

The *Trincomalee* shell is interesting as an arborant form, indicating the passage to *Cyclostoma*, which it approaches through the alate species, *C. petiocrianum* of GRAY. It appears to possess the convex operculum composed of spirally concentric and exerted laminae which characterizes the typical species of *ptero-cyclos*. This character seems to be gradually developed in the opercula of the *Cyclostomadae* as the umbilicus widens, and the shell becomes more discoid; varying from the flat operculum of *C. elegans* through that of *C. involvulus*, where the edges of the laminae are partially disengaged, and that of *C. ter-mistriatum*, which is thickened and shews a strong spiral keel, to the convex and spirally laminar structure of the *ptero-cycloïd* group.

The species of *Cyclostoma* from *Neemuch*, described by Lieutenant HUTTON as No. 26, in page 520, vol. iii. J. A. S. I have ascertained by a comparison of specimens to be *C. semistriatum* of SOWERBY, whose examples were procured from *Poona*.

Query. May not the impression of a supposed species of *Cirrus* noticed in Dr. WARD's paper on the geology of the Elephant Rock in the *Queda* country, printed in the second part Trans. Phys. Class, p. 166, be that of one of Dr. BLAND's species of *Pterocyclos* from *Pulo-Susson*? A reference to the specimen No. 4 will decide.

VI.—Note on the Nautical Instruments of the Arabs. By JAMES PRINSEP, Sec.

Since the arrival of the Arab vessels which annually frequent the port of *Calcutta*, I have made diligent inquiries concerning the instrument in use among them for the measurement of the latitude, in hopes of elucidating thereby the Baron VON HAMMER's translation of the "*Mohit*" (see p. 442). I have been hitherto unsuccessful, the English quadrant or sextant having generally superseded the more ancient and clumsy apparatus. One *Muallim*, however, seemed to recognize the instrument perfectly by my description, though he could not explain its construction; and promised to bring me one on his next voyage:—he stretched out his arms, when I inquired about the *issabah* division, and placing his fingers together horizontally, counted with them the height of the polar star, just as I guessed must have been the early and rude method of the Arab navigators.

At length in a vessel from the *Maldiv*e islands I met with an intelligent navigator who brought me the primitive instruments with which he was accustomed to work his way to *Calcutta*,—and as I do not think they are generally known, while it is certain they are of Arabic origin, I hasten to describe them as lithographed in Plate XLVIII.

Fig. 1. is the *كامل kamál*, an instrument for taking the altitude of the polar and circumpolar stars*, in its most elementary shape.

It consists of a small parallelogram of horn (about two inches by one) with a string (or a couple of strings, in some instances), inserted in the centre. On the string are nine knots. To use the instrument for taking the height of *polaris*, the string is held between the teeth, with the horn at such a distance from the eye, that while the lower edge seems to touch the oceanic horizon, the upper edge just meets the star: the division or knot is then read off as the required latitude.

The mode of marking off these knots is curious. Five times the length of the horn is first taken, as unity, and divided into twelve parts: then at the distance of six of these parts from the horn, the first knot is made which is called "12." Again the unit is divided into eleven parts, and six of these being measured on the string from the horn as before, the second knot is tied and denominated "11." The unit is thus successively divided into 10, 9, 8, 7, and 6 parts, when the knot tied will of course exactly meet the original point of five diameters: this point is numbered "6." Beyond it one diameter of the horn is laid off for the "5" division, and one and a half again beyond that for the "4" division, which usually terminates the scale.

It is easy to determine by calculation the value of these several divisions, measured from the centre of the horn or diameter bd , and at right angles to it. They represent the tangents of the angle cba , to radius bc , or cotangents to the complementary angle $e ba$: but $e ba$ is equal to bac , which is half of dab , therefore the divisions represent cotangents of half the angle of observation. To judge then of their actual value, expressed in altitude, we have but to convert their numerical ratio to radius, by a table of natural cotangents, into degrees and minutes; and to take the double as the latitude in each case: thus, the horn being equal to double radius bc , we have

