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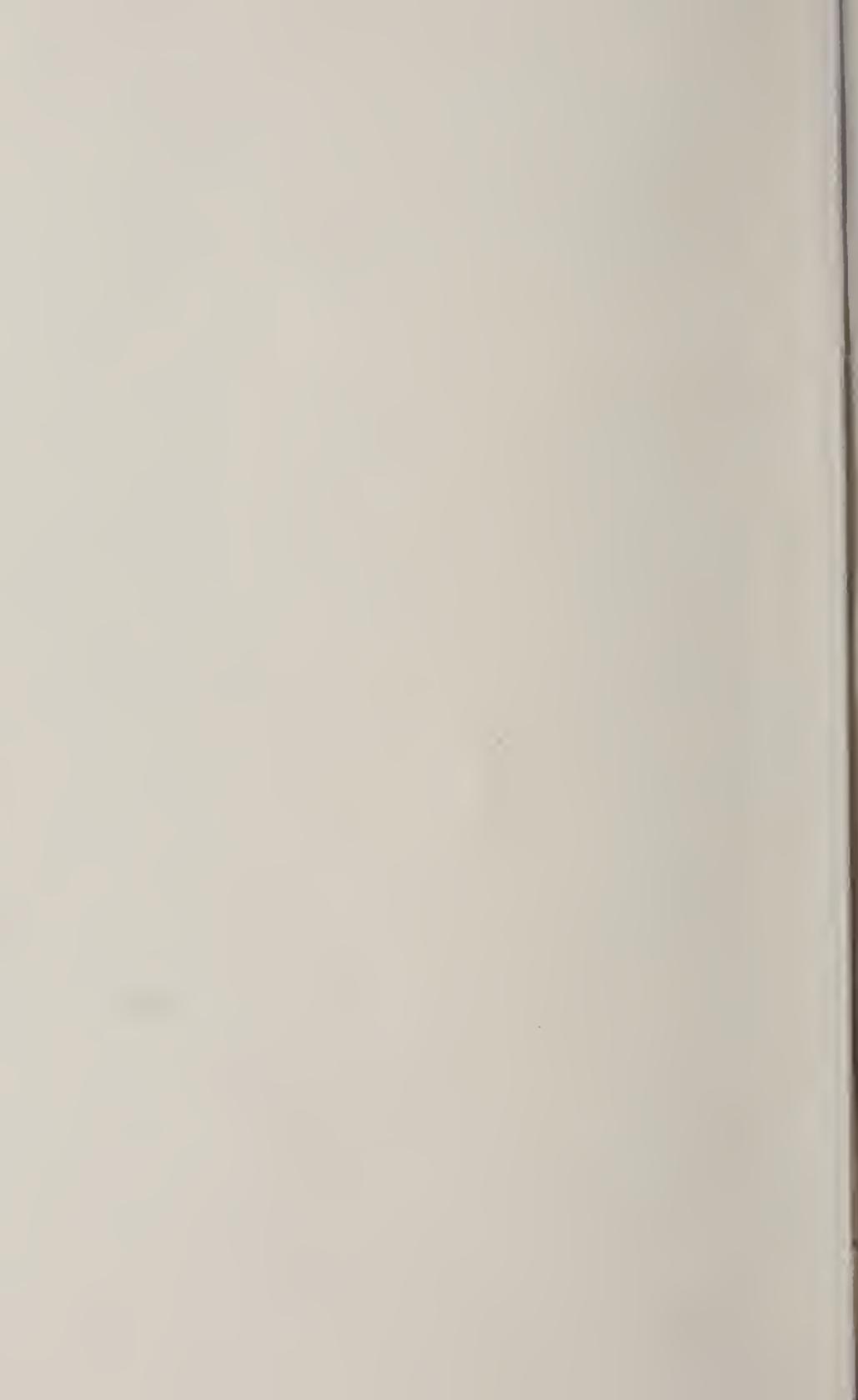
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I.—*Extracts from Tibetan Works, translated by M. Alexander Csoma de Körös.*

Tibetan beau-ideal of a wife.

[Extracted from the *Bkah-hgyur, mdo kha*, leaf 106-7; corresponding with leaf 73-74 of the *Lalita vistara*, the original Sanscrit text, in the Lantsa character, presented to the Society by Mr. Hodgson].*

THE required qualities in a maiden who may aspire to be united in marriage with SHAKYA are thus defined by himself:

“No ordinary woman is suitable to my taste and habits; none who is incorrect in her behaviour; who has bad qualities, or who does not speak the truth. But she alone will be pleasing and fit for me, who, exhilarating my mind, is chaste, young, of good complexion, and of a pure family and descent.” He indited a catalogue of these qualifications in verse, and said to his father, “If there shall be found any girl with the virtues I have described, since I like not an unrestrained woman, let her be given to me in marriage.” “She, who is young, well proportioned, and elegant, yet not boastful of her beauty, (lit. with her body;) who is affectionate towards her brother, sister, and mother; who always rejoicing in giving alms, knoweth the proper manner how to bestow them on the priests and brahmans:—if there be found any such damsel, father, let her be brought to me. One who being without arrogance, pride, and passion, hath left off artifice, envy, deceit, and is of an upright nature:—who even in her dreams hath not lusted after any other man;—who resteth content with her husband, and is always submissive and chaste:—who is firm and not wavering:—who is not proud or haughty, but full of humility like a female slave:—who hath

* See Journal, vol. i. page 380, and page 1—8, where a brief analysis is given by Mr. Wilson, of the contents of the *Lalita vistara*.

no excessive fondness for the vanities of sound, smell, taste, (music, perfumes, and exquisite meats,) nor for wine :—who is void of cupidity :—who hath not a covetous heart, but is content with her own possessions :—who, being upright, goeth not astray ; is not fluctuating ; is modest in her dress, and doth not indulge in laughing and boasting :—who is diligent in her moral duties, without being too much addicted to the gods and festivals (or righteous overmuch). Who is very clean and pure in her body, her speech and her mind :—who is not drowsy nor dull, proud nor stupid ;—but being of good judgment, doth everything with due reflection :—who hath for her father and mother-in-law equal reverence as for a spiritual teacher :—who treateth her servants both male and female with constant mildness :—who is as well versed as any courtesan in the rites and ceremonies described in the Shastras :—who goeth last to sleep and riseth earliest from her couch :—who maketh every endeavour with mildness, like a mother without affectation :—if there be any such maiden to be found, father, give her unto me as a wife.”

Afterwards, the king (Sans. *Shuddhodana*, Tib. *Zas-Qtsang-ma*,) directs his brahman minister (Sans. *Purohita*, Tib. *Mdhun-na-hdon*,) to go into the great city of *Capila-vastu*, (Tib. *Ser-skya-qzhi*,) and to inquire there in every house after a girl possessed with these good qualities, shewing at the same time SHAKYA's letter, and uttering two *Slukas*, or verses, of the following meaning : “ Bring hither that maiden who has the required qualities, whether she be of the royal tribe, or of the brahman caste ; of the gentry, or of the plebeian class. My son regardeth not tribe nor family extraction : his delight is in good qualities, truth, and virtue alone.”

ལྷོ་ལ་རྒྱལ་ས་ཐུག་པའི་སྒྲོ་མོ་དང་།
 རྒྱུ་རྒྱལ་ས་དམངས་རྒྱལ་ས་དེ་བཞིན་དེ།
 ལྷོ་ལ་ཡོན་ཏན་ལྡན་པའི་ཡོད་པའི།
 ལྷོ་ལ་དེ་མི་ལྡན་པའི་ལྷོ་ལ་ལྷོ་ལ།
 ད་ལྷོ་སྒྲོ་ལྡན་རྒྱལ་ས་དང་དང་།
 ལྷོ་ལ་དེ་མི་ལྡན་པའི་ལྷོ་ལ་ལྷོ་ལ།
 ཡོན་ཏན་བདེན་པའི་ལྷོ་ལ་ལྷོ་ལ།
 དེ་ལ་ལྷོ་ལ་ལྷོ་ལ་དང་དང་།

The objections of the Buddhists to the seclusion of woman may be gathered from the following imaginary conversation of SHAKYA's wife, extracted from the *Kah-gyur*, Do, Kh. vol. leaf 120-121, (corresponding with the Sanserit *Lalita vistara*, leaf 85.)

Sá-htsho-ma, (S. *Gópá*), the wife of SHAKYA, upon hearing of her being upbraided by the domestics for not concealing her face when in company with others, expresses herself in some verses (against the veil), the meaning of which is as follows :

“ Sitting, standing, and walking, those that are venerable, are pleasing when not concealed. A bright gem will give more lustre if put on the top of a standard. The venerable are pleasing when they go, they are agreeable also when they come. They are so whether they stand or whether they are sitting. In every manner the venerable are pleasing. The man excellent in virtue is pleasing when he speaks ; he is so also when he sits still. As an example, doth not the *Kalapinka* bird appear more beautiful when she chaunteth her lovely song in your presence ? The venerable man who putteth on a garment made of the *kusha* grass, or whose squalid clothing concealeth not his emaciated body, still shineth with his own lustre. He that hath good qualities is adorned by those qualifications. They who have put off all vices are venerable. Fools, committing vices, howmuchsoever they be adorned, are never pleasing. Those that have malice in their heart and speak a sweet language are like a poisoned bowl into which nectar is poured ; or a cleft on a rock that is rough both inside and outside. Communion with such men is as though you would touch the mouth of a snake. With respect to the venerable, all resort to them, all reverence them. They are supported and cherished by all men, as the stairs descending to the water's edge are kept in repair by the multitude. The venerable are always like a bowl full of milk and curd. It is a great happiness to see human nature capable of such purity. Fraught with blissful consequences is the gift of such men as have renounced the company of the wicked, and being directed by a venerable religious guide, are become enamoured of the doctrine of the most perfect (Buddha). For such as have restrained their body, have suppressed the several defects of it, have refrained their speech, and never use a deceitful language ; and having subdued the flesh, are held in restraint by a pure conscience : for such, to what purpose is the veiling of the face ? They that have a cunning heart are impudent and shameless ; and having not the required qualities, do not speak the truth :—though they should cover their body even with a thousand clothes, they would go about in the world more naked than the unclothed. They that have concealed their passions, and have kept them under subjection, and are content with their own husbands, and think not on any other ;—such women, when not concealed by a veil, shine forth like the sun and moon. Moreover DRANG-SRONG, (S. *R.s'hi*), the great Lord (God), who is wise in knowing the hearts of others, yea, also the whole company of the gods, know my

thoughts, my good morals, my virtues, my obligation, and my chastity. Therefore, why should I conceal my face?"

Zas-Qtsang-ma, (S. *Shuddhodana*, the father of SHAKYA,) her father-in-law, was much pleased with these expressions, and presented her with several precious things. He uttered at the same time one *slóka*, the meaning of which is this: "My son being adorned with such qualities as he has, and my daughter-in-law having such virtuous qualifications as she describes; to see two such pure persons united together, is like when butter and ghee are mixed together."

འོ་པོ་འི་བྱ་མི་ཡོན་ཏན་ཇི་ཡང་ས་བརྒྱན་པ་དང་།
 མནལ་མའི་འང་གི་ཡོན་ཏན་ཇི་ལྟར་འབྲས་བུ་པ།
 སེམས་ཅན་དག་པ་དེ་གཤེས་ལྷན་པར་བྱུང་བ་ནི།
 མའ་དང་མའ་མྱི་སྦྱང་ཏུ་ཇི་ལྟར་ཡང་བ་བཞིན།

As breathing in accordance with the virtuous sentiments of the above favourable specimen of the Tibetan sacred works, we may here extract a curious correspondence, (whether imaginary or real we will not pretend to determine,) stated to have taken place between a princess of Ceylon and the Buddhist saint. This letter is very generally known and admired throughout Tibet, being introduced in every collection of epistolary forms for the instruction of youth.

Ratnávali's Letter to Shákya.

Mutig-chen, (S. *Ratnavali*), a young princess of Ceylon, the daughter of the king of Singala, having been informed by some merchants of Central India (*Madhyam*) of Buddha and of his doctrine; she was much pleased with it; and, when those merchants returned home, she sent some presents to CHOM-DAN-DAS (SHAKYA), with a letter of the following contents:

ལྷ་དང་ལྷ་མིན་མི་ཡིས་ལྷག་བཞིས་པ།
 རྩེ་དང་བསྐྱུང་དང་བསྐྱེད་ས་ལས་དེས་གྲོལ་ཞིང་།
 གཙོ་བོ་གསལ་པ་མྱོ་ཆེར་འབྲས་བུ་པ།
 རང་སྦྱོང་བཟུང་སྟེ་ཆ་ལས་ལྷག་སྦྱོང་གཞོང་།

"Reverenced by the *Suras*, *Asuras*, and men; really delivered from birth, sickness, and fear; Lord! who art greatly celebrated by thy far extending renown, from the Sage's ambrosial portion, kindly grant me! (meaning religious instruction or wisdom.)"

SHAKYA received this letter, and sent to the princess a picture of *Buddha* on cotton cloth, with some verses written above and below the image, containing the terms upon which refuge is obtained with *Buddha*,

Dharma, and *Sangha*; and a few fundamental articles of the faith; together with two stanzas recommendatory of Buddhism. In a letter to the king of Singala, SUAKYA prescribes with what solemnity this image should be received, the letter perused, and made known in Ceylon.

The stanzas are these. See *Dulva*, vol. 5, leaf 30,

བཅུམ་པར་ལྷོ་འོད་འཕྲུང་བར་ལྷོ། གང་ཞིག་འབྲུ་བཅུ་ཡོད་པར། །
 སངས་རྒྱལ་བཅུ་ལ་འཕྲུང་བར་ལྷོ། ཚོས་འཕྲུལ་འདི་ལ་ཕྱོད་ལྷུ་པ། །
 འདམ་བྱེ་ཞིམ་ན་སྐང་ཚེན་བཞིན། རྩེ་བའི་འཕྲུལ་བ་འབྲུང་ས་ནས། །
 འཚི་བདག་སྡེ་ནི་གཞོམ་པར་ལྷོ། ལྷུག་བཟུལ་ཐ་མའ་ཉེད་པར་འཕྲུ། །

“ Arise, commence a new course of life. Turn to the religion of *Buddha*. Conquer the host of the lord of death, (the passions,) that are like an elephant in this muddy house, (the body,) (or conquer your passions, like as an elephant subdues every thing under his feet in a muddy lake.) Whoever has lived a pure or chaste life, according to the precepts of this *Dulvá*, shall be free from transmigration, and shall put an end to all his miseries.”

The compendium, or sum of the Buddhistic doctrine in one *slóka*, runs thus :

སྤྱིག་པའི་ཡང་མི་བྱ་སྟེ། “ No vice is to be committed,
 དག་བ་ལྷུ་ལུམ་ཚོགས་པར་ལྷོ། Virtue must perfectly be practised,—
 འད་གི་སེམས་ནི་ཡོད་ས་ལུ་གཟུལ། Subdue entirely your thoughts.
 འདི་ནི་སངས་རྒྱལ་བཅུ་ལ་ཡིན། This is the doctrine of *Buddha*.

II.—*Some Remarks upon the Country to the South-west of Hoshungabad, and of the Soil, Cultivation, &c. of that part of the Valley of the Nerbudda, situated between Hoshungabad and the Fort of Mukrai, in the lower range of the Kali-bheet Hills.* By Lieut. R. H. Miles.

The cantonment of *Hoshungabad* is situated on a high kankar bank, on the southern side or left bank of the *Nerbudda*. The bed of the river below the bank is likewise of kankar, and presents in the dry season a rocky appearance. This kankar formation in the river extends about half way across it, and runs parallel with the bank above, whose length extends one mile and a quarter, uninterrupted and unchanged.

The situation of the town and fort, (which latter is of stone, quadrangular in shape, and with high walls,) is in a gentle hollow to the westward of the cantonments. The bank of the river is not only low under the town, but changes its kankar nature for a loamy soil,

much adulterated with sand. The current in front of the town is slack; and the channel both wider and deeper than opposite the cantonment.

In the height of the rains, the *Nerbudda* reaches barely half way up the above-mentioned kankar bank; although in some seasons the waters have risen so high as to be on a level with the ghats of the town; but such instances are of rare occurrence.

The rains of 1826 were extremely heavy, and the *Nerbudda* rose to an awful height. In that year a very curious and singular circumstance was witnessed by some of the officers there. It was as follows: Between the fort and the race-course there were some small stunted shrubs, or bushes, approaching the species known by the name of *byr*, which grew not far from the river's edge; in the centre of one of which, some natives, who happened to be passing by the spot early one morning, perceived a curious looking mass, apparently entangled therein; and which, on a nearer approach, they much to their surprise discovered to be a young alligator!—a few ropes having been procured from the cantonments, they were thrown in running nooses over his tail, head, and body, by which means he was hauled out of his brambly resting-place, and *lattee-mar'd* to death. He measured about six feet in all. The river had covered the bush the day preceding, into which it is conjectured the velocity of the stream had carried him with such force, as to make his extrication therefrom hopeless, and the river having fallen during the night had left him high and dry—when taken, it was observed, that he was *minus* a paw, which had been amputated at the wrist.

