth contain the reduced place of the Comet. The letters in the fifth column refer to the name of the observer, thus:

Those marked	T.	are	by Mr. Taylor, taken at Madras.
„	C.	„	by Mr. Caldecott, Trevandrum.
„	B. O.	„	those of the Bombay Observatory.
„	W.	„	by Mr. Waterston.
„	P.	„	my own.

(IV.) THE ORBIT OF THE COMET is determined from its apparent path in the heavens. There are six elements required to be known, the longitude of the perihelion, the longitude of the node, the inclination of the orbit to the ecliptic, the perihelion distance, the direction of the motion, and the date of the perihelion passage. These may all be obtained from *three* observed apparent places of the Comet in the heavens. The problem is however one of considerable difficulty. It was

* My own means of observation were, I regret to say, very limited. An indifferent sextant, kindly provided by a friend in the Indian Navy, a worse theodolite, and an old sea glass, were all the apparatus I could command.

first resolved by Newton, who called it *Problema longe difficillimum.* Its direct solution analytically is impracticable, and therefore astronomers have adopted indirect methods; first finding an orbit near to the truth by mechanical and graphical means, and then correcting it, by computation, until such a parabola is found as will satisfy the data. The approximate method given by Vince (*Astr.* Art. 656) is one of the most easy and simple, and this may be corrected afterwards by the formula of Olbers.

There have been, as I have already stated, six separate determinations of the orbit of the Comet made in India. They are all presented in the following table.

ELEMENTS OF THE ORBIT OF THE COMET OF 1844—5

	A Waterston	B Pole	C Waterston	D Taylor	E Caldecott	F Pole	Means of all	Means of D. E. F.
Perihelion Passage, Greenwich Mean Time. 1844 Dec.	19.584	13.95	13.605	14.075	13.41	14.04	14.752	13.951
Longitude of ascending Node	° ′ ″ 137 20 0	° ′ ″ 123 2 30	° ′ ″ 117 41 30	° ′ ″ 119 24 0	° ′ ″ 118 31 35	° ′ ″ 119 26 40	° ′ ″ 122 3 22	° ′ ″ 119 7 25
Longitude of Perihelion	259 47 6	289 34 30	293 30 0	295 9 0	299 51 28	294 26 30	288 23 5	296 8 59
Inclination	41 22 25	45 7 30	45 51 0	45 19 0	45 33 46	45 17 10	44 45 8	45 23 19
Perihelion distance	0.0342	0.2166	0.244	0.2401	0.2707	0.2367	0.207	0.2491
Motion	direct	direct	direct	direct	direct	direct	direct	direct

Column A. by Mr. Waterston, from his own observations. This determination has the merit of being the first published; but, being founded on observations confessedly rough and imperfect, it was only intended to give a general idea of the position of the orbit with reference to our system.

Column B. is a determination of my own, calculated from two obsertions by myself and one by Capt. Bethune. It is nearer the truth than the former one.

Column C. is a later determination of the orbit by Mr. Waterston, from his own observations. This has not before been published.

Column D. is by Mr. Taylor of the Madras Observatory, and is calculated from his own observations. Mr. Taylor published a first approximation to the orbit, in the *Madras Spectator* of the 5th of February, 1845, but afterwards found it necessary to alter some of the elements. This column gives the corrected determination, which Mr. Taylor has kindly supplied me with. He informs me that these elements represent the observed longitudes with great accuracy, but do not agree well with the observed latitudes; he is of opinion that no parabolic orbit will agree with the actual path of the Comet.

Column E. is the determination of Mr. Caldecott, from the Trevandrum observations, published in the *Madras Spectator* of the 12th of February, 1845.

Column F. is calculated by myself from the observations made at the Bombay Observatory. These latter were kindly furnished me for the purpose by Professor Orlebar, who had not sufficient leisure himself to undertake the computation.

The amount of discrepancy between these determinations respectively, will appear but small, (particularly between the three latter ones), when the nature of the operation by which they are deduced is considered. It is required that we work from the lesser to the greater, from a small part to the whole. We are enabled only to observe a very small arc of the orbit, and from this we have to calculate the whole immense sweep that the Comet makes through our system. It is an analogous case to a person being required to determine the configuration and dimensions of a colossal arch by an inspection of only one of the stones which compose it; for the orbit whose elements we have to determine, bears as great a proportion to the minute track in the heavens lying within our ken, as does the

curve of the largest arch to that of one of its isolated voussoirs. Of course therefore every trifling error in the data becomes in the result proportionately magnified.

The two last columns of the table contain the *means* of the foregoing six. The first of the two is the mean of all; but I have thought that the average would be more likely to be correct, if the first, second, and third determinations, (A, B, and C,) were excluded, as these were only approximations: I have therefore added the last column, giving the mean of the three *Observatory* determinations D, E, and F. I have no doubt that the orbit shewn in this column is very near the true one.