The first division, No.	= $2 \times 5 \div$		$12 \times 6 =$			Lat.	Diff.
11	10	\div	11	\times	5.00	22°38'	1° 52'
10	10	\div	10	\times	5.45	20 46	1 52
9	10	\div	9	\times	6.00	18 54	1 50
8	10	\div	8	\times	6.66	17 4	1 53
7	10	\div	7	\times	7.50	15 12	1 53
6	10	\div	6	\times	8.57	13 18	1 54
5	10	\div	5	\times	10.00	11 24	1 52
4	10	\div	4	\times	12.00	9 32	1 56
					15.00	7 36	

It will be seen by the last column that the harmonic progression of the divisions obtained by this simple rule, agrees very closely with

* The man assured me it was for taking the longitude, and promised to come one night and use it in my presence, but failed.

equable increments of the angle of elevation, falling somewhat short of two degrees for each division. Further the highest number, 12, gives nearly the latitude of *Calcutta*, or $22^{\circ} 38'$, the most northerly latitude for which the *Maldivé* navigators have any occasion; while the lowest mark, 4, gives the latitude (nearly) of the southern point of *Ceylon*, or the average of the *Maldivé* islands.

It is a circumstance worth noting, that if the unit had been assumed at 6 diameters instead of 5, there would have been obtained a series of divisions almost identical with the *issabah* of $1^{\circ} 36'$ used by the navigators of the fifteenth century* according to the *Mohit*. The series may also be extended both ways without very much deviating from the same progression: thus, commencing with

			Lat.	Diff.
$12 \times 6 \div 16 = 4.50$	Cotang. of half angle.		$25^{\circ}04'$	
15	4.80		23 32	1° 32'
14	5.14		22 01	1 31
13	5.54		20 28	1 33
12	6.00		18 56	1 32
11	6.54		17 24	1 34
10	7.20		15 48	1 34
9	8.00		14 14	1 34
8	9.00		12 40	1 34
7	10.29		11 06	1 34
6	12.00		9 32	1 34
5	14.40		7 56	1 36
4	18.00		6 22	1 34
3	24.00		4 46	1 36
2	36.00		3 10	1 36
1	72.00		1 36	1 34
0	infinite		0	1 36

In this manner a string, or a staff, may be marked off into tangential divisions, equivalent to the *issabah*, from zero or sixteen *issabah*, or up to an altitude of 25 degrees, within a limit of error by no means appreciable to the Arab *nakhoda*, and hardly of consequence to the refined navigator of modern times. Whether the practical rule thus developed was or was not resorted to, it is very plain that it might have been so adapted; and all the latitudes in *SIDI*'s work might have been worked thereby; and the lower series of divisions might be nothing more than the same divisions numbered inversely on the lower side of the square staff, as will presently be noticed.

Fig. 2, the *bilisty*† is an evident improvement upon the original cord; a square rod of ebony being substituted for the stretching cord, and the radius being made to slide thereon at right angles. There is economy of space also,—the four sides of the wooden rod admitting of four series of divisions, adapted to four sliders of different sizes, so as to increase the scale without lengthening the rod inconveniently. Still the string

* See page 445. † بلستي

has the advantage in point of portability. The rules for dividing the wooden bar are the same as for the string, but the marks must be laid off invertedly, beginning at the eye end, which is in this the fixed point.

Fig. 3 is an instrument still used by the Arabs for taking the sun's altitude. It is exactly the same in principle as the above, but to obviate the inconvenience of looking at the sun, the eye is directed to the opposite point of the horizon, from the lower end of the cross bar, while it brings the solar shadow of the upper end of the same to meet the horizon by adjusting the slider *d* to or fro on the divided arm. The mode of dividing this arm, as performed in my presence by the *muallim*, or pilot, is represented in the plate; but it is obviously incorrect. A space *ce* is laid off equal to radius *ac*; from *e* a perpendicular *ef* is raised, and with the same radius a quadrant *eg* is drawn, which is divided into eighteen equal portions (of five degrees each); through these points are drawn radii to meet the tangential line; and the subdivision into simple degrees, and sixths, is either done by the eye, or by a continuation of the same rule. It will be seen on inspection of the figure, that as the angle *gfd* is equal to the sum of the angles *fdb* and *bde*, while *bde* is equal to half the angle of observation, angle *gfd* can only be equal to angle of observation when *fdb* and *bdc* are equal, and that the 90° point is therefore the only true one on the scale of divisions. The true mode of division is, as in the case of the string, to describe a quadrant from centre *b*, and to draw radii through each semi-degree of the arc from 45° downward, because the angle of observation *adb* is, as before, equal to twice the angle *fbd*, of which *cd* (*c* 0, *c* 10, *c* 20, *c* 30, &c.) are respectively cotangents.