At the distance of about 50 yards above the junction of the *Towa* river with the *Nerbudda*, there is a ledge of black lime-stone rock, which stretches the whole way across the *Nerbudda*, connecting the two banks by a causeway, as it were; a fine waterfall is the result—while immediately below it is an exceedingly deep (*koond*) hole, which is literally alive with immense alligators. The ascent from its steepness and slippery nature is impracticable to them, and they content themselves with sporting about in the deep water at its base.

From this waterfall to the *Goondry Ghat*, (fordable from November to June,) the *Nerbudda* is both deep and broad;—cultivation meets the eye on the southern side, while a dense jungle and impervious under-wood skirts the very bank on its northern face.

The entrance to the *Towa*, for the distance of 100 yards or so, is intricate on account of hidden rocks below, and also large masses and blocks of rock, some of a black, some of a white, and some of a reddish tinge, which are scattered about at different elevations above the level of the water. These being passed, the channel of the river is unob-

structed in the rains, beyond *Sindkhéra*; the current flowing over a sandy bed and soil, between low banks, at times shelving to the water's edge.

At the distance of about one hundred and fifty yards below the village of *Boodeny*, there is another ledge of rock, which, stretching right across, connects both banks. This ledge, however, is neither so wide nor so high as the former one mentioned; although the roaring of the water falling over it is heard a long way off. That obstruction being cleared, the river pursues its onward course in quickened speed, and depth, and likewise width of stream, for some distance below the village of *Doongurwara*.

Both the long, as well as the bull-mouthed alligator is met with in the *Nerbudda*. I recollect one of the latter having been shot by a ball, which perforated his brain, and which on measurement reached nine feet 10 inches in all. Curiosity having led us to open him, in the hopes of meeting in his maw with some of the silver ornaments, which had graced the wrists and ankles of the little children, which had been taken away, when bathing at the ghats, by these amphibious monsters; our labours were rewarded by finding simply the hairy hide of a young hyæna, which one of the party had ordered to be thrown into the river a short time antecedent to the capture of the alligator. It was conjectured, that the hairy particles with which the hide was covered had prevented its being digested.

The country all the way to *Seonee*, where there is an old stone *gurhee*, or fort, is one fine, extended, sheet of cultivation; the soil being a rich black loam. This town is situated about 34 miles to the S. W. of *Hoshungabad*, and is without exception one of the best looking and cleanest towns in this part of India. It possesses, moreover, a very wide street, which is the principal thoroughfare. The houses too are mostly new, and built with great regularity and neatness. I allude particularly to the new suburb, at the south end of the town, which has arisen since the country became settled and quiet under our rule. To the south of the town, several young mango topes were planted, and also several pukka *boulees* erected. The south-east view presents a range of mountains in the distance, while to the S. S. E. the fortress of *Souleegurh*, which is built on the top of a rocky isolated hill, at the distance of 12 or 15 *kós*, is visible. There are several wealthy *mahajuns* resident in the town, besides several *dookandars*, who carry on a small trade with *Hoshungabad*, *Boorhanpoor*, and other places of less note in the neighbourhood. The exports are but few, and these consist chiefly of grain and ghee, at least they are the staple commodities of export. Iron smelted in the neighbouring hills forms also a small article of export. *Seonee* is a great place of resort for *Brinjary* bullock-

men, who often arrive with a string of upwards of five hundred head of cattle, and after loading, depart for *Mhow*, *Aseeryurh*, *Boorhanpoor*, *Sagur*, &c. The country all around is one uninterrupted flat, teeming with cultivation, with the exception of a short patch of *praus* jungle, round *Bhugwara*, and the same also about *Kahureea*. Gram, wheat, peas, the different kinds of *dals*, *bajra*, and the *jowar* form the chief cultivation: *khéts* of sugar-cane (the thin white species) and cotton are occasionally met with. The herds of buffaloes and cows are also very large and numerous, while their subsistence is both easy and abundant.

The strata of the country is a black soil, with the exception of some few parts through jungle, where the road led over a gravel bed.

From *Pugdar* (a Gosain's village) to the *Moorun* nuddee, a thick low jungle of *praus* and underwood, with occasional stunted trees, and several *byr* bushes extends, through which the narrow and uneven road leads;—a gravel soil is again met with. *Doura-ghat* is the site only of a village that once was. The *Moorun* is a hill torrent, varying from 80 to 120 yards in width: at the ford from bank to bank, it is about 150 yards: its channel is obstructed in several parts by ledges of rock, which in some places present a bluish black, and in others again a whitish tinge;—not being a geologist I cannot take upon me to say the nature of it, but I strongly conclude it to be limestone. At the ford it was massive, and laid bare in the bed of the torrent. The descent from the jungle into the *Moorun* is trifling and gradual, (naturally); but the ascent on the opposite side up to the small hamlet of *Umlara*, which stands on a high bank of sandy soil (*cachár*), is very steep. After we left *Seonce*, the long range of tree-covered hills, which bounds the prospect to the south as well as the S. E. became more clearly defined, and we were approximating them fast each stage.

The *Vindhya* range, which skirts the northern bank of the *Nerbudda*, is no longer visible, and the eye has one uninterrupted range to the N. and also to the W., over an extensive plain, bounded only by the horizon. The whole of this level tract is one sheet of cultivation, studded, as it were, with occasional tops of mango trees.

Bhadooogaon is a small town, or rather a large village, of which in 1824, a man named Reka Sét was the *malgoozar*. It is situated on the western bank of the *Gunjal* river, which flows at the ford in a shallow rippling current over a pebbly bed, but deepens considerably a short distance beyond the town. The north part of *Bhadooogaon* is situated on a high bank, overhanging the stream. To the S. E. is a dense jungle, which stretches for some way towards the hills.

From *Bhadooogaon* to *Rhitgaon*, the country is open generally speaking; here and there a small patch of *praus* is met with on either side of

the road. (I have ever observed that when the soil is of a black loam, there I have remarked the widest extent of *praus*, as well as a greater cultivation of the cotton shrub.) Two villages only were seen near the road.

Rhitgaon is a small town, less in point of size than *Bhadoogaon*, situated on the west bank of the *Ajnuul* nuddee: this stream flows in a gentle current over a sandy bed; no rocks or stones being perceptible. In the centre of the place is a small dilapidated mud *gurhee*, or fort.

The country from *Rhitgoug* to *Mugurduh* is a black loam soil, with a great deal of *praus* jungle and *byr* bushes on each side of the road—yet, withal, there was a pretty fair cultivation, considering the paucity of villages and the scanty population.

Since we left *Seonee*, we have been travelling over a bye-road, and one but very little passed, and seldom if ever used by way-farers and travellers. The great thoroughfare to *Aseergurh*, *Boorhanpoor*, &c. branches off from *Seonee* through *Hurda*.

Mugurduh is a small village, distant about 69 miles from *Hoshungabad*, and stands on the confines of the Company's ceded districts. It is situated on the northern bank of the *Machuk* nuddec, a small stream, taking its rise at no very great distance in the mountainous regions to the eastward, and discharging itself after a short course into the *Nerbudda*.

This village is situated in a low ground, and there is a slight descent to it the last half mile. It is a small poor place, the inhabitants being either all cultivators or herdsmen—and chiefly of the same cast as their late *patel* (or headman) Ram Singh, who was a Rajpoot, and who, some years back, emigrated from Hindustan to settle there. The only trade of the place consists in the exportation of grain and ghee, and unwrought lumps of iron, as obtained from the neighbouring hills, after a coarse and rude process of smelting. The soil around is very rich, and the crops of wheat, (little of which is grown, however, hereabouts,) gram, *jowar*, *boota*, and *bajra* are, in consequence, both fine and abundant. Sugar-cane with *rhur dal*, and a small patch here and there for the cotton shrub, meet the eye occasionally; the finest and best looking crops are the *jowar*, whose stalks have reached eleven feet and a half in height, although the general height is from six to eight feet; while their pods are well filled with grain. Between the village and the nuddee, there is a very fine *burghut* tree, which has thrown out several thick branches, which descending perpendicular to the earth, have entered it and taken root. These ramifications, giving support to the parent stem, contribute to a great increase of shade. The place is extremely unhealthy just after the rains; for it is literally embosomed

in jungle, and save where cultivation extends, is surrounded by rank vegetation and underwood. The very air around is tainted by malaria, while the rotting foliage adds to the unwholesomeness of the place. The water of the nuddee is unfit to drink, for it is contaminated by leaves and putrid vegetable matter:—like all mountain torrents, it is nearly dry in the cold and hot seasons, and water is only to be seen in pools. I happened to be stationed on command at this village, with a company of sepoys and a few irregular horse, in the month of October, and lost two or three men from cholera, while several others were laid up with fevers, chiefly of the intermittent kind, with some few cases of ague.

The water in the best and most frequented well, and which the camp used occasionally, if drawn up in a *lota* over-night, and set aside, had its surface covered in the morning with *oily particles*.

The population is scanty about *Mugurduh*. The village of *Indrapoora*, (of which a Goand, named *Lutteca*, was *patél* in 1825,) *Sanajhar* and *Banspanee*, fine-sounding names, are wretched hamlets, buried in the jungle, and inhabited by Goands. This caste of Hindoos are almost jet-black, and dirty and forbidding in their appearance; while they are short in stature, and thick-set in point of make. Their dialect is peculiar to themselves. The whole race appears wretched and poor—a small *dhotee* and a coarse *chudur* to wrap over their bodies form their outward garments. Their tenements consist of huts, whose walls are built of stakes cut from the neighbouring forest, entwined with rude wicker-work, and plastered and besmeared over with mud; while the roofs consist of a thin layer or coating of dried grass, over which are spread some *praus* leaves, and a few battens made from the bamboo, fastened over all to prevent its being acted upon by the wind. The Goands are remarkably fond of swine and buffaloes; they are fond also of rearing fowls. When leaving the road, and penetrating the forest's depths, an occasional hut is met with, completely isolated, and from such I have seen a Goand issue forth, its only human tenant, while a favorite pig has met my eye not far from the threshold. This race of human beings are little better in the human scale than demi-savages; they are very superstitious, and like all dark minds, place great confidence and belief in the charms and quackery of their *gooroos* (or priests). They have rites peculiar to themselves, and tread the jungles' depths at dead of night, without the slightest feeling of dread or fear from tigers or other wild beasts. It has often been a matter of surprise to me, that these men should dare, both by day and night, to traverse and thread these deep forests, unapprehensive of danger from wild beasts (especially tigers) which in these parts are fearfully abundant. Habit with man is certainly a second nature.

Dooleea is a fine village, considerably larger than *Mugurduh*, at the distance of three miles W. by N. from it, and is (I believe) the Company's frontier to the westward. It is built on a rising ground at the distance of a couple of hundred yards from the *Machuk* nuddee, which is here both deep and wide, resembling a good-sized river rather than a nuddee. On the opposite bank, on the edge of the nuddee, stands the village of *Meergaon*, (associated in recollection of Shekh Dulla's visit,) in Scindea's district, of which a Gosain is *zumeendar*, holding it rent-free.

Beyond *Dooleea* a good road leads nearly due west to the town of *Charuah*, belonging to Scindea, where the high-road is gained which leads through *Cheinpoor* and *Ghora-puchar* to *Aseergurh*, *Boorhaupoor*, and *Bombay*.

It is time now to extend my remarks on the country beyond the Company's jurisdiction, and as I believe those parts have seldom been visited by any Europeans, and that little is known thereof, I will in this place state what fell under my limited observation, when traversing that part of India in the early part of November, 1824, when in pursuit of the free-booter Shekh Dulla.

The ford at the *Machuk* nuddee is quite dry after the middle of October; for its bed, composed of large round sand-stones, is in that spot as elevated as the level of the water on each side of it. This nuddee for the distance of two or three miles on each side of the village, is filled with large pieces of rock and stones.

The road, over a black soil, to *Goomgaon*, of which place a Goand was *patél*, was very bad and extremely confined, and only adapted for a rude and narrow species of carts, called *Sagahs*. The estimated distance is between four and five miles—low stunted trees, with *praus* jungle and *byr* bushes, skirted the road, nearly the whole distance. An occasional small patch of cultivation, barely sufficient for the population, near the wretched-looking villages of *Kotwar*, *Zemineea*, *Parada*, *Amerkhal*, and *Moortalai*, which were situated at a very short distance from off the road, was seen. The inhabitants were all Goands, black in colour, stunted in stature, squalid in appearance, and all poverty-clad. They all, however, possessed small herds of buffaloes and swine, while fowls were abundant.

Goomgaon is a good-sized village; a rivulet runs close to it—to the eastward of the village, and at the distance of about fifty yards, there is a thick underwood, consisting chiefly of the much-alluded-to *praus*, (or dock,) and *byr* bushes, beyond which rise abruptly a low range of (sandstone, I believe,) hills, covered with foliage. To the S. W. an excellent road leads to the small village of *Peepurá*, distant about three miles, and beautifully situated in a fine open plain, teeming with topes

of mango-trees and cultivation. To the S. and at the distance of about a couple of miles, are seen the continuation of the low range of hills, noticed close to *Goomgaon*. This is the lower range of the *Kali-bheet* hills.

The road out of *Goomgaon*, in the direction of *Mukrai*, is very good and very wide; yet there is little or no thoroughfare on it:—a few *brinjary* bullocks with grain, and the Goands bringing to the plains their lumps of unwrought iron, are the chief, if not only people met with; *moosafirs* (travellers) are never seen.

At the distance of about three miles from *Goomgaon*, we arrive at the foot of a *ghat*, the ascent of which is by no means long, nor particularly steep. The soil appeared to be of a gravelly nature; the whole of the distance from the village to the top of the *ghat* was skirted by a wood jungle, in which not a single village was visible, while the first mile led through large detached blocks and masses of rock, apparently of limestone formation, which were scattered about in great confusion. It had the appearance of having been caused by an earthquake.

On reaching the top of the *ghat*, a fine prospect is presented on all sides; in the first place, we stand on table-land, (at an elevation, I conjectured, of between 15 and 1800 feet above the sea,) which stretches to the east, to the south, and to the west for a good distance. The southern aspect however was bounded, where the horizon intersected the view, by lofty hills, whose towering peaks rose proudly to the sky. These I supposed to be the lofty range, amongst which the fortress of *Gawilgurh* stands: facing round to the N., a splendid view of the plain below for miles and miles in extent, thickly studded with fine topes of trees, and whose face presented one beautiful sheet of cultivation, gladdened the eye. This magnificent view extends nearly in a half circle from W. to E. The soil on the table-land, I particularly noticed, was of a very black loam. The road was of very great width, very level, and in an excellent state; the strata thereof consisted of a reddish colored gravel.

At the distance of a mile or two further on, a miserable hamlet was reached, consisting of half a dozen huts, called *Doomgaon*. The people who inhabited them were of the *Bhúmkar* caste; and in all respects, save the name, were the counterpart of Goands.

From *Doomgaon*, we left the high road, (if such it can be called, being seldom, if ever, travelled,) and branched off to the left by a narrow pathway into the jungle depths. The first part of the way was a rapid descent into a small valley, in which we found innumerable streams to cross, and wherein we were closely surrounded by hills and forest. At the expiration of two or three miles' progress, a hill was ascended, half way round the crest of which a narrow and dangerous footpath led:

at our feet, and washing the base of the hill, flowed a respectable mountain stream, filled with fragments and detached masses of rock, and having but little water. There was a gradual descent on the other face of the hill, where this stream was crossed again. At the distance of a couple of hundred yards from the ford stood a Goand hamlet, a mere collection of five or six wretched-looking huts: at the distance of a mile further, we crossed a small open plain, in which the jungle was cleared away, and the soil cultivated. This patch, however, extended but a short distance, for it was bounded on the left hand by a range of well-wooded hills, and on the right by high grass and *praus* jungle, with hills close at hand. Another stream, a little deeper than those previously passed, was reached, and a short and easy ascent out of its gravel bed brought us to the Goand village of *Basigurh*, which is situated on the crest of a small hill, covered with wood; it was a small place, and of no note whatever, save being the supposed haunt of the Pindary free-booter Shekh Dulla. To the S. S. E., in a hollow, stood, some short distance off, another Goand hamlet called *Kali-kho*.

Returning the same road, I remained a few minutes at *Doomgaon* to take a look at the fort of *Mukrai*, which appeared to be about three or four miles distant, nearly south. Its walls appeared very high, and were built of light red-colored sandstone. The front presented a beautiful appearance, situated as it was on the table-land, or plateau, while the rays of the morning sun, shining right on it, increased the effect.

Mukrai is the residence of a Goand Raja. The *Sianee* nuddee flows under its walls. On making inquiries for *Kali-bheet*, I was informed that it was only 25 miles distant from *Mukrai*, but I conceive its site further to the westward.

The natives of this part of India appeared quiet and inoffensive, but sadly poverty-stricken, while the population was excessively scanty. The climate is fatal to the European constitution, between the months of June and December. Malaria rages greatly during the intervening months, and the water both of the running streams and wells is unfit to drink, without being previously boiled. Fogs and mists are of frequent occurrence just after the rains. Two or three different kinds of fish are procurable in the *Machuk* nuddee, but *chelwas* (a kind of sprat) and eels predominate, and green pigeons are abundant.