The symmetrical position of the orbit of this Comet in respect to the ecliptic is remarkable. * The axis of the parabola lies very nearly in the plane of the ecliptic, so that the perihelion and the descending node almost coincide. Moreover the inclination is about half way towards the perpendicular; and the perihelion distance is one-fourth of the mean distance of the earth from the sun.

The following particulars may be interesting to the general reader.†

1. The Comet's least distance from the sun's centre, (which, position before as mentioned, was attained on the 14th of December) was about 24,000,000, miles.

2. The following were its distances from the sun and the earth at the times named respectively:

	Distance from the Sun. *Miles.*	Distance from the Earth. *Miles.*
30 December 1844.	54,000,000	97,000,000
9 January... 1845.	76,000,000	98,000,000
15 „ ... ... „	91,000,000	102,000,000

3. The mean velocity of its motion, between the 30th December and the 15th January, was about 2.6 millions of miles per day, or about 30 miles per second of time.

4. The length of the tail (supposing this appendage to have appeared about 10 degrees long) would be about 20,000,000 miles.

5. This Comet never approached, and never can approach, within many millions of miles of the earth's orbit; and therefore can never cause any sensible disturbance in the motion of our planet or its satellite.

* This was brought to my notice by Mr. Waterston.

† These were founded on the orbit given in column B.

When the orbit of a Comet has been determined, it is usual to search the lists of those already known, to ascertain whether any of the latter are identical with it, or whether it is the first appearance on record. By this process the periodicity of three comets has been demonstrated: these have been found to re-appear at regular intervals, and have in fact become ranked as members of our known solar system. On comparing the orbit of the Comet of 1844-5 with others already recorded, it does not appear to be absolutely identical with any one. There is an occasional similarity, and some of the dates interpolate well; but the discrepancies are too wide to admit of proof that the present comet is a return of any one previously known.

I have stated that the position of this Comet's orbit is such that the body itself, be it solid or vapor, can never approach within a great distance of the path in which the Earth moves. But this is not the case with all Comets; there are some whose orbits nearly intersect that of the Earth, and with such, there is therefore a *possibility* of collision; and many timid minds have on this account looked upon these erratic visitants of our system with much dread. But happily the light of reason and philosophy shines brightly enough in our day to dispel the gloom of such direful forebodings; the subject has been discussed by men of the most profound learning and science, and it has been shown to a mathematical demonstration that an event of the nature referred to is so far removed from *probability*, the the fear of its occurrence ought to have no place in the minds of reasonable men. On this subject I quote the following remarks translated from an able little work by M. Arago.

"By virtue of first causes, whose natures are unknown to us, and which have given rise to many theories of the creation more or less plausible, the planets of our system perform their revolutions round the sun in orbits almost circular. The comets, on the contrary, travel in paths of extremely elongated ellipses, and they move in all imaginable directions. In returning from their points of aphelion, they constanly traverse our solar system; they penetrate within the interior of the planetary orbits, often they even pass between Mercury and the sun. *It is not then impossible that a comet may come in contact with the earth.*"

"After having acknowledged the possibility of a shock, we hasten to say that the probability of such an event is extremely small. This will appear evident at the first glance, if we compare the immense space in which our globe and the comets move with the small capacities of those bodies. Mathematical calculations go yet much further; as soon as a

determinate hypothesis is formed of the comparative diameters of the earth and comet, a numerical estimate affords the probability of the question."

"Let us suppose a comet, of which we only know that at its perihelion it is nearer the sun than we are, and that its diameter is *one-fourth* of that of the earth. The calculation of probabilities shows that, of 281,000,000 of chances, there is only one unfavourable—there exists but one which can produce a collision between the two bodies."

"Without endangering the tranquillity of mind which the above number ought to give to the most timid persons, I can say that if, in calculating the probability of the collision of the earth and the nucleus of a comet, we have taken the supposed estimate of the comet's diameter at one-fourth of that of the earth, we have much underrated it: that the chances of their meeting according to the calculation, will be much too low, in the case where the question would be not of the nucleus properly so defined, but of the nebulosity which covers it on all parts. If then the number be taken at ten times the preceding, the result certainly will not be exaggerated. Just ideas on the calculation of probabilities are as yet so little known, and the public sometimes mistake in so strange a manner as to the numerical results to which the computations, lead, that I felt disposed, at one time, to suppress this short chapter. I could have done so with less scruple; for as to what regards the comet of 1832, the considerations of probability are quite superfluous; for the orbit is known, and we can tell with certainty what will be, during the future apparition, its least distance from the earth."

"The problem, it should be understood, was quite different in the calculations of which I have stated the results. There we wanted to determine, *without any information as to the form and position of the comet's orbit*, to how many *chances* of collision the earth was exposed. In this manner we have found, as to the nucleus properly so called, *one* chance of collision, *one* woeful chance to 280,999,999 favourable chances. As for the nebulosity, in its most habitual dimensions, the unfavourable chances will be from 10 to 29 in the same number of 281,000,000. Admitting, then, for a moment, that the comets which may strike the earth with their nucleuses would annihilate the whole human race; then the danger of death to each individual, resulting from the appearance of an *unknown comet*, would be exactly equal to the risk he would run, if in an urn there was only *one single* white ball, of a total number of 281,000,000 balls, and that his condemnation to death would be the inevitable consequence of the white ball being produced at the first drawing."