To ascertain whether the fault lay with my Arab informant, or with the instrument, I compared the actual divisions on the latter with a scale of cotangents, and found the following results, calling the radius $ac = 1.00$.

Angle of altitude.	Angle marked.	Length <i>cd</i> or cot. $\frac{1}{2}$ angle.	True angle deduced.	Error of division.	Error if false mode had been used.
90°	0°	1.000	90° ' 0	0°	0° ' 0
85	5	1.096	84 46	—0 14	—0 30
80	10	1.196	79 48	—0 12	
75	15	1.308	74 46	—0 14	
70	20	1.435	69 44	—0 16	—3 30
65	25	1.557	65 26	+0 26	
60	30	1.719	60 22	+0 22	
55	35	1.911	55 14	+0 14	—7 27
50	40	2.142	50 04	+0 4	
45	45	2.418	45 0	0	
40	50	2.759	39 50	—0 10	—10 23

It is evident from this comparison, that the instrument was divided on correct principles, and that the *muallim* had ventured upon an explana-

tion without duly qualifying himself by consulting his books. It is also clear that the same set of divisions may be made to serve for night observations by placing the eye at *d*: but as they only embrace altitudes exceeding 40 degrees, the instrument would not be applicable to the polar star in equatorial latitudes.

In conversing with the same *muallim* on the track taken in different monsoons, I remarked that he always talked of sailing upon different stars, in lieu of different points of the compass, as we should express ourselves. It immediately occurred to me, that this might explain some of the obscurities of the *Mohit*, where, for instance, that work directs the polar altitude to be found $7\frac{1}{2}$ inches at the “setting of *Aquila* ;” it might mean that the ship should steer upon the setting point of *Aquila*, until the pole should be depressed or raised to the altitude indicated.

I endeavoured therefore to procure an Arabic compass, but not one could be met with in all the vessels—at length my friend SYED HOSEIN SIDI found a drawing of it in one of the practical works on navigation, (the *májid kitáb**) in possession of a *nakhoda*, and without ceremony tore out the leaf to shew it to me, as the captain was afraid of parting with the volume, without which doubtless he would have been greatly at a loss on his return voyage. I immediately made a lithograph drawing of it (fig. 5) exactly as I found it, with the circle of English numbers, shewing it to have been copied from a European card, around which the names by which the Arabs “box the compass,” had been entered as more conformable to their own practice.

These names would seem to point to a time anterior to the invention of the magnetic compass, when indeed the only way of ascertaining the relative position of a ship at night in the broad ocean was by observing the points of the horizon where prominent stars rose and set. The system could only have been adapted to intertropical navigation, wherein no very great variation occurs in these azimuths, and it is necessarily but an approximation to truth, as hardly any of the prominent stars selected rise or set at the precise azimuth named from them. By the positions assigned to some of the southern stars, we must suppose that it was framed rather to suit places northward of the equator; but in drawing out the following comparative view, I have thought it preferable to enter the azimuth of each star on an equatorial projection, when of course the azimuth is equal to the polar distance, and the compass card thus affords to the Arab *nakhoda* a rude

* ماجد کتاب or, as my Maldivé friend facetiously expressed it, the “*John Hamilton kitáb*” of the Arabs. It would be a work of great utility to print an edition of this volume, with emendations and additions suited to the people, who depend upon it as we do on our Greenwich Ephemeris!

table of N. P. D. by which he may, if he please, take his latitude, with the simple instruments above described.

The card may be divided into two great portions, the eastern and western, in which the same names of stars occur in a direct and inverse order—on the east with the prefix مطلع *mutalá*, or “rising place of;” on the west with that of مغيب *maghíb*, “setting place of:” the north-eastern quarter has written on its circumference,

من الجاه طرف المطلع مطلع شمالي العرض زايد والطول زايد

“From the north towards the east, *Mutalái Shimáli*,—(the north-eastern quarter,)—latitude increasing, longitude increasing.”