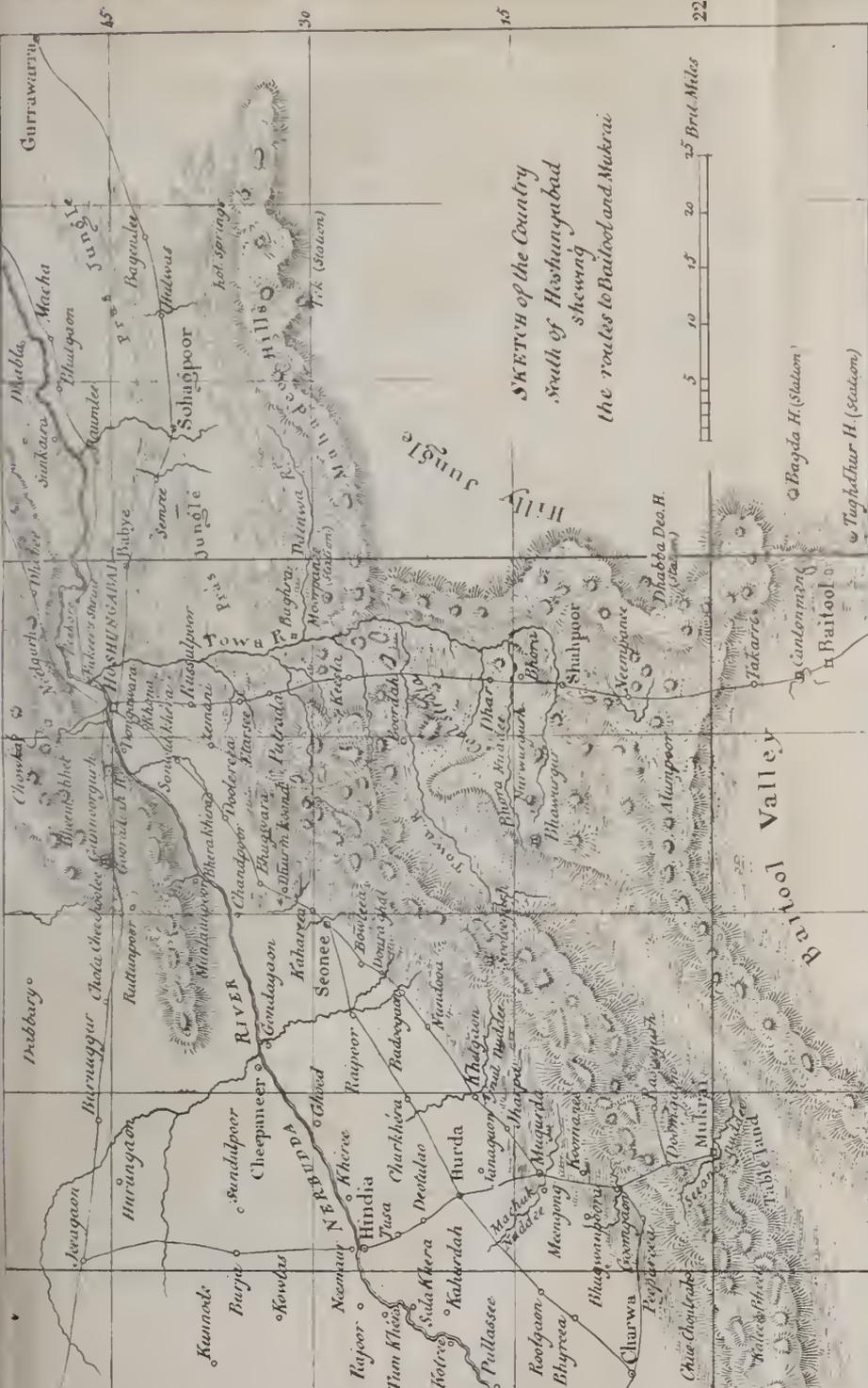
If I recollect rightly, there was in *Mugurduh* one *bunya's* (or chandler) shop; one blacksmith's; one carpenter's: these two obtained a livelihood by forging and making and repairing the rude implements of husbandry, beyond the knowledge of which their skill did not extend; and two or may be three *korees*, (Hindo weavers,) for the weaving of *dhotees* and *chudurs*.

Table of Latitudes and Longitudes of Places in Central India
(Valley of the Nerbudda)

Names of Places.	Latitudes. North.	Longitudes. East.	Height above the Sea.	Remarks.
	0 ' "	0 ' "	feet.	
Gunoorgurh, M.	22 50	75 40		A fortress in Malwa (Bhopal), 13 miles N. W. of Hoshungabad.
Hindhiah, M. . . .	22 26	77 0 (a mistake.)		A town and fort on the S. side of the Nerbudda, which is here 1000 yards broad, belonging to Sindeea.
Hoshungabad, M.	22 43	77 43		A town and fort on the south bank of the Nerbudda, here 900 yards broad.
Ditto, E.	22 44 58	77 47 45		A city and fort in Gondwana. The Baitool valley was ceded to the Company in 1818-19.
Ditto, fort,	22 45 36	77 45 54		
Baitool, Fort, E.	21 51 7	77 51 5		
Tughdhur, Hill, E.	21 49 34	78 1 49	2854	A hill E. by S. from the city of Baitool, noted in the Gt. Trig. Survey.
Bagda, Hill, E. . . .	21 54 5	78 5 2		A high hill to the east of the Baitool cantonment, noted in the Gt. Trig. Survey.
Dhabba Deo, E. . . .	22 5 14	77 58 22	2852	A hill noted in the Great Trig. Survey.
Alumpoor, E.	22 3 33	77 37 58	2643	A hill noted in the Great Trig. Survey.
Nurwurgurh, E. . . .	22 13 45	77 39 25	2722	Ditto.
Neelgurh, E.	22 49 58	77 49 16		A hill near Hoshungabad, noted in the Great Trig. Survey.
Tek, E.	22 30 38	78 9 58	2879	Ditto.
Black rock, E. . . .	22 43 48	77 47 12		A small isolated hill of rocks, distant 1 m. 1 f. 74 yds. S. by E. from Hoshungabad.
Goradhiah Hill, E.	22 45 4	77 42 59		A hill in the Bhopaul territory, noted in the Great Trig. Survey.
Nemaaur, M.	22 27	77 0		A small town on the north bank of the Nerbudda.
Morpani, E.	22 29 34	77 57 3		A hill station noted in the Gt. Trig. Survey.
Bhembhet, E.	22 49 56	77 40 34		Ditto.

Note.—The letter M. denotes that the latitudes and longitudes are from Sir T. Malcolm's work; E. that they are taken from Major Everest's data in the Grand Trigonometrical Survey of 1824.

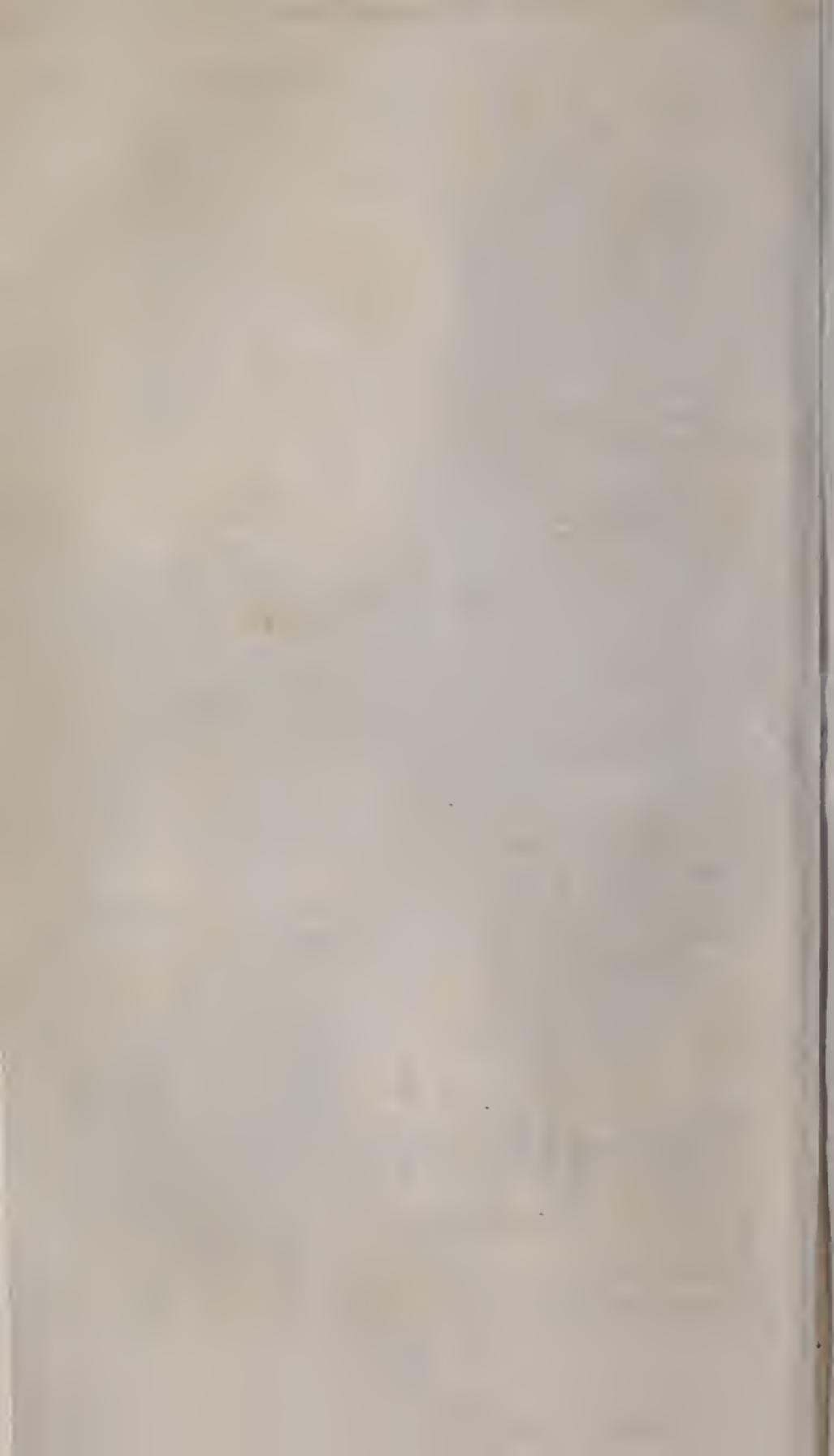
[See the accompanying map, Plate II.]



SKETCH of the Country
south of Hoshungabad
showing
the routes to Bailool and Mukrai



77° 30' Longitude East 78° of Greenwich



III.—*A Summary Description of the Geology of the country between Hoshungabad on the Nerbudda, and Nagpoor, by the direction of Baitool.*
By Lieut. John Finnis, 51st Regt. Asst. Exec. Offr. 14th Divn.

[Presented to the Asiatic Society, 15th July 1829*.]

The route between Nagpoor and Hoshungabad presents as great a variety of formations and as interesting a series of minerals, as is probably to be met with in any part of India of equal extent.

The formations exhibited are trappean, primitive, transition, and secondary, frequently under a very peculiar and confused arrangement with regard to each other, and much intersected by veins of greenstone and trap.

I regret that the circumstances of my march did not allow a more leisurely survey of the geology of a country so well deserving the attention of more competent geologists, or of forming a more regular map of the road described; but I shall hope that my sketches may help to connect the descriptions of other observers, the present route being, I believe, unexplored.

The formations appear to be distinctly divided into five principal divisions.

The first division includes the tract of country lying between Nagpoor and Baitool to the south bank of the Maehna river.

An unvaried formation of trap occurs during the whole of this distance, and the face of the country is covered with round wacken boulders.

The trap forms the southern and eastern boundaries of the valley, and it stretches away to the S. W., but its extent in this direction and to the E., I am not acquainted with.

2nd Division.—The second division comprises the space within the southern and northern gháts on the Maehna.

This river at Baitool is running to the west, and after winding round some hills it re-crosses the road, running east to join the Towa river at Shahpoor. The distance is about 27 miles, the intermediate country, hilly.

On the N. bank of the Maehna at Baitool, trap no longer appears; it is followed by strata of quartz and mica schist, traversing the plain up to the hills north of cantonments. These are of quartz, brittle, very

* We have taken occasion to publish this interesting account of the geology of the country south of Hoshungabad, in juxta position with Lieut. Miles' paper, for the advantage of incorporating the two route surveys furnished by these officers, in one map. Some apology is due to Lieut. Finnis for the delay which has occurred in bringing his labours to the notice of the public.—ED.

highly stratified, and vertically disposed; the layers seldom exceed 11 in. in thickness. The specimens from this locality are marked A.

Nos. 1, 2, and 3, are loose specimens from the plain; 2 and 3 would be found, I think, to enter into the hills. The superstratum of the hills is a sandy clay marl, which continues nearly the whole way to Neempanee. [See notice at the foot of this article.—ED.]

No. 4 is a specimen of the only limestone found near Baitool; it rises abruptly about 10 feet from the bed of a nullah of calcareous sandstone. The limestone No. 5 occurs lying on the right of the road about 5 miles N. of Baitool, and crosses the road at the bottom of a small ravine.

The pudding stone No. 6 appears about 10 miles from Baitool, to the east of the road, elevated above the plain a foot or so only; it is exceedingly hard, broken with great difficulty, and chips off then in thin flat conchoidal pieces. After crossing the nullah at Neempanee, the trap rock No. 7 rises above a black alluvial soil, and rounded masses of 10 and 11 are scattered about. Farther on, the road becomes full of ravines, and the gneiss, 11, is found in mass, but in intimate connection with the unstratified rock 10. The trap 10 in many places shows itself superincumbent on 10 and 11. At the top of the Neempanee ghát, the granite, No. 9, forms nearly the whole summit of the hill, mixed, however, with 10, and the northern descent of the ghát is principally composed of this latter. After passing the ghát at the banks of a nullah, is a low hill of granite and greenstone together, 12 and 13. This latter occurred also above the Neempanee ghát, shooting up through the soil in roundish masses, and near Baitool, to the N. E. of cantonments: the walls of the fort of Keeslah have been built with the same stone. It is met with occasionally proceeding north, intermixed with quartz, until arriving near to Shahpoor, where common trap reappears, and thence the remainder of the road is over a sandy clay soil.

3rd Division.—The 3rd division includes the country between the Machna river and the nullah, one and half mile south of Keeslah, and is bounded on the W. by the small range of Jamgurh hills, which is a ramification from the Mahadeo hills, after they change their direction to the S. W.

After passing the Machna at Shahpoor all traces of granite are lost, and the sandstones B, 1 and 2, become very general. The sandstone strata extend with very little interruption from Shahpoor to Keeslah, and to the foot of the Bhoragurh and Jamgurh hills, frequently showing themselves above the alluvial soil, and traversed occasionally by veins of quartz and trap, as at a nullah half way between Shahpoor and the Bhora nuddee, where a trap vein (No. 4) about 12 yards

wide passes through the sandstone from a S. E. direction. It forms the bed of the nullah, and can be traced for a considerable distance.

The trap dyke is itself intersected in various directions by No. 5 in veins not exceeding 3 feet.

The specimens B, No. 3, were taken from a vertically disposed mass about 10 feet in width, which crosses the road on descending a low hill of sandstone, No. 2. The quartz runs E. and W., and is with great difficulty broken across the laminae.

About 4 miles from the Machna river and 3 miles up the Bhora nuddee, are the seams of coal displayed on both banks of the stream under a thick bed of sandstone*. All the small nullahs run over sandstone beds. After crossing the Bhora nuddee, trap again immediately occurs and continues for a mile and half to the base of a hill of sandstone. The trap is traversed by a vein of calcareous spar, No. 6, about 6 inches wide: no trap appears farther north, and after crossing the sandstone hills, the road passes over a black alluvial soil, which continues to the river N. of Keesla, and the only rock met with is sandstone grit, No. 7.

4th Division.—The 4th division comprises the low range of hills between Keesla and Putroda, forming the pass to the valley of the Nerbudda. These hills form a part of the great range of Mahadeo hills, which at this point form a salient angle projecting to the north west.

After crossing the nullah north of Keesla, the road lies over *kankars* or tufaceous limestones for a short distance, until reaching some low hills where commences a mica schist formation with and without garnets, and interstratified with whitish and greyish limestones, granular and micaceous. The road is thickly strewed with loose limestones and *kankars*.

Little mica slate occurs in the low ground, except passing into or intimately connected with micaceous limestone.

Specimens C 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12, were taken from the immediate vicinity of the road, and their positions are so confused and intricate that I could not attempt to describe the order in which they are arranged. Granular limestone and mica slate appear to form the main rocks, but the whole are intimately blended together and alternately passing into each other.

No. 2 apparently composes the entire mass of two or three low hills. Nos. 3 and 4 form some undulating land near No. 2. On the E. of the road near these rocks are abundant specimens of a greenstone rock, in

* See notice of specimens of the same coal received from Captain OUSELEY, *Journ. As. Soc.* vol. ii. p. 435.

appearance being hornstone crystals imbedded in lime. The garnets in the mica slates are, as far as I have ascertained, all imperfect, soft and ochrey colored.

The limestone specimens 5 and 7 occur very generally along the west of the road, and 7 forms a hillock by the side of a nullah about 15 feet high, irregular and steep; 6 and 8, specimens of micaceous limestone or of mica schist and limestone passing into each other, are found in the banks and beds of nullahs.

10 forms the top of a small hill west of the road near the end of the pass towards Putroda; it appears to repose on a substratum of mica slate.