"Every man who is willing to make use of his reason, however he may be attached to life, will laugh at so small a danger. Well, then, the day on which a comet is announced, before observations have been made on it, before it has been possible to determine its path, then is there, for each inhabitant of our globe, the chance of the white ball from the urn of which I have just spoken."

ART. VII.—*Literary and Scientific Notices.*

I.—*M. Botta's discoveries in the ruins of Nineveh.*

To the letters which we have heretofore published from M. Botta, respecting the excavations at Khorsabad, we may add the following from the Augsburgh Gazette. There are at present 160 workmen engaged thereon, and besides the walls, which are covered with sculptures and inscriptions, many antiquities of a peculiar and at present inexplicable nature are met with. For example, under the large bricks, of which the floor consists, are stone repositories, which are filled with small clay enamelled figures of men and beasts, without anything on the surface indicating the existence of such repositories, or there being anything within them to explain their contents. In another place they discovered great rows of earthen vases of a remarkable size, placed on a brick floor and filled with human bones, and similar to those which have been found at Babylon, Ahwaz, and other places in South Persia. The place seems to have been plundered before its destruction, for neither jewels, nor instruments, nor even the small cylinders, so numerous in the neighbourhood, are any where found; merely some bronze images of beasts, (for instance a very fine lion,) have been discovered, as also a part of the bronze wheel of a war chariot. But the most incomprehensible circumstance is, that the alabaster slabs with which the walls are cased, and which are covered with inscriptions and sculptures, bear on the back likewise inscriptions in arrow-headed characters, and certainly not in the Assyrian, but in the Babylonian language. As it is naturally not to be presumed that the architects would have been so foolish as to have graven these inscriptions, where no one could have seen them without pulling down the wall, it must be presumed that the slabs have served twice, first belonging to a Babylonian place, and afterwards have been transposed by the Assyrians and freshly graven. At present no sculptures have

been found on the back, which would, indeed, be of the greatest interest, no Babylonian sculptures having ever yet been discovered. Some of the lately found bas-reliefs are especially remarkable; for instance, one representing the siege of a town situated on an island: the sea is covered with ships, the fore part of which form a horse's head, and which are occupied in bringing the trunks of trees for the purpose of erecting a dam. The water is covered with all kinds of marine animals, fishes, crabs, and winged sea horses. The richness of the details, and the mass of sculpture which the palace contains, are amazing, and it is incomprehensible how so magnificent a building should have been so strangely buried in the earth.

Letters from Constantinople announce, that M. Botta has nearly completed his discoveries in the subterranean palace of the ancient Nineveh. He was then on the point of clearing the grand southern facade. The vast entrance of this front is entirely cleared: six colossal bulls, with the heads of men, and two human statutes, also colossal, strangling lions in their arms, form its principal ornaments. These sculptures are said to be of great beauty, and as fresh as if executed yesterday. The two bulls in the centre, as seen from the front, form entrance-pillars. The animals have inscriptions between their feet, some of which have, however, been cut away by the chisel, so as to leave only their traces; a circumstance which would seem to indicate that a new dynasty, or a new monarch, taking possession of the palace, had removed the inscriptions of his predecessors. M. Botta is anxious to transport these figures to Paris, but the physical difficulties are very great. Still, he hopes to remove them on wooden rollers to the Tigris, which is five leagues from Khorsabad, whence they might go, by the first flood, to Bassora, and there be received on board a ship of war for France. This discovery of M. Botta's is one of the most valuable which has been made, for many years, in the field of archæology,—supplying an important link, hitherto wanting, and believed to be irrecoverable, in the history of the Arts amongst the earliest civilizations of the world. It deserves, therefore, some words of further notice, which we collect from the French papers in general, and the *Revue de Paris* in particular. The Greek historians and the books of the Old Testament, furnish the very vaguest hints as to the condition of Art among the Medes, Assyrians, and Babylonians; and hitherto no monuments were known to exist by which they were more fully represented.