The south-eastern in like manner has the words :

من المطلع طرف القطب العرض قاصر والطول زايد مطلع جنوبي

“From the east towards the south, *Mutalái Janúbi*, (or the south-eastern quarter,) the latitude diminishes, longitude increases.”

The north-western :

من المغيب طرف الجاه مغربي شمالي العرض زايد والطول قاصر

“From the west to the north, the north-western quarter, *Maghíbi Shimáli*, latitude increasing, longitude decreasing.”

The south-western :

من القطب طرف المغيب لمغربي جنوبي الطول قاصر والعرض قاصر
على هز الجذاب اذا كنت شمالي الخط *

“From the south towards the west, *Maghíbi Janúbi*, the south-western quarter; longitude decreases and latitude decreases;—when you are to the north of the line.”

The final words, *when you are to the north of the line*, apply equally to the remarks on all four quadrants; for example, when you sail on any point of the compass between north and west, you increase your latitude and longitude—and so forth.

The north point, or pole, is called, as in *Sidí Alí's* work *جاه* *jáh*, a word not to be found with this acceptation in our dictionaries; nor is *قطب* *qutb*, generally confined to the south pole, but rather the contrary. *مطلع* *matlá*, the rising place, and *مغيب* *maghíb*, the setting place (to wit, of the sun) are the terms used for the east and west cardinal points. It will be sufficient to enumerate one series of the intermediate stars in the order of their occurrence on the card.

1. N. by W. $11^{\circ} 15'$. مغيب فرقد, the setting point of *farqad*, the calf; one of the two stars known by the name of *farqadain*, (β et γ *ursæ minoris*.) η approaches nearest to the required north polar distance.

2. N. N. W. $22^{\circ} 30'$. مغيب نعيش, the setting of *ndsh*, the bier. This constellation comprises the four stars of the belly, both of the small and the great bear, but generally and in the present instance, the name applies to the latter, of which, however, the position is nearer 30 degrees than $22\frac{1}{2}$ in azimuth.

3. N. by N. $30^{\circ} 45'$. مغيب ناقة, the setting of *náqeh*, the she-camel, probably the same as العذاق, the goat, of Dr. DORN's celestial globe, the middle star of the tail of the great bear, *N. P. D.* 34° .

4. N. W. $45^{\circ} 0'$. مغيب عيدوق, the setting of *dyúq*, the kitten, *αιουκι* of the Greeks, or capella; whose north polar distance is in fact $44\frac{1}{4}$ degrees.

5. N. W. by W. $56^{\circ} 15'$. مغيب واقع, the setting of *wáqd*, the vulture, *wega* of our astronomy or α *lyræ*, *N. P. D.* $51\frac{1}{2}$ degrees. This is the star translated by the Baron HAMMER as *Aquila*; but the azimuth shews it to be *Lyra*.

6. W. N. W. $67^{\circ} 30'$. مطلع سماك, the setting of *simak*, contracted for سماع الرامع *simák ul rámd*, the spear-bearer, *Arcturus*, *N. P. D.* 70° . It is *Ascimech aremeah* of the Alphonsine tables.

7. W. by N. $78^{\circ} 45'$. مطلع الثريا, the setting of *surayá*, the Pleiades. The north polar distance of these stars differs so much from the azimuth here assigned, (being only 67° ,) that the name is possibly applied to *Aldebaran*, (*N. P. D.* $73^{\circ} 50'$) although the latter is the true Arabic denomination of α *Tauri*.

8. W. 90° . مغيب, the setting place (of the sun), nearly constant in the equatorial regions.

9. W. by S. $101^{\circ} 15'$. مغيب الجوزأ, the setting of *jozá*, a contraction for رجل الجوزأ the giant's foot, known to Europeans as *Rigel* in the right foot of *Orion*, *N. P. D.* 98.24 .