The specimens marked D, are from the neighbourhood of the Hathee-Doab hill and pool.

D 1.—is the limestone burnt for use for the works at Hoshungabad.

D 2.—is an abundant rock extending E. and W. and up the road to Baitool.

The Nos. 6, 7, 8, 9, form the hill of Hathee-Doab; 6 forms the base, and 8 the summit of the hill.

D 1, 2, and 4.—Compact limestones found on either side of the Hathee-Doab hills; the quartz, 3 and 6, are scattered about on the road to Hathee-Doab; 5 forms the foot of the hills, 9 and 10 are loose specimens met with here and there.

5th Division.—The 5th division extends from Putroda to the Nerbudda at Hoshungabad.

After passing through the hills a rich field of cultivation opens to view, and the rocks are lost under the deep alluvial soil of the valley of the Nerbudda. South of the river two insulated mounds of new red sandstone, rising abruptly from the plain about $1\frac{1}{2}$ miles from cantonments, are the only rocks which show themselves on this side of the river, and they are shoots from the northern or Vindya range which, opposite Hoshungabad, are of this formation.

In excavating two wells of the depth of about 70 feet at Hoshungabad, no rock was met with, but the coarse calcareous conglomerate common in the bed of the Nerbudda.

At the junction of the Towa river with the Nerbudda, 4 miles above Hoshungabad, sandstone ridges cross the river, and 60 miles below, at Hindia, the river is traversed by a basaltic dyke, and the intermediate rapids between those two points are formed of sandstones and coarse conglomerates, rising in some places several feet above the level of the river; opposite the cantonments the bank is formed of the conglomerate, and has all the appearance of the ruins of old uncoursed rubble work, E.

The specimens N and J B are from the road by Jamanee to Boorda, and from Neelgurh, a hill lying to the E. of the road from Jamanee. Nos. 1 and 2, I B limestones lie under the trap No. 3, I B : the limestone 4, I B, is at the foot of the ghát : fine grained sandstones 5, 6, I B, cover the ascent, in which trap is again met, with indurated clays and sandstones, as 5 ; 6 and 10, I B, form the beds of nullahs between the ghát and the coal strata in the Bhora nuddee.

Specimens referred to in the above account.

- | | |
|---|--|
| A. No. 1, granite, large, irregular, of white quartz and silvery mica. | C. 5, white granular limestone. |
| A. 2 and 3, mica schist. | C. 6, limestone with mica. |
| A. 4, foliated tufaceous limestone. | C. 7, granular limestone, as 5. |
| A. 5, a reddish brecciated limestone. | C. 8, a dark-brown stone, lime and mica. |
| A. 6, a silicious conglomerate. | C. 9, mica in lime. |
| A. 7, compact wacken. | C. 10, a hornblende rock. |
| A. 9, large-grained granite flakes of silver mica, white quartz and light flesh-coloured felspar. | C. 11, mica schist passing into lime. |
| A. 10, a dark red, small grained syenitic granite nearly all felspar. | C. 12, a conglomerate of mica, schist and hornblende crystals in lime. |
| A. 11, gneiss, dark, small mica in layers. | D. 1, a tufaceous limestone. |
| A. 12, grey granite, dark mica decomposing. | D. 2, crystallized limestone. |
| A. 13, much hornblende, white quartz, and perhaps felspar mica, one or two spots. | D. 3, a schistose granular limestone, mica in strata. |
| B. 1, very fine-grained sandstone, with thin veins of quartz and quartz crystals in hunches. | D. 4, calc. conglomerate. |
| B. 4, brown wacken, containing large crystals of ——— ? | D. 5, ditto tuff. |
| B. 6, dark aluminous shale, traversed by very minute veins of calc, spar. | D. 6, quartz rock, grey. |
| B. 3, vesicular laminated white quartz. | D. 7, ditto ditto, resembling a silicious conglomerate. |
| B. 2, minute-grained soft sandstone. | D. 8, 9, ditto ditto. |
| B. 6, pure white calc. spar. | D. 1, finity whitish limestone. |
| B. 7, hard sandstone grit. | D. 2, buff-coloured ditto. |
| C. 1, mica slate. | D. 3, common white quartz. |
| C. 2, ditto do. with garnets, & contorted. | D. 4, striped red and white ditto. |
| C. 3 ditto filled with large garnets ; the mica in the 3 above, in very minute crystals. | D. 5, mica schist with garnets. |
| C. 4, hornblende crystals, with specks of mica greenstone. | D. 6, ditto striped red ditto. |
| | D. 7, ditto ditto. |
| | D. 8, a limestone conglomerate. |
| | D. 9, nodule of greenstone. |
| | D. 10, black clay, slate. |
| | E. conglomerate of the bed of the Nerbudda. |
| | I B. 2, 3 and 7, grits. |
| | Nos. 5½ and 7½ conglomerates. |
| | No. 5, A white tufaceous limestone, imperfectly crystallized. |

[The specimens are deposited in the Museum of the Asiatic Society.]

IV.—Further Information regarding the Siah Posh Tribe, or reputed descendants of the Macedonians. By Munshi Mohun Lál*.

I had the pleasure to despatch to you a small account of Herat, which I hope has met your approbation. We are now at the ancient place called *Jalálabad*, which was one of the capitals of the Macedonian dynasty. At this spot I happened to meet the great *Muftí*, who often came to see Dr. GERARD, and has lately travelled into the country of the *Siah Posh*; or, as he called them, "*Kafirs*." He kindly gave us the following accurate, though brief account of the above tribe :

From *Jalálabad* he went to *Karún*, and from thence to "*Cha Ghul Serai*." Having passed through the valleys called *Darah Nur*, *Damunj*, and *Vakul*, he arrived the third day at the village named *Katar*, occupied by the *Siah Posh*. The inhabitants, whom he called the masters of beauty and charms, came to see him, and were surprised at some feats of his horse : this animal is hardly known in the country of *Siah Posh*.

Their dress is of goat skin, and their hair hangs down to their shoulders. They drink wine as well as water, and never sit upon the ground, but only in chairs. This shows perhaps that they are the descendants of ALEXANDER THE GREAT.

As to their religion, they worship idols, either made of stone or woods, which they call *Búruk*, or *Maha Dev*. They wear an iron ring in their ears, and a string ornamented with shells, round their necks. This seems to be the custom of the Hindu Jogis, or red-dressed beggars in India. They sacrifice cows on their holidays, as the Muhammedans do in the day of Eeduzuha. If a stranger happens to ask them where is God, they point with their fingers towards the west or Mecca. They read the Muhammedan kalimeh to please the Musulmans, and at the same time confess themselves to be *Kafirs*; in short, their religion is not known.

They never intermarry with their relations, as the Hindus do; the ceremonies of the wedding are very singular. They bring their wives unveiled on their shoulders, dance, run, and jump in the streets, (like a jackass, as the *Muftí* says,) while they are accompanied by crowds of men and women, who play upon drums and flutes, and make a great noise. The parents of the girl are exceedingly pleased to see the husband using his great endeavours in jumping, as they think him the most intimate lover of his wife.

They have made a public house, where they send the pregnant women before their accouchement, and keep them forty days there. No

* See Lieutenant BURNES' notice on the tribes claiming descent from ALEXANDER THE GREAT, in the second volume of the Journal, page 305.

man is allowed either to enter the room or pass by the house, but only females. This custom I believe prevails among the Jews.

The funeral of the *Siah Posh* people is triumphantly solemnized. The corpse is generally attended by young men, who sing, skip, dance, and play upon drums. The deceased, unwashed, is carried away upon the shoulders of men, in a large box, as among the Muhammedans. It is taken upon the top of a high mountain, and put open in the sun. They sacrifice a cow, and give a feast to the attendants of the funeral. Then they return home, and do not weep at all.

After sixty days, when the body is putrefied, and eaten by birds, the women of the family go in an assembly upon the mountain. They pick up the bones, and after washing them in a stream, they bring them home, sit round them, and then mourn for a short time; after this, the men come and convey the bones to a large cave excavated in the ground. They throw them in it, and turning to the bones, they say, "This is the heaven for you."

The language of the *Siah Posh* is mixed with that of Hindústání, Persian, and Afghaní. They use the word *istri*, which means either in Hindí or Sanserit, a wife: they say, *ravray*, which signifies in Afghaní to bring. They also use the word *khub*, which imports in Persian, good.

From the instruments of war of the *Siah Posh* people, we imagine that a model of the Macedonian soldiery continues yet in this country. They make war with spears, and are good archers. They tie scimitars round their waists, and carry shields upon their backs. They fight with great ferocity, gnashing their teeth, and roaring like a lion. The victors are crowned with the chaplets made of the leaves of the mulberry-tree.

The women, who possess an unbounded beauty, manage all the exterior business, while their stout and handsome husbands remain in the house, feeding the children in their arms. The females cultivate, bargain, and rove about to procure a livelihood. The men follow no employment except that of occasional warfare.

The labours of the women in tillage are productive of fine rice, wheat, and barley. Fruits are abundantly reared: from the fine grapes they make good wine, and the syrup of the water-melon they use instead of sugar. They eat the flesh of every animal except that of dogs and jackals.

If any stranger is found guilty of adultery, either with any body's wife or daughter, the *Siah Posh* never sentence him to death like Muhammedans, but extort from him a little sum of money amounting to 12 or 13 rupees.

At this unlawful act the *Siah Posh Kafirs*, (the *Mufti* says,) in lieu of getting enraged, are happy to say to their acquaintances that their

females are such liberals as to satisfy the heart of every man, who is the best creature of God in the world.

Kumbir, *Save*, and *Kulman* are the largest towns in the country of the Kafirs. They are well erected, having long and broad streets without a single shop. The *Siah Posh* have very few she-goats in their country.

I could not extend my inquiries much farther about the Kafirs, as the *Mufti* left us soon on his route to *Kábul*.

The *Siah Posh* claim their descent from the Arabs, and some of them acknowledge to be descended from the Macedonian soldiers. For my own part, the names of the *Siah Posh* males seem to be quite different from all nations in the world, except the Europeans, namely *Shaulah* and *Jankhen*.

The artists in that part of the country are called *Bari*. They are not civilly treated by other *Siah Posh* who are known by the name of *Sahu*, and they are not even allowed to sit before them.

Many of the *Siah Posh* call themselves *Maliks*, or Princes, who use their force to sell the children of the *Baris* to the neighbouring Muhammedans. They call them the descendants of those slaves which their lion-figured fathers brought at the invasion of India; but the *Mufti* says, that they do not mention particularly the name of *Sikandar*.

In our late journey to *Bokhara*, we had one *Badakhsháni* pilgrim in the caravan, to whom we are highly indebted for his valuable information. He mentioned, that the rulers of his neighbouring regions, besides the chief of *Durvaz*, *Kator Shah*, *Sulciman Shah*, and *Ghazub Shah*, being Muhammedans, still derive their origin from the hero son of the Macedonian Philip. He adds also, that the soldiers under them, whose nativity runs to that of the *Siah Posh*, extract their genealogy from the warriors of the great conqueror.

In my opinion, the *Siah Posh* soldiers, who claim also the same descent, were the countrymen of those of *Badakhshán*; but when the violent invasion of Muhammed subverted the rich valley of the Oxus, many of the Macedonian descendants were converted to *Islám*, and many, avoiding that religion, left the valley and chose their ground upon the mountains near *Hindu Kush*. They live there now independently, keeping their former principles of worshipping the idols, (as the Macedonians did their heathen deities,) and calling themselves the hero descendants of ALEXANDER's soldiers. They put on the black skin of the goat, and do not believe in Muhammed; therefore they are called *Káfir Siah Posh* (or black-dressed infidels).

I shall remain in great anxiety till the time I either examine with my own eyes the customs and manners, and the renowned features of this

curious and little known nation of *Siah Posh*, or we receive more authentic information from an European traveller in that country.

If my humble and zealous endeavours are worthy of your approbation, I beg you to send a copy of the journal to my kind friend Dr. MACNIELL, Assistant Envoy at the court of Persia, in Tehran, who was very anxious to learn about the *Siah Posh*, and, at the same time, much interested in the prosperity of your journal, which he was not well aware of till Dr. GERARD shewed him some numbers of it. I have another request to make,—that you will be kindly pleased to transmit a copy to the Committee of the Dehli College, to which I owe all my advantages.

Jelalabad, 3rd Dec. 1833,

[We shall have much pleasure in complying with our correspondent's request.—ED.]

V.—*Abstract of a Meteorological Register, kept at Mozafferpúr, in Tírhút, (Lat. 26° 7' 20" N. Long. 85° 24' 30' E.), by T. Dashwood, Esq. C. S.*

Following up the plan already adopted with former tables, we have now to lay before our readers an abstract of the daily registers obligingly kept at our request by the gentleman whose name appears at the head of this notice, for the period of one year, in order to supply data for estimating the climate of Tírhút. Although unable to find space for the whole of these registers*, we have extended the detail in some degree by taking the averages every half month, instead of only once a month. The only point on which there appears to be some little doubt is, as respects the diurnal oscillation of the barometer; which, being less than at places under the same parallel, leads us to suspect, that the instrument, being of the mountain construction, was not sufficiently sensible to minute impressions.

Its agreement also with the instrument registered in Calcutta was not noted before dispatching the barometer to Patna.

The prevailing wind at Mozafferpúr is from the east. It blows strong from the west in February and March:—north and south winds are of very rare occurrence.

Table I. is derived directly from the registers, with the exception of the barometer entries for November, which are filled in by interpolation; the thermometer for that month was registered in a tent at or on the road to Hajipúr.

* The registers for December, 1832, and the two following months, were printed at length in the April number of the Journal for 1833.

TABLE I.—Half-monthly Averages of Observations of the Barometer and Thermometer in Tírhút.

Month.	Barom. at 32°		Ther. in doors.		Ther. out of doors.		Winds.		Weather.
	mean height at		means at		means of		W.	E.	
	9¼ A. M.	4¼ P. M.	9¼ A. M.	4¼ P. M.	Maxima.	Minima.	Number of days.	Number of days.	
1832.	inch.	inch.	°	°	°	°			
Dec. 1 to 15	29.650	.574	65.5	67.5	72.6	57.0	10	5	Fogs and drizzling rain.
16 to 31	.659	.574	59.0	62.5	68.5	48.5	13	3	Clear; (one fog in morning.)
1833.									
Jan. 1 to 15	.744	.636	58.6	61.6	69.5	50.6	9	6	Fine sharp weather.
16 to 31	.757	.648	59.7	62.8	70.3	51.2	9	7	Clear; some hazy and cloudy days.
Feb. 1 to 15	.609	.518	63.2	67.0	78.8	54.6	11	4	Cloudy, showers, & violent W. wind.
16 to 28	.641	.530	65.2	69.8	77.8	55.6	10	3	Fair with strong winds.
Mar. 1 to 15	.518	.445	71.0	76.8	85.5	60.5	14	1	Clear with strong winds.
16 to 31	.526	.424	76.8	80.7	90.5	67.7	13	3	Cumuli; (more W. wind than usual;) 1 storm.
Apr. 1 to 15	.467	.370	78.7	81.0	94.2	70.3	4	11	Clear; var. winds; 1 storm.
16 to 30	.360	.279	82.7	84.1	100.	76.0	8	7	Clear; fine weather.
May 1 to 15	.399	.292	82.2	84.1	95.5	74.8	½	14½	Flying clouds; gale from E.
16 to 31	.177	.143	83.5	84.9	94.7	78.2	1	15	Fair; one day rain.
June 1 to 15	.203	.134	85.8	87.5	102.	79.6	½	14½	E. morn. W. even., 2 north-westers.
16 to 30	.156	.091	84.7	86.4	95.9	79.7	½	14½	Hazy sky; 1 north-wester, 3 rain.
July 1 to 15	.154	.089	81.8	86.3	94.2	80.7	3	12	Fair; 3 days rainy.
16 to 31	.156	.100	84.3	86.0	91.7	80.5	0	16	Showery and fair.
Aug. 1 to 15	.165	.109	82.4	84.3	90.0	80.0	6	9	1 N., 1 S., heavy rain and storms.
16 to 31	.251	.168	82.1	83.4	88.7	79.3	2	14	Heavy rain; 8 days fair.
Sept. 1 to 15	.274	.193	82.9	83.7	89.3	79.2	1	14	Fair; 3 days rainy.
16 to 30	.286	.198	84.4	86.0	91.2	80.3	1	14	1 S.; fair; 1 storm; 3 showers.
Oct. 1 to 15	.401	.305	82.3	84.0	89.7	77.5	0	15	Cloudy without rain; fair.
16 to 31	.582	.493	78.6	81.1	88.5	71.3	6	10	Calms; fair; 2 strs.
Nov. 1 to 15	.600	.510	76.2	83.6	85.0	64.0	2	13	Fog. morn.; fair day; strong winds.
16 to 30	.630	.540	72.7	81.0	83.5	60.7	8	7	Ditto; earthquake on the 26th.
Means,	29.432	.348	76.0	79.0	87.0	69.1	132½	232½	Moist mild climate.

Table II. is deduced from the foregoing, according to the form adopted for other localities. The range both of temperature and of pressure

is a little less than that observed at Benares, but the mean temperature agrees almost precisely with the quotation for that place.