Unlike the cities of ancient Egypt, which have transmitted to our times, almost in their integrity, the Arts of their builders, the great cities of Central Asia—Susa, Ecbatana, Babylon, Nineveh—have perished from the face of the earth, leaving, in the language of ancient prophecy, scarcely one stone upon another. Dreary mounds of rubbish, traversed by deep and narrow ravines that indicate the lines of the streets, alone mark the sites of these mighty cities. Nineveh, the city of fifteen hundred towers, whose walls were a hundred feet in height, and had space on their summit for three chariots abreast, seemed more utterly ruined than even Babylon; yet from beneath its dust has the long buried Art of the Assyrians been recovered, and an impulse been communicated which may end in bringing, through future excavations, our knowledge of the former to something of a level with our understanding of Egyptian Art. M. Botta, as our readers know, is a distinguished Archæologist, who was Consul for the French at Mosul; and there, his neighbourhood to the ancient Nineveh inspired him with an earnest desire to try some excavations in the soil of the lost city. His first attempt was on the most conspicuous mass, (for the ruins of the various gigantic edifices of old present now the appearance of separate barren hills,) near the village of Nininoah, supposed by tradition to be the tomb of Ninus. Here however, finding only broken bricks and insignificant fragments, he opened his trenches in the sides of another hillock, on whose summit is built the village of Khorsabad, where bricks had been frequently found covered with inscriptions in the cuneiform arrow-headed letter. It was principally the hopes of finding other inscriptions, which might help, by comparison, to decipher the cuneiform writings, hitherto unreadable, that had tempted M. Botta to these explorations. Something of the success our readers know [No. 895, and elsewhere]. An Assyrian edifice has been recovered, in a state of unlooked for preservation. On this discovery, as our readers know, the French Government supplied M. Botta with the means of continuing his researches, and sent out M. Flandin to make drawings of whatever could not be removed. A tolerable judgment may now, from what is laid open, be formed of the extent and importance of these ancient constructions. Fifteen halls of this vast palace, with their corresponding esplanades, have been cleared. The rest of the monument, it is made quite certain, has been destroyed,—intentionally however, the stones having been carried off to serve for other buildings. A fortunate accident—that would seem an

evil one at the time—has preserved for us what remains. This portion of the palace has been ravaged by fire, which has entirely destroyed only the timbers of the roofs, but as the other calcined materials were rendered useless for new construction, they have heen left where they were; and thus, one-third of the edifice remains, to testify of the rest. We have, from time to time, described the sculptures and inscriptions found within its walls; and we announced to our readers the work which, embodying M. Flandin's drawings, will furnish the details of this curious discovery. We may add, that the fragments thought worthy of being collected and transmitted to France, are numerous and important enough to load a ship. *Athenæum No.* 895 *p.* 1179 *and No.* 900 *p.* 99.

2.—*Microscopic Life in the South Polar Ocean.*

Prof: Ehrenberg laid before the Berlin Academy, on the 23rd May 1844, a paper containing some of the results derived from his recent investigations upon materials furnished from the South Polar Expedition of Captain Ross, and the voyages of Messrs. Darwin and Schayer; their object being to determine the relation of minute organic life in the Ocean, and at the greatest depths hitherto accessible.

The study of the relations under which minute organisms exist has been recommended as one likely to throw considerable light upon the principal questions now agitated, involved in the recent history of the earth's crust; and the Author accordingly gave directions as to the methods of collecting them, which were adopted throughout the whole voyage. These relations of minute organic life were found, as the Author had anticipated, to be the same at the South as at the North Pole, and generally of great extent and intensity at the greatest depths of the Ocean. The following are the results:

1. Not only is there, as resulted from the former observations of the Author (vide Mikroskopische Leben in Amerika, Spitzbergen, &c.,) an invisible minute creation in the neighbourhood of the Pole, where the larger animals can no longer subsist, but a similar creation is highly developed at the South Pole.

2. Even the ice and snow of the South Polar Sea is rich in living organisms, contending successfully with the extremity of cold.

3. The microscopic living forms of the South Polar Sea contain great riches hitherto wholly unknown, frequently of very elegant shape,

since no less than seven peculiar genera have been discovered, of which some contain several, one as many as seven species.

4. The forms collected in the year 1842, near Victoria Land, were capable of being examined in an almost fresh state in Berlin, in May 1844, which shows how long preservation is possible.

5. The Ocean is not only populated at certain localities, and in inland seas or on the coasts, with invisible living forms, but is proportionately thickly crowded with life every where in the clearest state of the sea-water and far from the coasts.

6. Hitherto but one perfectly microscopic form from the high sea was known, and even that from the neighbourhood of the coast, namely the *Astasia Oceanica*, which Von Chamisso had observed; all other accounts were imperfect and useless. By the new materials, the number of species is increased nearly 100.

7. The hitherto observed oceanic microscopic forms are chiefly siliceous-loricated animals with some calcareous-shelled. Do these numerous forms derive the material of their shells from the bottom of the sea? This question becomes daily more interesting.

8. Siliceous-and calcareous-shelled minute living forms are not only mixed up with the muddy sea-bottom but they themselves form it. They live even to a depth of 270 fathoms, and consequently support a pressure of water equal to 50 atmospheres; the whole influence of this does not indeed bear upon their organic tissues when they are locally fixed, but when they move from the bottom upwards or reversely; yet it does not appear to have acted on the drawn up specimens. Who can doubt, but that organic beings which can support a weight of 50 atmospheres, may support 100 and more?

9. The supposition, that in great depths, above 100 fathoms, there is no fresh nutriment for organized beings of any kind, has become untenable.

10. Life and temperature in the depths of the ocean are in their variable relation, the points which at present deserve especial attention.

11. The showers of meteoric dust, or supposed ashes, have at present been proved to be, even in the case where they fell 380 sea-miles from land, of organic and terrestrial origin.