10. W. S. W. $112^{\circ} 30'$. مغيب التير, the setting of *tír*. I do not find any star of this name on the celestial globe described by Dr. DORN in the *Roy. As. Soc. Trans.*, nor is the word Arabic. The similarity of sound and near coincidence of azimuth might incline me to consider it as *Antares*, ($115^{\circ} 40'$,) were it possible that the word نير *nir*, bright, in the passage quoted by DORN from EBN MUHAMMED, could be changed to تير the name of the star before us: the passage is as follows:

وصورة العقرب معلوم الاكثر معروف ويكون عند مغرز ذنب كوكب
نيرا حمر من القدر الثاني هو قلب العقرب من منازل القمر*

“The constellation of the scorpion is known to every one: on the buttock there is a bright reddish star of the second magnitude,

which is the scorpion's heart." If the Arabic name of this star be *qalb ul aqrab*, whence was our name of Antares derived?

The only other resembling *tír* in sound is الطائر marked as *Atair* on our globes, and comprehending the three bright stars of *Aquila*; but the position of this constellation puts it out of the question.

11. S. W. by W. $123^{\circ} 45'$. مغيب الكليل, the setting of *Akleil*, the crown. There are several constellations so named. *Corona borealis* is called الكمة, and is much too far north. There is another *akleil (janúbí)* the southern crown, situated about azim. 130° which is nearer the mark: but the constellation intended may possibly be الاكليل العقرب, the crown of the scorpion, the 17th lunar mansion of ULUGH BEG; notwithstanding its error of azimuth. In position, the bright star Fomalhaut (نجم السموت) of *Pisces Australis* comes much nearer the mark, (121°) and it seems curious that it should have been set aside for a less conspicuous group.

12. S. W. 135° . مغيب عقرب, the setting of *aqrab*, the Scorpion. We shall see presently that *antares* is the star of this constellation here intended, although it is far too northerly for the position. But for such confirmation we might have suspected *aqrab* to be a corruption of الغراب *alghoráb*: the crow (κοραξ) which lies in 134° azimuth.

13. S. W. by S. $146^{\circ} 15'$. مغيب حمارين, the setting of *Hamárein* the two asses. This name is not to be found in the globe. The nearest to it in situation are α and β *Gruis*.

14. S. S. W. $157^{\circ} 30'$. مغيب سهيل, the setting of *Soheil*, the well-known star Canopus in the constellation *Argo*, *Alsaftinah* of the Arabs. The north polar distance of this star, however, is only $143\frac{1}{2}$ in lieu of $157\frac{1}{2}$. It would set in azimuth $157\frac{1}{2}$ at a place situated in north latitude 28° ; so that if this be taken as a clue, we may trace the origin of the compass scheme to *Lower Egypt* or *Syria*.

15. S. by W. $168^{\circ} 45'$. مغيب سلبار, the setting of *salibár*. As we proceed southwards it becomes more and more difficult to find the stars intended. Canopus indeed is almost the only one familiar to us. *Salibár* is not to be found on the globe, nor in the dictionaries: but it is the very word translated *Lyra* by the Baron HAMMER, a northern constellation, which would be quite inadmissible in the southernmost situation of the compass. There is a constellation somewhat similar in sound on the brass globe described by Dr. DORN, called السبع *Alsabá*, the beast, lying close to the Centaur with which its stars are mixed.—Again, should α *Centauri* be the star intended, it would be about the right distance in azimuth from Canopus—but this star is called

with its fellow in the other leg of the Centaur, *حضار والوزن* *Hazár-ulwazn* on the globe. The only other star of note falling within moderate limit of distance is α Eridani, or *Achernar* of our globe, which is a corruption of *آخر النهر* *akhir-ulnehr*, 'the end of the river.'—Whatever star may be meant by *salibár*, it is surely more southerly than Canopus, and by no means Lyra. The two or three translated passages from the *Mohit* equally confirm this, and receive illustration from it. In the voyage to *Gujerát* (page 456) the translation says—"In this measure (the *kiás*, or lat. $16^{\circ} 54'$ north) Lyra (*salibár*) is five inches ($13^{\circ} 30'$), or Sagitta (*sahm awal*) six inches ($15^{\circ} 6'$), or Canopus and Lyra are equal to three inches and a half ($11^{\circ} 6'$)." The second paragraph in page 457 is expressed almost in the same words. Now if for *السهم* *ul sahm* be read *النهر* *ul nahr* (α Eridani), and for *salibár* we take η Argonavis, the above conditions may very nearly be complied with; for, in north latitude 17° , Canopus and η Argo will be seen at an altitude of 12° together, on opposite sides of the south pole at the hour of 10 p. m. in the beginning of March. The north polar distance of α Centauri (150°) would better suit the given meridional elevation ($13^{\circ} 30'$) than that of Argonavis: but in this case it must be *alnahr* and not *salibár* which must be coupled with Canopus at the equal altitude $11^{\circ} 6'$: and the text would need a second alteration.