TABLE II.—*Summary of Pressure and Temperature.*

Month.	Barometer at 32°.			Thermometer.				Wind.
	Average monthly altitude.	Monthly deviation from annual mean.	Mean diurnal oscillation each month.	Average height with- in the house	Mean of dai- ly extremes in the open air.	Monthly deviation from annu- al mean.	Mean diur- nal range each month.	
	inches.	inch.	inch.	°	°	°	°	
Jan.	29.698	+ .308	.111	60.6	60.4	-17.6	19.0	e.w.
Feb.	.575	+ .165	.101	66.4	66.7	-11.3	23.2	W.
Mar.	.479	+ .089	.087	76.3	76.1	- 1.9	23.9	W.
Apr.	.369	- .021	.089	81.6	85.2	+ 7.2	24.1	WE.
May	.252	- .133	.071	83.7	85.3	+ 7.3	19.5	E.
June	.146	- .244	.068	86.0	89.2	+11.2	19.1	E.
July	.125	- .265	.060	84.6	86.7	+ 8.7	12.3	E.
Aug.	.173	- .217	.070	83.2	84.5	+ 6.5	9.8	E.
Sept.	.237	- .153	.085	84.3	85.0	+ 7.0	10.5	E.
Oct.	.445	+ .055	.093	81.5	81.5	+ 3.5	14.7	E.
Nov.	.570	+ .180	.090	78.4	73.8	- 4.2	21.9	E.
Dec.	.614	+ .224	.080	63.6	61.6	-16.4	17.7	W.
	29.390	range 573	.084	77.5	78.0	rang. 28.8	17.9	

VI.—*On the Land Shells of India.* By Lieut. Thomas Hutton, 37th Regt. Native Infantry.

To the Editor of the Journal of the Asiatic Society of Bengal.

I have the pleasure to send you a few observations on the land and fresh-water shells of India, which I have had the good fortune to collect since January, 1832, accompanied by specimens, which will serve better than drawings to shew you the species described.

I am sorry I cannot at present offer you a greater number of each, as my collection is not very numerous, but should any of those sent be desirable, I shall have pleasure in collecting for you whenever opportunity may occur.

The same offer I would also extend to the Society, did I think I could be of any use in swelling the treasures of their museum.

Being as yet but a tyro in natural history, and having no works of any great authority by me, I have hesitated in affixing even a generic name to my descriptions, and should these be wrong, I must crave your indulgence and correction*.

* We have received Lieut. HUTTON'S Specimens in safety, but have not been yet able to make drawings of them to illustrate his valuable notice: neither have we ventured to alter the generic or specific names given to them by the author, which would require greater knowledge of the subject than we possess. They remain, however, open to any future correction.—ED.

PART 1.—Land Shells.

Genus CYCLOSTOMA, (*torquata* ?)

Animal unknown to me.

SHELL.—Diameter about $1\frac{1}{4}$ inch; spire, prominent and pointed; whorls, rounded and six in number; umbilicus, well defined and discovering to the third whorl; aperture circular, margins united, thickened, and reflected: slightly inclined to be angular at the point where the right lip comes in contact with the body whorl; interior of the aperture with a red or deep orange-coloured ring.

Colour of the shell dingy white, with irregular tortoise-shell coloured patches and transverse broken lines on the upper side of the whorls; the under side with longitudinal bands of the same colour, leaving a broad longitudinal white stripe down the middle of the body whorl; operculum horny; concentric lamellar. In some shells the colours are more vivid than in others; I have one in my possession of which the colour is a pale yellowish brown or buff throughout, the markings being very little darker than the ground colour: this however does not appear to have been caused by exposure, as the shell exhibits a very healthy appearance. This is the only specimen with an operculum.

These shells I found at Rajmahl, lying dead among the loose bricks and rubbish by the side of pathways leading among the ruins of the ancient palace. It is probable that they may be found living on the rocks in that neighbourhood, and among the ruins themselves; I had however no time to spare, and was obliged, though reluctantly, to proceed without making farther discovery.

No. 2.—Genus CYCLOSTOMA, (*fasciata* ?)

Animal unknown to me.

SHELL.—Diameter little more than half an inch, or $5\frac{1}{2}$ lines; whorls five in number, and flattened on the upper side; spire depressed and flattened, even with the whorls; mouth horse-shoe shaped, (not circular,) the margins reflected and partially interrupted by the body whorl, a thin plate alone joining them; colour white, with four or five longitudinal stripes of reddish brown: the first* or upper stripe being generally the broadest and darkest, and following the whorls from the apex to the margin of the mouth. Umbilicus discovering the third whorl. I have seen no operculum.

These shells I have often found in dry ravines and on the banks of the Ganges, where they were no doubt left by the subsiding waters after the rainy season.

On account of the aperture being horse-shoe shaped, I have placed a mark of doubt to the generic name.

* In some the second (not the first) stripe is the darkest, &c.

No. 3.—Genus *HELIX* ?

ANIMAL.—Dark brown or blackish, with four tentacula, the two superior ones being longest, and bearing the eyes at their summits; tentacula clubbed or forming a button at the tips, retractile; body elongate, with a hooked process on the extremity or tail, pointing backwards: from the right side of the animal proceed two narrow, flat, gradually-pointed filaments or tentacula, which, when the animal is in motion, are kept constantly playing over the surface of the shell, and in all probability give it the high polish it possesses.

SHELL.—Thin, fragile, pellucid, with a small pillar cavity, not discovering the previous whorls; whorls six or seven in number; colour pale brownish; shell very glassy, with fine smooth polish; aperture lunated, margins edged and disunited, being interrupted by the body whorl; diameter about one inch; spire flattened, as are also the sides of the shell more or less.

I have placed a mark of doubt to the generic name, because I do not find in the description of the genus *Helix* any allusion made to the process on the tail of my specimen, nor to the two tentacula proceeding from the right side of the animal. I found specimens of these shells, dead, in dry ravines, and on the banks of the Ganges.

They live however in rocky situations, so that their being found in the above-mentioned places must be owing to the mountain streams having carried them off during the rains.

I procured living specimens at Tara, in the range of rocky hills near Mirzapúr, in the month of August, 1832. In wet weather, or more properly speaking, during the rains, they sally forth from their retreats in quest of food, which consists chiefly of vegetable matter. They prefer the early hours of morning to feed in, before the sun has sufficient power to become distressing to them; they appear to require a great deal of moisture, while in motion, without which the slimy matter, which exudes plentifully from their bodies, becomes so thick as to impede the progress of the animal: I observed this to be the case with several which I kept alive for some time; when a few drops of water were sprinkled upon it, the animal put itself in motion, and continued so to do, until the slimy matter became too thick to allow it to proceed without evident exertion. I never found these shells in motion, except on very wet days, and the above circumstance may probably be the reason. At the close of the rainy season, they deposit their eggs in the ground, and retire to some secure retreat, where they remain during the cold and dry seasons of the year, protected from the weather by the dark caves or blocks of stone among which they conceal themselves, shutting up the aperture of the shell with a viscous fluid, which soon

hardens, and becoming like a thick coating of gum, effectually excludes the external air.

The ova are deposited in long strings, and are white.

No. 4.—Genus *BULIMUS*.

SPECIES. *B. acutus*? Drap. Moll. 77. Also, vide Flemming's British Animals.

ANIMAL.—With four tentacula, bulging and rounded at the summits, and the two longest having the eyes at the tips; body elongate and tapering posteriorly, of a pale colour; the tentacula inclining to pale brown.

SHELL.—Ground colour white, with a longitudinal brown band on the lower side of the body whorl, and many irregular small spots of the same colour; markings of increase distinctly seen; the smaller shells have a tinge of very pale brown in the ground colour; margin of the mouth slightly reflected on the small pillar cavity; whorls eight in number; length $5\frac{1}{2}$ lines; shell turretted; spire acute; whorls gradually tapering; mouth ovate, longer than broad; right lip edged.

This elegant little shell I first found at a place called Dhuni, in the Jypoor territory, on some large banian trees* (burgut) overhanging a tank. They conceal themselves during the dry seasons in holes, and beneath the bark, shutting up the mouth of the shell with a brittle gum-like substance, which enables them to adhere to the wood. I found some of this species also at Neemuch during the late rains, on a klujoor tree†, and also on vines in a garden.

No. 5.—*BULIMUS*?

ANIMAL.—Furnished with four tentacula, retractile, the two upper ones being the longest, and bearing the eyes at the summits; foot elongate, rather rounded posteriorly, truncated before; colour pale yellowish.

SHELL.—Transparent, thin, and pale coloured, or rather colourless; spire gradually tapering; whorls 12; body whorl equal to the two preceding ones; length $6\frac{1}{2}$ lines‡; aperture longer than broad, semi-ovate; pillar lip straight and slightly reflected; right lip edged.

This delicately formed shell I found beneath a flower pot at Mirzapor, in September, 1832. They were in great abundance, particularly among the grass growing at the base of the outer walls of my Bungalow. I afterwards found them beneath stones at Futtehpoor Sikra, in December, and also buried deep in the earth with Pupæ at different places in the rocky hills, between Agra and Neemuch. They feed on

* *Ficus Bengalensis*, vel *Indica*.

† *Phoenix Sylvestris*?

‡ I have only one of this length, the generality being about five lines. It has also 12 whorls, while the others have about 9 or 10.

vegetables, but appear to have no objection to animal matter also. They bury themselves in the earth, descending foot foremost after the manner of the Pupæ, and remain torpid during the dry season.

I had lately a great number of living specimens in a torpid state, buried in a large glass jar full of earth, in which they had lived eight or nine months; most of these I find however to have died, leaving a string of whitish ova in the shell.

No. 6.—Genus PUPA.

ANIMAL.—With four tentacula, the upper pair being longest, and bearing the eyes at the summits; animal blackish; tentacula bulging at the tips. Ova-viviparous.

SHELL.—About $7\frac{1}{2}$ or 8 lines long, cylindrical, spire blunt; whorls 9 or 10; aperture roundish or sub-quadrate; margins thickened, and slightly reflected, interrupted by the body whorl, a thin plate intervening. Colour of living specimens, very pale brownish.

The exuvia of these shells is very common in ravines and on banks of rivers, and in these situations the shells are always white from exposure.

They are to be found in abundance in the range of hills between Futtehpoor Sikra, and Neemuch, and it is probable that they are to be met with in the hills near Mirzapoor, and indeed all along that range. They bury themselves deep in the earth, beneath huge masses of rock, the roots of trees, &c. in immense numbers together. They appear indeed to have formed a community, so thickly do they lie upon each other, and to have buried themselves by common consent in a chosen spot. They do not appear to be scattered indiscriminately over the whole rock, but only in selected spots here and there. The aperture of the shell is generally closed with a very thin coat of hardened viscous matter, considerably thinner than fine silver paper.

They appear to be ova-viviparous; I found one shell with four or five young ones in it, all dead, and having 2 or $2\frac{1}{2}$ whorls. Another with three young ones of three whorls each.

No. 7.—PUPA.

ANIMAL.—With four tentacula, buttoned at the tips, the upper pair longest and bearing the eyes at the summits; colour blackish.

SHELL.—About $2\frac{1}{2}$ lines in length; whorls 8; spire rather obtuse; colour brown; aperture rounded, margins reflected and interrupted by the body whorl.

The shell is covered over with a coating of mud. These little shells I found at Beana; they were adhering to the face of a bare and very steep rock; the mouth of the shell is stopped up with a viscous fluid similar to the foregoing descriptions, and this enables them to stick to

the rock with such firmness as to render it difficult to detach them without breaking.

I found one or two buried in the earth, among the preceding species.

From their being covered with clay, I was at first inclined to pass them, thinking they were the nidi of some small species of fly. They were scattered over the bleak face of the rock in great numbers.

The "*Bulimus Obscurus*" is said to cover itself with mud in the manner as here mentioned, but it also changes the materials of this coating according to circumstances; for instance, if on a tree, it makes use of bits of lichen to conceal itself, or if on rocks, it uses clay and so on. Perhaps the above species may be found to do likewise.

NO. 8.—PUPA.

ANIMAL.—With four tentacula, retractile, clubbed at the tips; the superior pair longest, and bearing the eyes. The upper pair of tentacula and a line along the back leading from them are vermilion coloured; the lower tentacula minute, and with the rest of the animal very pale yellow; body elongate, inclining to a point posteriorly.

SHELL.—Thin, vermilion-coloured when living, but diaphanous and colourless when cleared of the animal, cylindrical, obtuse at the summit; whorls seven or eight; aperture rather subquadrate, with four teeth, and corresponding indentations externally; length about three lines; margins of the mouth reflected.

These shells I discovered first at Mirzapoor beneath garden pots, and at the base of the walls of my Bungalow, in company with "*Bulimus*" No. 5, in September, 1832. Their habits appear to be the same; they were however very scarce, and I could only find one or two buried with Pupa No. 6, in the rocks between Agra and Neemuch.

NO. 9.—GENUS *SUCCINEA*.

ANIMAL.—With four tentacula, short and thick; the superior pair bearing the eyes at their *posterior summits*. Colour greenish.

SHELL.—Thin, fragile, diaphanous, and colourless; aperture longer than broad, and ovate; margins edged; lines of increase delicate and distinctly seen; spire prominent; whorls twisting rapidly and four in number. The body whorl forming nearly the whole shell. Length of my largest specimen half an inch.

In form these shells are very like the *Lymnææ*. I found them adhering to the face of the rocks at Beana in December, 1832, along with Pupa No. 7. There was a thin coat of a hard gum-like substance closing the mouth of the shell.

I also found a few buried with Pupæ in the earth.

No. 10.—GENUS AMICULA.

Species.—*A. Scarabæus*. Lam.

ANIMAL.—Unknown to me.

SHELL.—Ovate, flattened; aperture with seven teeth; right lip edged and white; left lip pale coloured and partially reflected; whorls eight or nine; close. Colour pinkish chesnut, with a few darker marks here and there. Spire short; body whorl large and forming more than two-thirds of the shell; aperture longer than broad and flexuous. Length about seven lines.

I found this specimen on the banks of the Ganges in 1832. But I do not recollect the place, and I made no memorandum of it at the time. It was lying, however, a very little above the water line, on a sand bank. It is the only specimen I have seen.

In “Burrow’s Elements of Conchology,” this shell is described and figured under the Linnæan name of “*Helix Scarabæus*,” in the following manner.

“Shell ovate, two edged, sub-umbilicate; aperture toothed.”

“Specimen brown, variegated with pale spots, outer lip and teeth horny, white; whorls contiguous double convex; aperture narrow, compressed and flexuous; each lip with three teeth; inhabits Asia.”

The plate accompanying this description, and taken from a specimen, at once shews it to be identical with the shell in my possession; but the author errs in saying “each lip with three teeth,” inasmuch as his plate and my specimen have only one large tooth on the inner lip, three on the right lip, and (in the plate) two large teeth on the body whorl; my specimen has, besides the two on the body whorl, a very minute one arising near the base of one of them, and which, although not noticed by that author, is still nevertheless a distinct and decided tooth.

La Marek says, it is “seven-toothed.”

Having now given a slight description of each species of land-shells in my collection, I shall, before concluding my letter, mention a circumstance connected with most of them, for which I have not been able satisfactorily to account, nor indeed have I as yet had an opportunity of ascertaining, whether the fact, hereafter mentioned, may be considered as one of the constant habits of the animals, although from the observations I made at the time, I am strongly inclined to think, it may. My attention was first called to the subject, while searching for Pupæ No. 6.

When proceeding in December, 1832, to join my regiment, my route lay, from Futtehpoor Sikra to Neemuch, chiefly through a range of low rocky hills, and observing great numbers of these Pupæ, dead, in ravines and on banks of nullahs, I naturally concluded that living

specimens might be found in the hills, and accordingly whenever our encampment lay within a moderate walking distance, I set forth, after breakfast, with sundry apparatus for digging up and securing whatever prize I might be lucky enough to meet with.

For the first day or two my search for shells was ineffectual, and I returned to my tents tired, and puzzled to account for my bad success, until at last, we encamped between two detached hills. Here I once more commenced a search, which for several hours proved as unsuccessful as before; but the day being cool, and the surrounding scenery very beautiful, I climbed up the rocks and crossed over to the *eastern* side, where I again commenced a search, which in a very short time was rewarded with a more abundant supply of living Pupæ than I had ever thought of obtaining.

These were buried deep in the earth, where they might undoubtedly have remained, safe from prying eyes, had not a little mouse, fortunately enough for me, selected that very spot, whereon to sink its subterranean retreat, and thus unconsciously betrayed the hidden treasures.

The circumstance of these shells being found only on one side of this rock, induced me to go and examine the one on the opposite side of our encampment, and there also I found Pupæ deeply buried in great numbers, but only on the eastern aspect.

From this time I made a point of inspecting the neighbouring hills, whenever within easy distance, sometimes finding no shells, while at others I found them in abundance, and invariably facing towards the E. or S. E. In company with these, I found at different places a few specimens of *Bulimus* (No. 5), Pupæ (Nos. 7 and 8), and *Succinea* (No. 9).

I now began to recal to mind the situation in which I had found *Bulimus* No. 5, and Pupa No. 8, at Mirzapoor, and they also were decidedly only to be found on the S. E. side of my Bungalow; and moreover, I am nearly certain that *Helix*, No. 3, found at Tara, was also on the eastern aspect. Pupa No. 7, and *Succinea* No. 9, as also numbers of Pupa No. 6, were found on the rocks at Beana, facing to the same direction; and *Bulimus* No. 4, although a few were found elsewhere, were by far more numerous on the eastern side of the trees, than on the others; and this also I observed at the commencement of the rainy season at Neemuch.