12. It is not perishable *Protococci or Ulvæ or Lichens*, that principally constitute the organic covering and soil of the ultimate islands in the

Polar Sea; but the living creatures that form the first layer of solid earth are invisible, minute, free animals of the genera *Pinnularia*, *Eunotia* and *Stauroneis* with their siliceous loricæ. Several species from the North Pole and the South Pole are identical. *Jardine's Magazine of Natural History*; *No.* 90. *p.* 180.

3. *Depression of the Caspian.*

The President of the Geographical Society of London, in June last, read the note of a Russian operation for determining the actual depression of the Caspian Sea below the level of the Mediterranean, which operation had been reduced by the eminent astronomer, M. Struve, then in England, and communicated by that gentleman to him. A few years ago it was generally believed that the waters of the Caspian were at least 300 feet below the level of those of the Black Sea and Mediterranean. This view was adopted in consequence of a series of barometrical observations; but it having been found that, from the great number of stations across the land separating the Caspian from the Sea of Azoff, small errors had become greatly magnified, a new survey was made. Three able mathematicians Messrs. Tuss, Savitch, and Sabler were, therefore, employed to make independent trigonometrical levellings; and their observations agreeing to within a foot or two give for the mean result, 83,6 English feet as the depression, the possible error being limited to 1-3 foot, which definitively settles this long pending geographical question. *Athenæum*, *No.* 870, *p.* 601.

4. *Ethiopian Family of Languages.*

To the Rev. G. C. Renouard, Foreign Secretary of the Royal Geographical Society.

My dear Sir,—On opening, this morning your copy of Ludolf's Ethiopic Dictionary, to answer the inquiries of two Gondar scholars, I was naturally led to explain to them the gentlemanly kindness which induced you to trust your precious volume to the wear and tear of an African voyage, in the hands of a yet untried philologist. Though conscious that your only motive was that charity in science which is the highest boon of a philosopher, I feel myself bound to inform you, that your loan has not been thrown away; and while proceeding to give you a sketch of my gleanings in Ethiopic lore, I scarcely imagine that your love for the dif-

fusion of knowledge will allow you to take offence at receiving my letter through the channel of the Athenæum.

I am now seated on the ground, in a small thatched house, near the palace built by the Portuguese for king Facilidas. Upwards of one hundred manuscripts are scattered round me, most of them little better than Ethiopic rubbish; for the carelessness of the copyists and the indifference of the professors are such, that I have four copies of the Gospels affording far more discrepancies than any which Griesbach or Tischendorf have pointed out in the original Greek. As for the Old Testament, the Abyssines of later days have taken even greater liberties with the text, adding or lopping off altogether, not only two or three verses at a time, but even whole chapters. I have tried in vain to infuse a spirit of criticism, or, at least, of examination, amongst the few learned who still stand, like Pompey's Pillar at Alexandria, the tall remnants of ancient lore and might. But all my labour in instructing others is unrequited. Each *savant*, mantled in his own scholarship, answers fiercely to my arguments on the absurdity of various readings: "Your book is wrong, and mine is right." "*Du choc des opinions jailit la verite*," says the French proverb, and I contrived to bring together a few scholars (whose manuscripts I had previously ascertained to be different,) in the vain hope that they would, at least, fall upon each other, and show me, unconsciously, their skill in critical warfare. But when hard pressed, they merely answered, "The Gypt (white man) deals hardly with us poor sons of Cham: he is a son of Japhet, has consequently four eyes: the Arabs have two eyes, and we Ethiopians are blind." There is a deeper meaning of despair and helplessness in these few words than my pen can now impart to an ardent European philologist. The same feeling pervades all Eastern Africa, and wherever I have wandered, in the vast regions drained and watered by the Nile and its tributaries, I have always heard the same remark. But to return to the learning of Abyssinia: I shall merely mention that I have taken cognizance of 140 works, besides the Bible; that 15 or 20 of these are scarcely known even in Gondar; and that there are not, in my opinion, a dozen more to be discovered. This is a slender stock for a nation which began to shine in the days of the Ptolemies. As for Ludolf's Dictionary, it requires not to be new-modelled, for the ground-work is good, and the plan admirable, but it needs several alterations, for Ludolf's Ethiopian amanuensis was evidently not a *pāmîr* (i. e. scholar) and in guessing the

meanings of many Giz words from the corresponding Greek text, sundry errors were committed. Some rules in Ludolf's Grammar are palpably incorrect. But I must waive further explanation for the present, as these would oblige me to lay down my Perry's pen, and take up my Ethiopian reed. The Giz, or sacred language, though still spoken in the *Shuh a'tê Quoolfee*, near Hamagen, is sadly neglected in Tigray since the days of Nadjach Walda Gabriel, son of Raj Mikael. This prince, himself a first rate poet, was the last ruler who encouraged letters; and the Gojam scholars well remember the single verse spoken in Axum by a mendicant, and which so much delighted the Dādjazmach, that he stuffed the ragged poet's mouth with gold powder, and seated him on his own throne. But these golden days have joined the past eternity, and there is not now on the east of the Takazay a single professor capable of explaining the Old Testament. In Gondar, when I put myself under the tuition of the only learned man here, I found him literally starving. Bagemidr and Shewa are still worse off; and the few students of the latter country who aim at learning are obliged to cross the Galla country, and resort to Gojam, the last strong-hold of Ethiopian literature.