Again, in page 456 (the latitude by position being about 18°) the translation says—"If it be not time for taking the polar star, take the height at the setting of Aquila (*nasr-wáqá*) by the Lyra (*salibár*) which gives $7\frac{1}{2}$ inches (or $17^{\circ} 30'$)." Now first correcting *vega*, which we know to be α Lyræ, and not *Aquila*, we shall find that at his setting, the star above pointed out as *akhir-ulnehr*, *Achernar*, comes to the southern meridian, and bears very nearly the altitude required.

Here then *salibár* would seem to be α Eridani, whereas in the other two cases it may be η Argo. Until we get somebody to point out the actual star in the heavens, it will be impossible to decide between the two; but a considerable step towards the solution of the *Mohit* problem has, at any rate, been made by the discovery that *salibár* belongs to the southern hemisphere.

If the Baron will favor us with a translation of the first chapter which treats of the names of the stars, the division of the circle of the skies, and, above all, of the cardinal points of the compass, we shall doubtless be able to clear up all these points in a satisfactory manner.

The navigators of the Maldivé islands follow the Arabs in their division of the compass which they call *samaqá* (سماق) a name apparently

taken from the *Malabar* word, *samoukká*, for which M. KLAPROTH is at a loss to discover the origin*, though it seems obviously a corruption of the Sanscrit term चुम्बक *chumbaka*, the loadstone. The Maldivís alter a few of the names, particularly towards the south. Some of these variations serve to throw light upon the doubtful parts of the Arabic list. The orthography also, as written in my presence by my intelligent friend MUHAMMAD, better known among his island countrymen as *Ustád-muallim*, the master-pilot, differs considerably, being more of the Malay style: one letter an ع with a dot under it, is, he tells me, peculiar to his islands: it has the pronunciation of *gh*, not of غ, while ق is pronounced more like *g*. The following is his catalogue:

عَو pronounced *ghao*, the north pole—of unknown derivation.

فَرَعْدِيم *farghadem*, a corruption of *farkadain*.

نَاس *násh*, the *alif* substituted for *ain*.

اَيُوق *áyouk*, ditto.

قَاسِل *gásil*, used for α Lyræ in lieu of *wáqd* or *Wega*.

سِمَاق *simág*, the ق used for ك.

تَرِيَان *therián*, a corruption from *suraya*.

مِرْع *murgh*, the west—derivation unknown, perhaps corrupted from *maghib*,—*irua* is the east.

جُوزَا *jozá*, the star *Rigel*.

تِير *tír*. Can this be *Sirius*, which is the next conspicuous star more southerly than *Rigel*? Its Arabic name is الشعري.

اَقْرَب *agrab*, in lieu of *akleil*, shewing that the crown intended is the *akleil ul agrab* of the globe, which consists, according to ULUGH BEG, of β , δ , η and γ of *Scorpio*; β has a N. P. D. of 112° only, which would give an azimuth of 115° in latitude 28° north.

قَلْب *galb*. If this be correct in orthography, it would denote قلب العقرب *galb ul agrab*, the scorpion's heart, or *Antares*: but if intended for كَلْب the dog, it may stand for *Sirius*. The former is, however, most probable, because it confirms the Arabic name for the same point which is عَقْرَب, or simply the scorpion, of which the principal star is *Antares*.

حَمَارِيم *hamárim*, the final *m* substituted for *n*.

سَل *sil*, pronounced *silli*, an unknown substitute for *soheil*, which will be seen to be removed further south; perhaps it is the local name of *Canopus*, corrupted from the Arabic.

* KLAPROTH sur l'invention de la boussole, p. 32.