Having therefore satisfied myself that all the living species of land shells, which I have collected, were found *on* or *nearly on* the same aspect, viz. eastern or S. E.; it only remains to ascertain the cause of such partiality, and as this is most probably connected with the welfare of the animal, it may be concluded that the all-wise Director of nature has imparted an instinct to these tender beings, which enables them to choose the

situation most favourable to their wants and safety. May not, therefore, the fact of their being found on the eastern aspect of the rocks and trees be accounted for, by supposing it to originate in a desire to find shelter from the western blast during the dry heats of summer, and to be in a situation to enjoy the first refreshing and invigorating showers of the rainy season?

I have put the above as a query, because I am not certain that the rains prevail from the eastward or south-eastward, although at this station they have certainly done so this year. I shall however take every opportunity of ascertaining, whether the above is a constant habit of the land shells or not, and in this I hope I shall be assisted by others of your correspondents who may be willing to pay attention to the subject.

PART 2.—*On the Fresh-water Univalves.*

NO. 1.—GENUS AMPULLARIA.

AMPULLARIA.—Found in jheels; Mr. BENSON'S description of the animal, as far as I have been able to ascertain, is perfectly correct. Operculum calcareous?

Var. With longitudinal brown bands; found with the last, in jheels at Mirzapoor.

I have one large specimen with stripes, which is indeed the only one I have seen, but the young ones are very commonly met with. Operculum calcareous.

NO. 2.—PALUDINA, *Bengalensis*?

This is a very common shell, occurring plentifully in most jheels and stagnant nullahs. In the Jegu nullah at Chunar they are in abundance, but the first specimens I procured at Humeergurh near Nee-much, in a large jheel. The animal is beautifully studded over with black and orange coloured spots. It is ova-viviparous; from one I obtained 102 young ones. Length of the shell from $1\frac{1}{2}$ to 2 inches. The young have a ridge or keel on the body whorl, which makes the aperture sub-triangular; this is lost in the mature shell.

The umbilicus of the shell varies much in different specimens, some shewing scarcely any, while others have it very well defined and rather deep.

The shell is covered with an olive-green epidermis and longitudinally striped with brown; on the body whorl these stripes are nine in number, and are placed alternately, a narrow one and a broad one. Operculum corneous.

NO. 3.—PALUDINA.

In jheels and stagnant nullahs.

This has a broad brown band running longitudinally from the apex to the aperture.

The young are keeled like those of the last species. Length about one inch—aperture with a bleak horny rim. Operc. corneous.

No. 4.—PALUDINA.

Found in a large jheel near Chunar.

The spire very much corroded. Colour pale olive-green. Aperture with a black horny rim. One of these produced 27, and another 87 young ones; they have the ridge and the sub-triangular aperture when young. Length from nine lines to an inch. Animal orange and black. Operc. corneous.

No. 5.—PALUDINA.

Found in the Jegu nullah at Chunar.

Shell solid and thick, pale green, interior white. Little more than an inch in length. Operc. corneous.

No. 6.—PALUDINA.

Found in a very large jhil near Chunar. Colour dark olive-green, and longitudinally striped with 10 black stripes, alternately narrow and broad. Spire corroded; margins of the mouth with a horny rim. This shell is more globular than any I have seen, belonging to the Genus Paludina. I have only two of them, and the animal is unknown to me. Operc. corneous.

No. 7.—VALVATA ?

This is the shell of which a description appeared in the 9th No. of the Journal, under the head of Notes on the Habits of the Paludina.

These shells differ much in the development of the umbilicus, some having it well defined, others having scarcely any. Operc. calcareous.

This I found at Mirzapoor, at the foot of trees, in puddles of water.

No. 8.—VALVATA ?

These I have seen in abundance on the banks of the Ganges and nullahs, but always dead and injured from exposure to the sun. The only living ones I have seen, I found at Dhuni in the Jypoor territory, under a wall enclosing one side of a dirty tank. The spire of these is not corroded like the last species, nor has it any umbilicus; aperture angular above and below. Operc. calcareous.

No. 9.—VALVATA ?

Found with No. 7, at Mirzapoor.

The aperture only *angular above*.

No umbilicus. Operculum calcareous.

No. 10.—PLANORBIS, *Corneus* ?

These may be found in almost every jheel or stagnant piece of water. Like all the fresh-water univalves, they bury themselves in the mud, as the water evaporates during the hot seasons of the year. I brought a lump of dry clay from the bed of a jheel at Mirzapoor, to Nemuch, and

having kept it for a year, I found on immersing it in water, that the shells imbedded in it, were still alive and healthy. Diameter $\frac{3}{4}$ inch.

No. 11.—VAR.? PLANORBIS.

These I brought from Mirzapoor, and have marked them as a variety, on account of their form being more regular, than the last; they were found plentifully, and may probably prove the young of Planorbis No. 10.

No. 12.—PLANORBIS.

The whorls in this species are very much flattened.—The aperture opening obliquely and oval—shell thin and diaphanous—whorls 4 or 5 in number—diameter $3\frac{1}{2}$ lines.

The exuvia common on the Ganges.—They are found in stagnant waters—more frequently in nullahs than in jheels.

No. 13.—PLANORBIS.

Animal blackish. The shell minute, of three or four whorls, which are rounded; aperture oblique; diameter about $1\frac{1}{4}$ line.

These very small shells I found during the hot winds of 1833, in the earthen pans containing the water for my tatties. They were drawn from a *well* in my compound, the bottom of which is hard trap-rock, and also from one other well near my house. How they got into these wells I cannot conceive, as there is no nullah or pond near them. They were not abundant.

No. 14.—MELANIA.

These I found on the banks of the Ganges among exuvia. They are injured by exposure to the sun. They inhabit rivers.

No. 14.

A smaller size. These appear to be the same as the foregoing. I obtained them during the hot winds, from the same *well* in which the small Planorbis, No. 13, was taken. This is a curious fact, as the bottom of the well is hard trap-rock, and unless the animals burrow into the *sides* of the well, they cannot possibly find protection at the bottom of it. In this well there is no true spring, it being supplied merely by the water soaking down from the surface during the rains.

No. 15.—MELANIA.

I have one specimen, which was given me by a friend of Mr. BENSON'S, from whom he obtained it. The epidermis is dark olive green. Shell 2 inches long. The body whorl longitudinally tuberculated.

No. 16.—MELANIA.

This species, of which I have only one specimen, is of a blackish colour. Transversely wrinkled on the whorls. Length $1\frac{1}{4}$ inch.

This I found in a nullah at Chunar, which with the exception of the rainy season, at which time it joins the Ganges, is strictly "*stagnant water.*" The animal was alive, and in soft mud.

I mention this circumstance, because Mr. BENSON has said in No. 13 of the GLANINGS IN SCIENCE, when speaking of Melaniæ, "I have never met them in jheels or standing waters, so that they may be strictly called fluviatile."

I have not yet had an opportunity of procuring any of these shells alive, from rivers: the only two living specimens in my collection were taken—the one from a muddy nullah, the other from a well.

No. 17.—LYMNEA.

Shell thin, fragile, diaphanous.

Found in abundance in the Jegu nullah at Chunar, also in most jheels.

Fresh-water Bivalves.

No. 18.—UNIO?

Found in nullahs at Chunar; also in tanks. Length of my largest specimen $2\frac{1}{2}$ inches; epidermis greenish brown; beaks decorticated. Interior, beautifully nacreous.

No. 19.—UNIO?

Found at Chunar in nullahs and tanks. Beaks decorticated; epidermis dark-brown. These shells are generally tuberculated interiorly, presenting an appearance of small pearls. The pearly texture of the interior is often coloured with a pinkish tinge.

No. 20.—UNIO?

In rivers, nullahs, and tanks. Plentiful in the Jegu nullah at Chunar. Epidermis yellowish or pale brownish green. Beaks naked. More solid than the preceding, and the interior lustre more brilliant.

No. 21.—UNIO?

Can this be the young of Unio No. 18?

I found them frequently in small pools of water, left in the hollows of sand-banks on the Ganges; they are easily traced by the tortuous furrows which they leave on the sand. They are very slight, and the interior appears to be satiny.

No. 22.—CYCLAS.

Epidermis olive-brown, and in some, of different shades of olive-green. Transversely furrowed; beaks sometimes pale purplish, sometimes decorticated.

Found in the Ganges and other rivers.

No. 23.—VAR.

Epidermis pale yellow, or dirty straw-colour.

In the Ganges at Mirzapoor.

No. 24.—VAR.

Some specimens brownish, others pale yellowish, with longitudinal rays or stripes of brown.

At Mirzapoor in the Ganges.

No. 25.—NOVACULINA GANGETICA—Benson.

Found at Mirzapoor in the Ganges.

On stormy days, I generally found plenty of them.

Note to the Editor.

These are all I have yet collected.

I have sent a few of each kind, except Nos. 10 of the Land Shells, and 6, 15, 16, and 25 of the Fresh-water Shells. Of some of those sent I have so very few that I could only spare one or two, without making my cabinet very bare. The poorness of the specimens therefore I hope you will excuse for the present, and should you not already possess sufficient, I shall have pleasure in sending more whenever lucky enough to fall in with them.

Should any part or the whole of the present communication be too trifling for the pages of your Journal, do not hesitate an instant in rejecting it. My object in writing, not being for the sake of *seeing myself in print*, but for the purpose of communicating facts, in the cause of truth.

Nemuch, 20th October, 1833.

List of Land and Fresh-water Shells.*

Land Shells.

1. Cyclostoma, (mili) torquata?
2. _____? (mili) fasciata?
3. Helix, (mili) petrosa?
4. Bulimus, acutus?
5. _____? .. (mili) gracilis?
6. Pupa, (mili) cylindrical?
7. —, (mili) cœnopicta?
8. —, (mili) bicolor?
9. Succinea? oblonga?
10. Auricula Scarabæus, Scarabæus, Lam.

Fresh-water Univalves.

1. Ampullaria,
Var. (mili) striata?
2. Paludina, Bengalensis?
3. _____,
4. _____,
5. _____,
6. _____,
7. Valvata?

8. Valvata?
9. _____?
10. Planorbis, corneus?
11. Var. _____? var.
12. _____, ... (mili) compressus.
13. _____,
14. Melania,
15. _____,
16. _____, ... (mili)
17. Lymnæa, .. limosa?

Bivalves.

18. Unio?
19. _____,
20. _____,
21. _____,
22. Cyclas,
23. _____,
24. _____,
25. Novaculina Gangetica, } Gangetica.
BENSON,

The specific names are given in my cabinet to enable me to distinguish them, and I have here inserted them, for the sake of reference should you notice them. Those marked (mili) I have myself given. The others are those of Authors, and given where I thought they belonged.

* When we are able to furnish a plate of these shells, the present figures of reference shall be preserved.—ED.

VI.—*A Catalogue of Stars to be observed with the Moon, in March and April, 1834, with the view of determining the difference of longitude of the places whereat they may be observed. By John Curnin, Esq. F.R.A.S.*

Of all the methods which have hitherto been devised for the determination of the difference of longitude of any two places on the surface of the earth, it is now agreed on, that that dependent upon the observed interval of time which elapses between the transit of the moon's limb and of a star, having the same declination as the moon, is the most accurate, certain, and expeditious.

It is the most accurate, because it involves no data but the rate at which the moon's right ascension increases in the interval between its passing over the two meridians: it is the most certain, because it can be put in practice, at least twelve times in each lunation: it is also the most expeditious, because as many stars as may be agreed upon, and as are especially fit for this purpose, may be observed at both observatories on each night; each of which, if a corresponding one has been made at the other observatory, being independent of the others, serves to give an independent estimate of the longitude.

It does not seem necessary that I should give a detailed account of this method of determining the longitude, because that has been ably done by Mr. BAILY in the Memoirs of the Astronomical Society; nor that I should insist on the accuracy and value of this method, as both seem to be attested by the fact, that for the first time a catalogue of moon-culminating stars has been inserted in the Nautical Almanac for this year: but inasmuch as I have ventured to insert some stars in the accompanying catalogue, which are expressly rejected in the report made by the Committee of the Astronomical Society, relative to the improvements to be introduced into the Nautical Almanac, I feel it necessary to insert here that portion of the report, in order that it may be compared with my reasons for deviating from its implied injunction, and which, I trust, will be deemed sufficient by resident observers in India:

“The Committee strongly recommend the insertion of the *list of moon-culminating stars*, given in the late Supplements to the Nautical Almanac, as affording one of the best modes of determining the longitude of distant places, when the navigator, furnished with a transit instrument, can obtain a landing. As it is absolutely essential, however, that *only one* list of such stars should be published for the use of navigators of all nations, and as Professor Encke proposes to discontinue his list as soon as he is assured that the British Government will permanently adopt one, the Committee trust that they may be excused for entering rather more minutely into the mode in which those stars should be selected. They recommend, therefore, that not more than four stars should be selected for one day, two of which are to

precede and two to follow the moon: that the stars thus forming each pair be chosen so as not to be very distant from each other in right ascension, and nearly midway between the right ascension of the moon at the time of her transit on two consecutive days: that the two stars chosen to follow the moon on one day be adopted as the two to precede the moon on the subsequent day: that no star be selected below the 5th, but on no account below the 6th, magnitude: that the stars so chosen should not be situated more than five degrees from the path of the moon's true orbit: and that the list should be continued through each lunation within four days of the new moon: that the apparent right ascension (in time) of the star to two places, and the mean declination of the star to the nearest minute, be given."

In the first place, those stars recommended by the council are intended for universal use, and as being the most likely to be visible in ordinary states of the weather in places having variable climates. The number of these stars seem to me to have been selected with reference to fixed observatories, wherein a few observations being made on each night of every lunation for a considerable interval of time, would eventually assign the difference of longitude between them with the utmost accuracy: whereas, those in India, with one exception, may be aptly called flying observatories. It has seemed to me to be desirable that we should be enabled to determine the difference of longitude of these, in the shortest interval of time; and therefore, for this reason, and from the consideration that the climate will interpose no serious obstacle to their being observed, I have inserted those stars which are so expressly repudiated by that report.

Another motive for forming this extended catalogue has arisen from this consideration, that those stars inserted in the Nautical Almanac have been selected with regard to observatories wherein astronomers or their assistants are expected to spend their nights, and who, therefore, are supposed to endure no pain and to forego no pleasure to be prepared to make those especial observations at all hours; whereas, with the exception already referred to, observers here have other duties of a civil, political, or military nature to fulfil, and may, therefore, however willing, be unable at all times to attend at the proper hour of the night to make those observations, and those correlative ones whereby the error of their time-pieces, and the deviation of their instruments from the meridian, may be determined.

For these reasons, and for others, which will easily suggest themselves, I have ventured to draw up the accompanying extended catalogue; but from which it will be observed, that the interval of time necessary to devote to the transit will seldom exceed one hour. If, however, gentlemen would observe those stars which are inserted in the Nautical Almanac, and which I may have omitted, they would essentially promote our geographical knowledge in India, as their observation, combined with those

which are sure to be made in Europe, would enable us to fix the longitude of places here relative to the principal observatories in Europe.

With the view of holding out every possible inducement to gentlemen to make these observations, I have inserted the apparent right ascension of the stars, although so far as this method of determining the longitude is concerned, the mean places would have answered equally well; and if inserted, would have saved me much trouble. But as gentlemen in India, for whose use this catalogue is intended, may not have accurate time-pieces, nor sufficient leisure to determine the errors of them, or the deviation of their instruments from the meridian, I have inserted a few stars which it appeared to me could be observed without in any manner trenching upon the time necessary for the other observations, and which if observed would enable us to determine the error of the time-piece and the deviation of the instrument from the meridian at the time of making these observations, and thus to render the kind of watch employed but a matter of secondary consideration.

The certainty with which the longitude can be deduced by this method appears to me so great, as to induce the conviction that many gentlemen would gladly make an extensive series of such observations, if they saw the chance of corresponding observations being made to confer a value upon their labours: and, as they may rest assured that those observations will be cheerfully made by Mr. Taylor of the Madras observatory, they will be sure of having at least one point of reference besides those which their own labours will create. With the view then of affording all the aid which circumstances at present place at my disposal, I send you the accompanying catalogue, and will continue to prepare others for circulation in succession through the same channel, till experience shall have convinced me of the propriety of discontinuing them.

I have but one more remark to make—and that is, that it appears to me to be most desirable that gentlemen should transmit their observations as they are made, which you could arrange in the form of a table, and publish for general information. In this manner all parties would be enabled to compare their own observations with those of others, and assign a cause for any anomaly which these comparisons should point out. To make these observations of permanent value, I shall, I trust, be excused for stating, that it appears to me to be very desirable that the spot whereon they are made should be more accurately defined than similar observations made in other places have hitherto been:—that, in short, an exact measurement of the distance of the observatory from some remarkable and natural objects should be given, so that the position of these, and of the observatory, should be permanently preserved.

Catalogue of Stars to be observed with the Moon in March 1834.