The other languages of Abyssinia which, like the Giz, belong also to the Shemitic family, are the Khusy, called Tigray, south of A'ylat and the Tigray spoken east of the Takazay, on the high lands, and also in Samen, Walgayt, Bira, Wasaya, &c. I have some specimens of the latter language, otherwise slightly known by the translation of the Gospels made at Adwa.

But the most important family of Ethiopian languages is what I have named Chamitic, either on account of the traditions which ascribe their origin to Cham, or because the first of its languages which I have studied is the Khamtinga (i. e. Kham's tongue). This latter is spoken by the Khamta, or Agaws of the Way, or Wag, which is a country adjacent to, but different from Lasta. My Khamtinga vocabulary comprises 1,500 words. The language next in importance is the Awnga, spoken by the Awawa, or Agaws bordering on Little Damot. I have got upwards of 2,000 words of this harsh but copious dialect. Short vocabularies show that the Agaw languages are closely allied to the Gabi spoken by the Bileu, (probably the Blemmyi of the Romans,) and to the languages of Atala, in Simen, of Alafa, and of Kwara, or Hwara. The Hwarasa, spoken in the latter country, and by the Falocha of Gallagar, Kayla, and

of the Awawa, is illustrated by a vocabulary of 1,300 words ; but having lately got a good teacher, I have begun afresh in the kindred dialect of the Gimant, which differs from the genuine Hwarasa only as much as the Basque dialect of Soule from that of Labourd.

I have vocabularies of the three principal Chamitic languages of great Damot ; namely, Sidama, 1,700 words ; Dawrooa, 1,500; and Yamma, or Yangara, 1,400. The Gonga language, spoken on both sides of the Abay, is closely allied to the Sidama. A collection of 400 words induces me to place, also, side by side with the Sidama the Shay language, spoken by the Gimira, Gamrow, or Gamarou, a nation but little known and whose name, written in the Arabic character, has given rise to the fabulous mountains of the Moon—Djabal el Gamr ; that is, mountains of the Gamrou. The Nao language appears a mere dialect of the Shay, and that of Hadiya Wanbe is in close contact with the Dawrooa tongue.

The Amhara family is remarkable for its ground-work of Shemitic expressions, and its Chamitic Grammar. Signor Giuseppe Sapeto having collected an extensive Amhara vocabulary, I had little else to do besides buying the two or three Amharna works extant. My vocabularies of the members of the Amhara family are lamentably small ; but I can affirm the relation of the Ada'ri spoken in Hararge ; of the Tambaro, spoken near Koullo ; of the Damot, and of the language of Argoubba. The other languages which I have classed in this family from mere hearsay, are those of the Gofat, of Wardj, Damou Ouba (?), Ourbaraga, Aymallal, Innamour, Chachouga, Manzi, Allichou, and Absho.

The A'far family is a mixture of Shemitic and Amharna words and forms on a Chamitic ground-work ; and, like most mixed languages, it is daily increasing in importance, and menaces to swallow up, not only the Chamitic, but even the Amhara languages. The principal members of the A'far family are the A'far proper, spoken by the Adai'l, Taltal, Talfen, &c ; the Saho, spoken by the Hazaorta and Toroua ; the Szomaliod, spoken by the Szomal ; Ilmorma, by the Orme or Ormo, better known under the name of Galla ; and the Toufte, spoken by a small nation near the Tambaro, and issued, according to their own traditions, from the same ancestors as the Orme. My vocabularies of the A'far family are, A'far, 900; Saho, 1,400 ; Ilmorma 2,300 ; Szomali 600 ; and Toufte, 10, which last is only better than nothing at all.

Two hundred words of the Bidja language, spoken at Sawakin, and

40 of the Barea spoken by the Samin negroes near the Takazay, are not sufficient to pronounce on the proper place of dialects which have always seemed, at least politically, disconnected with Abyssinia.

My specimens of the Negro tongues are trifling; namely, Gwinza 400 words; Souro 19; Dokko, 29; Yambo, 30; and Gamo, 10. The other negroes bordering on Ethiopia and speaking, as it is said, distinct languages are the Gabutou, Danka, Fa-zoglo, Shilook, Djanga, Nouba, Goumis, Barta, Hamadj, Agoudi, and the Arouro, who live in the islands of lake Abbole, on the east of Walamo, or Walahayta. As for the Konfal, who live between Kwara and the Awawa, I have no sample beyond the first ten numbers, which are partly Giz; and the all but unknown Konfal tribes are the most perfect medium between the straight-nosed Ethiopian and the grovelling Negro. Although the learned Pritchard has striven to prove the unity of origin between Negroes and Caucasians, I did not feel myself satisfied with his reasons; and the desire of throwing more light on this obscure but interesting subject, was one of the principal incentives which urged me into the heart of the African continent. I have now come, on personal observation, to the same conclusion as Pritchard; and, if I am ever doomed to return to Europe, nothing will give me more pleasure than adding my slender stock of philological and physical observations to prove that community of origin which revelation teaches, but which science has often doubted.