سلوٰى *siliwár*, the *w* substituted for *b*.

سهيل *soheil*, Canopus, is used by the Maldivé sailors as the south cardinal point,—for what reason I was unable to discover. They also use the Indian word *dakhan*.

Note on the Maldivé Alphabet.

While conversing with the *Ustád-muallim* one day on the above subject, I got him to write down the names as seen above in the Arabic character: being curious, however, about the modification of the ع *ain* introduced, I inquired whether the Maldivé population had any distinct alphabet of their own, to which he replied in the affirmative, and gave it me in writing just as I have lithographed it in Plate XLIX—a most whimsical system, and calculated to puzzle antiquarians egregiously should they chance to stumble upon an inscription in the Maldives without possessing the key to it!

At first he told me they had but nine letters, (the second row in the plate,) *m, ph, d, t, l, g, n, s, d*; but on my observing that he made use of a letter not in this list for the *k* of *Calcutta*, he said—“Oh yes, there are the other nine” (the upper row)—meaning, as I presumed, that they were not indigenous but extraneous signs introduced to express foreign sounds: they are, in fact, the nine Arabic numerals with a dash above them to distinguish them from the ciphers. He wrote with greater fluency in these his native characters than in the Arabic.

The system of vowel marks is partly an imitation of the Arabic and partly of the Indian method; the long vowels being denoted by doubling the diacritical stroke: the nasal *n* is marked like the Sanscrit *anuswara*, but the letter *ف* is also inserted. It was striking to observe how readily his ear distinguished the sound of a diphthong, and how correctly he expressed it with a double character. The order of writing is from left to right, contrary to the Arabic mode, and none of the letters admit of being joined together or abbreviated; but I pretend to no more knowledge of the alphabet, or language, than is comprehended in the plate itself, and need not, therefore, attempt to expand the materials of a short interview between two parties but imperfectly understanding one another, into a treatise on the unknown and, perchance, non-existent literature of these simple islanders.—It will, doubtless, surprise many that they should have arrived at all at the possession of an alphabet of their own. Among the specimens in the plate I have introduced the names of the cardinal points as given above.

. Maldive Alphabet.

ᳵ ᳶ ᳷ ᳸ ᳹ ᳺ ᳻ ᳼ ᳽

ha tha ña ra ba la ka á wa

᳾ ᳿ ᳺ ᳻ ᳼ ᳾ ᳿ ᳺ ᳻ ᳼

ma þha dha ta la ga na sa da

᳾ ᳿ ᳺ ᳻ ᳼ ᳾ ᳿ ᳺ ᳻ ᳼ ᳾ ᳿ ᳺ ᳻ ᳼

ma má mi mí me mè mu mú mo m, mau mai

᳾ ᳿ ᳺ ᳻ ᳼ ᳾ ᳿ ᳺ ᳻ ᳼ ᳾ ᳿ ᳺ ᳻ ᳼

a á i í e è u ú o aṅ kíṅ

᳾ ᳿ ᳺ ᳻ ᳼ ᳾ ᳿ ᳺ ᳻ ᳼ ᳾ ᳿ ᳺ ᳻ ᳼

Máhaláib Kalkatá Sítiḡam (or Chittagong)

᳾ ᳿ ᳺ ᳻ ᳼ ᳾ ᳿ ᳺ ᳻ ᳼ ᳾ ᳿ ᳺ ᳻ ᳼

Samugá gao iruwá suhil hulagu
compass (gairan) north east south west

᳾ ᳿ ᳺ ᳻ ᳼ ᳾ ᳿ ᳺ ᳻ ᳼
odi (a ship) dhoni (a sleep)

Inscription on a Cannon at Lisbon, (sent thither from Goa), in Sanscrit letters.

᳾ ᳿ ᳺ ᳻ ᳼ ᳾ ᳿ ᳺ ᳻ ᳼ ᳾ ᳿ ᳺ ᳻ ᳼

Inscription on an ancient unfinished temple on a rock near Atgarh, in Cuttack.
by St. Xavier.

᳾ ᳿ ᳺ ᳻ ᳼ ᳾ ᳿ ᳺ ᳻ ᳼ ᳾ ᳿ ᳺ ᳻ ᳼