Mar.	Names of Stars.	Mag	Decn.	A. R.			Mar.	Names of Stars.	Mag	Decn.	A. R.		
				h.	m.	s.					h.	m.	s.
18	119 Tauri,	(5.6)	+18 27	5	22	28.02	21	63 Caneri,	6	+16 14	8	48	18.22
	121 —,	6	23 55	25	18.14	20		45	53				
	123 —,	(3.4)	21 2	27	42.68	b2 Arg. Car.		5	-58 26	55	21.29		
	125 —,	6	25 48	29	25.81	77 Caneri,		(5.6)	+22 43	59	48.57		
	α Columbæ,	2	-34 10	33	37.74	(1117)		6	21 58	9	4	7.79	
	132 Tauri,	5	+24 30	38	48.65	w Arg. Car.		5	-58 16	6	37.18		
	30 Aurigæ,	5	55 39	40	55.44	83 Caneri,		6	+18 25	9	42.75		
	136 Tauri,	(4.5)	27 34	42	52.97	(1135)		5	+82 3	12	47.20		
	β Columbæ,	3	-35 50	45	6.21	(1141)(Leo.)		7	20 31	15	25.30		
	139 Tauri,	(5.6)	+25 55	47	41.03	4 Leonis,		(4.5)	23 42	22	14.77		
	Δ 1 Limb,		23 4	49		22		8 Leonis,	(6.7)	+17 11	9	27	51.84
	141 Tauri,	6	22 30	51	39.38			h Arg. Car.	5	-58 28	29	39.47	
	2 Geminor.	(6.7)	23 39	56	40.82			16 Leonis,	6	+14 47	34	41.45	
3 —,	6	23 8	59	38.38	18 —,		6	12 35	37	26.67			
6 —,	(6.7)	22 56	6	2	14.08		φ Argus,	4	-53 45	51	4.30		
2 Lyncis,	(4.5)	59 4	4	57.34	Δ 1 Limb,			+16 54	56				
κ Columbæ,	(4.5)	-35 5	10	38.68	30 Leonis,		(3.4)	17 35	58	16.78			
13 Geminor.	3	+22 36	12	54.32	34 —,		6	14 12	10	2	42.31		
19	54 Aurigæ,	6	+28 24	29	4.31		(1220) —	6	18 35	7	13.14		
	27 Geminor.	3	25 17	33	42.41		41 —,	2	20 41	10	48.97		
	(834)	5	77 10	35	43.91		42 —,	6	15 49	12	54.74		
	α Can. Maj.	1	-16 29	37	49.73		r Arg. Car.	(4.5)	-40 47	15	14.39		
	36 Geminor.	(6.7)	+21 57	41	35.85		36 Urs. Maj.	5	+56 50	19	59.61		
	37 —,	6	25 34	45	5.21	46 Leonis,	6	15 0	23	20.56			
	Δ 1 Limb,		23 49	48		23	49 Leonis,	6	+ 9 31	10	26	19.82	
	42 Geminor.	6	24 27	52	17.25		p Arg. Vel.	5	-47 20	30	22.14		
	43 —,	4	20 49	54	15.33		37 Sextantus	6	+ 7 16	37	27.05		
	23 Can. Maj.	4	-15 23	56	14.61		μ Argus,	3	-48 31	39	39.97		
	47 Geminor.	6	+27 8	7	1		4.56	46 Leo. Min.	(4.5)	+35 7	44	1.26	
	52 —,	7	25 10	4	32.08		56 Leonis,	7	7 5	47	24.62		
	64 Aurigæ,	5	41 10	6	28.49		63 —,	(4.5)	8 15	56	27.40		
(897)	5	-44 53	8	15.31	Δ 1 Limb,			11 47	57				
20	σ Argus,	4	-42 58	7	23		57.86	52 Urs. Maj.	(3.4)	45 25	11	0	19.72
	74 Geminor.	6	+18 3	29	53.15		(1322)(Leo.)	(6.7)	8 59	5	24.56		
	77 —,	4	24 47	34	24.41		(1326) —	6	13 46	7	17.92		
	81 —,	6	18 55	36	30.14		π Centauri,	4	-53 33	13	28.94		
	82 —,	7	23 33	38	37.09		78 Leonis,	4	+11 27	15	16.47		
	83 —,	5	27 12	43	19.39	1 Draconis,	(3.4)	70 16	21	31.17			
	85 —,	(6.7)	20 20	45	58.24	1 Virginis,	(6.7)	9 4	29	54.57			
	Δ 1 Limb,		23 4	50		24	89 Leonis,	6	4 0	11	25	52.78	
	χ Argus,	3	-52 32	52	34.15		1 Virginis,	(6.7)	9 4	29	54.55		
	9 Caneri,	6	23 7	56	27.66		3 —,	(4.5)	7 28	37	20.23		
	16 Caneri,	6	18 9	8	2		41.06	Hyd. & Crat.	6	-25 48	40	21.47	
	γ 2 Argus,	2	-46 50	4	25.88		64 Urs. Maj.	2	+54 38	45	5.38		
	19 Caneri,	6	+24 33	10	39.18		(1383)	7	4 25	49	44.10		
1 Ursæ Maj.	(4.5)	61 17	16	24.35	8 Virginis,		5	7 33	52	22.79			
28 Caneri,	(6.7)	24 42	18	45.33	Δ 1 Limb,			5 47	56				
21	33 Caneri,	6	21 1	8	23		6.06	11 Virginis,	7	6 45	12	1	36.92
	39 —,	6	20 36	30	32.92		(1404) —	5	78 33	4	25.81		
	(1058) —,	7	20 28	32	17.42		4 Corvi,	3	-16 35	7	17.45		
	47 —,	(4.5)	18 46	35	14.52		16 Virginis,	(5.6)	+ 4 15	11	55.39		
	δ Argus,	3	-54 5	40	8.32		17 —,	6	6 15	14	5.79		
	(1086)(Can.)	7	+18 0	43	50.48	(1434) —,	7	5 20	19	51.62			

Catalogue of Stars to be observed with the Moon in April, 1834.

Apr.	Names of Stars.	Mag	Decn.	A. R.	Apr.	Names of Stars.	Mag	Decn.	A. R.
			° ' "	h. m. s.				° ' "	h. m. s.
17	10 Cancrī,	(6.7)	+22 4	7 57 58.66	20	4 Virginis,	(5.6)	9 11	11 39 23.09
	16 ———,	6	18 9	8 2 40.61		6 ———,	6	9 23	46 32.61
	(1013) ———,	(6.7)	21 16	10 38.79		9 ———,	(4.5)	9 40	56 45.87
	20 ———,	6	18 52	13 51.18		δ Centauri,	3	-49 46	59 49.25
	24 ———,	7	25 5	16 46.66	21	10 Virginis,	6	+ 2 51	12 1 11.54
	ε Argus,	2	-58 58	19 6.22		δ Crucis,	3	-57 48	6 22.81
	33 Cancrī,	6	+21 0	23 5.64		13 Virginis,	6	+ 0 9	10 10.53
	4 Ursæ Maj.	5	64 54	25 37.88		17 ———,	6	+ 6 15	14 5.77
	▷ 1 Limb,		22 5	29		(1434) ———,	7	+ 5 20	19 51.68
	43 Cancrī,	5	22 4	33 39.77		γ Crucis,	(2.3)	-56 9	21 54.70
	o Argus,	4	-52 19	35 32.79		▷ 1 Limb,		+ 2 48	25
	δ ———,	3	-54 5	40 7.47		(1458) Virg.	7	+ 2 47	29 55.57
	(1088) Can.	7	+17 52	46 1.15		γ 1 Virginis,	4	- 0 30	33 15.84
	69 ———,	6	25 7	53 0.93		β Crucis,	2	58 45	37 7.69
	77 ———,	(5.6)	22 43	59 48.19		37 Virginis,	6	+ 3 59	43 10.83
18	81 Cancrī,	(6.7)	+15 40	9 3 12.08		77 Urs. Maj.	3	56 52	46 43.58
	82 ———,	6	15 38	6 3.36		44 Virginis,	6	- 2 53	51 7.57
	83 ———,	6	18 25	9 42.37		14 Can. Ven.	5	+36 42	57 59.38
	ε Argus,	2	-58 33	12 37.69	22	44 Virginis,	6	- 2 53	12 51 7.57
	(1441) Can.	7	20 31	15 24.87		48 ———,	6	- 2 44	55 22.22
	4 Leonis,	(4.5)	23 42	22 14.35		14 Can. Ven.	5	+36 42	57 59.38
	N Arg. in Car	5	-56 17	26 10.17		51 Virginis,	(4.5)	- 4 37	13 1 22.37
	▷ 1 Limb,		+18 55	29		ε Centauri,	3	-35 48	11 19.53
	(1173) Leo.	7	20 57	34 4.15		66 Virginis,	6	- 4 16	15 55.95
	20 ———,	7	21 58	40 32.10		▷ 1 Limb,		- 3 33	22
	φ Argus,	4	-53 45	51 3.58		79 Virginis,	4	+ 0 16	26 15.58
	(1200) (Leo.)	7	+12 26	55 14.76		ε Centauri,	3	-52 35	29 27.90
	30 Leonis,	(3.4)	17 35	58 16.50		82 Virginis,	(5.6)	- 7 50	32 55.44
19	32 Leonis,	1	+12 47	9 59 31.62		1 Centauri,	5	-32 10	36 18.90
	34 ———,	6	14 12	10 2 42.07		μ Centauri,	4	-41 37	39 40.69
	37 ———,	6	14 34	7 46.21		3 ———,	(4.5)	-32 8	42 18.32
	42 ———,	6	15 49	12 54.47		10 Draconis,	(4.5)	+65 33	46 36.04
	r Arg. in Vel.	(4.5)	-40 47	15 14.00		93 Virginis,	(4.5)	+ 2 22	53 13.24
	45 Leonis,	6	+10 37	18 52.98		11 Draconis,	(3.4)	+65 11	59 56.46
	46 ———,	6	15 0	23 20.33		99 Virginis,	4	- 5 11	14 7 20.19
	▷ 1 Limb,		14 30	28		10 Draconis,	(4.5)	+65 33	13 46 36.74
	p Arg. in Vel.	5	-47 20	30 21.72	23	v 2 Centauri,	5	-44 46	51 26.24
	52 Leonis,	6	+15 5	37 37.65		(1601) Virg.	7	- 8 26	55 35.61
	53 ———,	6	11 26	40 31.99		94 ———,	6	- 8 4	57 31.80
	v Arg. Car.	5	-57 57	46 49.26		96 ———,	(6.7)	- 9 31	14 0 11.31
	α Ursæ Maj.	2	+62 39	53 26.64		98 ———,	4	- 9 28	3 44.19
	63 Leonis,	(4.5)	8 15	56 37.25		16 Bootis,	1	+20 4	8 6.42
	70 ———,	3	16 21	11 5 31.66		100 Virginis,	4	-12 34	10 9.29
20	63 Leonis,	(4.5)	+ 8 15	10 56 27.25		2 Libræ,	6	-10 55	14 30.59
	52 Urs. Maj.	(3.4)	45 25	11 0 19.45		▷ 1 Limb,		- 9 43	20
	(1322) Leo.	(6.7)	8 59	5 24.43		27 Bootis,	(3.4)	+39 3	25 24.93
	77 Leonis,	4	6 57	12 34.77		(1651) (Lib.)	(6.7)	-11 34	28 13.63
	78 ———,	4	+11 27	11 15 16.36		α Lupi,	3	-46 39	30 58.12
	1 Draconis,	(3.4)	70 16	21 31.21		34 Bootis,	(4.5)	+27 15	36 8.33
	19 Hyd. Crat.	4	-30 55	24 51.45		7 Libræ,	(5.6)	-13 26	40 14.83
	▷ 1 Limb,		+ 8 58	27		13 ———,	6	-11 11	45 23.54
	1 Virginis,	(6.7)	9 4	29 54.49		β Lupi,	(3.4)	-42 26	47 43.47
	2 ———,	5	9 12	36 43.40		18 Libræ,	7	-10 27	49 56.54

VII.—Miscellaneous

Anniversary Meeting of the Royal Asiatic Society, Saturday, 11th May, 1833.

The Report of the Proceedings of the Tenth Annual Meeting of this prosperous Institution has just reached us, and we hasten to put our readers in possession of such parts of it as must be interesting to those engaged in kindred researches and pursuits in the country whence the literary food of all Asiatic Societies is alike provided. The proceedings themselves are as usual on such occasions but a string of unanimous thanks for services, great or small, rendered during the past year. We are sorry to see that Mr. GRAVES C. HAUGHTON had been obliged to resign the office of Secretary, from ill health; he has been succeeded by Captain HENRY HARKNESS. The Right Honorable C. W. W. WYNN continues to be President, and Lieut.-Col. J. TOD, Librarian.

Economy has been the standing order in the financial department, not without good effect, since a debt of £160 has been cleared, and a balance accumulated of nearly £400 from the contributions of the year, after a payment of £300 for printing, and £900 for house rent, taxes, and establishment.

The Society has 232 paying members, at 2 and 3 guineas per annum; it admitted 23 new members in 1833, paying five-guinea admission fees. We observe among the sources of income a yearly donation of one hundred guineas from the Court of Directors, besides many valuable presents, and a hundred pounds from the Oriental Translation Fund:—a lamentable contrast all this to the state of things in the parent Society of Bengal, which has received, at least in these latter days, but little indeed of the fostering aid and patronage either of the local Government or of the Honorable Court; and has itself subscribed (from the contributions of only about fifty paying members) a hundred pounds yearly to the Translation Fund; and yet cannot even attempt to print a volume in promotion of the professed objects of that useful institution on the responsibility of a resident committee of the fund! We remark that the composition for the subscription of an elected resident member of the Royal Asiatic Society is thirty guineas, and for a non-resident, twenty: the same scale might, we think, be advantageously adopted into our own rules.

There is another new rule equally worthy of imitation; namely, “that the resignation of no member shall be received until he has sent in a written declaration, and has paid up all his arrears of subscription.”

We remark with pleasure the acknowledgment of several literary contributions from native corresponding members in the Madras presidency, the result we would hope of the extension of English education in the peninsula: the same good effect is already visible in our own pages, and it is a part of our ambition, as it is of the Royal Asiatic Society, “to become an active and useful instrument in calling forth the great but almost dormant talents of the natives of India. It is by urging the singularly intellectual races of that country to make known through themselves the result of their ancient and steady civilization, that it hopes to make manifest to the philosophic inquirer into human nature the character of the remarkable and interesting people who have not merely been the authors of their own improvement, but who have steadily preserved, by the force of primeval institutions, their sacred language, their literature, and their laws, in spite of the anarchy and misrule consequent on the invasions of many barbarous nations by which they have been either subjugated, or their country laid desolate.”

The obituary list of 1832 is of melancholy extent, it comprises many of the élite of the Orientalists of Europe: their memory and their achievements belong to India, and we cannot render a pleasanter service than in extracting at length from

the Report before us, the epitome of the deeds of those among them who were the most conspicuous for their learning and talent ; passing by such names as the Raja of Tanjore, whose merits, however great, were those of a patron rather than a labourer in the field of Oriental research.

“ Dr. ADAM CLARKE was born in the county of Derry, in Ireland, about the year 1760, and commenced his studies as a minister in the Wesleyan connection, at the age of eighteen. It was not till long after this period that his attention was turned to the study of Oriental literature ; but he eventually acquired a profound knowledge of the Hebrew language and its sister dialects, ample proof of which is afforded by his highly esteemed commentaries on the Old and New Testaments. This was his principal work, and it extended to eight volumes quarto. Another work of great research and value has been published since the death of Dr. CLARKE, with a continuation by his son, the Rev. J. B. B. CLARKE, containing a view of the succession of sacred literature, from the invention of alphabetical characters to the year 1300.

“ On the return of Sir A. JOHNSTON from Ceylon, in the beginning of 1818, he brought with him two young priests of Budd’ha, who were anxious to increase their knowledge by a visit to England ; and on their arrival in this country, they were placed by that gentleman under the care of Dr. CLARKE, who had very liberally offered to receive them. They remained with him for two years, when they returned to their native country.

“ The life of Dr. ADAM CLARKE has been so fully detailed in the auto-biography which has been recently laid before the public, that it is unnecessary to dwell more particularly on it in this place. He continued attached to the study of Oriental literature to the latest years of his life, which was brought to a termination in the autumn of last year, by an attack of cholera.

“ As Secretary to the Madras Auxiliary Society, the connexion of Mr. JAMES LUSHINGTON with this body was of an intimate and important character. When, on the arrival of the late Governor of Madras at that Presidency, he proceeded forthwith to carry into effect the suggestions with which he had been furnished by this Society for the re-organization of the Literary Society of Madras, his private secretary and second son, the subject of this notice, was selected for the situation of Secretary to the Asiatic department of the Institution ; and the manner in which the duties of that office were performed amply proved the propriety of the choice. To the possession of talents of no common order, he united great industry and zeal. The active share he took in the promotion of an object which this society had much at heart, namely, the continuation and completion of the Historical and Antiquarian researches of the late Colonel MACKENZIE, cannot easily be forgotten ; and the Council has to regret that by his death an interruption has occurred in the prosecution of this design. He expired at Laulpettah, near Vellore, on the 12th of September 1832, after a tedious and painful illness, at the early age of twenty-eight years.