Anthony d' Abbadie.

P. S.—I forgot to mention that the letter sent to Dadjach Goshoo, by Abba Bagibo, king of Inarya and Limmoo, is, and probably long will remain, a mystery. The facts of the case are too long to be detailed at present. The hope of elucidating this unknown character was one of the prominent objects of my voyage to Inarya and Kafa. I am now satisfied that it is neither Ilmorma writing nor a hoax of Abba Bagibo. Wonders cease when viewed closely: the men with dog's heads, which all Ethiopians believe to exist near Kafa, vanished as I approached the mysterious spot; the Dokko pigmies grew up to the stature of five feet when the eye, and not the ear, was called to bear witness; but the mysterious handwriting sent from Inarya is buried in greater obscurity than ever, and we can only add the quotation of your immortal Bruce,—
Διβυη αἰεὶ φέρεί τι καίνον.

Athenæum. No. 911.

ART. VIII.—*Extracts from the Proceedings of the Society.*

At a monthly meeting of the Bombay Branch of the Royal Asiatic Society, held, in the Library Rooms, on the 10th of October, 1844.

The Hon'ble J. H. Crawford, President in the chair.

Read and approved the minutes of last meeting.

The following gentlemen were proposed as Members, to be ballotted for at the next meeting of the Society:

H. Pendock St. George Tucker, Esq. C. S., by J. Harkness, Esq., seconded by James Burnes, K. H. Vice President.

Archibald Graham, Esq., by James Burnes, K. H., seconded by the Rev. J. M. Mitchell.

Notice was then given of the following motion to be brought before the Society at their next meeting:

Proposed by Colonel Waddington, C. B., seconded by Colonel Jervis, Vice President,—

That the Bombay Branch of the Royal Asiatic Society, having the greatest confidence in General Kennedy's experience and ability, do gratefully accept his offer to prepare an amended classed catalogue, on the plan proposed by him.

The Officiating Secretary intimated, that a highly interesting paper had been received from the Secretary, Dr. Bird, containing a translation of some Hamaiyaric inscriptions from Aden and Saba, with observations on the establishment of the Christian faith in Arabia; but as light had already begun to fail, the reading of this, as well as some other business, was unavoidably postponed; and the meeting adjourned till Monday the 25th November, next, upon which day it was agreed, that th General Annual Meeting should be held.

At the Anniversary Meeting of the Society, held agreeably to rule .on the last Monday of November, the 25th.

The Hon'ble J. H. Crawford, President, in the chair.

The minutes of last meeting were read and approved of.

H. Pendock St. George Tucker, Esq., C. S., and Surgeon A. Graham, proposed at last meeting, were ballotted for and duly elected.

The following gentlemen were proposed as Members, to be ballotted for at the next meeting of the Society:

Captain J. M. Shortt, by L. C. C. Rivett Esq., seconded by P. W. LeGeyt, Esq: Lieut W. R. Dickinson, Engineers, by S. S. Dickinson Esq., seconded by J. P. Willoughby Esq: Frank Duncan, Esq., by J. Harkness, Esq., seconded by Rev. G. Cook.

The following motion proposed by Colonel Jervis, of which due notice had been given, was then submitted:

That the Bombay Branch of the Royal Asiatic Society, having the greatest confidence in General Kennedy's experience and ability, do gratefully accept his offer to prepare an amended classed catalogue, on the plan proposed by him, in communication with the Committee of the Society:— and having been seconded by Captain H. B. Turner, was carried by a great majority, only two votes of the members present being given against.

The Reverend J. M. Mitchell, seconded by Colonel G. R. Jervis, proposed that the meeting having before them M. D'Ochoa's completed catalogue, and adverting to the great and disinterested labours of that gentleman, do record the Society's grateful sense of his services. The same was carried unanimously.

The Society then proceeded to the election of its Office bearers for the ensuing year; when the President, Vice Presidents, and Secretary were re-elected, and the following gentlemen added to the Committee:—

Captain H. B. Turner,

Reverend G. Cook, and

H. Cormack, Esq.

The following donations were laid on the Table.

To the Library.

1. Journal of the American Oriental Society, No 1. containing an Address to the Members, at the first Annual Meeting of the Society, by the President, John Pickering, Esq. of Boston: presented by C. Pickering, Esq. M. D.

2. By Government, Wight's Icones Plantarum Indiæ Orientalis.

3————ditto————Mr. Poole's further continuation of the circular orders of the Sudder Board of Revenue of the Bengal Presidency, from 1839—42 and for 1843.

4————ditto————Copy of a report on the Hon'ble Company's Botanical Garden at Calcutta.

5. By the Medical Board, Medical Topography and Statistics of the Southern Division, Madras Army.

6———ditto———Medical Topography and Statistics of the Province of Malabar and Canara.