“ The late Lieutenant-Colonel JOHN BAILLIE entered the service of the Honourable the East-India Company in the year 1790, and arrived in India in 1791. He applied himself with great diligence to the study of the learned languages of the East ; as a proof of which, it may be mentioned, that in the year 1797, at the desire of the then Governor-General, (Sir JOHN SUORE, now Lord Teignmouth,) he undertook the translation from the Arabic of a copious digest of Muhammedan Law, so arranged as to comprise the whole of the Imamea code, as applicable to secular matters. This work it was originally contemplated would extend to four volumes in quarto, but of these the first only was ever published, and that without the preliminary discourse or table of contents. It comprehends only the laws of commercial transactions.

“ On the establishment of the College of Fort William, Colonel BAILLIE was appointed professor of the Arabic and Persian languages and of Muhammedan Law, a post which he filled with high credit until the year 1807, when he was appointed resident at the court of the NAWAB VIZIR of Oude, in place of Colonel COLLINS. During the period

of his professorship, Colonel BAILLIE was twice called into active service as political agent to the Governor General in Bundelkhand, and for the zeal and ability displayed by him in this capacity, he was honoured with the public thanks of the Government. In the year 1801, he published a series of sixty tables, elucidatory of the first part of his course of lectures at the college, on the inflexions of Arabic grammar; and in 1802, he published the two first volumes of his edition of the original texts of the five most esteemed works on Arabic grammar, namely, the *Miut Amil*; *Shurhu Miut Amil*; *Misbah*; *Hedayet un Nuhvi*; and the *Kafeca of Ebn Hajeb*. In consequence of his employment in Bundelkhand, the work was not completed till 1803; and his intention of publishing an English version of the third volume, and indeed all further literary exertion, appears to have been put a stop to by his appointment to Lucknow, where he remained till 1815. In 1818, he retired from the service, and in 1823, succeeded the late Mr. COTTON as a Director of the East-India Company.

“M. ABEL REMUSAT was born at Paris on the 5th of September, 1788, and was consequently in his fifty-fourth year at the time of his death. He was originally designed for the medical profession, and applied himself successfully to the requisite studies; but at the same time he indulged in a taste for Oriental literature, and selected as his principal object of pursuit in this direction the almost inaccessible language of China. He was unassisted in this task either by grammars or dictionaries, for none at that period existed in print; yet, in spite of this disadvantage, he persevered, and succeeded in overcoming the difficulties opposed to his progress; for it was not until after he had published his *Essays on the Chinese Language and Literature*, that he became possessed of the *Dictionarium Latino-Sinicum*, in manuscript, of the French Mission at Peking. The talents thus signally displayed at this early age by M. REMUSAT secured him exemption from the law of conscription, so rigidly enforced throughout the French empire. In connection with the Chinese, M. REMUSAT studied the Mandchu and Tibetan languages; and when in the year 1814, at the suggestion of the BARON DE SACY, two professorships were founded in the Royal College of France, for the more effectual cultivation of the Sanscrit and Chinese languages, M. REMUSAT was nominated to fill the latter, and this honourable post he maintained till the period of his decease. In 1820, he published the first volume of his *Recherches sur les Langues Tartares*, a work in which the literature of these nations is ably discussed. The sequel to this work, intended to contain the original texts of which translations had appeared in the first volume, has never been published. In 1822, he produced his *Grammar of the Chinese Language*: a work arranged in a lucid and methodical manner, which has reflected high credit on his abilities and acquirements. M. REMUSAT contributed many papers of value to the *Memoirs of the Academy of Inscriptions*; and the notices of and extracts from the *Oriental MSS.* in the *Bibliothèque du Roi*. A few years back, he published his translation of the Chinese novel entitled *Yukiao-li*; or, the *Two Fair Cousins*. He has left behind him three important works in MS., two of which, however, are unfinished: one of these is a *Philosophical Dictionary of the Budd'hist Religion*, translated from one published at Peking, in Sanscrit, Tibetan, Mandchu, Mongol, and Chinese: the second is a translation of the *Travels of the two Chinese Priests of Budd'ha*, in Tartary, India, and Persia, which he had undertaken to prepare for publication by the *Oriental Translation Fund of Great Britain and Ireland*, when death, from a disease in the stomach, intervened, and prevented the fulfilment of this intention. The third is an account of the *Natural History of the eastern countries of Asia*; and in this laborious enterprise he was to have been assisted by the powerful aid of the first naturalists of France, and indeed of Europe, for among them may be recorded the names of CUVIER, BROWN, CORREA DE SERRA, PETIT THOUARS, JUSSIEU, VALENCIENNES, &c. &c.

“On the retirement of the venerable and illustrious BARON DE SACY from the President's chair of the Asiatic Society at Paris, he was succeeded by M. REMUSAT, who retained it until his decease; and the BARON DE SACY has since resumed the office thus left vacant, at the earnest solicitation of the Society.

M. REMUSAT possessed a mind of the highest order. Every thing he produced was done with facility, and was remarkable for its luminous and profound character. His loss cannot easily be supplied, and Oriental literature will long have reason to deplore the untimely death which carried him off, when his judgment and acquirements might be supposed to have only just reached their highest maturity.

“One of the most illustrious scholars reared under the auspices of M. REMUSAT was JEAN ST. MARTIN, who, from an attack of cholera, followed his former master to the tomb at the brief interval of thirty-seven days.

“While ABEL REMUSAT devoted himself to the investigation of the philosophy, history, antiquities, and natural history of China, Tibet, and in general of all those countries where Budd’hism and Chinese manners prevail, ST. MARTIN occupied himself with researches into the ancient history of Persia and the adjacent countries. He had for this purpose studied particularly the Semitic family of languages, the difficult idiom of Armenia, and the Zend and Pahlavi. The extent and value of his investigations may be judged of from the *Memoirs on Armenia*, which he published in two volumes: they are full of erudite and ingenious matter, and their appearance fully established his character as an Oriental scholar and critical antiquary.

“The chronology of ancient nations was his favourite object of study, and he aimed at elevating it to the rank of one of the exact sciences. Unfortunately but few of his works in this path are printed, and the same remark applies to several valuable essays on the ancient history of Africa, and other subjects, which were read before the *Académie des Inscriptions*. In February, 1822, he published his opinion, that the Egyptian tablet, generally known under the name of the Zodiac of Dendera, was a work of comparatively modern date, and but few months had elapsed when the discoveries of Champollion proved it to be even more recent than the era assigned to it by M. ST. MARTIN, the monument itself, with the other erections of Esne and Dendera, being referable to the reign of the Emperor Claudius.

“To M. ST. MARTIN must be attributed the suggestion of an archæological journey into the East, which was subsequently undertaken by that able and lamented scholar, Dr. SCHULTZ, at the expense of the French Government. His design was to collect Zend and Pahlavi MSS., antiquities, and medals, and to make fac-similes of all the cuneiform inscriptions. The specimens he had succeeded in obtaining previous to the melancholy termination of his existence by assassination were placed in the hands of M. ST. MARTIN, and enabled him to complete an alphabet of the cuneiform character, published a few months before his decease, by M. KLAPROTH, in his “*APERCU des diverses Ecritures*,” &c. Besides the literary labours noticed above, and many others which the Council is precluded from mentioning here, M. ST. MARTIN was the principal conductor of the journal published by the Asiatic Society at Paris; and to his care and exertions its high character, as a repository of Oriental literature, must be in a great measure ascribed. In conclusion, it may be said of M. ST. MARTIN, that he was not less respected for his strict integrity and ardent adherence to truth, than admired for the composure of his mind under the trials of adversity.

“Scarcely had the dreadful scourge which had spread from Asia to Europe removed ST. MARTIN, ere it struck another eminent Orientalist, of whom France might be justly proud; in the latter end of the month of August, M. ANTOINE LEONARD CHEZY fell its victim in the sixtieth year of his age. To Monsieur DE CHEZY belongs the glory of having attempted and succeeded in laying open the rich stores of Sanscrit literature, at a period when no assistance was to be derived from grammars, or even the communications of others who had been tempted to explore the same path. Before the studies of Mr. WILKINS and Sir WILLIAM JONES were known in Europe, M. DE CHEZY had penetrated, with no other key than the imperfect outlines of P. de ST. FRANCIS BARTHELEMY, into the closed portals of Brahminical lore. The principal work which he has left behind him, is an edition and translation of the well-known Sanscrit drama entitled *Sacountala*. A short time before his death he finished transcribing another called the *Dhourtta Samâgana*; the MS. of which is in the hands of the BARON DE SACY, and will probably be printed. An analysis of the celebrated

poem of the *Rámáyana* is also spoken of as having been prepared by him : this, with a small essay on the theory of the *Slóca*, or Sanscrit heroic metre, comprises his principal productions. He also published the poem of *MEJNOON* and *LEILA*, from the Persian, which was remarkable for the elegance of his diction ; and in 1831 an abstract and translation of the century of erotic verses by the poet *AMRU*. That the productions of his intense and unremitting study were not more numerous is deeply to be regretted, and must be ascribed to the unfortunate state of his health for many years, exasperated by the occurrence of some mortifying circumstances. *M. CHEZY* was remarkable for the amiability and gentle playfulness of his disposition, qualities which ensured him the devoted attachment of his friends and pupils.

“The two professorships left vacant by the death of *MM. REMUSAT* and *CHEZY* have been filled by *M. JULIEN* and *M. BURNOUF*. Both these able scholars are foreign members of this Society, and would satisfy every wish that could be formed for these important chairs being worthily filled, if we could forget the rare endowments of the eminent men whose loss we have had to deplore.

“At the general meeting of the Society, held on the 1st of December, a donation of an edition of the *Fables of LOCMAN*, and two small works on the language of Iceland, was laid on the table from Professor *EMANUEL RASK* ; and it was then announced, there was reason to fear, that the highly distinguished scholar from whom they were received had died since he had despatched them to this country. This intelligence was shortly afterwards confirmed ; and in the death of Professor *RASK* the study of Oriental literature has lost one of its most able and indefatigable adherents. The peculiar branch of research to which he had devoted himself rendered his investigations particularly interesting ; and his numerous publications illustrative of the languages and literature of the ancient inhabitants of Northern Europe, combined with the knowledge which he had acquired of the most important languages and literary antiquities of the East, fully attest his qualifications for the task of comparing, showing their agreement and distinction, and illustrating them.

“Among his numerous philological works may be mentioned grammars of the Italian, Spanish, Anglo-Saxon, and Icelandic languages, treatises on the Phonics of India, and the Literals of Europe ; tracts on the Zend language and the Zend Avesta, and many others.

“In the course of the session of 1832, a communication addressed by Professor *RASK* to the Bombay Literary Society, containing his remarks on the last-mentioned subject, was read before this Society, and has been ordered to be inserted in the Transactions.

“Professor *RASK* was remarkable for the facility he evinced in the acquisition of different languages. In the year 1822, it is stated that he was acquainted with no less than twenty-five. His knowledge of English was extensive and correct. He spent some years on a literary mission in Persia, India, and Ceylon, where he procured many valuable manuscripts, and acquired much sound information on those points to which his attention was more especially directed. From his temperate habits of life, approaching indeed to abstemiousness, the vicissitudes of climate and season had no apparent effect on his frame, and he gave promise of many years’ continuance in his favorite pursuits, when the insidious effects of consumption prematurely terminated his useful and laborious career. His mild and gentle manners endeared him to his friends and acquaintance ; and he combined, with an extent of acquirements not often equalled, a remarkable diffidence and modesty.

“Professor *RASK* was keeper of the Oriental MSS. in the Royal Library at Copenhagen, and had recently been appointed a commissioner to prepare measures for the amelioration of the condition of the Danish colonies in Guiana. He was elected a Foreign Member of the Royal Asiatic Society in the year 1826.”

Dr. ALEXANDER TURNBULL CHRISTIE, and *M. VICTOR JACQUEMONT* are also honorably mentioned in the Report ; but we observe nothing more than is already known to our readers in the sketch of their career.

Meteorological Register, kept at the Assay Office, Calcutta, for the month of February, 1834.

Day of the Month	Barometer reduced to 32° Fahr.				Thermometer in the Air.				Depression of Moist-bulb Thermometer.				Hair Hygrometer.		Wind.		Rain.		Weather.		
	At 4 A.M.	At 10 A.M.	At 4 P.M.	At 10 P.M.	Minimum	At 4 A.M.	At 10 A.M.	Max. by Reg. Therm.	At 4 P.M.	At 10 P.M.	At 4 A.M.	At 4 P.M.	At 10 P.M.	At 10 A.M.	At 4 P.M.	Morning.	Noon.	Inches.	Morning.	Noon.	Evening.
1	.942	.921	.834	.844	.681	72.8	83.7	79.5	71.3	71.1	4.2	8.6	2.3	97	92	clear.	cumuli.		clear.	cumuli.	Evening.
2	.917	.934	.943	.966	67.5	73.0	85.2	76.2	70.0	1.7	10.2	14.1	6.9	83	73	do	clear.		do	clear.	
3	.956	.115	.956	.958	61.2	70.3	82.7	74.8	67.4	6.2	11.7	13.6	10.6	78	70	do	do		do	do	
4	.969	.965	.977	.956	62.0	71.2	83.2	75.4	70.8	5.9	12.0	13.6	10.0	84	76	do	cumuli.		do	clear.	
5	.924	.900	.964	.904	64.0	72.0	83.5	76.4	67.8	3.7	9.5	12.2	5.7	82	82	do	do		do	do	
6	.946	.932	.965	.927	61.2	71.2	85.7	74.4	66.3	4.6	10.4	14.8	11.5	85	73	do	do		do	do	
7	.962	.930	.927	.966	61.6	68.4	87.1	74.9	66.2	4.6	9.1	14.1	5.9	85	76	do	do		do	do	
8	.926	.904	.849	.943	63.2	71.3	84.2	76.0	69.3	3.5	9.6	12.1	5.2	92	84	do	do		do	do	
9	.903	.862	.837	.853	63.1	73.6	85.7	77.5	73.0	3.1	7.4	10.1	3.5	97	90	do	cumuli.		do	do	
10	.942	.930	.870	.921	68.2	75.8	86.1	78.8	72.4	1.8	5.6	7.3	1.9	98	93	do	do		do	do	
11	.920	.968	.847	.919	68.2	75.5	88.1	79.3	75.0	0.4	3.5	6.3	5.5	97	91	do	nist. cl.		do	do	
12	.903	.970	.814	.918	70.2	77.2	88.2	81.3	72.0	0.7	4.4	8.3	6.0	91	89	do	clear.		do	clear.	
13	.965	.954	.854	.882	76.5	74.4	79.0	77.2	68.3	2.5	8.0	10.4	4.5	93	87	do	cum. str.		do	overcast.	
14	.931	.991	.885	.910	66.0	72.7	66.2	73.0	63.2	2.8	6.5	6.3	4.2	95	94	do	cum. str.		do	cloudy.	
15	.872	.847	.845	.829	62.3	70.9	79.8	74.3	67.8	0.3	4.9	10.9	6.0	83	83	do	hard rain.		do	rainy.	
16	.914	.947	.945	.911	62.0	71.1	78.4	72.2	66.2	7.0	3.9	11.7	7.5	82	75	do	clear.		do	clear.	
17	.903	.963	.892	.932	61.0	71.0	80.0	73.1	69.0	3.9	9.9	13.0	9.0	93	71	do	do		do	do	
18	.914	.944	.892	.928	64.1	72.4	83.0	76.2	69.8	4.0	7.4	11.7	7.8	96	81	do	do		do	do	
19	.779	.868	.742	.821	65.1	72.4	90.3	77.9	72.1	4.1	5.8	12.8	9.2	92	77	do	do		do	do	
20	.830	.847	.742	.860	64.8	74.8	86.1	78.3	70.1	2.8	6.9	15.4	7.1	88	72	do	do		do	do	
21	.830	.917	.862	.891	65.4	74.8	88.2	81.6	75.5	4.3	8.3	16.9	11.3	83	69	do	do		do	foggy.	
22	.862	.954	.828	.876	70.1	77.2	89.1	81.0	74.4	3.6	11.2	13.9	7.7	92	77	do	do		do	clear.	
23	.831	.900	.775	.834	67.8	75.4	83.7	79.8	73.2	3.8	3.9	12.3	3.6	91	73	do	do		do	do	
24	.869	.831	.756	.865	72.5	77.5	91.1	81.8	78.0	1.1	2.7	13.5	2.0	95	72	do	mist do		do	do	
25	.848	.884	.898	.884	72.1	78.8	88.2	82.2	74.1	0.3	4.6	9.8	6.7	93	87	do	mist cl.		do	mist.	
26	.965	.968	.960	.904	73.2	79.3	94.1	81.5	76.2	6.2	6.2	8.9	6.9	95	88	do	cum. cirrus		do	clear.	
27	.943	.924	.850	.883	72.6	79.6	79.5	78.6	71.1	2.1	5.1	6.1	3.6	90	79	do	overcast		do	rain. cl.	
28	.831	.880	.780	.800	67.2	75.1	73.0	82.4	71.0	1.1	6.5	11.8	4.8	90	79	do	clear.		do	clear.	
Mean, 29.903	.952	.864	.919	.865	74.0	84.7	77.3	70.6	3.3	7.3	11.6	6.2	90	81	0.41	gentle and variable.		pleasant weather.			

The instruments for 10 A. M. and 4 P. M. are suspended in the free air of the Laboratory, those for 4 A. M. and 10 P. M. in the south veranda of a third story near the cathedral. The register thermometer for extrics is also in the same veranda.

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