7. From the Dublin Geological Society, through Professor A. B. Orlebar, Vol I, parts II,III and IV, Journal of that Society.

8———ditto———ditto———accompanied by the Addresses delivered at their first anniversary meeting.

TO THE MUSEUM.

1. From Government, ten ancient gold coins, found at the village of Hewli, in the Malwan Talooka; of which a notice was given by the Secretary.

2. From the Bombay Geographical Society; stuffed specimen of a Pelican, and skin of a Baboon.

3. From Lieut. C. P. Rigby, through the Bombay Geographical Society, specimens of minerals, collected in the districts of Bejapoor.

4. By J. P. Malcolmson Esq., Skeletons of fish picked up at Aden.

Read letters from the Secretary of the Royal Geographical Society, London, the Secretary of the London Horticultural Society, and from M. M. Garcian D. Tassy, acknowledging the receipt of the Society's Journal, and returning thanks for the same.

The Secretary then presented to the Society the following communications:

*1. Observations on the Mahomedan Architecture on the mosques at Cairo, illustrated by drawings; by A. B. Orlebar, Esq. M. A., Professor, Elphinstone Institution.

2. A notice on the Sowahili Calendar, and identity of its new year with that of the Parsees; by Dr. Pickering, of Boston, America.

*3. Notice by the Secretary of the Society on ten ancient Hindu gold coins, found in the Southern Concan, and presented by Government.

*4. A discourse on the object and progress of investigation into Oriental Literature and Science, by the Secretary.

The meeting then adjourned to Thursday, the 12th of December, next.

At a monthly meeting of the Bombay Branch Royal Asiatic Society, held in the Library Rooms, on Thursday, the 12th of December, 1844.

James Burnes, M. D., K. H. *Vice President*, in the Chair.

The minutes of last meeting were read and approved of. Captain J. M. Shortt, Lieut. W. R. Dickinson, Engineers, and Frank Duncan Esq., proposed at last meeting, were ballotted for and duly elected.

Assistant Surgeon John Peet, proposed as a member by Dr. Morehead, and seconded by the Secretary, to be ballotted for at next meeting.

The Secretary reported to the meeting that numerous errors existed in the Society's accounts for 1844, which had been drawn up by the Librarian, and were submitted at the Anniversary Meeting of the 25th November; proposing that a corrected statement of the same should be laid before Auditors appointed by the Society, which nominated Captain H. B. Turner, S. S. Dickinson Esq. and the Secretary, to audit the accounts. A rough statement of the Society's receipts and expenditure, with an estimate of its liabilities for the year 1845, was also laid before the meeting, with proposals for diminishing the amount of expenditure on account of Newspapers, the publication of the Society's Journal, and the office establishment; which when reported on by the committee of audit, are to be brought before the next meeting of the Society. While the continuation of the Quarterly Journal seems desirable for the character and interests of the Society, the funds will not, under present circumstances be available for this expense, and connected with this subject, the Secretary submitted a proposition, "that Members of the Society be charged Rs 2. for each number of the Journal, they having the option to contribute or not as they may see fit; and that subscribers, not members, pay for the same at the rate of Rupees 2. 8. The meeting directed that due notice of this be given in the next monthly circular, calling a meeting of the Society, along with the proposition for diminishing a portion of the sum now expended on account of Newspapers.

The Secretary reported that the subscription collected for the Malcolmson Gold Medal, amounts to Rupees 830; and recommended that, as this seems insufficient for carrying into effect the Society's resolution, "*of granting annually a gold medal to the author of the best paper on the Natural Philosophy and Literature of India,*" the subscription list should be further circulated among the friends of the late Dr. Malcolmson. Connected with the annual distribution of the Society's gold medal, the meeting resolved that the subject for the first gold medal is to be, "*The Historical connexion with India of the Bactrian*

Parthian, and Sassanian Kingdoms, and the influence which this connexion produced on Hindu Literature and Mythology. Essays on this are to be forwarded to the Secretary before the 31st October, next, accompanied by a sealed packet, containing the name of the author, to be opened by a Committee of the Society appointed to determine the merits of the respective essays.

The following donations were laid on the table:

1. An elaborate series of Magnetic and Meteorological observations for 1842, and 1843, made at the Colaba Observatory by Dr. Buist. In this are given the reading of several Barometers, in reference to the Maximum and Minimum of pressure, as recorded throughout the year, accompanied by Registers of the standard Thermometer, day and wet bulb, direction and force of the wind, the fall of rain &c., pointing out the chief peculiarities of climate between the Tropics, and particularly that of Bombay.

2. A Voyage round the world, and visits to various foreign countries in the United States Frigate Columbia, under Commodore Read, presented by the author, the Rev. Fitch W. Taylor, Chaplain to the vessel.

3. The North British Review, Nos. 1 and 2, by the Rev. Dr. Wilson, Honorary President of the Society.

The Secretary was directed to return the thanks of the Society to the various donors, and the meeting adjourned to Thursday, the 9th of January, 1845.